Gary Linnéusson
linneusson@telia.com
University of Skövde

Tehseen Aslam
tehseen.aslam@his.se
University of Skövde

Machine Strategy Evaluation Using System Dynamics Group Model Building

Modelling projects, in order to build richer understanding of the dynamics of real-world phenomena in manufacturing systems, benefit from utilizing System dynamics group model building. This paper describes such project utilizing such method in order to identify the interrelated dynamics of aging machinery equipment, competence development, and level of automation for accurate manufacturing systems development. These central aspects were identified by the project group during modelling and were considered vital in order to approach the proper Machine Strategy for the system of interest. Aspects of attention in the study also considered participants' learning of the system of interest, participants' perception upon model results, and the comparison between utilizing group model building and the traditional modeller-client approach. It is shown that System dynamics group model building has potential use in manufacturing, and indeed that more efforts are needed for successful use in projects. For that reason the need of a framework for supporting system dynamics projects in manufacturing is identified. Keywords: system dynamics, group model building, manufacturing system.

Thomas Logtens
tom_logtens@hotmail.com
TNO Netherlands Organisation for Appl

Diabetes in The Netherlands: Exploratory Modelling and Analysis of a Macro Diabetes System Dynamics Model

Type II Diabetes Mellitus is one of the fastest growing chronic diseases in the western world. This exploratory research provides an insight into the causes for the diabetes prevalence in The Netherlands by performing an Exploratory Modelling and Analysis (EMA) study on an adaptation of an existing macro-level diabetes System Dynamics model. The model used is adapted from the diabetes model by Jones et al. (2006) and a number of policies that are currently considered to be implemented are tested. The analysis shows that high numbers of diabetes patients are caused by high levels of risk of (pre)diabetes for certain groups and diabetes and prediabetes onset. Recommended is more research into narrowing the uncertainty bandwidth of these parameters or to monitor these parameters in Dutch society. The policies as currently proposed, where high risk groups for having prediabetes are determined via a questionnaire and prediabetes patients are offered lifestyle interventions do not have considerable effect. By making these interventions less non-committed, effects of the policy increases considerably in terms of number of diabetes patients and costs, but it requires testing a much larger part of the risk group. Researching whether these high attendances of risk groups should be further researched.

Luis F. Luna-Reyes
luisf.luna@udlap.mx
Universidad de las Américas Puebla

David F. Andersen
david.andersen@albany.edu
University at Albany

Laura J. Black
ljblack@alum.mit.edu
Montana State University

The seen and unseen: Emergent control and project progress in IS integration efforts

This simulation study proposes a theory of emergent control of collaborative group process that relies on feedback loops containing both tangible accumulations of work-in-process and intangible accumulations of individual and group understanding and engagement. The theory was constructed through a series of group model building sessions among action researchers who had worked as participant-observers in National Science Foundation-sponsored initiatives to integrate information systems of New York's criminal justice