Business Classification: Exploring Management as an Art, the Mathematical School, and Systems Theory

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INTRODUCTION

The mathematical stream in administration originated with Archimedes in 212 B.C., who applied mathematics to solve practical problems. Blaise Pascal laid the foundations of probability theory in 1654, followed by Gauss in 1801 with number theory. Taylor introduced scientific management. In 1928, T.C.A. Fry introduced statistics for queueing theory. During World War II, Operations Research (OR) was used in logistics and strategy. In 1947, Von Neumann and Morgenstern developed game theory. Savage contributed to decision theory in 1954. Linear programming became prominent in administration during the 1960s. These mathematical tools influenced administrative decision-making. Administration is a social science that relies on a systematic set of rules to coordinate and lead efficiently, using available people and resources, in order to effectively achieve the objectives of an organization.

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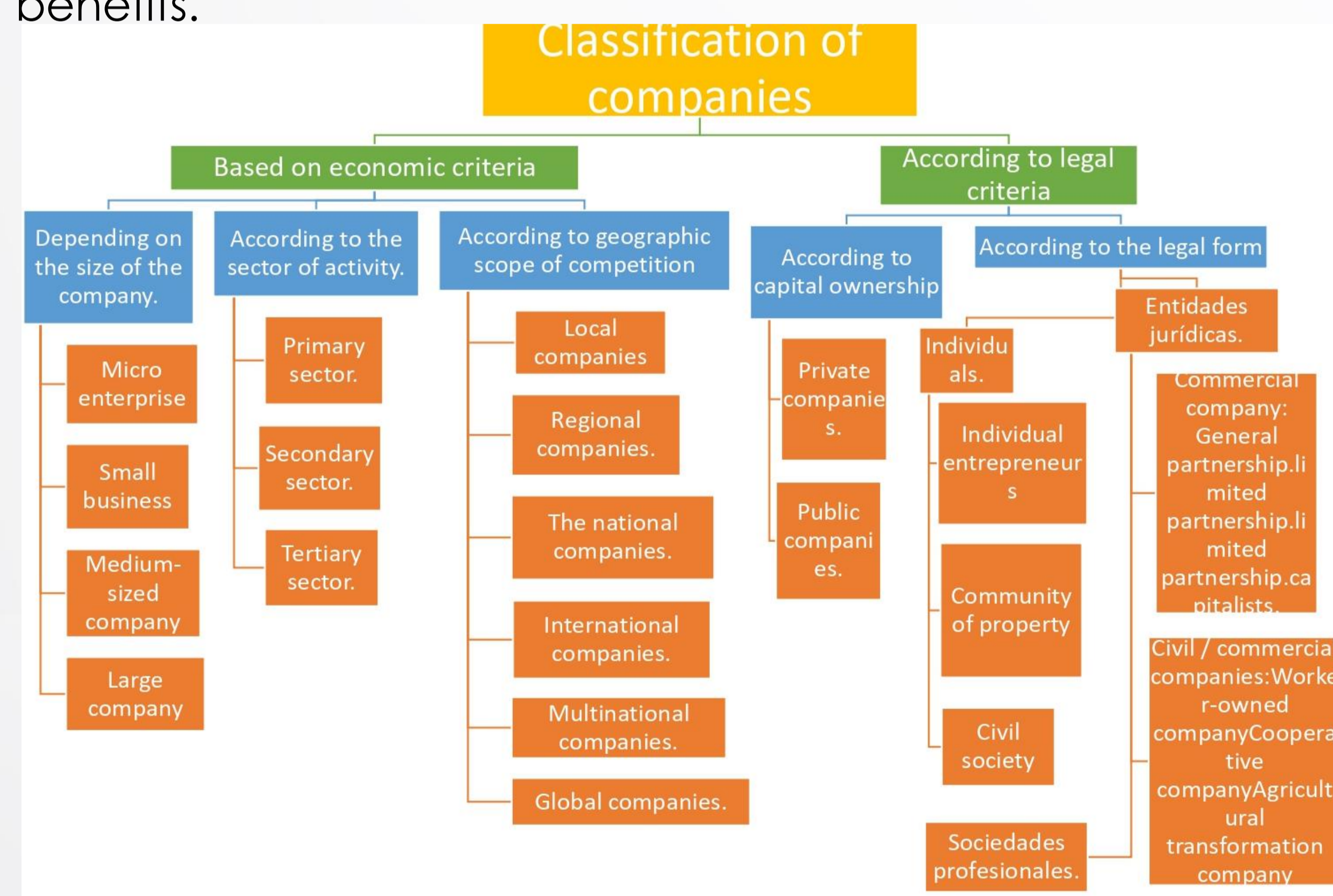
MATERIALS AND METHODS

The present poster is the result of work carried out in the "General Theory of Administration" program. It corresponds to the outcome of a descriptive literature review (Guirao, 2015). Secondary sources were used for data collection, primarily from books available in institutional libraries such as "elibro." Additionally, resources from "Google Books" and scientific articles from "Google Scholar" and "ScienceDirect" were consulted. The conceptual analysis of the most important aspects of the topic "Business Classification" is presented. This analysis also includes a description of administration as an art, the mathematical stream in administration, and systems theory. For data analysis, the graphic organizers technique suggested by Munayco (2018) was used.

RESULTS AND DISCUSSION

Business Classification.

A company is a source of wealth and employment, and its creation is primarily associated with capital, but initiative and courage are essential for entrepreneurship. In order to classify a company, we must explore its concept, which the renowned master Isaac Guzmán defined as: "An economic-social unit in which capital, labor, and management are coordinated to achieve production that is socially useful in accordance with the demands of the common good" (Hernández and Rodriguez, 2011, p. 29). The importance of a company lies in its role as an economic-social unit that integrates capital, labor, and management, contributing to social development and the generation of economic benefits.

Classification of companies

Contemporary Studies on Business Classification.

There are various studies related to the topic, and by researching on ScienceDirect, an article titled "Business Classification through Machine Learning" was analyzed. In this article, the latest advancements in unsupervised machine learning were combined with the practical experience of someone who invests their money, introducing a tool for business classification that is easy to implement and functions as a decision support module. Initially, the "t-SNE algorithm by van der Maaten and Hinton (2008) was used to reduce the dimensionality of a high-dimensional financial dataset" (Husmann, Shivarova, & Steinert, 2020), allowing for a more understandable representation of the data.

CONCLUSIONS

This study emphasizes the importance of four key aspects in business management: the ability to lead, the mathematical school, systems theory, and how we classify companies. When all of these ideas come together, we understand that leading a company is not limited to technical skills alone but also involves creativity and intuition in decision-making.

Utilizing the concepts from the mathematical school in management provides us with precise tools to understand data, improve processes, and make more informed decisions. This enhances the company's performance and effectiveness. Systems theory shows us that a company is like an interconnected system, where what we do in one part affects everything else. Therefore, it's important to manage it comprehensively.

Finally, the way we classify companies is essential for understanding their operations and adjusting strategies effectively. All these elements intertwine in modern management, providing a solid foundation for addressing business challenges and achieving sustainable success.

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