

# Values created by circular solutions in the buildings sector for companies and municipalities as key actors

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**Abstract:** A circular economy is considered a tool aimed at eliminating or reducing waste and emissions, leading to improved energy- and resource-efficiency of people's activity in the socio-economic life. However, introducing circular solutions in the buildings sector requires a new approach, what can be perceived as difficult, not convenient or too complicated, as "traditional" solutions seem to be easier. The main aim of this paper is to examine, what kind of different values consulting companies can create for their customers in the buildings sector thanks to circular solutions, and what ways are appropriate to show benefits to the customers and make them aware of new values.

*Keywords:* circular economy, buildings sector, values, benefits, companies, municipalities  
JEL: Q01, Q2, Q3, Q4, Q5

## 1. Introduction

This is the second paper presenting findings and conclusions from research conducted in the autumn 2015 in the Netherlands during a science and research internship in an international consulting company involved in sustainable development in many different sectors. The main aim of the second paper is to examine, what kind of different values consulting companies can create for their customers in the buildings sector thanks to circular solutions, and what ways are appropriate to show benefits to the customers and make them aware of new values.

The same as in the first paper (Paradowska 2016), the author used data and information from both primary and secondary sources. The paper is based on a review of existing publications

and on information received from interviews with representatives of an international consulting company interested in introducing circular solutions in their consultancy services in the buildings sector. In the first paper, the author provided a detailed definition and a description of the concept of a circular economy. There were basic assumptions and considerations elaborated regarding the implementation of circular products in the buildings sector. In this paper, main focus is on values created thanks to circular solutions in the buildings sector for two types of customers – companies and municipalities.

## **2. Benefits for customers – values created by a circular economy in the buildings sector for companies and municipalities**

There are a lot of direct and indirect benefits resulting from the implementation of the principles of a circular economy in the buildings sector. Although it seems that most of the benefits regard the environmental and social sphere (the whole society / humanity gains thanks to a better access to non-renewable resources or thanks to less waste and pollution), there are particular profits for actors involved in construction (renewal), operating and use of buildings with meeting the requirements of a circular economy. Direct benefits depend on the profile of actors and their key motives, as well as on a destination of a building. Table 1 presents examples of key motives for a company and for a municipality, as they are the two significant actors and customers in the buildings sector.

In reality, motives and goals of companies or municipalities don't have to be analogous to these presented in Table 1. Changes in surroundings of a company as well as environmental and social challenges resulting from unsustainable linear models sometimes cause, that environmental concerns have much in common with increase in sales volume, e.g. due to the public opinion. Moreover, improved quality of life resulting from less pollution can make a municipality more popular and really loved by future electors.

Some key direct and indirect values created thanks to circular solutions in the buildings sector are presented below with reference to both companies and municipalities.

Table 1. Examples of motives – comparison between a company and a municipality

	<b>A company</b>	<b>A municipality</b>
<i>Examples of motives (goals)</i>	<ul style="list-style-type: none"> <li>• Profit (sales volume / sales revenue) maximisation,</li> <li>• Increase in market share,</li> <li>• Increase in shareholder value,</li> <li>• Survival on the market,</li> <li>• Ethical goals (environmental concerns; involvement in solving social problems; fair competition),</li> <li>• Set of different objectives (a “compromise” – satisficing).</li> </ul>	<ul style="list-style-type: none"> <li>• Maximisation of the satisfaction of inhabitants, as well as organisations and companies located in the region,</li> <li>• Fulfilling municipal responsibilities in the best way,</li> <li>• Improving the standard of living (job creation, public services etc.),</li> <li>• Improving the investment climate,</li> <li>• Reduction in negative externalities, improving the quality of environment,</li> <li>• Increase in popularity, re-election.</li> </ul>
<i>The most common hierarchy of values</i>	“Private” values have the highest priority	“Public” values have the highest priority

Source: author’s own elaboration.

