

Czech Technical University in Prague
Faculty of Information Technology
Department of Software Engineering



Case Study: A Volley Club

by

Marek Skotnica

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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Organization Essence Revealing

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. Summarize the project domain description in a form of text or a flow chart.
2. Perform the RGB coloring to identify acts. Be vigilant about the [blue traps](#)!
3. Identify ontological transaction kinds and put them in the text. E.g. [TK1/rq] If there are not enough red transactions, you can include the green ones.
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.
8. Finally, summarize your modeling thoughts and revelations. Don't forget about missing transaction steps table 1.3.

The process description of the Volley Case and its 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
- Datalogical Act
- Blue Trap

§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 (Probably Tacit)
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 (Probably Tacit)	Not Specified (Probably Tacit)
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.

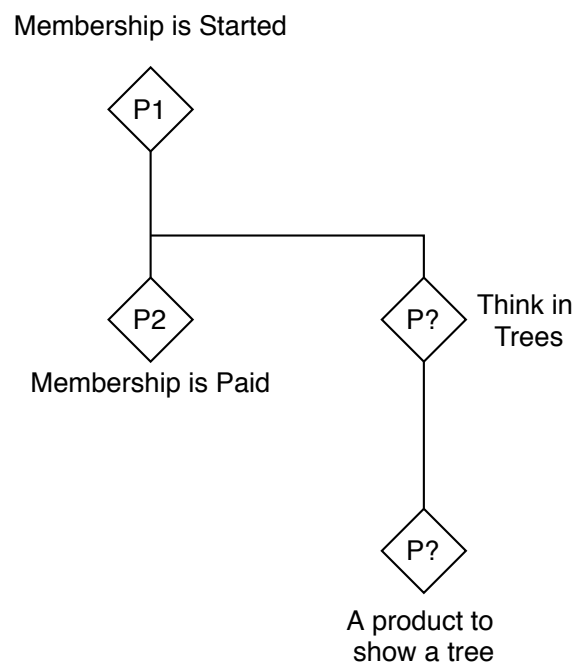


Figure 1.1: An Interaction Structure Model of Volley

1.4 Summary

Some comments about the OER analysis belong here. Why were you not able find some responsibilities? What was vaguely defined? Just roast the authors of the assignment (not the teachers :).

And finally, show how much information is missing in a table table 1.3.

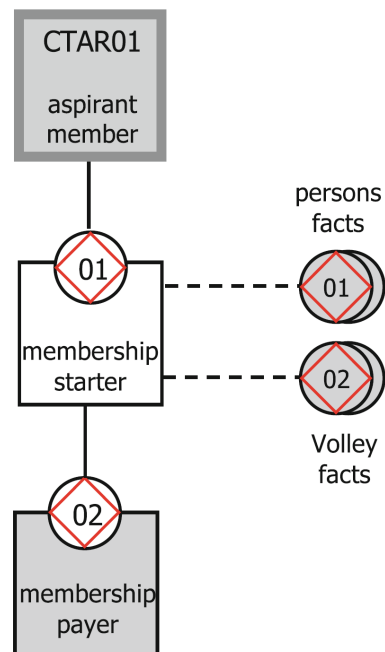


Figure 1.2: A CSD Model of Volley [2]

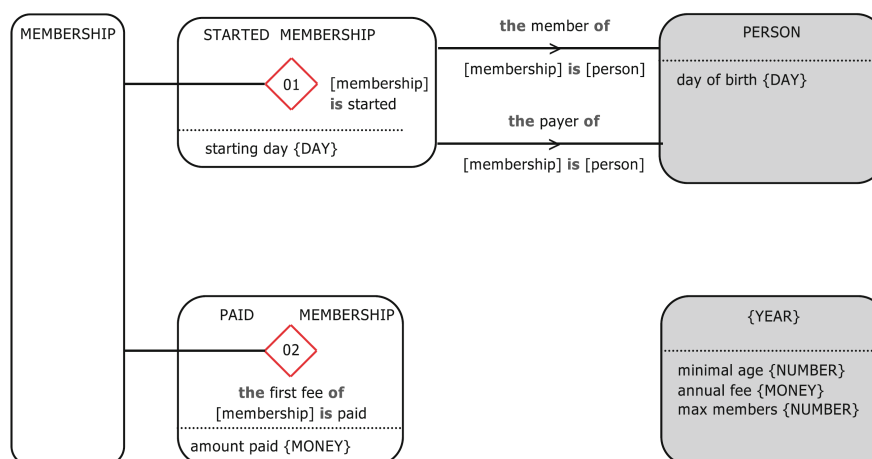


Figure 1.3: An Object Fact Diagram of Volley [2]

Table 1.3: Missing Transaction Steps

	Specified	Not Specified	Missing Information
Standard Transaction Pattern			
Request	2	0	0%
Promise	1	1	50%
Decline	1	1	50%
Declare	2	0	0%
Reject	0	2	100%
Accept	0	2	100%
Total	6	6	50%
Revokes			
Revoke Request	0	2	100%
Revoke Promise	0	2	100%
Revoke Declare	0	2	100%
Revoke Accept	0	2	100%
Total	0	8	100%
Complete Transaction Pattern			
Total	6	14	70%

Process Automation

After doing a domain analysis, we will execute the process.

