

# A Circular Economy – An Attractive Challenge

DAVORIN KRALJ<sup>1</sup> MARKO TRAMŠEK<sup>2</sup>, MARKO HOMŠAK<sup>2</sup>,

Institute for Creative Management, Na gricu 47, 2000 Maribor, SLOVENIA<sup>1</sup>  
 Talum Inštitut d.o.o., Tovarniška cesta 10, SI-2325 Kidričevo, SLOVENIJA<sup>2</sup>  
 Talum d.d., Tovarniška cesta 10, SI-2325 Kidričevo, SLOVENIJA<sup>2</sup>

davorin.kralj@amis.net<sup>1</sup>, marko.tramsek@talum.si<sup>2</sup>, marko.homsak@talum.si<sup>2</sup>,

*Abstract:* - There is no doubt about sustainable environmental future and environmental excellence. A circular economy shows the right direction. From a business perspective, ongoing change may be the greatest opportunity of the twenty-first century. The further development of circular economy is going to play a crucial role in stimulating and favouring the implementation of circular economy by enterprises and long-term consequences of sustainability aimed at long-term efficiency and effectiveness of the company's business and environmental activities and excellence. The European Commission adopted an ambitious Circular Economy Package, which includes revised legislative proposals on waste to stimulate Europe's transition towards a circular economy which will boost global competitiveness, foster sustainable economic growth and generate new jobs. The circular economy rests on three principles, each addressing several of the resource and system challenges that industrial economies faces. Circular Economy and Environmental Excellence mean more than corporate responsibility; it is now a priority issue that global business needs to integrate into its green business policy and strategy. A circular economy is restorative and regenerative by design, and aims to keep products, components, and materials at their highest utility and value at all times. The concept distinguishes between technical and biological cycles. The reflection included interdisciplinary thinking which enables us to understand and manage the process of circular economy in terms of sustainable development.

*Key-Words:* Business, Circular Economy, Environment, Excellence, Management, Organization Model

## 1 Introduction

What is a green business? A business functioning in a capacity where no negative impact is made on the local or global environment, the community, or the economy. A green business will also engage in forward-thinking policies for environmental concerns and policies affecting human rights [1]. What is a circular economy? A circular economy is one that is restorative and regenerative by design, and which aims to keep products, components and materials at their highest utility and value at all times, distinguishing between technical and biological cycles [2]. We need to combine green business with green economy in a way to achieve environmental business excellence. Green businesses adopt principles, policies and practices that improve the quality of life for their customers, employees, communities, and the planet.

What do green businesses have in common? Green businesses are socially and environmentally responsible. Green companies adopt principles and practices that protect people and the planet. They challenge themselves to bring the goals of social and economic justice, environmental sustainability, as well as community health and development, into all of their activities — from production and supply chain management to employee relations and customer service. They create jobs that empower workers and honor their humanity. They also serve as models for the role businesses can play in the transformation of our society to one that is socially just and environmentally sustainable [3]. Today's linear 'take, make, dispose' economic model relies on large quantities of cheap, easily accessible materials and energy, and is a model that is reaching its physical limits. A circular economy is an attractive and viable alternative that businesses have already started

exploring today [2]. A circular economy is restorative and regenerative by design, and aims to keep products, components, and materials at their highest utility and value at all times. The concept distinguishes between technical and biological cycles. As envisioned by the originators, a circular economy is a continuous positive development cycle that preserves and enhances natural capital, optimises resource yields, and minimises system risks by managing finite stocks and renewable flows. It works effectively at every scale [2]. The successful green business development with circular economy and implementation of green innovation in an organizational system can produce a significant saving in the amount of business and environment resources and therefore a smaller environmental impact. [4]. We need integrated system approach of green business, circular economy and excellence. Indeed circular economy represents an attractive challenge.

