A. ABSTRACT

The concept of University Professor involves both a sustained teaching activity and a scientific activity validated through books, studies, research, and scientific papers. The field of Engineering and Quality Management is an essential attribute in the development of the engineering and managerial culture of the future licensed engineer as well as of the master student in engineering and management.

The present habilitation thesis reveals the didactic and research capacities and performances of the candidate Adrian Pavel Pugna, Ph.D. who currently holds a teaching position as an Associate Professor in the staff of the Department of Management of the Faculty of Management in Production and Transport at the University Politehnica Timisoara, developed after the public defense of his doctoral thesis.

The habilitation thesis focuses mainly on those achievements that attest to the author's ability to conduct and conduct scientific research in the field of Engineering and Management, with applications in Attractive Quality Theory and Six Sigma Methodology.

In the almost 30 years of teaching activity, the candidate has developed his teaching skills and performances, carrying out all types of activities: seminar, laboratory, project, course, guidance in the elaboration of diploma and dissertation papers, etc. teaching functions. The candidate contributed to the elaboration of didactic works, university textbooks, and tutorials for applied works.

Regarding the **managerial activity**, the candidate was 5 years member of the Board of the Management Department, is a member of the Bureau of the Department Council as well as the coordinator of the commission for evaluation and quality assurance and also the candidate was 12 years member of the Faculty Council of FMPT, where he served as coordinator of the commission for evaluation and quality assurance. Also, the candidate was (and is currently) the chairman of the Board of the master's degree in Engineering and Competitiveness Management as well as a member of the boards of the masters of Engineering and Management of Quality and Competitiveness (English), Logistics Systems Management and Engineering in Business Administration.

The presentation of the results obtained in the research activity of the candidate occupies most of the content of the habilitation thesis. The habilitation thesis is structured on 3 important and highly topical research directions in the field of Engineering and Management, as it results from the specialized literature:

1. Theory of Attractive Quality;
2. Six Sigma Methodology;
3. Modern applications of experimental design.

The first part of the thesis presents the bases of the Theory of Attractive Quality as well as the candidate's contributions to the development of new and applied models in this research field. In 2015, the candidate contributed to the development of a new model for the design of new products and services. The HWWP (Health - Weapon - Wealth - Prospect) model which connects Maslow's pyramid (Maslow's hierarchy of needs), the Kano model and methodology, the importance of customer wants and the customer satisfaction coefficient (SC). This model represents a fundamental theoretical contribution to the development of the Kano model and a reference point for further research. In 2016 the candidate contributed to the realization of a refined HWWP model, based on the non-uniform partition with elasticity curves. In 2016, the candidate contributed to the development of a strategic approach to analyzing variations in potential customer needs for a better understanding of what "quality elements" need to be cultivated before launching the product or service, called "A Greenhouse Approach for Value Cultivation" or the Greenhouse model. In 2020, the candidate contributed to the realization of a generalized HWWP model. Also in 2020, the candidate contributed to the development of a new model for evaluating the "student voice" in the development stage of a mobile phone application, called the HWWP - DDDI model.

The second part of the thesis presents the fundamental elements underlying the Six Sigma methodology. It also presents some of the candidate's achievements in the application of the Six Sigma methodology in the Automotive industry.

Part 3 presents the fundamentals of experimental design, with emphasis on Taguchi and RSM (Response Surface Methodology) methodologies. Some of the candidate's contributions to the use of these methodologies in the production and testing of

sintered basalt parts as well as in the production of silver-doped TiO_2 nanoparticles are presented.

The results of the candidate's research activity were presented in national and international academic and scientific events, through articles published in journals or the volumes of conference papers.

The candidate published 117 articles. The distribution by publication categories of these works is as follows:

- **4 in journals indexed in the Web of Science database (Clarivate Analytics);**
- **29 at international conferences indexed in the Web of Science database (Clarivate Analytics).**
- 13 in journals and volumes indexed in other international databases (BDI);
- 71 in journals or volumes not indexed in BDI;

Also, the candidate is co-author of 1 book at an international publishing house, co-author of 5 chapters in books at international publishing houses, author and co-author of 9 books at recognized national publishing houses, and author and co-author of 8 teaching materials including in electronic format - course support /guidance.

The **second part** of this section presents development perspectives.

The **last part** of this section presents the bibliographic references.