**MAKERERE UNIVERSITY BUSINESS SCHOOL**

**SEMESTER TWO, ACADEMIC YEAR 2023/2024 COURSEWORK ONE TEST**

**FOR THE DEGREE OF**

**BACHELOR OF BUSINESS ADMINISTRATION AND BACHELOR OF TRANSPORT AND LOGISTICS MANAGEMENT OF MAKERERE UNIVERSITY.**

**COURSE NAME** : **PRINCIPLES OF PURCHASING AND SUPPLIES**

 **MANAGEMENT**

**COURSE CODE : PSM2204**

**YEAR OF STUDY** : **TWO**

**DATE : SUNDAY FEBRUARY 18, 2024**

**TIME :12:00 – 1:00 PM**

**INSTRUCTIONS**

**ATTEMPT ALL QUESTIONS**

**IN GROUPS OF 5 MEMBERS, SUBMIT HARD COPIES TO THE RESPECTIVE CAMPUS LEAD FACILITATOR.**

**THIS TAKE-HOME COURSEWORK TEST CARRIES 20 MARKS.**

**SUBMISSION DATE IS ON MONDAY MARCH 11, 2024 AT 4:00PM**

**CASE: PURCHASING IN THE AUTOMOTIVE INDUSTRY.**

*Note: The information concerning this company is purely fictitious and has been prepared for student assessment purposes only. Any resemblance to any real organisation or person is purely coincidental*.

**Introduction**

Governments and business leaders globally are working together to create policies and purchasing processes that encourage acquiring sustainable materials, components and products, aiming to decrease greenhouse gas emissions and support sustainable development initiatives. The continuous carbon emissions from the manufacturing sector raise concerns among industrialists and policymakers about the effectiveness of operational adjustments and current or proposed strategies in meeting the Purchasing Agreement targets. Addressing the complex nature of industrial challenges and opportunities requires collaboration and the development of open-source toolboxes that span all business disciplines, supported by a common language, enabling professionals to communicate easily, which will foster responsible consumption and production practices more readily. Low-carbon manufacturing, which focuses on reducing emissions through efficient resource utilization, has become an important area due to increasing public concern.

**Purchasing innovations**

The automotive industry explores the triple bottom line and low-carbon purchasing, developing four decentralized purchasing models to determine optimal pricing decisions, carbon emissions, sales quantities, and profits. These models provide a reliable foundation for low-carbon firms to select emission reduction strategies while considering stakeholder approaches and adapting to evolving customer perceptions. The automotive industry is a critical actor in implementing and realizing new technologies and new sustainable requirements. The current situation of regulations, restrictions and supply chain disruptions presents unprecedented challenges for the industry. The demand for climate neutrality is no longer just a matter of CSR requirements but is now regulated by law. One measure is a registration stop for vehicles with gasoline engines from 2035, except for vehicles that can be operated with e-fuel or CO2-neutral. The transformation from the classic combustion engine to the electric vehicle must be achieved to meet the Purchasing Agreement's legal requirements to limit the temperature increase to 1.5°C if possible. The global authorities define climate neutrality as the balance between generated carbon emissions and the absorption capacity from the atmosphere. Net-zero emissions are achieved when greenhouse gas emissions vs carbon capture are balanced globally. This includes not only carbon dioxide (CO₂) but also gases such as methane (CH4), nitrous oxide (N2O), and various fluorinated greenhouse gases (F-gas). Climate neutrality is scientifically clear, but automotive companies can buy certificates certifying their own production's climate neutrality.

**Suppliers’ operations**

 The global economy consists of 99% SMEs, which have to realize climate neutrality task with their supplies. In this context, purchasing is given a particular role in addition to cost reduction programs, must also implement the new supplies’ legal regulations and guarantee climate neutrality during purchasing. The OEMs (suppliers) such as Mercedes Benz Group, BMW, Volkswagen Group, Volvo and General Motors have already defined carbon neutrality goals, in some cases scaled according to Scope 1, Scope 2 and Scope 3. Scope 1 emissions are generated directly in the company's value chain at the production facilities. Scope 2 is emissions that are related to electricity consumption. Scope 3 are external emissions, e.g. at suppliers or on the transport from suppliers or to customers. The development of new powertrain technologies takes place all the time. It is a double challenge for the supplier industry: conventional technologies must continue to be supplied, and at the same time, high investments must be made in the new technologies. The Greenhouse Gas Protocol defines Scope 1 as emissions of gases directly produced by a company through heating, operation of vehicles and so on. Scope 2 includes the greenhouse gases that were generated for the production of the electricity that is used. Scope 3 includes external indirect emissions, such as purchased materials or greenhouse gas emissions generated by transport.

A cross-sector benchmark by the Carbon Disclosure Project from 2014 surveyed different industries. The evaluation was on the share of CO2 emissions from Scope 1-3. Based on the automotive sector's values, Scope 1, with 2% and Scope 2, with 4%, have a tiny part in CO2 emissions. Scope 3, with a share of 94%, is the most critical lever for CO2 reduction in the automotive industry. The automotive industry focuses on making the emissions from Scope 3 transparent and reducing them significantly, as the leverage is very high in relation to Scope 1 & 2. The other industry sectors differ in emission levels and are not analysed and considered.

