HSLU Lucerne University of Applied Sciences and Arts

Technik & Architektur
BSc. Business Engineering | Innovation
Bachelor-Thesis

Conceptualizing an integrated technical support process

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Industry / Practice Partner: Global industrial manufacturing company providing innovative technology solutions and services across various sectors.

1. Background, Challenges & Objectives

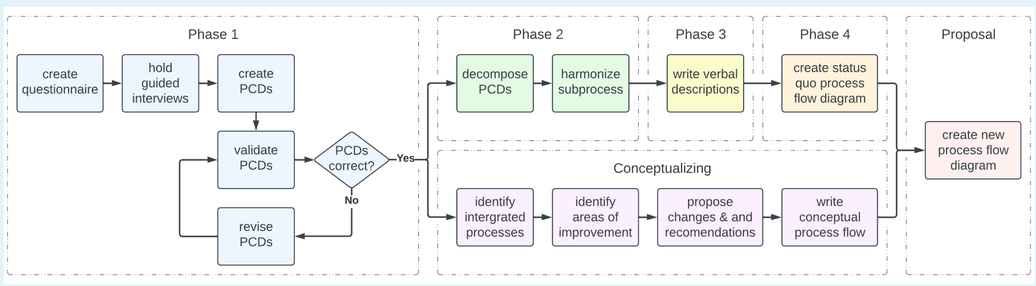
Background
As the interconnectivity between applications increases, incidents that span multiple applications have emerged. The current approach, which is application-based support, affects the efficiency and quality of technical support processes. At present, there is no defined process for handling such incidents, resulting in delays and unnecessary communication during incident resolution.

Challenges
The problem being addressed is the challenge of providing end-to-end support for solutions involving interconnected applications, resulting in communication complexities and delays in incident resolution. The project seeks to propose an ideal solution by developing a concept for an integrated technical support process that simplifies communication, enables one person to support the entire solution, and encourages a shift from application-based support to solution-based support. The study's significance lies in its potential to enhance the efficiency and quality of technical support processes, decrease issue resolution time, promote seamless operations integration, and ultimately lead to an increased customer experience and satisfaction.

Objectives
1. Propose an integrated technical support process to enhance efficiency and reduce incident resolution time.
2. Identify areas of improvement to shift towards solution-based support.
3. Analyze existing processes and identify areas for improvement.
4. Provide recommendations to enhance the quality and efficiency of technical support processes.

2. Methodology / Materials

Methodology



Flow chart of methods

- Structured process elicitation according to iSPEM
- Guided Interviews
- Conceptual design

Materials / Tools
- Lucidchard (cloud-based visual collaboration platform)
- Business Process Model and Notation (BPMN)

Literature

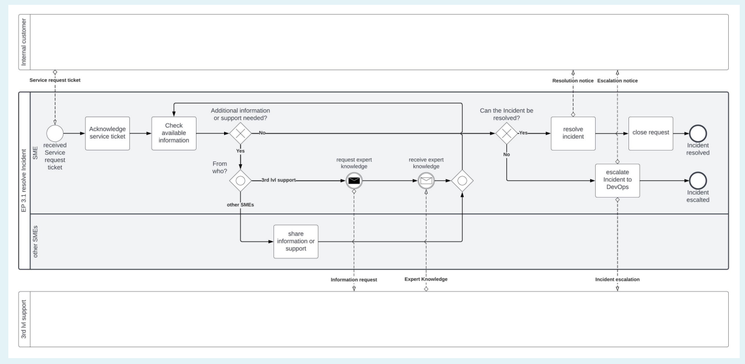
- Minonne, C. (2022). Digital business engineering : Going beyond business models and getting down to digital business processes. vdf Hochschulverlag AG
- Mayer, H. O. (2008). Interview und schriftliche Befragung (Vol. 4. Auflage). Oldenbourg Wissenschaftsverlag GmbH.
- Brace, I. (2018). Questionnaire design : how to plan, structure and write survey material for effective market research (Fourth edition). KoganPage.

3. Results / Solution

Results of Structured Process Elicitation according to iSPEM
With the structured process elicitation methodology, a harmonized elementary process for incident resolution was captured and visualized.

