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Business Process Modeling for Tracing Halal Food using BPMN

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Abstract

Since traceability of halal food is not talking any longer about one step backward and one step forward and only can be done in inbound logistic, therefore we have to do business process reengineering as a strategy and methodology to make it happens along logistic activities. As we know logistic activities consist of inbound and outbound logistic, where halal traceability in inbound logistic has been implemented quite well that is why we have to discuss it in outbound logistic as a scope in this research. One of the features of business process reengineering is to capture the existing process and represent new processes adequately. Business process modeling plays a crucial role in such efforts. This paper proposes a structure for modeling business process in order to capture essential concepts of tracing halal food in its distribution activities and represent them structurally. The structure possesses two main features suitable for business process modeling: one is that it can represent critical processes and the sequences in the distribution of halal food, and the other is that it shows how to trace during the distribution of halal food by the information provided. Since the problem of tracing halal food is a probability function, so we do formulation by stochastic dynamic programming to develop the computation model. The computation model is a mathematical model and then how it operates in the tracing processes should be figured out in its business process model. The objective function of this computation model is to minimize the cost of halal food traceability activities. The business process modeling method is illustrated by an order fulfillment tracing processes in the stages of distribution of halal food using BPMN. The use case of this business process model explains the role and the interaction of the activities of the actors in doing transfer information of the halal food at their critical processes. The internal actors of the ecosystem are the distributor, retailer, transporter, and warehouse company while the external actors involve supplier of halal food and halal certification body and government as the parties that have responsibilities to assure the halalness of the food distributed in the market. When the business process model is valid, it will be simulated in halal food traceability system.

Keywords
Halal food, business process modeling, BPMN, stochastic dynamic programming, traceability.

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Biographies

Yulita V. Usman is a Lecturer in the Department of Industrial Engineering at Pancasila University. She graduated from The College of Industrial Management, Ministry of Industry, The Republic of Indonesia for a Bachelor degree. Her Master in Management of Small Medium Industry from Bogor Agricultural University and now Candidate Doctor in Agroindustrial Technology at Bogor Agricultural University. She is working on the project: Traceability in Distribution of Halal Fresh Broiler. She has published journal and conference papers. Her research interests include manufacturing, optimization, business process modeling, and system engineering.

Anas M. Fauzi is a Professor and Dean of Graduate School at Bogor Agricultural University. He received his Master of Engineering from Osaka University, Japan, and Ph.D. from Kent University, United of Kingdom. In 2008-2018, He had served as Vice Rector for Research and Collaboration of IPB to initiating and coordinating several university partnerships in education and research with higher education and research institutions. He has been working as a member of Halal Science Center, and a lecturer in Faculty of Agricultural Technology at Bogor Agricultural University since 1985. He is a member and chair of Food Security Cluster, DGHE in Ministry of National Education (2009-2010), a member of Assessor Board for Industry Development Program (2006-2009), a member of Referee Board for UPAKARTI Award in Ministry of Industry, Republic of Indonesia since 2008, and a member of International Academic Committee of QS-APPLE since 2010.

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