When to combine decisions, case management and artificial intelligence?

It contains diamonds, boxes, arrows and affects customer experience – what is it? No, it is not a wedding ring … it is a flowchart to predefine workflow.

Pre-defined workflow works well in predictable and stable environments but falls short to describe the process between a first kiss, Valentine's gift and the wedding proposal. Customer experience drops when people stick to a pre-defined step-by-step process while obvious alternatives are within reach.

To illustrate, let me insert a quote from Mercier and Sperber, whose book "the enigma of reason" I am currently reading:

"Steering a motor boat involves making minor adjustments to take into account the effect of winds on the boat's course. Sailing, on the other hand, involves treating winds and wind changes as opportunities to be exploited. The general contrast is clear: similar goals may be achieved sometimes by planning a course of action and using enough power to be able to stick to it, and sometimes by exploiting opportunities along the way and moving forward in a more frugal manner."

Adaptive case management

They describe an alternative strategy for prescribed step-by-step instructions, similar to adaptive case management. In adaptive case management, the order of steps is flexible as long as the preconditions for each step are met.

For example, in a sales process, there is reason to believe that sales representatives are at their best when they may play around, send a quote, make an offer, collect requirements, provide a proof, and deliver the product, all in order to maximize the opportunities of a case, as long as some minimal constraints are satisfied.

Decision analysis

But what if we have many small steps? How can we make a smart system guide people in selecting the best next step? A decision analysis reveals what questions we need to answer. The result is a taxonomy of reasons to answer these questions and a strategy that offers a flexible and intuitive way to describe business knowledge. I have experienced with a new strategy in multiple domains;

> *it combines business rules, decision analytics and artificial intelligence.*

The ingredients are:

- a list of all possible activities
- a description of when an activity is not allowed
- a description of when an activity is required
- a description of when an activity is desired
- historical data to determine when an activity is the next best action

The description we need may be presented as a business rule, like:

Rule 1: To accept a ticket, the effort to solve the ticket must be known.

The rule will motivate the decision to estimate the effort of a ticket and give a reason why the activity ‘accept ticket’ is otherwise not allowed. Instead of motivating our decision with a business rule, we could search for a similar case described by a search query and just do what we did in the past. Or more advanced: we could use algorithms from the field of artificial intelligence to learn from historical data what next step gave the best results for a similar case in the past.

Artificial Intelligence

This strategy extends adaptive case management with business rules, search and machine learning, into one integrated system.

> *I propose to let the proffessional decide what decision he would like to make!*

The idea is to give the business the freedom to explore and choose the appropriate action in response to an event. We don't want them to make mistakes. So we add some rules to prevent the business from being non-compliant. We complement this with advice based on past experience. From the remaining actions, the business is free to explore and choose.

Note from the author: *"A close reader may have noticed that I switched between the words step, activity and action in the past three paragraphs. This is to accommodate the different audiences who are used to these words. In the context of this article, they have similar meanings and I could as well have introduced the term task or service to denote the same meaning. "*

Business in control

The list of required, desired and best actions provide guidance for people, automation or robots – whoever needs them.

> *This is an intuitive framework for the business.*

By using the constraint violations of non-allowed actions as an explanation to the end-user or customer, we can even provide guidance on what actions to perform to satisfy these

A minimal requirement for business driven software development in this framework is to use a well-defined vocabulary and controlled natural language to express business knowledge (the CMMN constraints) such that everyone, including end-users, understands the rules and may anticipate the consequences.

I invite you to attend my compelling visual demonstration of the ideas presented in this article at the BPM conference of IRM-UK in London on October 17, 2017. See program for more information.