## 2 An EU action plan for the Circular Economy

The European Commission adopted an ambitious Circular Economy Package, which includes revised legislative proposals on waste to stimulate Europe's transition towards a circular economy which will boost global competitiveness, foster sustainable economic growth and generate new jobs [5]. The Circular Economy Package consists of an EU Action Plan for the Circular Economy that establishes a concrete and ambitious programme of action, with measures covering the whole cycle: from production and consumption to waste management and the market for secondary raw materials. The annex to the action plan sets out the timeline when the actions will be completed[5]. The proposed actions will contribute to "closing the loop" of product lifecycles through greater recycling and re-use, and bring benefits for both the environment and the economy. The revised legislative proposals on waste set clear targets for reduction of waste and establish an ambitious and credible long-term path for waste management and recycling [5]. Key elements of the revised waste proposal include:

- A common EU target for recycling 65% of municipal waste by 2030;
- A common EU target for recycling 75% of packaging waste by 2030;

- A binding landfill target to reduce landfill to maximum of 10% of municipal waste by 2030;
- A ban on landfilling of separately collected waste;
- Promotion of economic instruments to discourage landfilling ;
- Simplified and improved definitions and harmonised calculation methods for recycling rates throughout the EU;
- Concrete measures to promote re-use and stimulate industrial symbiosis - turning one industry's by-product into another industry's raw material;
- Economic incentives for producers to put greener products on the market and support recovery and recycling schemes (eg for packaging, batteries, electric and electronic equipments, vehicles) [5].

The Circular economy offers an opportunity to reinvent our economy, making it more sustainable and competitive. This will bring benefits for European businesses, industries, and citizens alike. With this new plan to make Europe's economy cleaner and more competitive, the Commission is delivering ambitious measures to cut resource use, reduce waste and boost recycling [5]. There's a world of opportunity to re-think and re-design the way we make stuff. 'Re-Thinking Progress' explores how through a change in perspective we can re-design the way our economy works - designing products that can be 'made to be made again' and powering the system with renewable energy. It questions whether with creativity and innovation we can build a restorative economy [2].

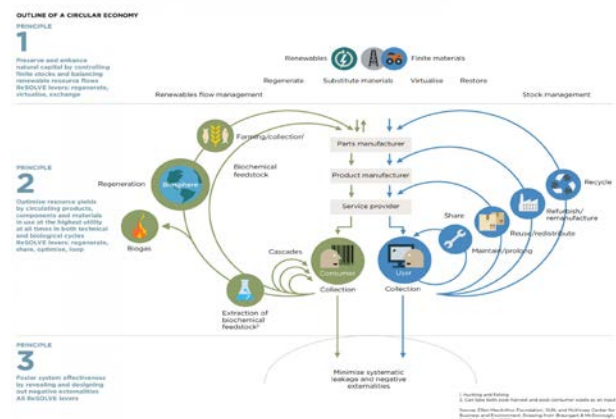


Figure 1: Circular Economy System Diagram [2].

### 3 Environmental Business Excellence involves Circular Economy

Environmental Business Excellence is based on philosophy of Circular Economy. Moving towards a more circular economy is essential to deliver the resource efficiency agenda established under the Europe 2020 Strategy for smart, sustainable and inclusive growth. Higher and sustained improvements of resource efficiency performance are within reach and can bring major economic benefits. Circular economy systems keep the added value in products for as long as possible and eliminate waste. They keep resources within the economy when a product has reached the end of its life, so that they can be productively used again and again and hence create further value. Transition to a more circular economy requires changes throughout value chains, from product design to new business and market models, from new ways of turning waste into a resource to new modes of consumer behaviour. This implies full systemic change, and innovation not only in technologies, but also in organisation, society, finance methods and policies. Even in a highly circular economy there will remain some element of linearity as virgin resources are required and residual waste is disposed of [6]. In order to boost the economic, social and environmental benefits gained from the better management of enterprises. The EFQM Excellence Model provides a framework that encourages the cooperation, collaboration and innovation that we will need to ensure this goal is achieved. [7]." The EFQM Excellence Model is a non-prescriptive business excellence framework for organizational management systems, promoted by EFQM (formerly known as the European Foundation for Quality Management) and designed for helping organizations in their drive towards being more competitive [4]. This is realised through a set of three integrated components which comprise the EFQM Excellence Model : The Fundamental Concepts of Excellence, the Model Criteria and the RADAR Logic. At the highest level Radar logic states that an organisation should:

