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Case Study: A Volley Club

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A Semestral Project for
MI-MEP - Modeling of Enterprise Processes

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Abstract

Here is a perfect place for an executive summary. Insert what did you accomplished in this project and how did it made the state of the art better.

Keywords:
    Volley Club, DEMO methodology, BPMN model, process execution

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Contents

Organization Essence Revealing (As-Is)

The goals of this chapter are to perform an OER analysis as described in [1, 2]. For simplicity, we will only do the following steps:

1. Find and insert or write the project domain description into this document. The domain should have at least 5 ontological transactions. Each transaction needs to have defined at least 5 act.

2. Perform the OER analysis and find ontological acts and infological acts.

3. Identify ontological transaction kinds and put them in the text. E.g. [TK1/rq]

4. Create an extended transaction result table (e-TRT). Map the transaction acts to the project domain description. See the table 1.1.

5. Create a Subject-Actor table to realize the distinction between roles and DEMO actor roles. See the table 1.2.

6. Think in trees, not in flows and create the interaction structure of your transaction kinds. See the fig. 1.1.

7. Produce the Coordination Structure Diagram (CSD) and the Object Fact Diagram (OFD). See the fig. 1.2 and fig. 1.3.

   (a) The CSD and OFD models need to be in English.

   (b) CSD - only ontological level. Using interstrictions (dashed lines) will save you from doing PSD.

   (c) PSD - Someone should be able to devise a database model from the result. At least 5 entities and 15 fields.

8. Summarize your modeling thoughts and revelations.

Correct models are not created on the first iteration, one must go through the steps many times, combine and split transactions to achieve the final result.

The process description of the Volley Case and it's OER analysis was taken from the Enterprise Ontology book [2].

1.1 OER Step 1: Distinguishing Performa-Informa-Forma

Legend:

- Ontological Act [Transaction Kind/Act type]

- Infological act

§1 Preliminary Rules

(1) One can become member of the tennis club Volley[TK1] by sending a letter[TK1/rq] to the club by postal mail. In the letter one has to mention one's surname and first name, birth date, gender, telephone number, and postal mail address (street, house number, zip code, and town). Adam, the administrator of Volley, empties the mailbox daily and checks whether the information provided is complete. If not, he makes a telephone call to the sender in order to complete the data. Once a letter is complete, Adam writes an incoming mail number and the date on the letter, records the letter in the letter book, and puts it in a folder.

(2) Every Wednesday evening, Adam takes the folder to Eve, the secretary of Volley. He also takes the member register with him. If Eve decides that an applicant can become member of Volley[TK1/pm], she stamps 'new member' on the letter and writes the date below it. She then hands the letter to Adam in order to add the new member to the member register. This is a book with numbered lines. Each new member is entered on a new line. The line number is the number by which the new member is referenced in the administration. Next, Eve calculates the fee that the new member has to pay [TK2] for the remaining part of the calendar year. She asks Adam for the annual fee, as decided at the general assembly [TK out of scope], which Adam has recorded on a sheet of paper. Then, she asks Adam to write down the amount in the member register.

(3) If Eve does not allow an applicant to become member[TK1/dc] (e.g. because he or she is too young or because the maximum number of members has been reached), Adam will send a letter[TK2/rq] in which he explains why the applicant cannot (yet) become member of Volley.

§2 Some Other Rules

(1) When all applications are processed, Adam takes the letters and the member register home and prepares an invoice to all new members for the payment of the first fee[TK2]. He sends these invoices[TK2/rq] by postal mail. Payments have to be performed by bank transfers.

(2) As soon as a bank statement is received[TK2/da], Adam prints a card on which the member number, the starting date, the name, the date of birth, the gender, and the residence are mentioned. The card is sent[TK1/da] to the new member by postal mail.

1.2   OER Step 2: Identifying Transaction Kinds and Actor Roles

Table 1.1: Extended Transaction Result Table

Transaction	Membership Starting (TK1)	Membership Paying (TK2)
Product	membership is started	the first fee of membership is paid
Initiator	Aspirant Member (AR1)	Membership Starter (AR2)
Executor	Membership Starter (AR2)	Membership Payer (AR3)
Request	Sending a letter (§1/1)	Sends the invoices (§2/1)
Promise	Application decision (§1/2)	Not Specified
Decline	Does not allow an applicant to become member (§1/3)	Not Specified
Declare	The card is sent to the member (§2/2)	A bank statement is received (§2/2)
Reject	Not Specified	Not Specified
Accept	Not Specified	Not Specified
Revoke Request	Not Specified	Not Specified
Revoke Promise	Not Specified	Not Specified
Revoke Declare	Not Specified	Not Specified
Revoke Accept	Not Specified	Not Specified

Table 1.2: Subject Actor Table

	Aspirant Member (AR1)	Membership Starter (AR2)	Membership Payer (AR3)
Administrator		X	
Customer	X		X