## 2.1. Direct and indirect benefits for a company

Direct benefits of implementation of the concept of a circular economy in the buildings sector are divided between constructors, operators (administrators) and users of circular buildings (as well as other actors not included in Table 2). Moreover, they can shift between different actors within the supply chain. Table 2 presents key values created by the way of a circular approach in the buildings sector with the main benefits for different beneficiaries. These values are a kind of a deeper view of general benefits, which are often cited in the literature. For example, TBT (2014: 10) indicates the following opportunities resulting from a circular economy for businesses:

- a new value proposition,
- more intense customer relations,
- new business models,
- increased efficiency,
- market innovation,
- stronger position in product chain,
- risk reduction.

However, gaining these benefits is dependent on different factors, and it's not sure if they will appear or how big they will be. Similarly, e.g. WBCSD (2011) lists several advantages of using the concept of a circular economy in businesses with no detailed explanation how (and to what extent) they could be achieved:

- fuelling top-line growth and productivity,
- assuring continuity of supply,
- creating new markets,
- adding value to customers and consumers,

optimizing energy consumption and reducing waste.

Although most of companies are lively interested in their economic conditions, development and survival (including gaining better competitive advantage and market expansion) are mostly at the first place in the long run. For this reason, a special approach can be necessary to show real values and benefits resulting from a circular economy in the building sector to different companies. This approach can consist of two main phases: (i) presenting the general need of transition to a circular economy, including incoming law regulations for companies in the EU (European Commission 2016); (ii) presenting direct and indirect benefits to a company. At the second stage a "typical" hierarchy of values can be applied, i.e. first economic savings can be elaborated and indirect benefits can be listed in the last part of the presentation. However, a deeper investigation of the needs of a company can play a crucial role, as many companies are searching for different solutions that would bring them other values than costs savings in the short or medium time, for example, a better brand recognition due to concerns for environment. Table 3 presents examples of key reasons for companies to involve in a circular economy, which can be used in the first phase of a special approach mentioned above.

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Table 2. Direct and direct benefits of circular solutions in the buildings sector for a company

Outcome	Direct benefits	Values created in different areas <sup>a</sup>			Beneficiaries				
		Economic	Social	Environmental	Constructor	Owner <sup>b</sup>	Operator <sup>b</sup>	User <sup>b</sup>	
<b>Resource – efficiency</b>	Raw materials and building materials savings in the construction phase (depending on the technologies used, share of recycled buildings materials used etc.)	Possible money savings in the construction phase <sup>1</sup> .	More resources available for current and future generations. Smaller consequences of negative externalities resulting from e.g. resource extraction and waste generation.	Smaller environmental impact due to e.g. smaller quantities of raw materials extracted, different resources used, greywater generated etc. Less pollution (resulting e.g. from smaller quantities of raw materials extracted and building materials manufactured). Reduction in the land used for landfilling. Smaller pressure on ecosystems.	X Suppliers				
	Energy and water savings in the operational phase	Money savings due to lower costs in the operational phase (including better performance of wiring and plumbing in the building).						X	X
	Smaller quantities of waste generated during each phase of a buildings life-cycle	Money savings due to smaller costs of waste treatment, landfilling etc.						X	X
	Smaller quantities of resources needed in the maintenance and refurbishment phase	Money savings due to lower frequency of refurbishments, smaller amount of building materials used for it etc.						X	X

<sup>1</sup> Recent reports show that the costs of constructing a “green” or “sustainable” building doesn’t have to be bigger than the costs of constructing a “traditional” one. Much savings can be achieved thanks to a deeper approach in the design phase (see e.g. World Green Building Council 2013, CB RICHARD ELLIS and EMEA RESEARCH 2009, K-12 Public Schools et al 2003). It is possible that sustainable and circular construction technologies will become cheaper while getting more and more popular due to better commercialisation. However, re-using buildings and recycling waste from building materials are often still more expensive than extracting new raw materials and manufacturing new building materials (see e.g. ABN AMRO 2014).

