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FINANCIAL SUSTAINABILITY STRATEGIES OF CONSTRUCTION EQUIPMENT MANUFACTURING COMPANIES

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ABSTRACT

In this paper, the author presents some examples of financial sustainability strategies from famous companies in the field of construction machinery, such as: Doosan Bobcat, Caterpillar, Komatsu. The aim is to present those solutions that characterize the dealers in this economic field, in the conditions that all must comply with requirements imposed at the EU level to reduce as much as possible the degree of environmental pollution, and implicitly its protection in the future.

KEYWORDS: strategy, sustainability, construction equipment

1. INTRODUCTION

To develop a sustainable business strategy, it is very important that the decision makers within the company adopt measures to ensure that the company will remain a profitable business. There are specific strategies that can increase operational efficiency over time, which leads to increased company value. With the establishment of the company's mission and strategy, the steps towards achieving the proposed objectives begin. As the strategy is implemented within the firm, it is necessary to periodically review this process to ensure that the objectives, mission, and progress recorded are consistent with those assumed. Caterpillar, Doosan Bobcat and Komatsu are three of the most recognized and respected construction equipment and heavy machinery brands in the world. These companies have earned their reputation by providing high-quality, reliable, and high-performance products that meet the diverse needs of the construction industry.

These companies have proven over the years to be leaders in the construction equipment industry. Their high-quality products, innovative technology and commitment to performance and reliability make these manufacturers preferred by professionals around the world, which means their sustainability policy in the economy market can be taken as an example.

2. THE FINANCIAL SUSTAINABILITY STRATEGY OF THE DOOSAN BOBCAT COMPANY

The company promotes sustainability and sustainable development by implementing energy efficient solutions and environmentally friendly technologies.

As examples, innovative solutions such as gas turbines (Fig. 1, 2), energy recovery installations (Fig. 3), hydrogen production (Fig. 4) or new nuclear power plants (Fig. 5).

Fig. 1. The development strategy of the implementation of gas turbines (2015-2022) [1]

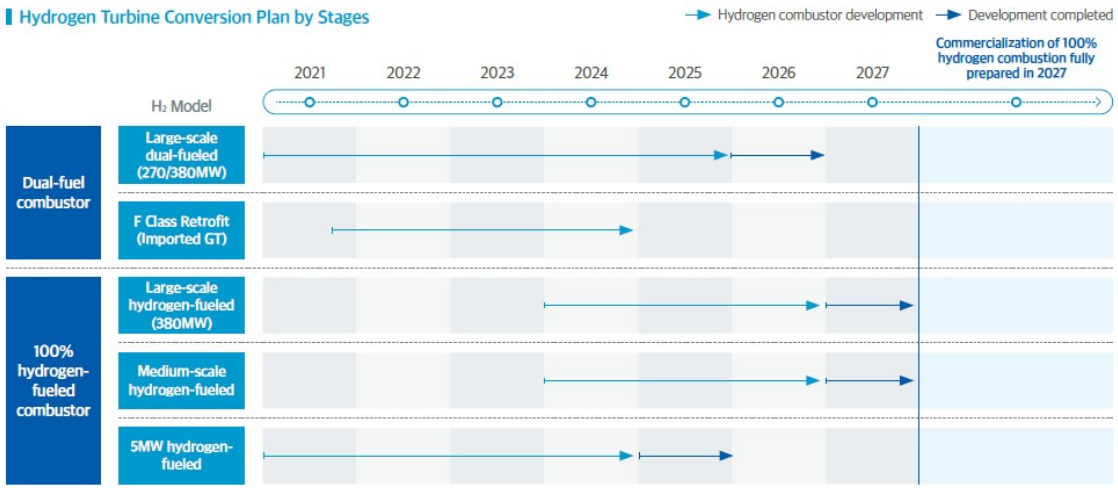

Fig. 2. Fuel Substitution Strategy (2021-2027) [1]

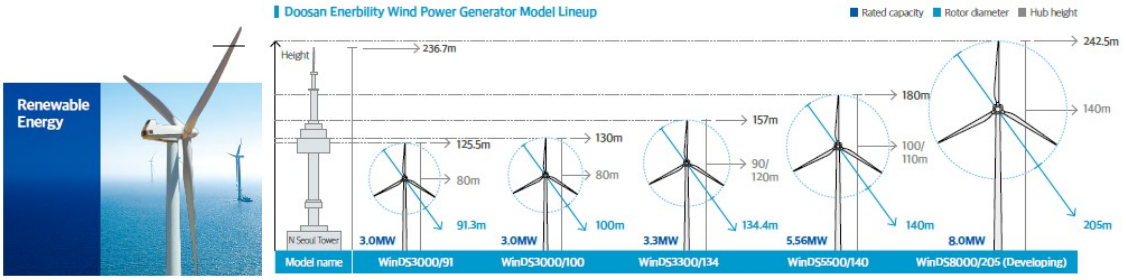

Fig. 3. Installations for the production of energy using the action of the wind (developing constructive models in a wide range) [1]