1.3 OER Step 3: Composing the Essential Model

Before starting with a CSD model, it is important to think about the transaction interaction structure. The transaction have to form one or more trees to compose into a process. You can see an example in fig. 1.1.
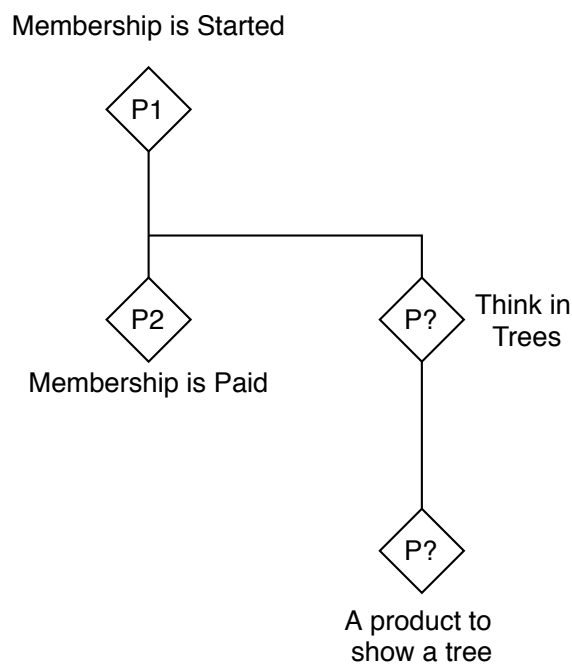
Membership is Started

Membership is Paid

Think in
Trees

A product to
show a tree

Figure 1.1: An Interaction Structure Model of Volley

1.4 Summary

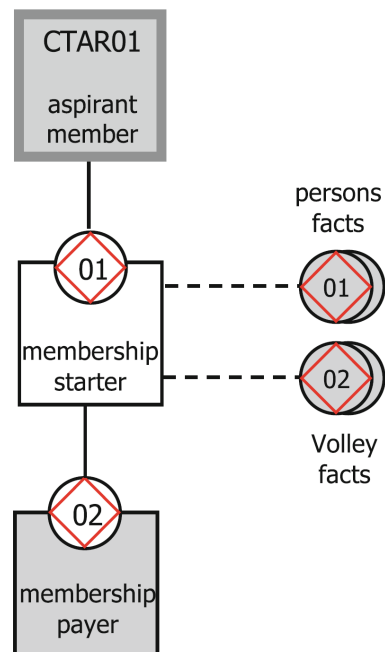Some comments about the OER analysis belong here.
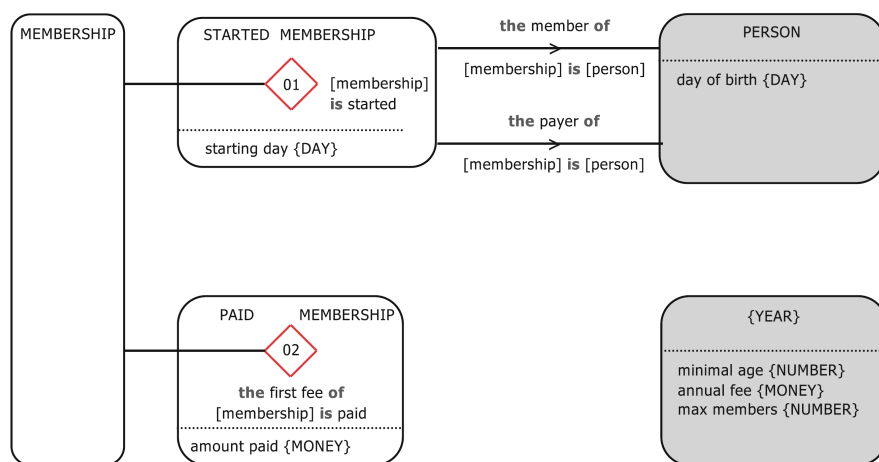
Figure 1.2: A CSD Model of Volley [2]

Figure 1.3: An Object Fact Diagram of Volley [2]

Digitalization Analysis (To-Be)

This is the most important step for IT entrepreneurs and where a value is created. We do understand the domain and can propose to support it with fancy software solutions.

1. Create a To-Be BPMN Level 2 model.

   (a) At least 20 BPMN activities.
   (b) The changes may be made up and the process can differ from the as-is.

2. Create forms description for all the BPMN activities.

   (a) Textual description is enough. Include only simple validations. The wireframes are not needed.
   (b) The forms should cover at least 75% of the PSD.

3. Summarize the improvements.

2.1   Analytical To-Be Models

2.2   Forms

2.3   Summary

Process Execution

Finally, software developers are involved and will produce the application.

1. Create an executable BPMN model in Camunda Modeler.

2. Create a functional application that supports the BPMN model using the Camunda BPM.

   (a) The app should support users and their roles.

   (b) The process steps contain forms with validations according to the specification.

3. Create a video with a process walkthrough that simulates multiple participants. (Five minutes max)

4. Sell the results to the customer in an executive-level presentation of the to-be state supported by a software solution. Imagine you are presenting it to a customer who paid 100k EUR for the work. Use your own voice. (Two minutes max)

3.1   Process Design

3.2   Application Presentation

3.3   Executive Presentation

https://www.youtube.com/watch?v=qfprck_Djro

Bibliography

[1] Jan Dietz. *The essence of organisation : an introduction to enterprise engineering.* Sapio Enterprise Engineering, Netherlands, 2015.

[2] Jan Dietz. *Enterprise ontology a human-centric approach to understanding the essence of organisation.* Springer, Cham, 2020.