1. Create an executable BPMN model in Signavio Workflow Accelerator. See fig. 2.1.
2. Create a functional application that supports the BPMN model using the Signavio Workflow Accelerator. See fig. 2.2.
3. Create forms for BPMN activities. See fig. 2.3.
4. Execute the BPMN model. One happy flow, one unhappy flow. See fig. 2.4, and fig. 2.5.
5. Create one meaningful report in the Analytics section. fig. 2.6.
6. Demonstrate your results in a presentation. See section 2.4.

As an example, we used models created by Martin Kutiš and Vladimír Vlk in the 2019 MI-MEP course [3].

2.1 Process Design

2.2 Process Execution

Include all the important execution steps here.

2.3 Process Analytics

2.4 Results Presentation

An url to your 2 min presentation where you present an executive level summary of your efforts. Imagine you are presenting it to a customer who paid 100k EUR for the work.
https://www.youtube.com/watch?v=qfprck_Djro

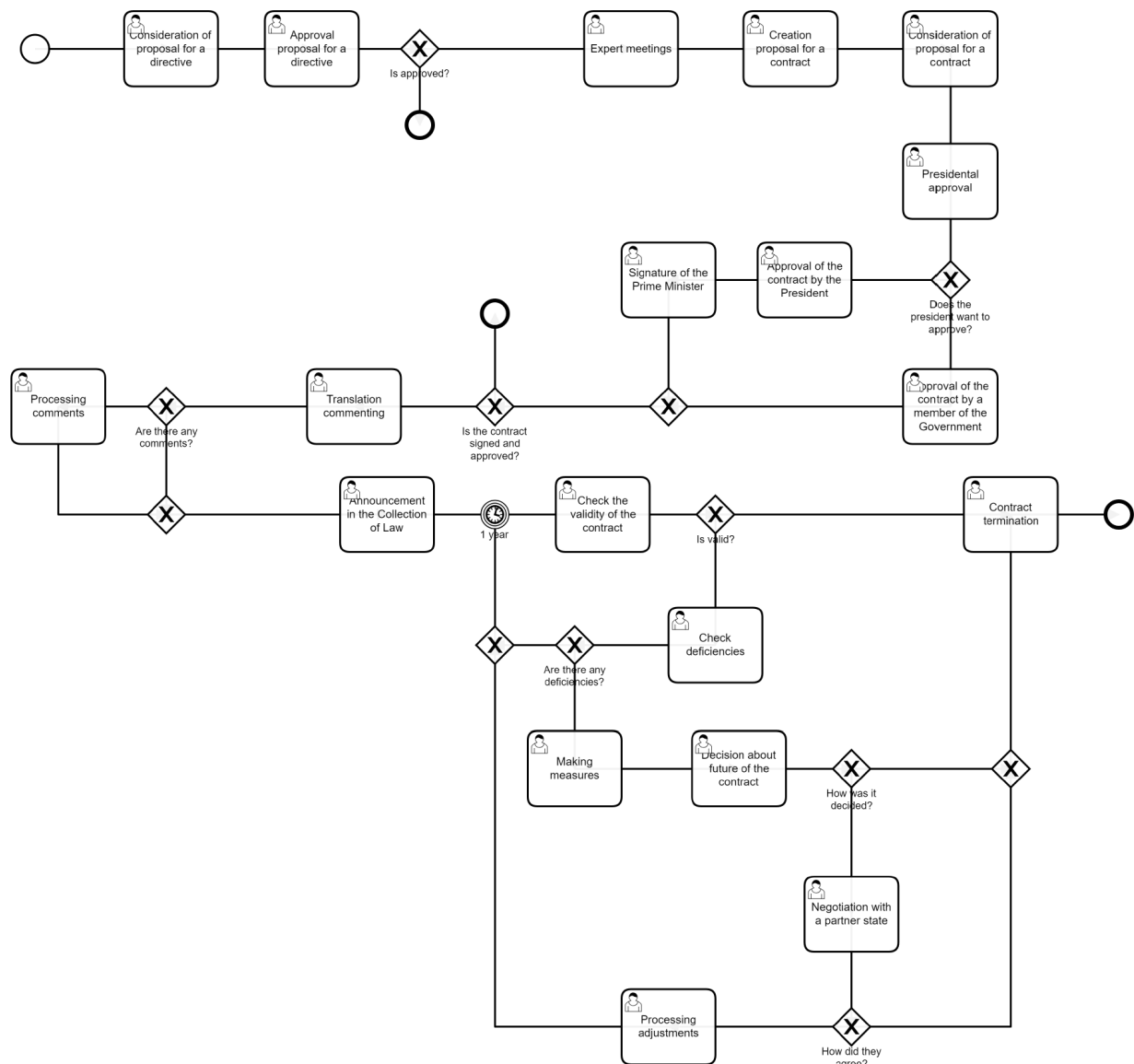


Figure 2.1: An Executable BPMN Process Model [3]

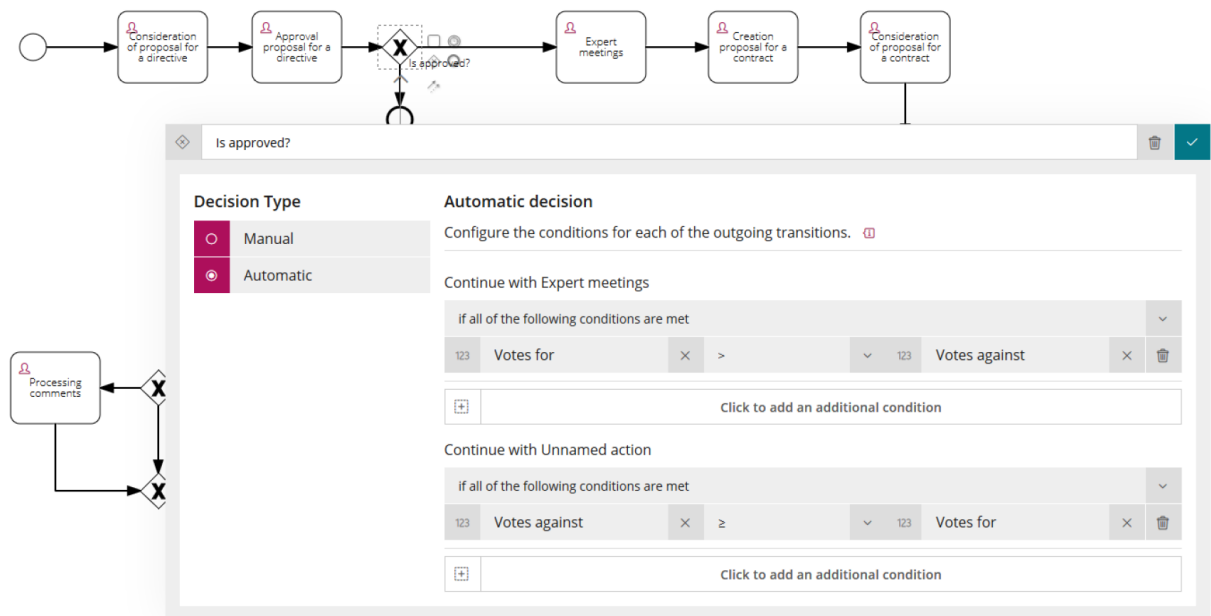


Figure 2.2: An Executable BPMN Process Model Gateway [3]

GeneralFormRemindersAccess Rights

Description

WritePreview

You can use Markdown for formatting.
Press # to insert available information.

Is the contract observed?

YES

Potential problems

Decision

VisibilityConfigurations