Fig. 4. Installations to produce hydrogen [1]

Fig. 5. New generation nuclear power plants [1]

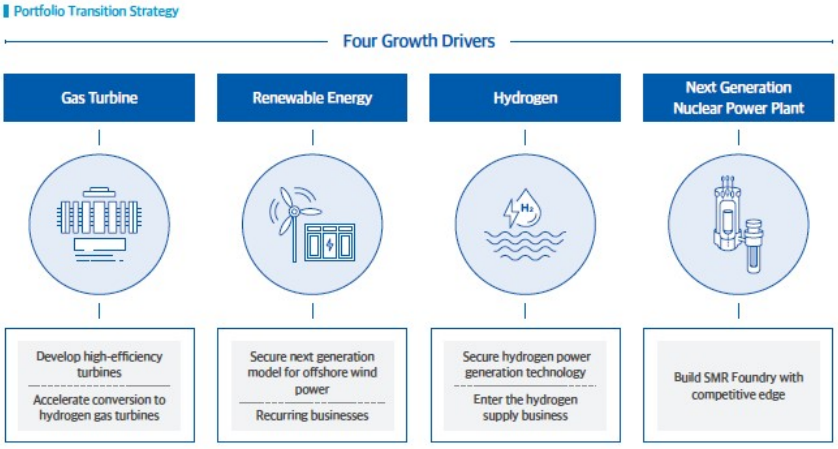

Fig. 6. Ways to diversify the Bobcat company's portfolio of activities [1]

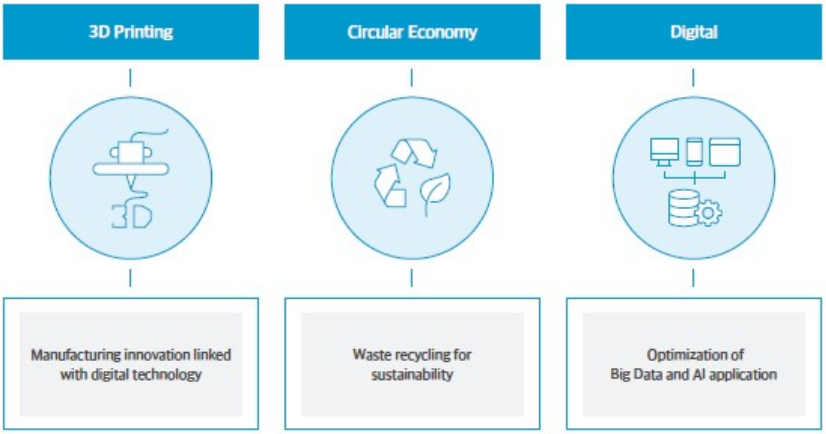

Fig. 7. New business development areas for Bobcat Doosan [1]

The new strategy of the Bobcat Doosan company should be noted, which consists in accelerating the conversion of the portfolio, as well as in the integrated management of innovation - assumed risks - revenues (ESG Management). Centrally, Figure 6 shows the 4 major directions of economic growth of the Bobcat company, as well as the new areas of its business development (Fig. 7). Results obtained until 2022 by the Bobcat Doosan company are presented in Figure 8 in the form of two graphs, aiming at the objectives achieved through the investments made in protecting the environment and recycling products.

Fig. 8. Result indicators (proposed objective versus achieved objective)

3. THE FINANCIAL SUSTAINABILITY STRATEGY OF THE CATERPILLAR COMPANY

Designing products and components to be used over multiple life cycles is Caterpillar's strategic approach. Thus, Caterpillar products are made to be rebuilt. They are designed to withstand harsh working conditions, to be repaired and used with multiple life cycles, thus reducing the need to use raw materials and the emissions associated with their processing tasks (Fig. 9). In 50 years (1973–2023), through the strategy implemented through the Cat-Reman program, the Caterpillar company achieved the following results (Table 1):

- 140 million pounds representing the value of recycled materials;
- 89% returns collected at the end of the products' life (1973-2022) so as to be eligible for a credit towards the purchase of a new product;
- 65-87% less greenhouse gas emissions, resulting from the manufacturing processes of the products;
- 80-90% less new materials used;
- 65-87% less energy consumption in manufacturing processes.

