Module-based Healthcare Platform Planning for Designing Customized Healthcare Service Pathways in Hospitals

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Abstract

Facing the reduced public expenditures, the increasing healthcare costs, and the aging of population, hospitals have been struggling to maintain healthcare quality and improve efficiency while utilizing the available medical resources. However, structured approaches to design healthcare service pathways, which contribute to healthcare efficiency and quality, are not widely available. The platforming thinking has been well investigated in the manufacture industries. With this thinking, product platforms have been developed and applied in companies' product family development activities. The benefits include meeting diverse customer requirements, reducing time to market, improving product quality, etc. In view of the gains of applying platforming thinking in the manufacture industries, this study proposes to apply it in hospitals as structured approaches to design healthcare service pathways. More specifically, it puts forward a concept of healthcare platform to help hospitals design healthcare service pathways for diverse patients. Modules are defined to model healthcare process upgrade and elimination. Math formulations are developed to model how a healthcare platform is planned and how customized healthcare service pathways can be designed. A case study is conducted in an ophthalmic hospital in central China. The results demonstrate the potential and feasibility of designing healthcare service pathways based on healthcare platforms.

Keywords
Healthcare platform, healthcare service pathways, healthcare service, module-based model

Biography

Huan Yu is a PhD candidate in Department of Management Science and Engineering of University of Science and Technology of China. She earned B.S. in Information Management and System from Anhui Agricultural University, China in 2008, Masters in Enterprise Management and Informatization from Hefei University of Technology, China in 2011. Her research interests include platforming thinking application, optimization, and scheduling.

Linda L.ZHANG is Full Professor in Department of Management at IESEG School of Management (LEM-CNRS), Lille-Paris, France. She obtained her BEng and Ph.D. degrees in Industrial Engineering from Tianjin University, Tianjin, China in 1998 and from Nanyang Technological University, Singapore in 2007, respectively. Her research interests include mass customization, the design and management of warehousing systems, healthcare service design, supply chain management, and product family development. On these areas, she has published a number of articles in international refereed journals, such as Decision Support Systems, IIE Transactions, IEEE Transactions on Engineering Management, European Journal of Operational Research, International Journal of Production Research, etc. Dr. Zhang has the extensive teaching experiences in a number of countries, including the Netherlands, France, Singapore, and China. She has taught courses at both the undergraduate and graduate levels.