- Determine the Results it is aiming to achieve as part of its strategy.
- Plan and develop an integrated set of sound Approaches to deliver the required results both now and in the future.
- Deploy the approaches in a systematic way to ensure implementation.

- Assess and Refine the deployed approaches based on monitoring and analysis of the results achieved and on-going learning activities.

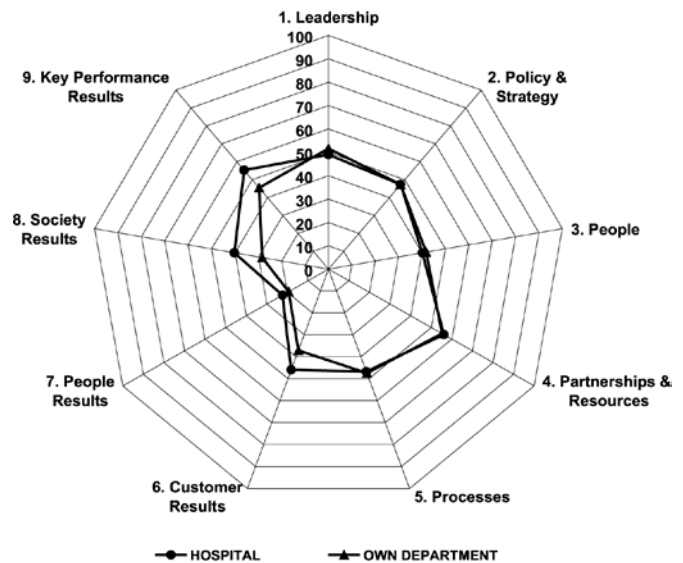


Figure 2: EFQM Radar Logic [4].

We believe that the EFQM Model is a common framework that helps us all to improve our green businesses and circular economy. And also offer approaches to help organisations on their journey to sustainability. Business and consumers remain the key actors in the transition to a more circular economy. Upstream and downstream decisions in the value chain need to be better connected, providing coherent incentives between producers, investors, distributors, consumers and recyclers, and ensuring a fair distribution of costs and benefits. Market mechanisms need to be employed to ensure the most efficient allocation and use of resources, and where there are market failures or innovation bottlenecks, these must be addressed. Functioning secondary materials markets need to be developed. Particular attention should be paid to enabling entrepreneurs to tap into potential new markets linked to circular economy, and to ensuring that the necessary skills base is available in the labour market. Consumers should be empowered to make informed choices through better information on green credentials of different products [6].

The environmental management model consists of 5 phases (execution is added as a separate phase). Each of 5 phases is further divided into specific approaches (steps) that must be carried out systematically and implemented in a manner that takes into account all of

the organization's stakeholders. The specific approaches are listed as follows [10].

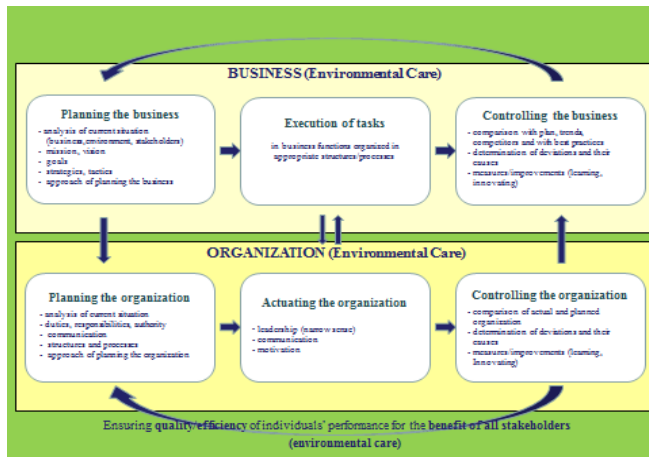


Figure 4: Environmental Management Model [10].