Table 1

	BASELINE (2018)	2019	2020	2021	2022
REMANUFACTURING					
Growth in remanufacturing business[9] % business sales growth since 2018	N/A	2%	-14%	-3%	19%
Product take-back by weight [10,11] millions of pounds of end-of-life material received	155	153	131	127	140
Product take-back by %[10,11] % of actual end-of-life returns/ eligible returns	92%	91%	89%	88%	89%

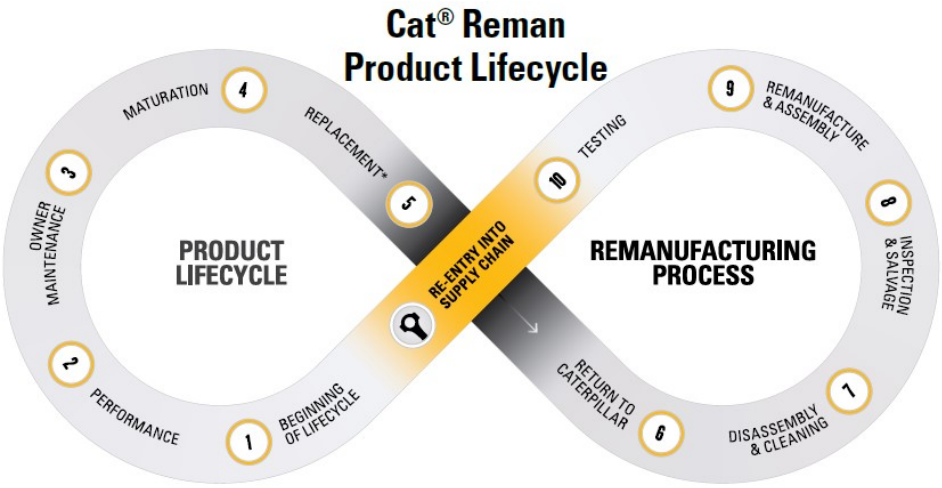

Fig. 9. Caterpillar product life cycle strategy [2]

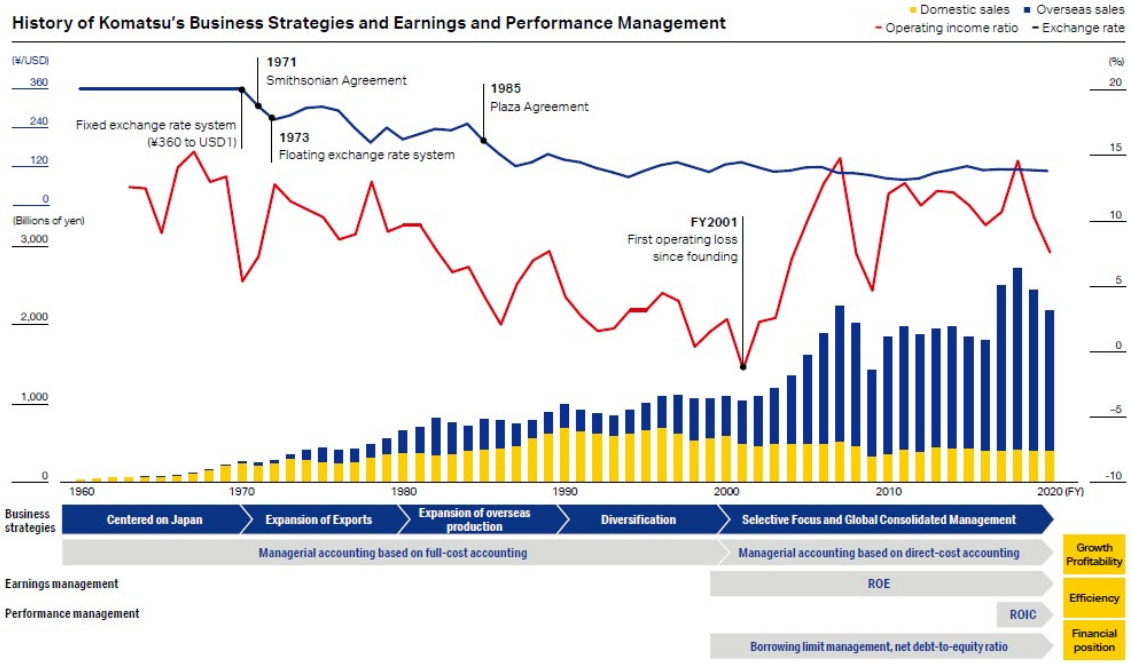

Fig. 11. The history of the development strategies of the Komatsu company (1960 - 2020) noting the continuous adaptation of policies [3]

Currently, one of the main objectives of this company consists in equipping transport equipment, such as trucks / tippers, with electric motors, the battery from which they will be powered being in the prototype stage. The year 2027 will be the year in which all these types of construction machinery will be operated entirely electrically (Fig. 10).

