METHODOLOGICAL APPENDICE

Hospital Food Supply Chain: When Digitalization Supports Hygiene Requirements in Hospital Catering

We modelled the Benguerir hospital (Morocco) catering processes using BPMN (Business Process Modelling Notation) 2.0. BPMN 2.0 is the open and free standard for modelling business process diagrams. The mean goal of BPMN 2.0 is to understand business users yet represents complex process semantics for technical users.

Pools and lanes are used to structure the process diagram and separate organizational units (lanes) and organizations (pools). There are three categories of flow objects: Events, activities, and gateways. Connecting objects set these flow objects in relation to each other. In a pool, a sequence flow indicates the order in which flow objects are performed. Message flows are used between pools to model communication with other organizations.

In the healthcare system, BPMN 2.0 can resolve several modelling problems. According to (Degoun et al, 2014; Degoun et al, 2014), the activity of BPM which consists in formalizing the knowledge on the processes of a system allows to generate a documented model reusable in several different contexts, the reason why we will use BPMN in our case. Bruce (2018) emphasizes the possibility to model different events and exceptions for routing a process. This matches with healthcare processes again, which tend to have many exceptions.

In our case, we use BPMN 2.0 to model the logistics process and hospital catering. We studied the environment of hospital catering by shedding light on the different particularities of hospital catering compared to collective catering. Thus, we distinguished between the internalization and the outsourcing of the catering service by specifying the advantages and disadvantages of these two types. Then, we detailed the various key processes of hospital catering by presenting the main actors involved in the operational process and the various upstream and downstream operations. This study will initiate the analysis and design phase where we began our functional analysis followed by the design of the proposed solution.

In the design part, it was fundamental to properly determine the system requirements and clarify the user-tool interaction. In order to understand the context of the application, we determined, during this step, the functional requirements, the non-functional requirements as well as a detailed design by opting for a UML approach. We opted for UML to model our analysis of user needs. UML notation is a visual language made up of a set of schemas, called diagrams, which give a vision of the project to be processed. UML therefore provides us with diagrams to represent the application to be developed: its operation, its start-up, the actions likely to be performed by the IT tool. Producing these diagrams therefore amounts to modelling the needs that will be developed.

References

Bruce, S. (2018). BPMN Modeling with Method and Style. Repéré à Maximize Return on Your BPM Investment: The Value of a Well-Prepared Team (methodandstyle.com), https://methodandstyle.com/wp-content/uploads/BPMN-Modeling-with-Method-and-Style.pdf

Degoun, M., Drissi, A., Fenies, P., Giard, V., Retmi, K., Saadi, J. (2014). General Use of the Routing Concept for Supply Chain Modeling Purposes: The Case of OCP S.A., in: Grabot, B., Vallespir, B., Gomes, S., Bouras, A., Kiritsis, D. (Eds.), Advances in Production Management Systems. Innovative and Knowledge-Based Production Management in a Global-Local World, IFIP Advances in Information and Communication Technology. (pp. 323–333). Berlin, Heidelberg, Springer.

Degoun, M., Drissi, A., Fenies, P., Giard, V., Retmi, K., Saadi, J. (2014). Généralisation du concept de gamme pour modéliser les processus logistiques d'une supply chain : le cas de l'ocp, MOSIM 2014, 10ème Conférence Francophone de Modélisation, Optimisation et Simulation. Nancy, France. Repéré à https://hal.archives-ouvertes.fr/hal-01166672/document