ETHICS AND CORPORATE SOCIAL RESPONSIBILITY OF SMALL AND MEDIUM-SIZED ENTERPRISES

CIRCULAR ECONOMY

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The Content

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1. Fundamental Considerations

- Circular Economy:
  - addresses the problem of ever-increasing pressure on businesses to improve sustainability, use resources more efficiently, and transition to more responsible ways of doing business;
  - brings about a fundamental change in thinking;
  - emphasizes:
    - sensible (economical) use of resources (raw materials and energy);
    - minimizing waste;
    - reusing materials (including waste, which becomes a resource, input, or raw material);
    - extending the life cycle of products (especially manufactured goods).

1. Fundamental Considerations

- The circular economy is our future... it is therefore:
  - a necessary condition for the future existence of society as a whole;
  - an essential part of a sustainable future;
- knowledge of its principles represents an opportunity to become part of the change towards a sustainable future.

2. Definition of the Circular Economy

- The main idea behind the circular economy is a systemic change in the approach to production and consumption.
- This is related to its most commonly understood purpose, namely recycling (which is only a subset of the CE).
- It represents a response to global problems such as:
  - raw material shortages;
  - climate change;
  - excessive waste production.

2. Definition of the Circular Economy

- The circular economy is an economic model that strives for:
  - sustainable resource management;
  - waste minimization.
- It therefore covers both sides of the product life cycle.
- The circular economy is thus a system that focuses on maintaining the value of resources, materials (waste converted into inputs), and products in the economy for as long as possible.

2. Definition of the Circular Economy

- Unlike the linear model of "extract – manufacture – consume – to throw in the landfill (dispose of in an environmentally unfriendly manner)," the circular economy is based on the principles of:
  - reduce (consumption);
  - reuse;
  - recycle.
- It is therefore an effort to apply these three principles to the classic linear model, creating a new, circular model.

2. Definition of the Circular Economy

- Circular model (circular economy model), or product life cycle within the circular economy:

Design → Production → Distribution → Consumption → Collection and recycling → New product

2. Definition of the Circular Economy

- The transition from the traditional linear economic model to the circular economy model is complex in nature.
- This transition, i.e., the implementation of the circular economy, requires changes in:
  - production processes;
  - consumer behavior;
  - legislation.

2. Definition of the Circular Economy

- Linear economy
  - single-use consumption of resources;
  - production of large amounts of waste;
  - limited product life cycle;
  - dependence on new raw materials.

2. Definition of the Circular Economy

- Circular economy:
  - reuse and recycling of resources;
  - minimization of waste;
  - extended product life cycle;
  - use of secondary materials.

2. Definition of the Circular Economy

- Key principles of the circular economy:

1. closing loops: minimizing material leakage from the system through recycling, refurbishment, and reuse;
2. waste as a resource: all materials are considered a valuable resource, not waste;
3. extending product life: designing products for longevity, repairability, and easy recycling;

2. Definition of the Circular Economy

4. ecosystem regeneration: using natural processes to restore ecosystems and improve biodiversity (the only principle that is not entirely economic or managerial);
5. design for circularity: the possibility of recycling, modularity, or refurbishment is already taken into account in product design.

2. Definition of the Circular Economy

- Changing mindsets and approaches in line with the circular economy (shifting from the traditional linear model to the CE model) brings three basic categories of benefits:
  a) economic;
  b) social;
  c) environmental.
- All of the above benefits make the circular economy a key concept for the future development of society.

2. Definition of the Circular Economy

- Ad a) Economic benefits:
  - reduction in the cost of raw materialsand waste;
  - creation of new jobs (in recycling, repairs, and innovation) – impact on economic indicators (especially GDP);
  - new business opportunities and innovation;
  - increased competitiveness of companies.

2. Definition of the Circular Economy

- Ad b) Social benefits:
  - support for sustainable business and local communities;
  - education and innovation leading to a change in mindset;,
  - creation of new jobs (in the areas of repair, recycling, and innovation) – social aspect (residents' sense of happiness);
  - better quality of life thanks to a cleaner environment;
  - strengthening of local economies.