<b>Increased property values</b>	Increased long-term value of the building	Increased value of assets improved longevity of assets. Increased return on investment. Better risk mitigation in terms of across a building portfolio.	Improved longevity of buildings available for different social purposes, no need of buildings' renewal, no landscape degradation etc.		X	X		
<b>Decreased infrastructure strain</b>	Resource and money savings due to better performance of infrastructure and lower frequencies of its renovation	Money (and resource) savings resulting from better performance of the infrastructure.	Better performance of the infrastructure leads to a better quality of life.			X	X	X
<b>Including other sustainable solutions<sup>c</sup></b>	Improved Employee Attendance Increased Employee Productivity Sales Improvements	Money savings / increased sales revenues resulting from better productivity and attendance of employees.	Better quality of life resulting from better health conditions (indoor environmental quality).			X	X	X
<b>Indirect benefits</b>		Better company performance (household performance) due to money savings, more competitive advantage.	Improved company image / brand perception due to environmental and social concern. Possibilities to get some awards for circular / sustainable solutions (so called "The Circulars").		X	X	X	X
		Increased value for customers (e.g. due to money savings resulting from resource efficiency, leasing instead of buying, or for customers with environmental / social concerns).			X	X	X	X
		Networks creation with all benefits resulting from that, including gaining new, trustful partners (lower transaction costs due to trust creation).		X	X	X	X	
		Becoming a leader in solutions based on the circular economy (the earlier the company starts the more likelihood to become a leader).		X	X	X	X	

<sup>a</sup> red font – direct savings for a company / user; orange – possible savings for a company / user; green – indirect benefits which are expected to lead to direct benefits in the form of increased economic profits

<sup>b</sup> depending on who is the owner, operator and user (it can be one company or three different cooperating companies; a family could be also the user)

<sup>c</sup> benefits for a company / user when other sustainable solutions are implemented (e.g. natural light, ventilation systems etc.)

Source: own elaboration, partially based on The City of Bloomington; The Green Market Oracle 2010; World Green Building Council 2013).

Table 3. Basic reasons for companies to involve in a circular economy

Reasons / needs	Explanation / examples
Environmental challenges, Social needs	Usually not the most important for a company, but these are still the primary reasons for implementing a circular economy.
Transition to a circular economy in the real sphere	<ul style="list-style-type: none"> <li>- new regulations supporting or imposing circular solutions on both the European (European Commission 2015) and national levels,</li> <li>- new start-ups, innovations, companies becoming leaders and creating networks, <ul style="list-style-type: none"> <li>o not a separated market but transition of existing markets (real competition),</li> <li>o delays in implementation of circular solutions mean staying behind the competitors as well as exclusion from networks being developed now,</li> </ul> </li> <li>- being a successful and / or leading company requires implementation of circular solutions now,</li> <li>- corporate / social responsibility becomes more and more important for different partners in supply chains (especially for consumers) and impacts brands' and companies' image.</li> </ul>

Source: author's own elaboration.

While showing direct and indirect values created by circular solutions in the building sector to companies, an important thing is to investigate, what kind of benefits can be created by solutions applied in particular projects and what kind of benefits are interesting for particular companies. For example, Benli et al. (2015) indicates the following benefits resulting from a circular office:

- “Financial
  - o Savings on new materials, e.g. renovating ceiling tiles costs half as much as purchasing new ones.
  - o Savings on landfill and associated transport costs, e.g. landfill costs can be around \$120 per tonne for general construction waste.
  - o Generating value from waste streams where possible, e.g. selling unwanted office furniture.
- Environmental
  - o Reducing the need for virgin material, putting less strain on the Earth's resources, both from a raw materials and an energy perspective.
  - o Reducing transport costs, since the more in-situ materials that are used the less will need to be transported to site.
  - o Minimising waste volumes. It is estimated that construction and demolition waste accounts for approximately 50% of all waste generated in New Zealand.

- Social
  - Assisting charitable organisations via product and materials donations from the refurbishment, which they can distribute to those in need.
  - Creating jobs via stimulating supply and demand for re-purposed materials”.

