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Applying the Principles of Circular Economy to an Industrial Trading Company by Using Balanced Scoreboard

IUGA N. (BUTNARIU) Anca

Transilvania University of Brasov, Romania, anca.iuga@unitbv.ro

LUPULESCU Nouras Barbu

Transilvania University of Brasov, Romania, nouras@unitbv.ro

Abstract

A "circular economy" is focused on preserving the value of the materials and energy in products, used for optimal duration value chain, and therefore, minimizing waste and resource use. The ideal environment is composed of circular economy and natural environment green companies. Not all companies can adapt to new requirements circular economy. Some declare themselves as part of the green industry, but in reality do not belong to this business model. Integrated management model used by the scoreboard balanced establish efficacy and balanced single integrated management systems, using standards for sustainable success, social responsibility and economic results of the Company's industrial profile circular economy principles.

Keywords

circular economy, the balanced scorecard, environmental management

1. Introduction

Circular economy is an economy that develops through recycling and reuse. Its purpose is to minimize the quantity of natural resources consumed by economic output, the amount of pollutants discharged into the environment and the global ecological damage caused to the environment by the economy.

2. The Characteristics of Circular Economy

In terms of technology and natural ecology, a circular economy has some characteristics. First characteristic is technological feature. The emergence and development of circular economy are based on science and technology progresses because only through constant technological progress of human society we can continue to increase the scale and efficiency with which the resources can be recycled. The second characteristic is the systematic feature. Circular economy is a systematic and holistic economic operation involving every field and every link in the production chain of social value [1].

This can take different forms in different parts of the process of social production, but these forms cannot be reasonably regarded as fundamentally separate. Finally, circular economy consists of different levels. Circular economy industrial system, for example, is divided into three levels: enterprise movement level, the industrial movement level and regional levels of general movement. According with I.L. Popa and N.V. Popa, [2], eco-design is the integration of Environmental Aspects in the design phase, taking into account the whole product life cycle from procurement of raw materials to product disposal. Eco-design of industrial products with Circular Economy According Principles is presented in Figure 1.

Circular economy will change the pattern of material flow type to "one direction" based on opened cycle "consumption of resources - product - emissions" to a closed circular material flow model based on "resource consumption - products - renewable resources" by simulating the recycling material mode in natural ecosystems. The main objective of circular economy is to protect the natural environment and natural resources by type material flow "closed loop" [5].

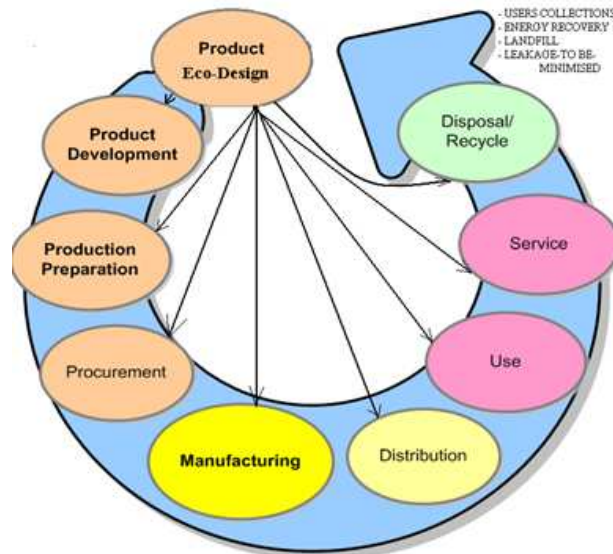


Fig. 1. Eco-design of industrial products with Circular Economy According Principles

3. Balanced Scoreboard

The Balanced Scoreboard is a tool for: strategic management application, translating strategy into action, communication strategy and organization's performance evaluation in line with the strategy set. The Balanced Scoreboard descriptors are as following:

1. Align the organization to the strategy

These are the following: the strategy design, the strategy spread from the top to the bottom of organization and processes and relationships reengineering within the organization to achieve compliance with established management strategy.

