Applying Integrated QFD-MCDM Approach to Strengthen Supply Chain Agility for Mitigating Sustainable Risks

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Abstract : There is no doubt that humanity needs to realize the sustainability problems in the world and take serious action regarding that. All members of the United Nations adopted the 2030 Agenda for Sustainable Development, the most comprehensive study on sustainability internationally, in 2015. The summary of the study is 17 sustainable development goals. It covers everything about sustainability, such as environment, society and governance. The use of Information and Communication Technology (ICT), such as the Internet, mobile phones, and satellites, is essential for tackling the main issues facing sustainable development. Hence, the contributions of 3 major ICT companies to the sustainable development goals are assessed in this study. Quality Function Deployment (QFD) is utilized as a methodology for this study. Since QFD is an excellent instrument for comparing businesses on relevant subjects, a House of Quality must be established to complete the QFD application. In order to develop a House of Quality, the demanded qualities (voice of the customer) and quality characteristics (technical requirements) must first be determined. UN SDGs are used as demanded qualities. Quality characteristics are derived from annual sustainability and corporate social responsibility reports of ICT companies. The companies' efforts, as indicated by the QFD results, are concentrated on the use of recycled raw materials and recycling, reducing GHG emissions through energy saving and improved connectivity, decarbonizing the value chain, protecting the environment and water resources by collaborating with businesses that have completed CDP water assessments and paying attention to reducing water consumption, ethical business practices, and reducing inequality. The evaluations of the three businesses are found to be very similar when they are compared. The small differences between the companies are usually about the region they serve. Efforts made by the companies mostly concentrate on responsible consumption and production, life below water, climate action, and sustainable cities and community goals. These efforts include improving connectivity in needed areas for providing access to information, education and healthcare.

Keywords : multi-criteria decision-making, sustainable supply chain risk, supply chain agility, quality function deployment, Sustainable development goals