INPUT	Source (EX / EP / IS)	TYPE
• Service request ticket • Expert Knowledge or Support • Expert Knowledge	• Internal customer • Other SMEs • 3rd lvl support	EX EX EX
OUTPUT	**Sink (EX / EP / IS)**	**TYPE**
• Information or Support request • Incident relevant information • Information request • Incident resolution • Request closure	• Other SMEs • Other SMEs • 3rd lvl support • Internal Customer • Internal Customer	EX EX EX EX EX
PROCEDURE and LOGIC		**TYPE**
Start-Event: • The SME (RL) received (AT) a service request ticket (DM) from an internal customer (EX).		SE-1
• Depending on the internal customer (EX) a predefined SME (RL) acknowledges (AT) the service ticket. • The SME (RL) checks (AT) the available information. • More information needed? o Yes, from other SMEs: The SME (RL) shares (AT) incident relevant information with other SMEs (EX) and requests (AT) information or support (RX) until no further information or support (RS) from other SMEs (EX) is needed. ▪ The other SMEs (EX) share (AT) expert knowledge with the SME (RL) or support (AT) the SME (RL) in an application (T) of their expertise. o Yes: 3rd lvl support: The SME (RL) shares (AT) incident relevant information with the responsible 3rd lvl support (EX) and requests (AT) information (DF) until no further information (RS) from 3rd lvl support (EX) is needed. ▪ The 3rd lvl support (EX) shares (AT) expert knowledge (DF) with the SME (RL). • Incident resolvable? o Yes: The SME (RL) resolves (AT) the incident and closes (AT) the service request ticket (DF). o No: The SME (RL) escalates (AT) the Incident to the responsible 3rd lvl support (EX).		
End-Event: • The incident was resolved (AT). • The incident was escalated (AT) to 3rd lvl support (EX).		EE-1 EE-2

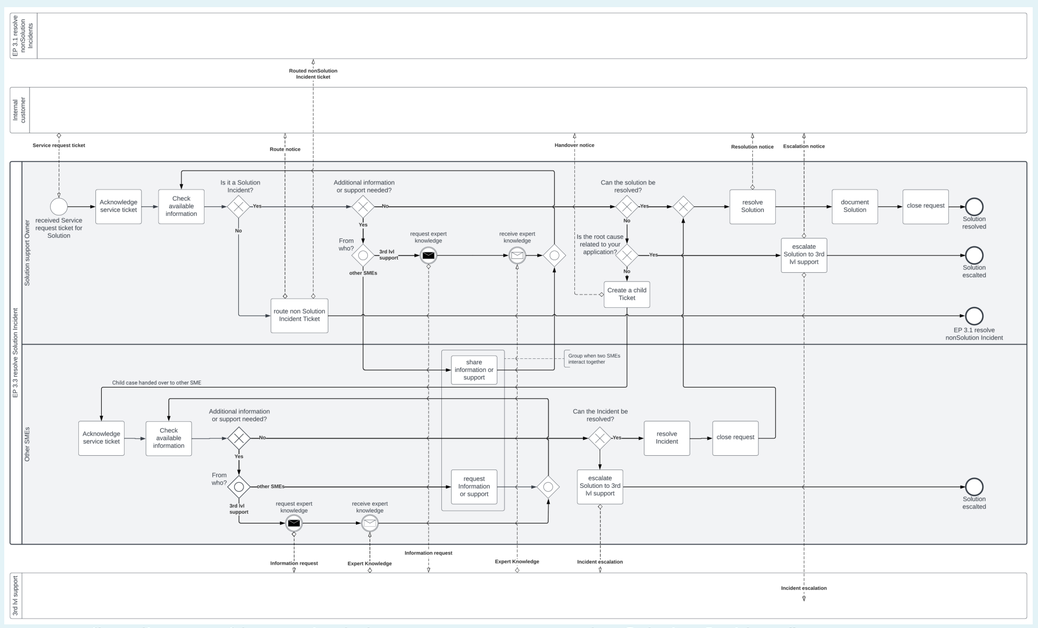
Legend of process attributes:
EX = External entity, EP = Elementary process, IS = Information system, DF = Data flow, SF= Service flow, MF = Material flow, SE = Start event, AT = Activity, IN= Instruction, DM = Document, T = Tools, BR = Business rule, RI = Resource, XI= Intermediate event, XL = Rule, EE = End event



Verbal description and process flow diagram of harmonized elementary process „resolve Incidents“

Concept of Solution-Based Integrated Technical Support Process
The concept for the solution-based integrated technical support process was created and revised based on the process requirements and feedback provided by the industry partner.

The process enables one person to support an entire solution and encourages a shift from application-based support to solution support. Decreasing the change of ownership of service request tickets and providing the customer with a single point of contact.



process flow diagram of harmonized elementary process „resolve Solution Incidents“

4. Discussion, Conclusions & Outlook

Discussion
The combined structured process elicitation with guided interviews proved to be effective in achieving the desired results.

The feasibility of the proposed solution was confirmed by the supervisor from the industry partner, indicating that it can be applied immediately for the currently available solution and any future solutions.

Conclusions
The project proposes a new way of support, based on the analysis of current processes and requirements stated by the industry partner. The implementation enhances efficiency and reduces incident resolution time.

Outlook
Future studies could expand the scope of this research project beyond the STT T4 department and the six applications that were provided with 2nd level support by the SMEs. Additionally, future research could analyze the performance of the solution incident resolution in comparison to the resolution of previous incidents that were related to more than one application.

FH Zentralschweiz

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External expert: Dr. Lorenz Tschuor

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