Organization strategy is focused on the following aims:

- a) Translating strategy into operational terms;
- b) Align the organization's strategy;
- c) Transformation the Strategy into everyday problem of every member of the organization;
- d) Accelerating organizational change through executive leadership involvement;
- e) Applying the concept of continuous improvement strategy.

2. Transforming the strategy into everyday problem of every member of the organization

The transformation implies: permanent communication between management and members, the knowledge of each member of the organization of the tasks for its implementation, a system of incentives and rewards for employees who excels in the strategy established by management.

3. Accelerating change through executive leadership involvement

The change involves formulating hypotheses on ways forward to achieve the success, accountability of managers on strategy implementation and their permanent action for change implementation within the organization.

4. Application of continuous improvement strategy concept

- a) We apply the strategy within a Company with Industrial Profile (CWIP)
- b) Applying the concept of continuous improvement strategy within CWIP involves (Figure 2):
 - the pursuit of the final objectives by applying continuously strategy;
 - the permanent monitoring of the working hypotheses, executive managers being able to constantly adjust strategy based on concrete realities of the particular stage of development.

The Balanced Scoreboard (BSC) application on Safety and health at work in a company with industrial profile (CWIP) is shown in Figure 3.

The simplified strategic model for industrial products quality growth and risk reduction related to the circular economy at CWIP level is shown in Figure 4.