Here you can configure when this field will be shown or hidden based on other field values. By default, fields will be shown after you've added them.

Condition influences

When to show this field

if all of the following conditions are met

Is the contra...

×

is set to 'NO'

Click to add an additional condition

Description of problems

Reuse a form

Click to find form for reuse

Potential problems

Description

Enter a description (optional)

Initial value

Decision

Read only

YESNO

Mandatory

YESNO

☒ Define custom rules

Options

Formal problems

Problems with partner state

Text problems

Other

Allow multiple values to be entered

Figure 2.3: An Executable BPMN Process Model Forms [3]

Tasks
Cases
Processes
Analytics

Submitting a proposal of new directive (resort contract)

Name of submitter	Vladimir Vlk	×
Contact	v@v.cz	×
Text of proposal	proposal.pdf 29 kb	×
Topic		×
Resort	Ministry of Health	×

Submit a proposal

Figure 2.4: A BPMN Process Execution [3]

Tasks
Cases
Processes
Analytics

Task overview

- MK Consideration of proposal for a directive ✓
- VV Approval proposal for a directive ✓
- MK Expert meetings ✓
- VV Creation proposal for a contract ✓
- MK Consideration of proposal for a contract ✓
- VV Presidential approval ✓
- MK Approval of the contract by the Preside... ✓
- VV Signature of the Prime Minister ✓
- MK Translation commenting