2. Definition of the Circular Economy

- Ad c) Environmental benefits:
  - reduction of greenhouse gas emissions;
  - reduction of primary raw material consumption;
  - minimization of waste ending up in landfills;
  - better protection of natural resources.

3. The 3R Concept

- The 3R concept has already been mentioned above.
- However, it is now necessary to define it in detail. What we know:
  - the main idea behind the creation of the circular economy: applying the 3R to the linear model creates a circular model – this concept is therefore absolutely fundamental to the CE;
  - it is thanks to this concept that it is possible to maintain the value of resources, materials, and products in the economy for as long as possible and reduce the amount of waste;
- The 3R concept therefore forms the basis of the circular economy.

3. The 3R Concept

- It therefore consists of the following three elements:
  a) reduce;
  b) reuse;
  c) recycle.

3. The 3R Concept

Ad a) Reduce

- What: reduction of resource consumption and waste;
- When: in all parts of the product life cycle, i.e. in the following phases:
  - product design (minimization of resources and waste);
  - production process (minimization of resources and waste);
- Objective: minimize inputs and prevent waste generation:
  - conserve natural resources;
  - reduce:
    - the ecological footprint;
    - amount of waste in landfills.
- Note: Reduce does not really address waste that has already been generated – the goal is to reduce its generation (ideally, to prevent it from being generated at all).

3. The 3R Concept

Ad b) Reuse

- What: reusing materials (in the form of scraps, used products, and other waste) instead of throwing them away without converting them.
- When: at the end of the product's original life cycle (repairs, renovations, refurbishments, or creative reuse).
- Objective: to use as much material as possible (which does not need to be recycled) :
  - saving natural resources;
  - reducing:
    - the ecological footprint;
    - amount of waste in landfills.

3. The 3R Concept

Ad c) Recycle

- What: conversion of waste materials (in the form of residues, used products, and other waste) into new resources for the manufacture of other products.
- When: at the end of the original product life cycle.
- Objective: to convert as much material as possible (which cannot be reused):
  - saving natural resources;
  - reducing:
    - the ecological footprint;
    - amount of waste in landfills.

3. The 3R Concept

- Due to its growing importance and complexity, the 3R concept is gradually expanding to include:
  - 5R, which includes (in addition to 3R):
    - Refuse;
    - Repair.

3. The 3R Concept

- Due to its growing importance and complexity, the 3R concept is gradually expanding to include:
  - 9R, which includes (in addition to 5R):
    - Rething;
    - Repurpose (finding new uses);
    - and two of the three pillars of Remanufacture (reworking to the same or better quality), Recover (obtaining new energy), and Refurbish (restoring to the same quality).

4. Circular Opportunities

- Identifying and evaluating circular opportunities is a key process in an organization's transition to a circular economy model.
- Circular opportunities represent specific steps, activities, or innovations that enable an organization to identify areas where it is possible to:
  - improve the efficiency of resource use (raw materials, materials, energy, etc.) – minimize resource waste;
  - maximize the use of materials (reduce waste) through recycling, recovery, or reuse;
  - reduce environmental impacts;
  - create new value chains;
  - improve economic performance (promote the long-term sustainability of products and services);
  - gain a competitive advantage through new business models.

4. Circular Opportunities

- Examples:
  - redesigning products for better recyclability;
  - introducing take-back systems;
  - using by-products (generated as a by-product during the manufacture of the target product) as new resources;
  - switching to service-based models instead of product sales;
  - rental instead of sale.

4. Circular Opportunities

- Various tools and methods can be used for the effective identification and evaluation of circular opportunities, such as:
  - Life cycle assessment (LCA);
  - Material flow analysis (MFA);
  - The 9R methodology;
  - Circularity assessment tools.

4. Circular Opportunities

- Phases of the circular opportunity identification and assessment process:
    1. Analysis of the current state (AS-IS analysis), i.e., a thorough understanding of the organization's current situation:
        - analysis of resource flows (raw materials, energy, materials – waste intended for further production):
            - identification of key areas of waste;
            - questions such as:
                - What raw materials does the organization use?
                - How much waste is generated?

