

Abstract

In the current economic and social context, Romania can develop normally only by applying the IT&C tools with a maximum efficiency both in engineering and in management. My habilitation thesis is probably a unique one, in its own way, because I have tried to bring together in this thesis, three major areas of education and research: engineering, management and information technology. Thus it seems unusual for an engineer, very analytic for an economist and not very applied for a computer science specialist, this diversity explains the various transformations that I have made in my short career of 20 years. So although I started with an IT training in the 80's, I get then a degree in mechanical engineering, then I practiced for almost four years as an analyst - programmer in the IT field, I also managed for more than 20 years a private companies, I obtained ten year ago my first PhD in industrial engineering, I turn then to the management field, and then I applied my knowledge in the project management. This winding road of my career took me through various areas and hence my concerns were diverse. My chance is that although this area of competence is very different, they can be grouped into five main areas of engineering and management.

The Implementation of ERP and BI systems in the Romanian organizations

In this field of study I have made a complete analysis, at the level of 2011 year, of the Romanian ERP and BI developer for large organizations, in fact on the market of management integrated information systems and that of decision support information systems. This was the first research in the IT field within the Romanian organizations belonging to the SIVICO ERP's implementation portfolio, and according to a management perspective that displayed the analysis of Romanian organizations from the point of view of implementing the advanced management methods by large organizations. As a result of this study I have tried to induce to the managers of the organizations, with which I have collaborated, the idea that ERP systems are more that accounting applications. I have demonstrated that ERP is a corporate instrument which connects users with distinct responsibilities on the same platform, and represent an information exchange between department and the individual in charge, in fact the manager. I invited more and more Romanian organizations to benefit from the advantages of special Romanian decision-making oriented software, and here I refer to the applications of SIVICO software house. Finally I have elaborated a best practice guide in order to be able to choose the most adequate management methods for an organization. Over 30 of my papers works, 5 books and a PhD thesis (2011) were dedicated to this field of study during these ten years.

Implementation of e-Government systems in Romania

In the e-Government field I have investigate the Romanian society public administration, and I have identified the fact that the ERP, GIS and QMS have a low level of implementation in Romanian public administration. For this research I have chosen a sample

of 45 local public administrations that represent 10% of the total number of cities and municipalities. I concluded that only hardware platforms are well implemented and maybe some ERP and QMS systems. Because these systems are the basis of implementing an e-Government (electronic public administration services) I have concluded that in Romania, the 2013 year is a very optimistic term for the e-Romania implementation. The study aim was also to set the basis of new e-Government systems implementation, in the perspective of integration of new Romanian e-Government information system with European Funds in the 2014-2020.

Designing and implementing of eLearning Platforms

During my whole teaching and scientific activity I have tried to use the most modern methods of training which led me to the use of the eLearning platforms and the enterprise communications tools. Thus by 2008, with the support of two representative software companies that operate in Romania, Microsoft and SIVECO I have coordinated the implementation at the University of Petrosani a Office 365 platform, a cloud version for the well known Microsoft Office suite, having over 3,000 users. Also as a project manager, I have implemented an AeL eLearning platform through the project POSDRU 59756. Two research projects and fifteen paper works were dedicated to the field of eLearning, in my last six years.

Project Management and SME's Management

I have involved from 1992 in the SME field as a private manager, and from 2010 as a project manager or expert in the implementation of four projects funded through the European Social Found – SOPHRD (Sectional Operational Programme Human Resource Development). I have included the Small and Medium Enterprises (SME's) organizations in my research activities because, in the present economic environment probably the SME's represent one of the elements that could re launch the Romanian economy. In this field of study I have made a complete analysis, at the level of 2014 year, of the Jiu Valley SME's. Ten research projects and five paper works and two books were dedicated to the field of Project Management and SME's, in my last six years.

Applied computer science in engineering. Computer integrated manufacturing and the design of software applications

In 2004 – 2008 years, I have applied in engineering the knowledge acquired through academic studies and also applied computer programming in the engineering field, so the software that have resulted are applications of medium complexity. I have designed ERP software for human resources management, a decision support system for the selection and training of the employees, and software for the project management field, and I have use and develop skills in the latest CAD and CAM software. Over 35 of my papers works and 5 books were dedicated to this field of study during these ten years.

The main reason that made me to elaborate a habilitation thesis in the field of Engineering and Management was the difficulty which the Jiu Valley in general and the

University of Petrosani especially are crossing in this period. Thus Jiu Valley is a region with about 120,000 inhabitants and according to the 2012 census over 10% of the total population of the Jiu Valley has a license in engineering or in business. The current economic context in which the mining industry begins to lose its importance and an area formerly mono industrial, currently has just fewer than 10% of the population engaged in the mining field, mining leads outside. Current academic context given by the number of graduates of the University of Petrosani in mining and related profiles which are currently less than 10% of the graduates, and because there are only four PhD advisers in the Mines, Oil and Gas field, leads us to conclude that the University of Petrosani is now more than a Mining School as it was before 1990. Finally a negative aspect at the University of Petrosani is the lack of perspective in the doctoral studies, and a lack of perspective automatically to all graduates in non-mining areas, representing 90% of the whole graduates.

Relying on these considerations and thinking that the University has licensed over 13,000 graduates currently, that are living in the Jiu Valley, and after 1990 year over 70% of these graduates were trained in economic and non mining engineering, there is an enormous human potential claim to improve doctoral studies, and these potential PhD students trained at a higher level could solve some problems for a former industrial mono area, applying top engineering tools and performance management.