However, in the opinion of the author, in general, the majority of benefits appear in the “social” and “environmental” sphere and on the level of societies and communities, mostly due to positive externalities. For this reason, the EU underlines the need of value creation across Europe (European Commission 2015). Probably, benefits on the level of individuals / particular business entities will be more and more visible and significant along with progress in creating and implementing regulations regarding the circular economy.

Shifts in value creation in the whole supply / value chains play a significant role as well. Although companies can be mostly interested in their own benefits, benefits created for their customers or suppliers can be of great importance as well, as companies are becoming a good partner, who is worth to cooperate with. A good option can be developing own indicators within a newly set-up networks to measure the progress towards a circular economy, and to show benefits more precisely to the other partners in logistic chains. A question is, what kind of indicators would be good to measure benefits and to be shown to the other partners.

## **2.2. Direct and indirect benefits for a municipality**

There are even more benefits created by a circular economy in buildings for municipalities than for companies or households. This is because municipalities gain, if the socio-economic situation of households and business entities is being improved. Since circular solutions in the buildings sector can lead to a kind of multiple effects boosting the economy and improving the quality of life, they can be considered a contribution to the development (see Table 4). Of course, the range of positive effects can be different, dependent on the type of solutions etc., but this is still a movement towards a circular economy and at the same time to sustainable development.

On the other hand, municipalities benefit because of improved attractiveness of a city / region for inhabitants, SMSEs and big investors, better image of a city / region etc. Thus, many direct and indirect values in various spheres are created (see Table 4).

In many publications the need for the shift towards a circular economy is stressed by the way of showing value created in the long period, but mostly in terms of Europe or the EU (due to some estimations made by the EU). Depending on the type of customers (different organisations, local or regional governments), it may help to present them values listed e.g. in Ellen MacArthur Foundation (2012: 64-76) or in TNO (2013a: 49-57, 2013b).

### 3. Conclusion

Circular economy, aimed at eliminating waste and reducing emissions resulting from all phases of a product's lifecycle, or – in other words – at improved energy- and resource-efficiency, seems to be a necessary step towards (more) sustainable development. Different solutions, invented and / or implemented in the buildings sector, can lead to multiple, various benefits for different actors involved in buildings' lifecycles. Moreover, consulting companies, offering their consultancy services in the buildings sector can play significant role in the process of making circular solutions more popular and required. First of all, they can make different actors aware of direct and indirect benefits and values created thanks to these solutions. However, consulting companies interested in introducing circular solutions in the buildings sector should focus not only on showing different values, which can be created by a circular economy, but as well as on values created by themselves for their customers in the process of shifting towards a circular economy. Summarising, the offer for customers could be constructed by answering the following questions:

- Why is it beneficially for a customer to implement circular solutions in the buildings sector? (Focus on the needs for circularity with examples of indirect and general benefits resulting from that, e.g. brand image.)
- What kind of precise benefits will a customer gain? (Focus on direct benefits.)
- In what way can a customer achieve their goals thanks to the benefits resulting from circular solutions?
- Why are consulting companies key partners for a customer?

Table 4. Direct and indirect benefits for municipalities due to circular solutions in the buildings sector