Resort contract > Resort contract #1

Signature of the Prime Minister

Assignment

VV Vladimír Vlk
vlvklad2@fit.cvut.cz

Task due date
Not set

*This task was already completed, so it can't be changed anymore. Check your **inbox** for more tasks to complete.*

Signature	Babis
Date	3 January 2020

Done

Last updated at 18:54:59. [Refresh](#)

Figure 2.5: A BPMN Process Execution [3]

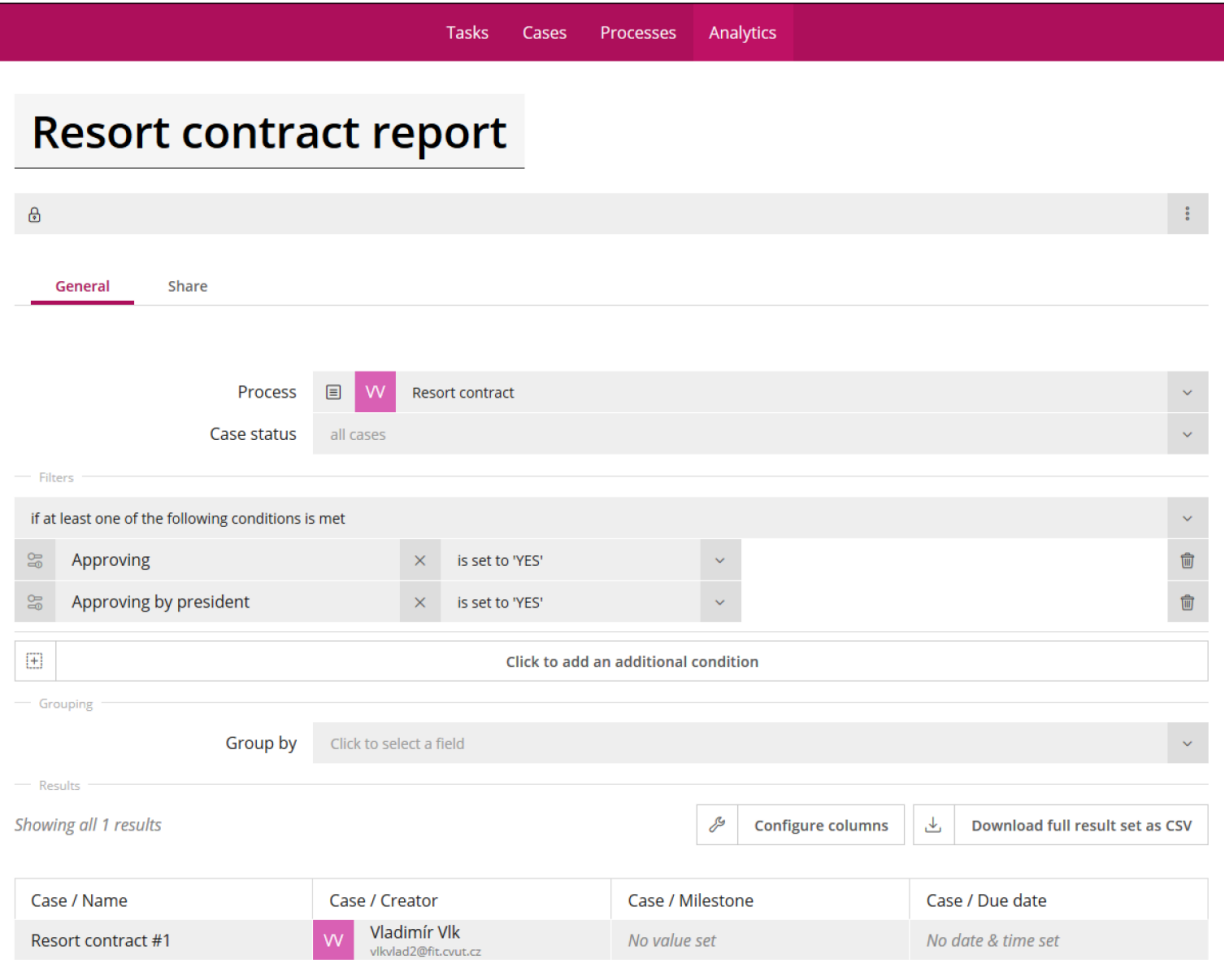


Figure 2.6: A BPMN Process Report [3]

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.
- [3] Martin Kutiš and Vladimír Vlk. Mi-mep semestral work - resort contract. https://github.com/CCMiResearch/DEMOCASESTUDIES/blob/master/MEP/2019/2019_Czech_%20Resort_Contract_Kutis_Vlk.pdf. Accessed: 2020-05-20.