**Purchasing openness**

Transparency is special in the automotive industry because it enables accurate tracking and management of emissions across the entire value chain. This, in turn, fosters informed purchasing decision-making and targeted actions for reducing CO2 emissions more effectively. Different levels of fabricated products must be considered to define the greatest possible impact factors in manufacturing. Purchasing is critical if emissions are to be impacted in Scope 3. Sustainability must be focused on along the whole purchasing cycle to achieve a balanced emission ratio. Purchasing guarantees that the use of resources for the purchased products is specified so that future generations are not restricted in the availability of these resources.

The challenge is creating transparency that makes measuring and influencing emission levels possible. Since Mr. Daniels implemented cost transparency in purchasing decisions as chief buyer of Volkswagen AG in 2000, the transparency of product costs has increased through Cost Break-Downs (CBD). Today, this instrument has been developed to the extent that supplier nominations can be made with the help of a variety of decision criteria. Besides material and manufacturing costs, logistics costs, packaging costs, quality factors, or overhead costs can be included in the strategic decisions.

Within the framework of cost transparency in the automotive purchasing, new tools and innovations are paving the way for companies to attain enhanced purchasing transparency. This, in turn, significantly bolsters organizational endeavours in achieving cost transparency. By leveraging cutting-edge technologies and innovative solutions, businesses can access and analyze accurate, real-time information, fostering trust and collaboration among supply partners. Internet of Things technologies, such as barcoding, RFIDs, and carbon labelling, enable tracking of product components and raw materials throughout the product life cycle, streamlining production and logistics processes while monitoring real-time carbon emissions. The data from central repositories can be used to evaluate product life expectancy and potential carbon emissions during use, helping management make informed decisions about raw materials and components to minimize environmental impacts. Consequently, this transparency enables stakeholders to identify inefficiencies, optimize processes, and make informed decisions, ultimately contributing to cost reductions and increased competitiveness in the automotive industry.

**Digital purchasing**

Digital technologies and innovative tools foster flexibility and agility in the supplies management by enabling real-time data collection, monitoring, and analysis. Companies can quickly identify trends, respond to changes, and make informed decisions, enhancing their ability to adapt to varying customer demands and market conditions, not only in the corporate world. Industry 4.0 technologies, such as Internet of Things, Artificial Intelligence, blockchain, and big data analytics, facilitate communication and collaboration among supply chain partners, leading to leaner and more efficient processes while reducing waste. By integrating digital solutions, purchasing becomes more flexible, agile, and responsive, driving efficiency and promoting circular economy strategies that lead to joint emission reduction decisions, improved profits, and better collaboration among all purchasing stakeholders for a multi-win outcome.

Integrating lean and agile purchasing has been demonstrated to enhance a firm's performance by offering benefits such as increased efficiency, waste elimination, and rapid adaptation to diverse and unpredictable customer demands (Raji et al., 2021). The primary objective of implementing digital technologies, such as Industry 4.0, is to boost operational efficiency, leading to improved performance. Purchasing managers contemplating the adoption of these technologies require a compelling incentive. The potential performance impacts of integrating digital technologies with purchasing operations warrant investigation, as previous studies have seldom explored the implications on performance.

The professionalization of purchasing has occurred since ancient times when purchasing knowledge was already taught at trading schools. The stages of the 4th industrial revolution were publicized at the Hanover Fair in 2011 with the presentation of Industry 4.0, the "*High-Strategy 2020*" of the Federal Governments. This can be taken as the basis for comprehensive digitization opportunities in purchasing. Purchasing digitization is seen as an added value and is also being implemented in practice. Digitization generates a large amount of data that significantly impacts transparency in purchasing. In digital Purchasing, purchasing has the role of active creator, supporter and function of leader and driver. Purchasing is a key factor in impacting sustainable performance in terms of environmental and social sustainability. Electronic purchasing facilitates supplier management, quality management. Purchasing has a particular function in sustainable procurement and is seen as a driver. Digitalization and the use of platforms increase transparency through greater data availability. Digital transformation has a significant impact on purchasing by promoting internal and external collaboration with the automotive industry. With the use of digitalization, transparency is being created that allows a direct impact on sustainable purchasing.

Digitalization provides new opportunities to create transparency with the help of industry 4.0 technologies. In the automotive industry, the Cost Break-Down (CBD) is a proven purchasing tool that provides cost transparency for goods. The CBD, which Mr. Daniels introduced as a purchasing tool based on costs, is referenced significantly. Implementing and using the tool in purchasing creates transparency in the supply chain in combination with digitalization. The suppliers' carbon neutrality targets are forwarded to purchasing. Compliance with the purchasing Act is also affected and must be considered. Original Equipment Manufacturers will demand a Product Carbon Footprint in the future to control CO2 emissions and have the most significant leverage for reducing emissions.

**Questions**

**Based on the case above;**

1. Explain the purchasing roles in the automotive industry.
2. Examine the critical success factors for purchasing in automotive industry.
3. Explain the purchasing challenges in the automotive environment.
4. Explain the contribution of digitalization to purchasing in the automative industry.

THE END