4. Circular Opportunities

- Phases of the circular opportunity identification and assessment process:
  1. Analysis of the current state (AS-IS analysis), i.e., a thorough understanding of the organization's current situation:
     - waste stream analysis (especially in the context of their further use – conversion into material):
     - questions such as:
       - Which materials can be recycled?
       - Which materials can the organization reuse?
       - Which materials can the organization recover?

4. Circular Opportunities

- Phases of the circular opportunity identification and assessment process:
    1. Analysis of the current state (AS-IS analysis), i.e., a thorough understanding of the organization's current situation:
        - Life Cycle Assessment (LCA):
        - questions such as:
            - Where does the greatest environmental impact occur during the product life cycle?
            - What are the possibilities for improvement?

4. Circular Opportunities

- Phases of the circular opportunity identification and assessment process:
  1. Analysis of the current state (AS-IS analysis), i.e., a thorough understanding of the organization's current situation:
     - benchmarking:
       - comparison of an organization's performance with:
         - other players in the field;
         - the best available practices (both theoretical and from real practice).

4. Circular Opportunities

- Phases of the circular opportunity identification and assessment process:
  2. Identifying potential circular opportunities, i.e., finding areas where circular economy principles can be applied:
     - circular product design:
     - the ability to design products so that they are easier to:
       - repair;
       - recycle;
       - modular;
     - example: mobile phones with replaceable parts.

4. Circular Opportunities

- Phases of the circular opportunity identification and assessment process:
  2. Identifying potential circular opportunities, i.e., finding areas where circular economy principles can be applied:
     - optimization of material flows:
       - introduction of systems for reusing waste as raw materials;
     - example: production of furniture from recycled plastic.

4. Circular Opportunities

- Phases of the circular opportunity identification and assessment process:
  2. Identifying potential circular opportunities, i.e., finding areas where circular economy principles can be applied:
     - new business models:
       - transition to models based on services rather than ownership;
       - examples:
         - in general terms – renting, sharing, etc.;
         - in specific terms – renting textiles instead of selling them (companies such as leasing models for uniforms).

4. Circular Opportunities

- Phases of the circular opportunity identification and assessment process:
  2. Identifying potential circular opportunities, i.e., finding areas where circular economy principles can be applied:
     - improving energy efficiency:
       - examples:
         - utilizing waste heat;
         - transitioning to renewable energy sources;
     - partnerships in the circular value chain:
       - collaborating with other organizations that can utilize waste or by-products.

4. Circular Opportunities

- Phases of the circular opportunity identification and assessment process:
  3. Opportunity assessment, i.e., evaluation of the feasibility and benefits of defined measures:
     - economic analysis:
       - assessment of implementation costs and potential savings;
       - evaluation of return on investment (ROI).

4. Circular Opportunities

- Phases of the circular opportunity identification and assessment process:
  3. Opportunity assessment, i.e., evaluation of the feasibility and benefits of defined measures:
  - environmental analysis:
    - LCA can again be a key tool in this step;
    - addressing the question of what impact the introduction of measures will have on the environment;
  - analysis of social benefits:
    - addressing questions such as how the measures will contribute to:
      - job creation;
      - improving the organization's reputation.

4. Circular Opportunities

- Phases of the circular opportunity identification and assessment process:
  3. Opportunity assessment, i.e., evaluation of the feasibility and benefits of defined measures:
  - technical feasibility:
    - questions such as:
      - is the technology needed to implement the measures available?
      - Is the know-how needed to implement the measures available?

4. Circular Opportunities

- Phases of the circular opportunity identification and assessment process:
  3. Opportunity assessment, i.e., evaluation of the feasibility and benefits of defined measures:
  - prioritization of measures:
    - questions such as:
      - which opportunities have the greatest benefit?
      - are the opportunities easy to implement?
      - can the Pareto principle (80/20) be used – identification of measures that will bring the greatest benefit with minimal effort.