### 3.1 Planning the environmental business excellence

The environmental management model searching sustainable business excellence includes the following approaches for planning the sustainable business excellence.

#### 3.2 Planning the organization

The phase of planning the organization is, alongside the phases of actuating the organization and controlling the organization, one of the key parts differentiating the proposed model from the existing models. In this part the planned sustainable (energy efficiency) business excellence of the organization as a whole is adapted to the individual level (employee or other kind of stakeholder). This part is essential for effective and efficient implementation.

- Adopts the plan before the beginning of the period for which it refers to.

#### 3.3 Actuating the organization

The key task of the managers within this phase is to recruit, introduce, allocate, develop, motivate and lead the employees as well as to communicate with them. In like manner they should also interact with other stakeholders. The actuating the (energy efficiency) organization phase is crucial, yet is often not thoroughly enough understood and the phases of management process are not executed sufficiently

systematically and consistently. The environmental management model includes the following approaches for actuating the organization:

- Human resources management. The organization as a social unit defines the processes of:
  - Recruiting and selection of new employees with adequate competences (knowledge, abilities, personal and social characteristics);
  - Introducing new employees via mentorship (also in case of allocation and/or advancement);
  - Education and training in order to introduce, motivate and retain good workers – specialists as well as managers;
  - Knowledge management (planning, organizing and controlling the activities, connected with knowledge) – for employees and other stakeholders;
  - Moving the employees to other jobs or into other organizational units inside the organization as well as external fluctuation – leaving the company or pensioning off;
  - Decentralization of HRM functions – from the personnel department to leaders.
- Leading in narrower sense. The organization as a social unit defines the processes of:
  - Influencing on employees and other stakeholders by leaders, taking into account the principles of direction towards the people, leading by example and accessibility of leaders;
  - Including the employees and other stakeholders (in planning, projects, participation at conferences etc.);
  - Stimulating the employees and other stakeholders to inclusion, learning and giving the proposals for improvements as well as to planning, execution and control of improvements;
  - Stimulating and supporting the teamwork and the exchange of best environmental practices within the organization and with the stakeholders;
  - Execution of personal evaluation / personal development interviews with employees and of processes to take measures on the basis of identified improvement opportunities.
- Communication. The organization as a social unit defines:
  - The processes of communicating the environmental mission, vision and values of the social unit to all stakeholders;
  - The processes of communicating the environmental goals, strategies/tactics to employees;

- The system of communicating/reporting in support of the execution;
  - The system of conflict management;
  - The culture of open formal and informal communication in all directions of the organizational structure.
- d. Motivation. The organization as a social unit defines the system of:
- Motivating and rewarding for all groups of stakeholders so that the reward is tied to responsibility;
  - Sanctions for not attaining the goals, not respecting the rules and agreements (known in advance and consistently executed);
  - Material rewards for proposals for environmental improvements and innovations of employees;
  - Non-material rewards for proposals for environmental improvements and innovations of employees (selecting the best employee, the best team etc.);
  - Performance appraisal of employees and appraisal of leaders with the aim to improve their competences;
  - Safe and pleasant working conditions, considering equal opportunities and support of employees when balancing professional and private life;
  - Leaders' support for execution of tasks and attaining the goals with the aim of assuring a pleasant atmosphere, trust and commitment of employees;
  - Employee satisfaction surveys and other methods of gathering feedback from employees and measures on the basis of identified weaknesses as well as the control of executed measures.