Outcome	Direct benefits	Direct and indirect values created in different areas		
		Economic	Social	Environmental
Resource – efficiency & reduction in waste and greywater generation	Resource efficiency in each phase of a buildings lifecycle Smaller quantities of waste and greywater generated during each phase of a buildings life-cycle	<p>Lower operational costs of public service buildings (schools, administration, hospitals etc.).</p> <p>Higher consumer demand in different sectors due to lower costs of use of households for inhabitants (higher disposable income) → better opportunities for setting up a new business / locate a company in a city / region due to higher demand → higher revenues from taxes → better opportunities for the overall development.</p> <p>Lower costs of wastewater treatment, waste landfilling etc. in the long run.</p> <p>Improved attractiveness of a city / region for inhabitants and investors / companies due to i.a. lower operational costs of buildings, but also environmental and social concerns of a municipality.</p> <p>Better access to resources in the long run due to developed recycling infrastructure as well as resource – efficient building technologies.</p> <p>Better performance of different companies due to lower operational costs (but also higher values of properties etc. – see Table 7), better resilience of companies.</p> <p>Successful creation of image of municipalities (a city / region friendly for inhabitants, companies and environment).</p> <p>Opportunity to create new job places (however, there will be probably a shift: job creation in some sectors, businesses, job losses in another).</p>	<p>Better quality of life due to:</p> <ul style="list-style-type: none"> <li>- Higher disposable income of households (access to more / better products and services),</li> <li>- Better quality of environment,</li> <li>- Living in a more attractive city / region,</li> <li>- Better opportunities to find a job,</li> <li>- Better public services (higher revenues from taxes),</li> <li>- Better health,</li> <li>- Etc.</li> </ul>	<p>Smaller environmental impact due to e.g. smaller quantities of raw materials extracted, different resources used, greywater and waste generated etc.</p> <p>Less pollution.</p> <p>Reduction in the land used for landfilling.</p> <p>Smaller pressure on ecosystems.</p>

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Decreased infrastructure strain	Resource and money savings due to better performance of infrastructure and lower frequencies of infrastructure renovation	Money (and resource) savings resulting from better performance of the infrastructure. Successful creation of image of municipalities (efficient and effective).	Better performance of the infrastructure leads to a better quality of life → improved image and attractiveness of a city / region for new inhabitants and companies	
Improved cooperation with different local and regional actors in the buildings sector	Network developing	Lower transaction costs of different actions taken at the level of municipalities due to developed relations with regular partners (development of trust). Better opportunities to find a good and “viable” location for new companies = gaining new actors in the local business sphere and communities. Improved experience in the circular buildings sector enables it to be a good and trustful partner for new actors and stakeholders (a kind of leadership among municipalities). It’s easier to create new solutions which are interesting and effective for all parties within developed networks (lower costs of negotiations, better commitment between partners). Successful creation of image of municipalities (cooperative, taking care of different needs of different actors).	A feeling of being a partner for municipalities → increased local identity → improved involvement in local affairs → better quality of life etc.	
When combined with circular solutions in other sectors, multiple benefits are created, including all dimensions of successful and efficient urban planning.				

Source: author’s own elaboration

Similarly, as in the case of companies, the meaning of benefits for municipalities can differ depending on locally-specific conditions and needs. The offer for municipalities can be developed by answering the following questions:

- Why is it beneficially for a municipality to implement circular solutions in the buildings sector? (Focus on the needs for circularity with examples of indirect and general benefits resulting from that, e.g. fitting to current policy trends)
- What kind of precise benefits will a municipality gain? (Focus on direct and indirect benefits, as indirect benefits will lead to direct advantages for a city / region, and in turn for municipalities)
- In what way can a municipality achieve their goals thanks to the benefits resulting from the circular buildings solutions?
- Why are consulting companies key partners for a municipality?

## **Bibliography**

ABN AMRO (2014), Circular construction. The foundation under a renewed sector, <http://www.circle-economy.com/wp-content/uploads/2015/03/Circular-Construction-The-foundation-under-a-renewed-sector.pdf> [14.10.2015].

Benli A. et al. (2015), Circular Economy Model Office Guide. The what, why and how of designing out waste in office refurbishments and builds, <http://sustainable.org.nz/wp-content/uploads/2015/06/Circular-Economy-Model-Office-Guide.pdf> [7.10.2015].

CB RICHARD ELLIS; EMEA RESEARCH (2009), Who pays for green? The economics of sustainable buildings, [http://portal.cbre.eu/uk\\_en/imgs\\_styles/emea\\_economics\\_of\\_sustainable\\_building2009.pdf](http://portal.cbre.eu/uk_en/imgs_styles/emea_economics_of_sustainable_building2009.pdf) [16.10.2015].

Ellen MacArthur Foundation (2012), Towards the Circular Economy Vol. 1: an economic and business rationale for an accelerated transition, <http://www.ellenmacarthurfoundation.org/publications> [30.09.2015].

