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LIFE CYCLE MANAGEMENT THROUGH BUSINESS DRIVEN SUSTAINABILITY MANAGEMENT SYSTEMS–OPPORTUNITIES AND LIMITATIONS

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ABSTRACT

This paper is based on a study of the current sustainability management system landscape within the ABB Group and discusses the limitations and opportunities related to these systems and belonging tools. It also suggests a sustainability management model which covers both the "vertical" and "horizontal" directions along the value chain. The model describes how current management systems and tools can be better linked to the business strategy and decision situations to enable sustainable growth and profit while contributing to a "better world". The main conclusions are that LCM needs to be explored further through the lenses of each company's specific organization. Finally the role of a continual improvement procedure is considered the cornerstone for "true" life cycle implementation.

INTRODUCTION

ABB in brief

ABB is a global leader in power and automation technologies. Based in Zurich, Switzerland, the company employs 145,000 people and operates in approximately 100 countries. ABB's business is comprised of five divisions organized in relation to the customers and industries that ABB serves. The company in its current form was created in 1988, but its history spans over 120 years. ABB's success has been driven particularly by a strong focus on technology and innovation.

The role of corporate sustainability in ABB

The demands and expectations from customers and other stakeholders on corporate handling of sustainability issues have increased substantially during the last decades. As a result, ABB and other companies see sustainability today as a strategic issue with large impact on the business. Various types of sustainability management tools have been implemented over the years, like sustainability reporting, management systems according to ISO14001, OHSAS18001, product related LCA and Eco Design tools. ABB has operations across the world and implementation of management systems in the majority of manufacturing facilities helped establishing continual improvement mechanisms and ensured a safe working environment, environmental stewardship and high quality standards. This large base of experiences gained since mid-1990s in the application of management systems and product-

related LCA and Eco Design tools was the basis for conducting a case study on the current management systems landscape at ABB. This resulted into better understanding the opportunities lying ahead but also the limitations ABB has to overcome towards more efficient management systems and life cycle management.

A previous experience is that a gap was observed in the implementation of management systems and between life cycle tools on one hand and business strategy and decisions on the other hand. There are also gaps between management systems and tools themselves, e.g. between ISO 14001 and product related LCA tools. These are examples of challenges that need to be addressed enabling the full utilization of life cycle management within ABB to achieve a truly business driven sustainability management process from Group level to local business units.

METHODOLOGY

This paper is based on a case study including literature review and more than 30 individual in-depth interviews covering a number of internal stakeholders from different regions, countries and businesses. The aspects examined for the two investigated areas are summarized below:

Sustainability governance

- Mapping of sustainability governance documentation (policies, instructions, guidelines)
- Building understanding about the architecture of documentation from Group perspective to local business units. (Top-down approach)
- Identification of the level of integration of the governance documentation in the local management systems
- Optimization possibilities of the overall architecture for the controlling documents

Management Systems

- Mapping management systems throughout the Group and identify the level of integration of management systems
- Review Group sustainability objectives & target setting processes
- Level of commitment to continuous improvement and performance monitoring

RESULTS

The role of management systems in ABB operations has been very important as they are being seen as the driving force behind continual improvement. In this case study, it was recognized that corporate sustainability governance documentation (policies, directives and instructions) should be properly cascaded to Management Systems, through Group Sustainability Objectives. This also helps with the implementation of the sustainability strategy too. In order to enable performance monitoring, Key Performance Indicators (KPIs) should be an integral part of the process. Ultimately the use of Group Objectives and KPIs can result in an efficient and effective sustainability governance system as shown in figure 1.

The first element, corporate sustainability governance ensures the proper implementation of the sustainability strategy through Group Sustainability Objectives in all local operations, the foundations of ABB. The second element, the local ABB operations, is paired with management systems maintaining and improving the sustainability performance in almost all manufacturing sites across the world.

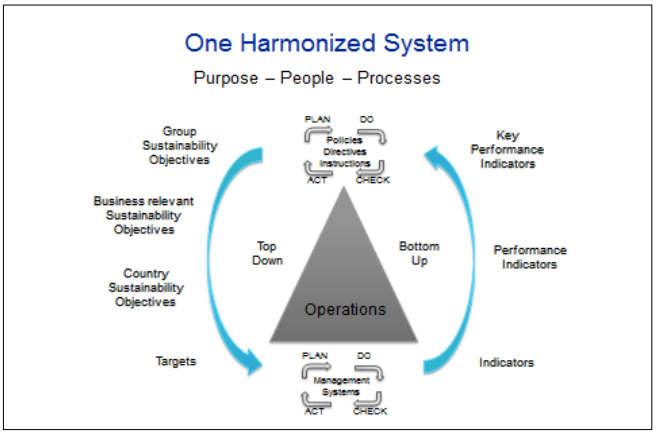

Figure 1 Operations and the role of management systems as driving forces

Linking the distance between Group and the local ABB Operations is thus being achieved through the use of the Group Sustainability Objectives. The objectives ensure that the sustainability strategy implementation will reach the local operations by cascading properly these objectives though all different organizational levels (regions, countries, local business units). However, this process comes along with great challenges due to the size and global presence of ABB. Well designed, continuously maintained and business relevant Group Sustainability Objectives can thus be seen as the primary communication tool and "common denominator" to drive continual improvement and increase the control of sustainability impacts.