### 3.4 Controlling the organization

The socially responsible and environmental management model includes the following approaches for controlling the organization:

- a. The organization checks the real duties, responsibilities, authorities, communication, structures and processes and compares them to those planned.
- b. The organization looks for deviations between planned and actual duties, responsibilities, authorities, communication, structures and processes and tries to identify the causes.
- c. In order to eliminate the deviations of the actual compared to planned, the organization takes

measures – and introduces changes on the basis of facts (improvements, innovations).

### 3.5 Controlling/checking the sustainable business excellence

The controlling/checking of (energy efficiency) business phase is the last phase of the management process. The sustainable (energy efficiency) business excellence and environmental management model includes the following approaches for controlling/checking the business:

- a. The organization tracks what was planned in the (energy efficiency) planning the business phase (environmental mission, vision, goals, strategies, tactics).
- b. The organization designs the (energy efficiency) system (i.e. standardized method) of:
  - Comparison of actual (energy efficiency) results with the planned ones, comparison with trends and results of competitors and with other best environmental excellence practices;
  - Determining the deviations between actual (energy efficiency) and planned situation and causes.
- c. The organization designs the (energy efficiency) processes to introduce the measures to implement change (improvements, innovations).

### 3.6 Execution of tasks - operations

The phases of planning the sustainable (energy efficiency) business excellence as well as planning and actuating the organization are followed by the execution of tasks on the basis of business functions or other forms of organizational unit. The tasks have to be executed in accordance with adequate structures/processes, through which the organization performs and achieves results. Besides the basic business functions (purchase, finance, 'manufacturing', HRM, sales etc.) that are directly connected to the organization's core business, there are also some other supportive functions that have to be executed, such as R&D, accounting, safety, logistics, legal affairs, investments, etc.

The environmental management model searching sustainable business excellence includes the following approaches for execution, which is not a sequential phase of management but is tightly connected with all five phases of the environmental management process:

- a. The organization defines the systems of:
  - Managing relations with existing stakeholders and developing new partnerships, joint introduction of

- improvements, recognizing and rewarding the contribution to the common success;
- Customer relations management (planned communications (web pages, e-mail, annual reports, brochures, press conferences, customer counselors)), customer support, care for service quality as the duty of each employee, accessibility of services, responsiveness to demand and complaints, stimulation of creativity and innovation in customer relations);
- Efficient change management.
- b. The organization develops its image to gain higher recognition and a better sustainable excellence image in public.
- c. The organization disseminates best sustainable (energy efficiency) excellence practices from specific area of organization to other parts or to other organizations.
- d. The organization actively contributes to the development of sustainable (energy efficiency) excellence society, taking into account the rights and interests of future generation [10].

#### **4 Sustainable ways of Waste Management**

Europe has made substantial progress in turning waste into a resource and promoting sustainable ways of waste management such as recycling. However, performance varies considerably between Member States. Six have already effectively eliminated the landfilling of municipal waste, reducing it from 90 % to less than 5 % in the past 20 years and reaching recycling rates of 85 % in certain regions. In others over 90 % of waste is still landfilled and less than 5 % is recycled [6]. Strong policy signals are needed to create longer-term predictability for investment and change so that materials, such as plastics, glass, metals, paper, wood, rubber and other recyclables, re-enter the economy as secondary raw materials at competitive prices.

In order to boost the economic, social and environmental benefits gained from the better management of municipal waste, the Commission proposes to:

- boost reuse and recycling of municipal waste to a minimum of 70% by 2030;
- increase the recycling rate for packaging waste to 80% by 2030, with interim targets of 60% by 2020 and 70% by 2025, including targets for specific materials;

- ban the landfilling of recyclable plastics, metals, glass, paper and cardboard, and biodegradable waste by 2025, while Member States should endeavour to virtually eliminate landfill by 2030 [6];
- further promote the development of markets for high quality secondary raw materials, including through evaluating the added value of end-of-waste criteria for specific materials; and
- clarify the calculation method for recycled materials in order to ensure a high recycling quality level [6].