European Commission (2015), COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Closing the loop - An EU action plan for the Circular Economy. COM/2015/0614 final.

European Commission (2016), Circular Economy Strategy, [http://ec.europa.eu/environment/circular-economy/index\\_en.htm](http://ec.europa.eu/environment/circular-economy/index_en.htm) [5.07.2016].

K-12 Public Schools, Research Laboratories, Public Libraries, Multi-family Affordable Housing (2003), Managing the Cost of Green Buildings, <http://www.usgbc.org/Docs/Archive/General/Docs5049.pdf> [16.10.2015].

Paradowska M. (2016), Basic assumptions for introducing circular solutions in the buildings sector, "Central and Eastern European Journal of Management and Economics", Vol. 4, No. 2, pp. 145-169.

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TBT (2014), De Circulaire economie: trends & ontwikkelingen bij het MKB. Cited by: Government of the Netherlands. Knowledge Map Circular Economy.

The City of Bloomington, Green buildings benefits, <https://bloomington.in.gov/green-building-benefits> [15.10.2015].

The Green Market Oracle (2010), Green building economic benefits, <http://www.thegreenmarketoracle.com/2010/09/green-buildings-economic-benefits.html> [15.10.2015].

TNO (The Netherlands Organisation for Applied Scientific Research) (2013a), Opportunities for a circular economy in the Netherlands, <https://www.government.nl/documents/reports/2013/10/04/opportunities-for-a-circular-economy-in-the-netherlands> [5.10.2015].

TNO (The Netherlands Organisation for Applied Scientific Research) (2013b), A potential of a circular economy in the Netherlands. A TNO summary report, [http://www.duurzaamaandeel.nl/website/var/assets/public/publications/themas/biodiversiteit-milieu/tno\\_summary\\_report\\_circular\\_economy.pdf](http://www.duurzaamaandeel.nl/website/var/assets/public/publications/themas/biodiversiteit-milieu/tno_summary_report_circular_economy.pdf) [20.10.2015].

WBCSD (2011), Collaboration, innovation, transformation Ideas and inspiration to accelerate sustainable growth - A value chain approach, <http://www.wbcsd.org/Pages/EDocument/EDocumentDetails.aspx?ID=14257> [16.10.2015].

World Green Building Council (2013), The business case for green building. A Review of the Costs and Benefits for Developers, Investors and Occupants, [http://www.worldgbc.org/files/1513/6608/0674/Business\\_Case\\_For\\_Green\\_Building\\_Report\\_WEB\\_2013-04-11.pdf](http://www.worldgbc.org/files/1513/6608/0674/Business_Case_For_Green_Building_Report_WEB_2013-04-11.pdf) [15.10.2015].

### ***Wartości kreowane przez rozwiązania oparte na gospodarce o obiegu zamkniętym w sektorze budownictwa dla przedsiębiorstw i władz lokalnych***

#### ***Streszczenie:***

Gospodarka o obiegu zamkniętym uznawana jest za narzędzie na rzecz eliminacji lub ograniczenia odpadów i emisji, co ma prowadzić do poprawy wydajności zużycia energii i surowców podczas aktywności ludzi w życiu społeczno-gospodarczym. Jednak wdrażanie rozwiązań opartych na gospodarce o obiegu zamkniętym w sektorze budownictwa wymaga nowego podejścia, co może być postrzegane jako trudne, niewygodne lub zbyt skomplikowane, ponieważ „tradycyjne” rozwiązania wydają się łatwiejsze. Głównym celem artykułu jest określenie, jakie wartości mogą być wykreowane przez firmy doradcze dla ich klientów w sektorze budownictwa dzięki rozwiązaniom opartym na gospodarce o obiegu zamkniętym, a także, jakie sposoby prezentowania tych wartości i uświadamiania ich klientom są odpowiednie.

***Słowa kluczowe:*** gospodarka o obiegu zamkniętym, sektor budownictwa, wartości, korzyści, przedsiębiorstwa, władze lokalne

JEL: Q01, Q2, Q3, Q4, Q5