The final element which closes the loop of corporate sustainability governance is Key Performance Indicators (KPIs). KPIs create the basis for measuring performance of operations through management systems. It is of vital importance to monitor the efficiency of the sustainability governance process, the management systems and maximize the benefit for ABB's business as well as the overarching social objective to reach a more sustainable society.

The intention now is to shift focus into exploring how these past experiences and knowledge can be utilized to enable a transition from the current system boundaries (ABB operations) to the whole value chain through the use of Group Sustainability Objectives and KPIs. The aspiration is to identify the driving forces behind each activity of the value chain and apply a framework similar to the way management systems are used in operations. The purpose is to establish continual improvement processes facilitated by the use of applied tools linked to specific objectives and KPIs rather than using these tools as ad-hoc solutions.

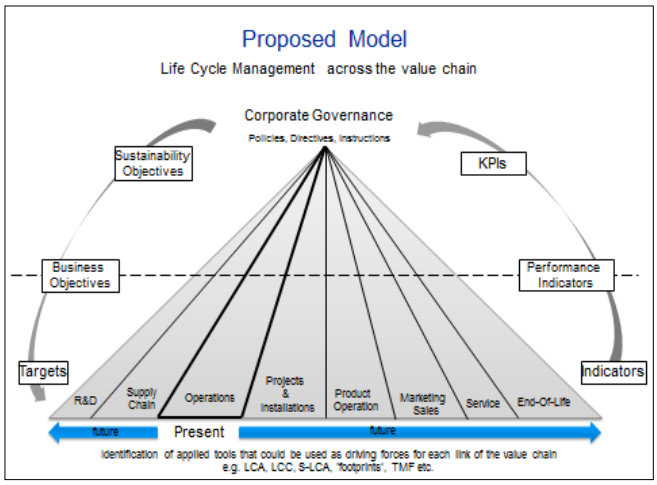

Figure 2 Model: LCM and value chain

Identification of the driving forces behind each activity of the value chain need to be explored through the

evaluation of existing applied tools (e.g. LCA, S-LCA, LCC, TMF etc.) and best practices from industry. The overall objective will be to recognize the tools that can be used as catalysts towards the implementation of a Strategic LCM model incorporating all elements of the value chain and facilitating integration of sustainability into business. The schematic visualization of the model presented in this study is summarized in figure 2 above.

DISCUSSION

Corporate Life Cycle Management – A Proposed Model

Taking the decision to extend focus from own operations to the whole value chain is a decision not any more accompanied by the question "why" but rather "how" as integration of sustainability into business is an imperative. The larger and more complex an organization is, the more difficult it becomes. However taking the decision to extend the scope from operations to other value chain activities can find a company overwhelmed by the size and number of challenges without having a well thought-out plan.

To trigger this transition we propose a model which links corporate governance, operations, available applied tools and identifying synergies between value chain activities in a seamless way. The overall purpose of the model presented is to show how LCM can be the forward looking strategic tool to drive change for the years to come. LCM could be used as the vehicle for change however the implementation process differs for each organization. Each organization has first to appraise the current sustainability governance structure together with the sustainability relevant processes that exist in each activity of the value chain. Only then synergies between activities can be identified and selection of suitable tools to support LCM implementation.

CONCLUSIONS

The main conclusions from this paper are summarized below:

- Life cycle management should be seen from a continual improvement perspective - impregnation of sustainability governance, corporate objectives, management systems and KPIs with a continual improvement process is the cornerstone for the long term establishment of LCM.
- Applied life cycle tools can be used as the facilitators towards implementation of LCM rather than the driving force.
- There is no single approach towards LCM implementation – Every organization must explore LCM individually and tailor it to its own needs.

REFERENCES

Henrik Ny, Jamie P. Mac Donald, Göran Broman, Ryoichi Yamamoto, Karl-Henrik Robèrt, 2006. Sustainability Constraints as System Boundaries. Journal of Industrial Ecology 10(1-2):61-77

Jørgensen TH., 2008. Towards more sustainable management systems: through life cycle management and integration. Journal of Cleaner Production 16:1071-1080

Michail Pagounis., 2013. Overview of the current GF-SA Documentation and Management Systems landscape at ABB, GFSA strategy project 2015+, 2013 (internal report: 9ADB003049-32)

Robèrt, K.-H., et al. 2002. Strategic sustainable development—Selection, design and synergies of applied tools. Journal of Cleaner Production 10(3): 197–214.