#### **5 Maribor Wcycle – example how circular economy works in practice**

Tailor-made approaches are needed to address particular waste challenges related to significant loss of resources or environmental impacts. Waste prevention: As a first priority affecting all the phases in a circular economy, it should be ensured that less waste is generated. Waste prevention programmes have recently been adopted by the Member States, as required by the Waste Framework Directive, and are currently reviewed by the European Environment Agency. Following their assessment, the Commission will develop initiatives promoting good practices in waste prevention in the EU [6]. Maribor case has been shown in Brussels at European Week of Regions and Cities on October 2016. By adopting the Circular Economy Package in December 2015, Europe recognised the need to build its competitiveness and growth on a stronger and more circular economy where resources are used in a sustainable way. Regions and cities have the important task of adopting policies and strategies and organising circular economy models in regions and cities in order to promote sustainable growth and competitiveness. The debate was focused on regional models and practices promoting the transition to a circular economy that should cover the full lifecycle: from production and consumption of waste, to waste management and the market for secondary raw materials. Target audience - EU, national, regional and local policy/decision makers - Authorities managing and evaluating cohesion policy programmes and projects - Other stakeholders: private companies, financial institutions, European and national associations - Academics, students and researchers [11].



## Project Objectives:



Figure 5: Where we are [11].

Wcycle is a strategic development project of the Municipality of Maribor in the field of integrated management of all waste generated in the region on the basis of circular economy policy, energy and water management and the use of processed waste as a new resource. The city does not have a landfill site and does not want to have one, it also does not want to dispose of the waste by incineration. All types of waste resulting from population, utilities, construction, industry, agriculture and water management are to be included in the process of recovery. The advantage of processing is the material recovery – recycling, followed by use and lastly, production of new composites [13].

## Basis for the Project and the Organizational Model:

- The city does not have a landfill site and does not want to have one, also does not want to dispose waste of by incineration
- In the process of recovery are to be included all types of waste resulting from the population, utilities, construction, industry, agriculture and water management
- The advantage of processing is the material recovery - recycling, followed by use in energy and, as a last, production of new composites
- Recovery operators for specific project pillars are the companies owned by the municipality, which are already carrying out public services, the responsible for softer contents (sharing, repair, reuse, self-supply) is the municipality
- New recovery capacities are planned preferentially planned in the areas of degraded municipal land with the aim for their sustainable management and revitalization [11].

1. Transition into Circular Economy and EU goals:
  - By 2030, recycle 70% of municipal waste and 80% of packaging waste
  - From 2025, prohibited the dumping of waste, which can be recycled, in landfills
  - By 2025, reducing marine waste and food waste by 30%
  - Improving the traceability of hazardous waste
  - By 2030, increasing the resources productivity by 15%
2. Strategic objectives of the project:
  - Reducing environmental burden
  - Reducing the use of natural resources
  - Increasing the use of recovered materials, energy and water
  - Creating new mostly green jobs
  - Creating added value and economic growth
  - Use of new technologies, and our own research and development [11].

