Personal Decision Analytics for Transformation

Claris Chung
University of Canterbury, claris.chung@canterbury.ac.nz

David Sundaram
University of Auckland, d.sundaram@auckland.ac.nz

Personal Decision Analytics for Transformation

TREO Talk Paper

Claris Chung
University of Canterbury
claris.chung@canterbury.ac.nz

David Sundaram
University of Auckland
d.sundaram@auckland.ac.nz

Abstract

Personal decision-making can be highly subjective, personal, and irrational. With the development of smart technologies and the widespread use of wearable devices, individuals have become heavy users of information and communications technologies (Baskerville, 2011), and their activities leave traces of data daily that can be used to inform their decisions. This personal digitization provides a perfect ground for highly personalized decision and action support that leads to the transformation of individuals. However, the development of decision support systems (DSS) for individuals is still in its early stages. A lack of model-based system architectural discussions hampers the ability of DSS to support sustainable life transformation. Most current Individual Information Systems (IIS) provide the collected data or descriptive information and hardly offer model-based recommendations. As a result, consumer-side systems are developed in isolation, limiting their potential for life change.

We propose the Personal Decision Analytics (PDA) Framework to address these issues. PDA consists of the Process (Chung & Sundaram, 2019) and Component layers (Figure. 1). The Process layer supports users in achieving the ultimate goal of "Transformation" through a four-step process that involves "Digitizing" their activities in the *measure* step, "Modeling, Benchmarking, Personalizing, Recommending, and Gamifying" their activities in the *model* step, and then "Educating and Entertaining" them to support their decisions and actions that lead to the "Transformation" of their life. The Component layer supports the Transformation process, using "Scenarios" that utilize "Data, Models, Solvers, Knowledge, Games, and Visualizations". The Game component offers personalized entertainment to incentivize sustainable life transformation. For example, a diabetic management game based on the PDA can help patients collect external and internal daily activity data to model a life management game that is personalized to each patient's scenario. This game will educate patients to make healthy decisions for their lives as well as motivate and persuade them to take actions through entertainment that can ultimately transform patients' lifestyles into healthier ones. Through our study, we have successfully developed four proof-of-concept prototypes using the PDA framework to facilitate sustainable life transformation.
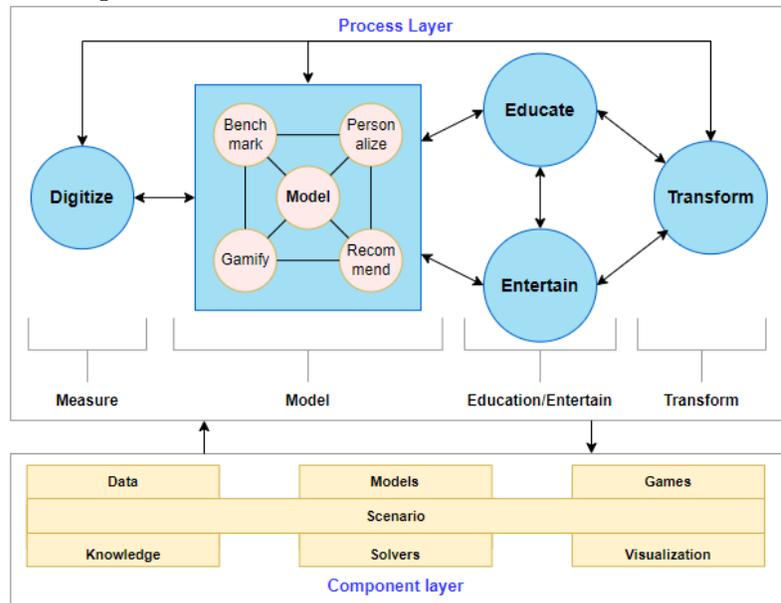
Figure 1. Personal Decision Analytics Framework

References

Baskerville, R. (2011). Individual information systems as a research arena. *European Journal of Information Systems*, 20(3), 251–254.

Chung, C. Y. S., & Sundaram, D. (2019). *Individual and Family Sustainability: The Measure-Model-Entertain-Transform Approach*. https://aisel.aisnet.org/amcis2019/treo/treos/75.