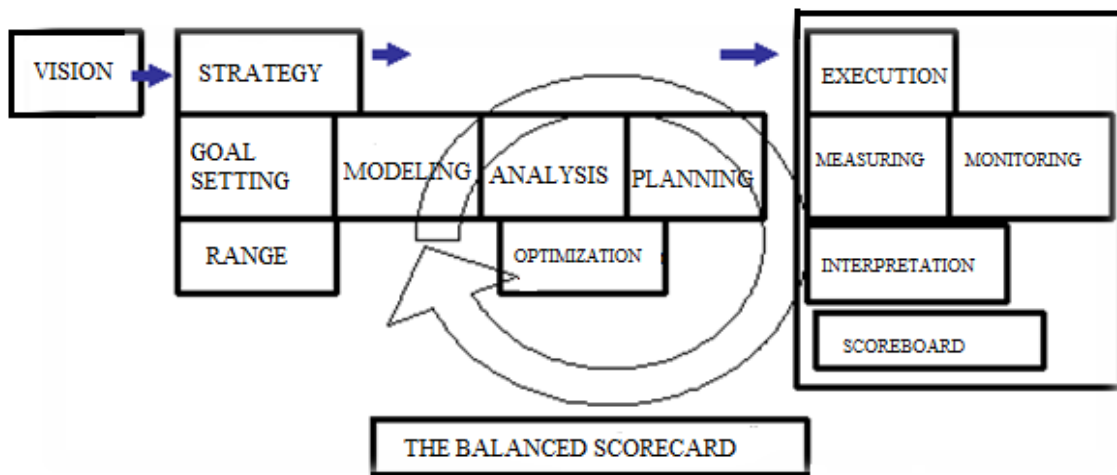


Fig. 2. The Balanced Scoreboard Table

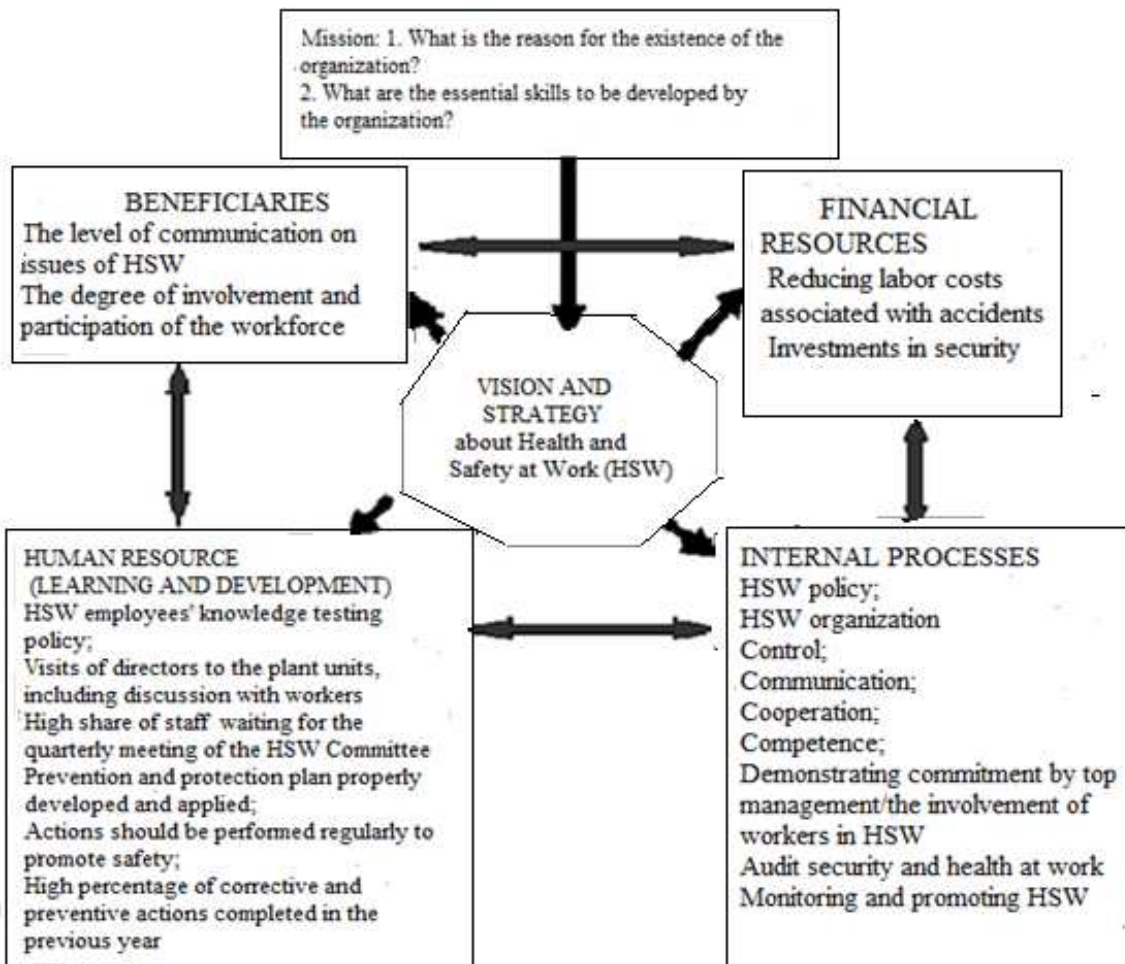


Fig. 3. The Balanced Scoreboard (BSC) on Safety and health at work in a Company with Industrial Profile (CWIP)

The improvement of CWIP strategic management by applying the principles of circular economy on increasing the quality of industrial products and reducing environmental risk has a strong link with Balanced Scoreboard (BSC). The fundamental mission of a Company with Industrial Profile (CWIP) is as following: focusing on meeting customer requirements by increasing the quality of industrial products and reducing environmental risks associated with circular economy.