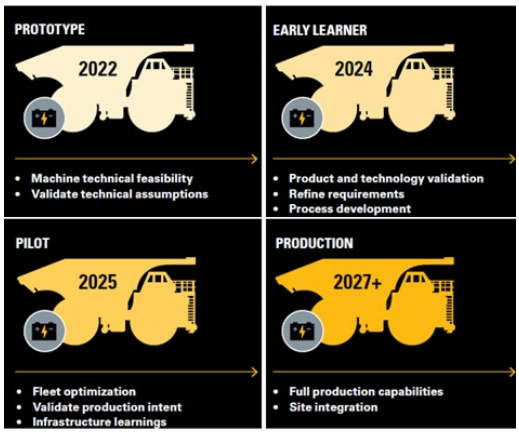

Fig. 10. Acceleration of the development strategy and implementation of the electric battery on all trucks serving mining operations (2022 - 2027) [2]

4. THE FINANCIAL SUSTAINABILITY STRATEGY OF THE KOMATSU COMPANY

Komatsu machines are appreciated for their superior performance, precision control and high productivity. The company invests in research and development to provide advanced technology solutions such as driver assistance systems, remote monitoring, and automation of operations.

Also, the Komatsu company attaches great importance to environmental protection, by implementing eco-friendly technologies and by promoting responsible resource management practices (Fig. 11).

Exploration of business opportunities arising from climate change through value creation by means of innovation and growth strategies based on innovation:

- Increased metal resource demand in conjunction with transition to electric equipment (by expansion of underground mining equipment operations);
- Contribution to sustainable forestry (by provision of equipment and systems for streamlining processes spanning from afforestation to logging);
- Contribution to rehabilitation of closed mine sites and greenification of deserts (by forest restoration projects at closed mine sites and forest machine operations);
- Transition to circular economies (by expansion of equipment restoration "Reman" business).

The workplace conditions in which construction and mining equipment developed and manufactured by Komatsu are used vary by model and performance. Currently, cutting-edge technologies are being incorporated to eliminate CO_2 emissions in the environment. The increase in turnover of the Komatsu company was achieved through a strategy built on three major objectives that formed the basis of a medium-term management plan (2019-2021), aimed at:

a) value creation by innovation (Fig. 12);
b) introduction of strategies to increase turnover through new reforms (Fig. 13);
c) structural reforms (Fig. 14).

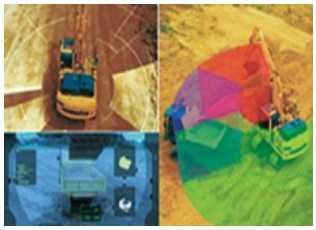

Fig. 12. Schematization of value creation by innovation

- Task 1: Optimization platform and business strategy solutions, smart buildings, autonomous transportation system;
- Task 2: Automation, autonomous operation, electrification and remote control in construction, mining and civil engineering;
- Tasck 3: Smart forestry and agriculture.

Fig. 13. New reforms for turnover increasement

- Task 1: Business consolidation;
- Task 2: Value chain reforms and the redefinition of the aftermarket business;
- Task 3: The new Komtrax generation;
- Task 4: Focus on aggregates and cement, forestry, agriculture and other business segments;
- Task 5: Reforming machinery manufacturing businesses.

Fig. 14. Application of the structural reforms

- Task 1: Business reforms through ICT and IoT;
- Task 2: Structural reforms of development operations based on innovative models;
- Task 3: Plants with zero impact on the environment and workers;
- Task 4: Global development of human resources.

Figures 12-14 illustrate an overview of the medium-term management plan objectives of the Komatsu company and highlights the newest solutions implemented for financial sustainability on the specialty market. Komatsu views climate change as an important management issue, and targets for combating

climate change have been incorporated into its business strategies.

5. CONCLUSIONS

In this paper, a topical issue is addressed, namely the financial sustainability of some large companies producing construction machinery (as the main object of activity), by exemplifying some strategies to increase the turnover.

It is observed that the sustainable development of a business means first strategy, and then quantification in the form of numbers. In conclusion, sustainability in business means the company's ability to develop with a minimal impact on natural resources, producing more with less, a challenge already undertaken by construction machinery manufacturing companies.

All the information in this paper was based on the annual activity reports of the three companies (Doosan Bobcat, Caterpillar, Komatsu), with the emphasis being on highlighting the solutions and state-of-the-art technologies that these companies have implemented in recent years.

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[1] www.doosanbobcat.com (Sustainability Report 2019-2020).
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