4. Circular Opportunities

- Tools and methods for identifying and evaluating circular opportunities:
  - Many analytical tools can be used to identify and evaluate circular opportunities. The most commonly used are:
    - SWOT analysis:
      - we have to evaluate (as part of the transition to a circular model):
        - strengths and weaknesses (internal environment of the organization);
        - opportunities and threats (external environment of the organization).

4. Circular Opportunities

- Tools and methods for identifying and evaluating circular opportunities:
  - Many analytical tools can be used to identify and evaluate circular opportunities. The most commonly used are:
    - LCA (Life Cycle Assessment):
      - the tool mentioned above;
      - assessment of environmental impacts throughout the entire life cycle of a product.

4. Circular Opportunities

- Tools and methods for identifying and evaluating circular opportunities:
  - Many analytical tools can be used to identify and evaluate circular opportunities. The most commonly used are:
    - Material Flow Analysis (MFA):
      - mapping and quantifying material flows within an organization;
    - Cost-Benefit Analysis (CBA):
      - economic assessment of:
        - costs;
        - benefits.

4. Circular Opportunities

- Tools and methods for identifying and evaluating circular opportunities:
  - Many analytical tools can be used to identify and evaluate circular opportunities. The most commonly used are:
    - Benchmarking:
      - comparison of identified measures and solutions with:
        - industry standards;
        - competitive organizations within the market segment.

4. Circular Opportunities

- Benefits of identifying and evaluating circular opportunities:
  - It is not easy to define all the benefits of the process of identifying and evaluating circular benefits.
  - These benefits are often specific to a particular organization.
  - The most significant ones are listed below.

4. Circular Opportunities

- Benefits of identifying and evaluating circular opportunities:
  - Economic benefits:
    - cost reduction through more efficient use of resources;
    - creation of new sources of income from waste or by-products.
  - Environmental benefits:
    - reduction of greenhouse gas emissions and waste;
    - better use of natural resources and reduced pressure on ecosystems.

4. Circular Opportunities

- Benefits of identifying and evaluating circular opportunities:
  - Innovation and competitiveness:
    - introduction of innovative products and services that attract environmentally conscious customers;
    - strengthening the organization's reputation as a leader in sustainability.
  - Compliance with legislation:
    - compliance with environmental protection requirements, including:
      - current requirements;
      - future requirements.

4. Circular Opportunities

- An illusory (general) example:
  - There is a plastic packaging manufacturer that wants to identify and evaluate its circular opportunities.
  - It must take the following steps:
    1. analysis of the current situation:
       - identification of the fact that most of the plastics used are non-recyclable and end up in landfills;
    2. identification of opportunities:
       - switch to recyclable plastics or biodegradable materials;
       - introduction of a system for taking back packaging from customers.

4. Circular Opportunities

- An illusory (general) example:
  - There is a plastic packaging manufacturer that wants to identify and evaluate its circular opportunities.
  - It must take the following steps:
    3. opportunity assessment:
       - analysis of the costs of switching to new materials;
       - assessment of the impact on customers (will they be willing to pay for more environmentally friendly packaging?);
       - analysis of the feasibility of taking back packaging from customers, i.e., among other things, whether they will be willing to cooperate in taking back packaging (analysis of incentive strategies, logistical options, and other marketing and technical factors).

4. Circular Opportunities

- An illusory (general) example:
  - There is a plastic packaging manufacturer that wants to identify and evaluate its circular opportunities.
  - It must take the following steps:
    4. prioritization and implementation:
       - introduction of recyclable plastics (cost-effective and technically feasible).
    5. monitoring:
       - regular evaluation:
         - how much plastic waste has been reduced?
         - how are customers responding?

4. Circular Opportunities

- Brief examples from practice:
  - IKEA – offers furniture take-back for recycling or repair.
  - Fairphone – mobile phones designed with the possibility of repair and replacement of components.
  - Industrial parks – e.g., Kalundborg in Denmark, where waste from one factory serves as raw material for another (companies share their material flows, creating symbiosis).

Thank You for Your Attention