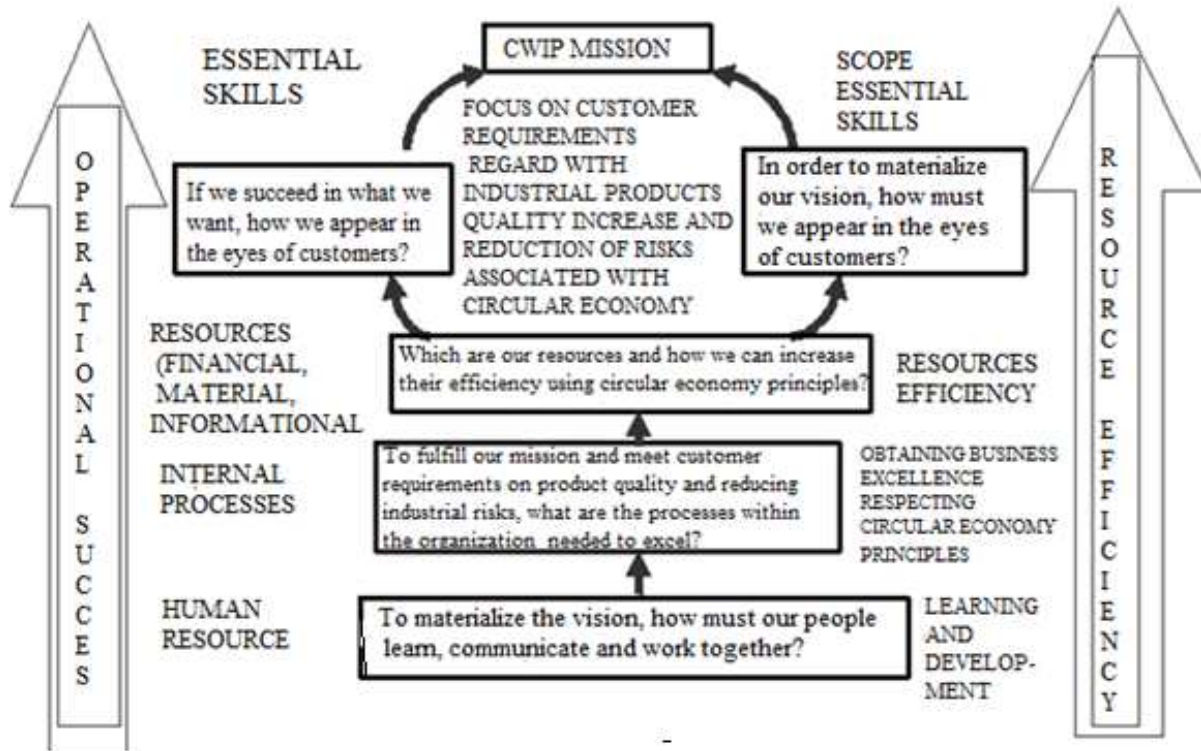


Fig. 4 The simplified strategic model for industrial products quality growth and risk reduction related to the circular economy at CWIP level

The Company with Industrial Profile (CWIP) missions are as following:

1. Application of circular economy principles;
2. Integrated quality- risk management related with industrial products made using the principles of circular economy;
3. Environmental risk management.

Operational requirements for CWIP are as following:

- Developing measures to prevent waste;
- Setting mandatory targets for reducing waste generation for municipal waste, commercial and industrial targets to be achieved by 2025;
- Establishing minimum standards for clear requirements related to extended producer responsibility to ensure transparency and profitability;
- Application of the principle "pay depending on what you throw" for residual waste, combined with mandatory mechanisms for separate collection of paper, metal, plastic and glass, so as to facilitate high quality of recycled materials; introduction of mandatory separate collection for organic waste by 2020;
- Increasing targets for recycling / preparing for re-use at least 70% of municipal solid waste and 80% recycling of packaging waste by 2030, based on rigorous reporting methods to prevent the reporting of waste disposed (stored or incinerated) as recycled using the same harmonized method for all Member States based on verified externally statistics; recyclers obligation to report quantities of waste that enters the sorting installations and the amount of waste that comes out from recycling plants;
 - Strictly limitation of non-recyclable and non-biodegradable waste combustion, regardless of energy recovery by 2020;
- Compulsory and gradual reduction of waste storage, implemented in concert with the requirements for recycling and broken down into three phases (2020, 2025 and 2030), leading eventually to a ban on land filling, except for certain hazardous waste and the waste which storage option is most compatible with the environment [7].