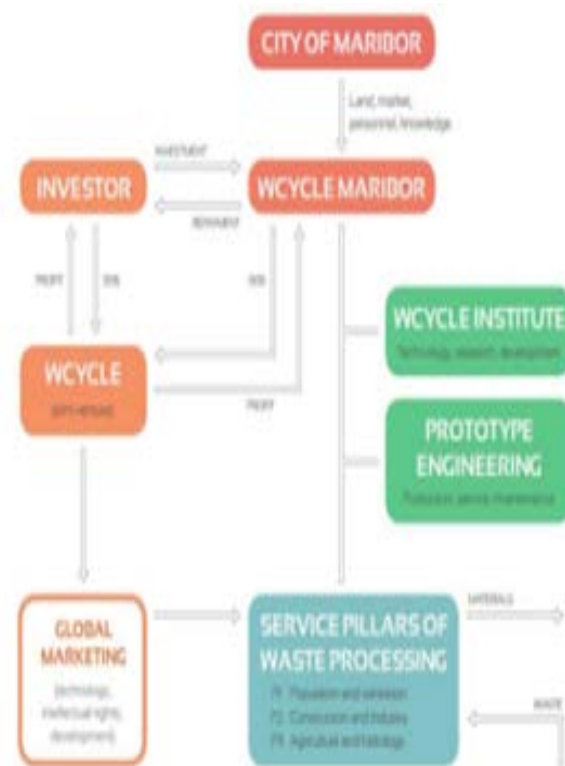


Figure 6: Approach [13].

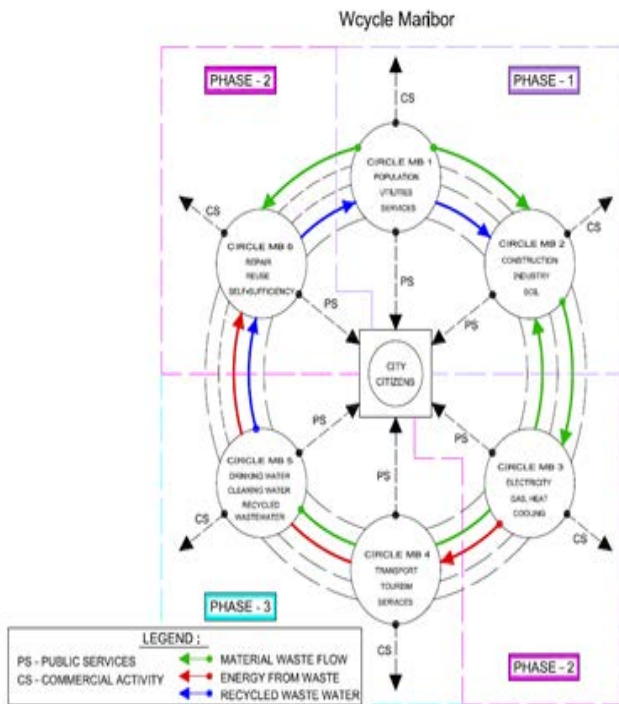


Figure 8: Presentation of the Phase A and B locations

## 6 Conclusion

We often talk about it, and in general we feel we're doing an excellent job, but what is Excellence? Excellence is more than just doing well, or being good. Excellence is when people strive to be the best they can be and this applies to organisations as well... [14] [15].

Circular Economy presents an attractive opportunity:

- Waste management due to new requirements of environmental legislation and the lack of appropriate solutions is becoming a major global business opportunity
- The city of Maribor is setting high goals in the area of processing waste from all sources of their generation, which it wishes to achieve through the construction and operation of the pilot plant for processing waste Wcycle Maribor
- Production operating companies for different service pillars are the companies mainly owned by the Municipality, which are the blood vessels of the city and which are obliged to carry out their public services for citizens and to provide the highest quality conditions of their residence and living in an urban area in general [12].

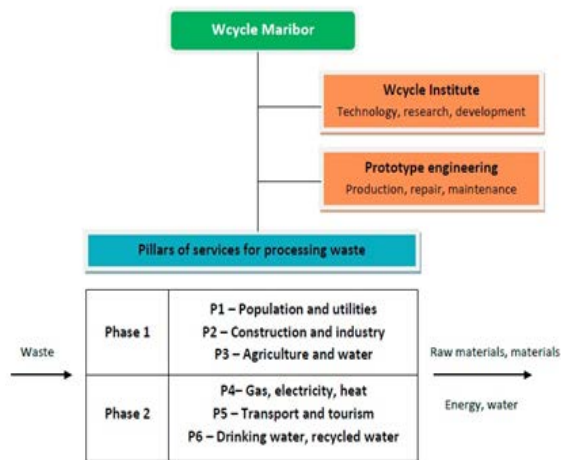


Figure 7: Wycle Maribor [12].

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