

PUBLIC SELECTION BASED ON QUALIFICATIONS AND INTERVIEW FOR THE AWARDING OF NO. 1 GRANT LASTING 12 MONTHS FOR CONDUCTING RESEARCH IN ACCORDANCE WITH ART. 22 OF LAW OF 30.12.2010 NO. 240 AT THE DEPARTMENT OF MANAGEMENT, INFORMATION AND PRODUCTION ENGINEERING OF THE UNIVERSITY OF BERGAMO ACADEMIC RECRUITMENT FIELD 09/B2 – INDUSTRIAL MECHANICAL SYSTEMS ENGINEERING - ACADEMIC DISCIPLINE ING-IND/17 – INDUSTRIAL MECHANICAL SYSTEMS ENGINEERING AS PART OF THE PLAN FOR EXTRAORDINARY RESEARCH CALLED ITALY® (TALENTED YOUNG ITALIAN ®ESEARCHERS) - YOUTH IN RESEARCH INITIATIVE FOR THE YEAR 2016 - TRANCHE I – (CUP: F12I14000230008)

announced with decree of the Rector Rep. no. 259/2017 of 04.05.2017 and posted on the official registry of the University on 04.05.2017

RESEARCH PROJECT

“Hospital processes optimization through dynamic analysis”

General objectives of the project

The present research aims at improving the understanding of the management and organizational dynamics underlying healthcare services supply chains. The main expected results concern the development of a methodology for mapping and analysing the care pathway, as well as for identifying the best conceptual, methodological and software tools to support processes and care pathway optimization. Such results will firstly allow the identification of best practices for managing hospital processes, needed for pointing out management gaps and improvement actions, such as:

- Strategic, to ensure consistency between business plan and service process configuration;
- Managerial, concerning governance, competences, control of the information and processes underlying the provision of healthcare services;
- Tactical and operational, related to the organization of resources and infrastructures that allow to manage material and information flows in an integrated and efficient way;
- Information technology, to exploit opportunities arising from the use of innovative technologies for information collection and sharing.

Secondly, it will be possible to create a general reference framework for the integrated re-design of a hospital system, in terms of resources identification and flow.

Research project

The present research aims at exploiting a new approach for increasing efficiency in healthcare services, considering core services, strictly related to medical and hospital activities, as well as non-core services (referring to secondary activities). In particular, using consolidated methodologies of management and industrial engineering, linked also to the logic of Business Process Reengineering (BPR) and of Business Process Improvement (BPI), which allow a representation of the process under a system perspective, opportunities for service cost reduction, starting from medical care provided to patients, will be analysed. The main object of the analysis will be the care pathway. This is defined as the patient care cycle process, and can be further divided into sub-processes, whose analysis can be conducted through Business Process Reengineering (BPR) or Business Process Improvement (BPI) approaches. The adoption of methods and tools for the dynamic optimization, such as discrete events simulation or advanced optimization algorithms, will allow to test the efficacy and the applicability of the new hospital processes approaches, in different scenarios. The project will be developed around three main macro-activities, to help achieve a holistic and systemic view, where the different care pathway can interact or conflict. In particular:

- The identification of the pathway characteristics and of the most suitable mapping methodologies for continuous improvement;
- The identification of different dimensions of patients' needs that can bring to the necessity of a care pathway customization;
- The mapping and the simulation of the care pathway according to different situations and contexts.