The link between Company with Industrial Profile BSC, the "Mission - Vision - Strategy" concept and circular economy principles on increasing the quality of industrial products and reducing environmental risk is presented in Figure 5.

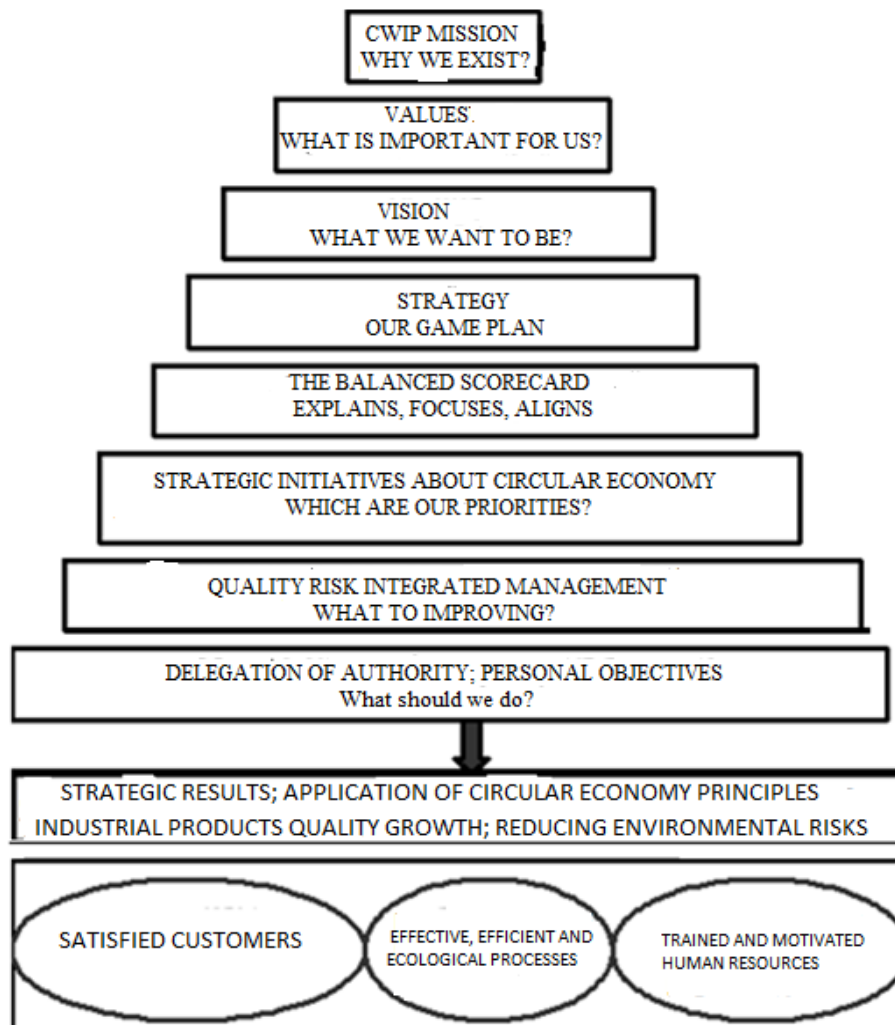


Fig. 5. The link between Company with Industrial Profile BSC, the "Mission - Vision - Strategy" concept and circular economy principles on increasing the quality of industrial products and reducing environmental risk

The application of Balanced Scoreboard (BSC) concept to a Company with Industrial Profile (CWIP) in the industrial products quality growth and environmental risk reducing processes by applying the circular economy principles is shown in Figure 6.

4. Conclusions

If we are looking for quick answers, because of changes in the external environment, balanced scoreboard is a modern management tool that is able to raise the CWIP organizational and performance level continuously.

The quality and reliability standards need not only products and services but also for the CWIP management system itself.

Intensifying competition for natural resources is worldwide. Concentrating resources outside our country in particular of critical raw materials, make Romanian industry and society more dependent on Imports and is increasingly vulnerable to high prices, market volatility and political situation in the supplier to countries.

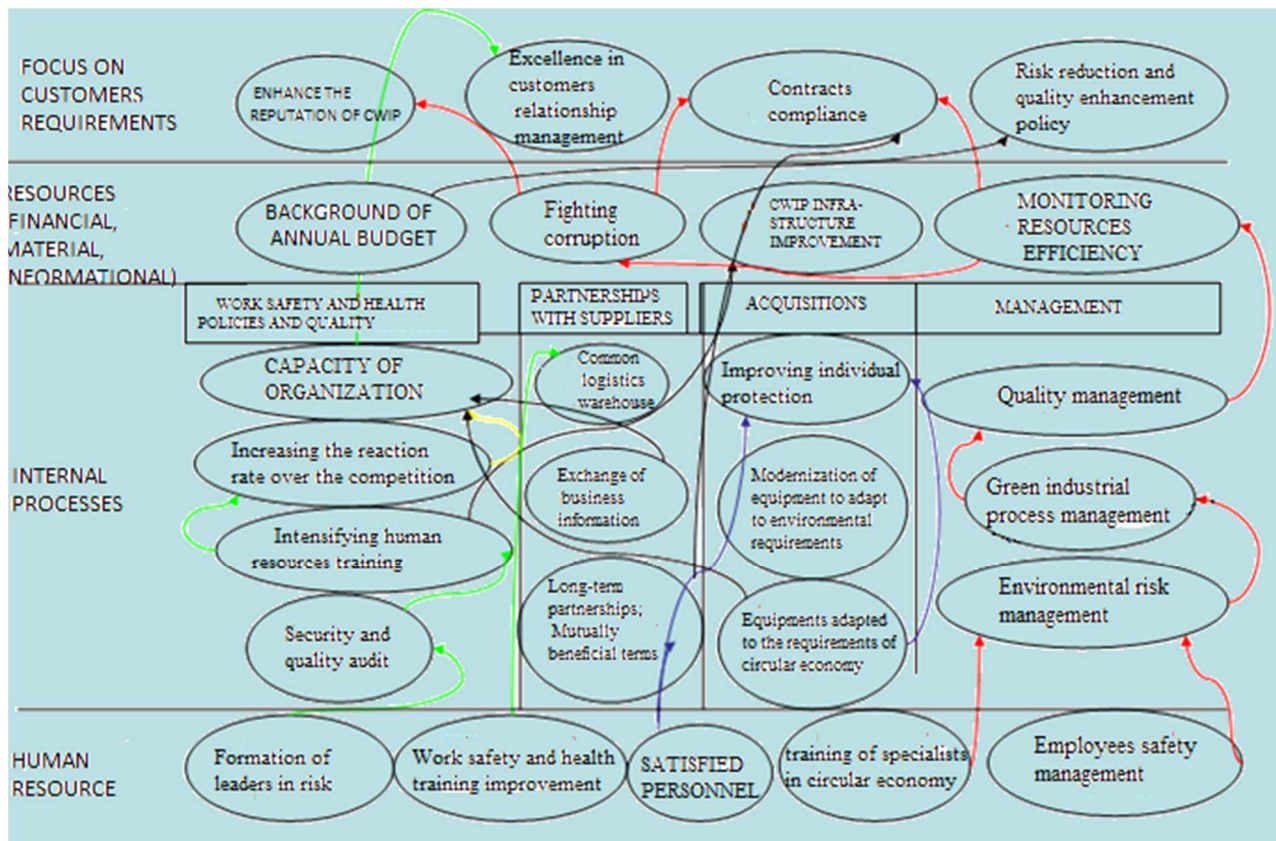


Fig. 6. The application of Balanced Scoreboard (BSC) concept to a Company with Industrial Profile (CWIP) in the industrial products quality growth and environmental risk reducing processes by applying the circular economy principles

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