TOOP: Analysis of a Pilot Documentation Method in (European) Large Scale Pilot Projects

Abstract: The TOOP project (The Once Only Principle Project) represents a European large-scale pilot project with the aim to exchange data on the broadest possible level according to the once only principle. The pilots within the project follow the method of "Connectathon" and has shown success in ist operationalisation. Connectathons are intended to prove connectivity between technical actors. One specific aspect of "prove" reflects on a transparent method of documentation of results, which follows the dimensions of Transparency, Actuality, Completeness, Traceability *and* Readability.

1. Overview on the TOOP Project

The Horizon2020 project TOOP is established as a large-scale pilot project. The project develops a technical infrastructure for the exchange of data in Europe according to the once-only principle (EU 2016). The piloting parties in the participating member states use this system, which is based on a federated ICT-architecture, using and following the *4-corner-model* of the existing building block *eDelivery* (DIGIT/CONNECT 2015).

The aim of the project is to link registers and national eGovernment-applications in order to facilitate data exchange with a focus on the implementation of the Single Digital Gateway Regulation (EU 2018). The data made available to public administrations always remain under the full control and consent of the organisations involved, but the data should be reused within the administration to gain benefits; specifically, from time and cost savings in data usage and the use of ICT for the respective business process automation. The TOOP project is focused on the pilot execution, three different pilot areas are implemented within its Large-Scale-Pilot-approach (TOOP 2019_1):

- Cross-border e-Services for Business Mobility (GBM – focus of the article)
- eProcurement
- Online Ship and Crew Certificates

2. Overview on the Instrument of Connectathon

As a model for the pilot realisation the existing model of *Connectathon* of the IHE was chosen and adapted (IHE 2017). A Connectathon is a procedure to demonstrate interoperability between ICT systems, to prove that the technical specification has been fully and correctly implemented. Therefore, a Connectathon consists of [1] a planning, [2] specific content, [3] a technical implementation and [4] an execution (…and documentation as shown below). A Connectathon also represents a procedure for identifying errors and improving them.

When used in TOOP no negative effects for an error in the implementation arise to the participating parties, but the incentive for improvement. Therefore, a specific concept of this instrument specifically for TOOP was described and adopted for the project. If such improvement is necessary, it may be results in a refinement of the specification or the specific implementation at the participating organisations' side. However, in TOOP project malfunctions must not affect operative ICT-environment and therefore do not lead to data loss or damage. Thus, the Connectathon in TOOP enables test validation in a controlled and neutral environment; this means that both data providers (called TOOP data providers) and data consumers (called TOOP data consumers) work together on their respective service endpoints in order to establish functional connectivity, but also compatibility with formats and to ensure data attributes and semantics. The Connectathon encourages the partner countries to work closely together to solve the technical problems (TOOP 2019_2).

3. Introduction of an Analysis of Result Documentation of the Pilots

The Connectathon in TOOP has been established in several iterations based on each other and on a long duration. This approach shows specific challenges for the result documentation; overall in the light of *Open Access to Research Data* of the European Commission, reflecting on Horizon 2020 pilot projects (EC, OPEN ACCESS). With regard to what it means to effectively align with *Openness* (in access and structure to project data) the following dimensions for an assessment should be considered: [1] *Transparency*, [2] *Actuality* [3] *Completeness*, [4] *Traceability* and [5] *Readability*. This dimensions could be used for an assessment of the quality of documentation.

- *Transparency* means an overall approach of being "open" in data provision
- *Actuality* means an urgent publication to support completeness
- *Completeness* means all the content and is in further connection with traceability
- *Traceability* reflects on the "easy" access of the contents and a comprehensive structure and is in further connection with readability
- *Readability* goes beyond the form, it reflects on the intellectual comprehensibility of the recipients

All data of the pilots and regarding the results are online and accessible (TOOP, Pilot Documentation 1). It is therefore fully *transparent* and of easy reach (website) for all interested persons.

Regarding the *actuality*, all the data from Connectathons are actual due to the fact that the results of the single Connectathon are published as soon as possible. For example: The overview on the results of the Connectathon from March 12, 2020 was online at the same day (TOOP, Pilot Documentation 2).

Regarding the *completeness*, all Connections until now are published and easily *traceable* within a stringent date-by-date documentation. The pilot phase is divided in two Connectathon-*Sessions* - the *Session 1* from 12/2018 to 02/2020, and the *Session 2* from 05/2019 until now, which is also visible in an easy and comprehensible way. All the Connectathons and the regarding documentation are visible online (TOOP, Pilot Documentation 3).

- Global overview of the results
- **Connectathon - 12.03.2020**
- Connectathon - 27.02.2020
- Connectathon - 20.02.2020 - Maritime pilot
- Connectathon - 13.02.2020
- Connectathon - 03.02.2020
- Connectathon - 19.12.2019
- Connectathon - 25.11.2019
- Connectathon - 11.11.2019
- Connectathon - 28.10.2019
- Connectathon - 10.10.2019
- Connectathon - 26.09.2019
- Connectathon - 16.09.2019
- Summer planning
- Connectathon - 22.08.2019
- Connectathon - 25.07.2019 - Maritime pilot
- Connectathon - 04.07.2019
- Connectathon - 27.06.2019
- Connectathon - 13.06.2019
- Connectathon - 07.06.2019
- Connectathon - 23.05.2019
- Pre-Connectathon - 16.05.2019
- ⌄ S1 - Connectathon progress: 12.2018 - 02.2019
- Tests results updated - 21.02.2019
- Connectathon - 14.02.2019
- Connectathon - 07.02.2019
- Connectathon - 31.01.2019
- Pre-connectathon 20.12.2018

Figure 1: Structure of date-by-date documentation of each Connectathon

The most important dimension, beside of transparency constitutes the *readability* of published data. Therefore, each Connectathon is described in detail, first from the overview, followed by a table the

specific (connection-)results, supported by a comprising and easy conceivable graphical visualisation. For example, the result page of the Connectathon on March 12, 2020 (TOOP, Pilot Documentation 4).

*Form follows function! (Louis Sullivan); i*n this regard it is important to provide a standardised model of documentation of the pilot result for the documentation; strictly following the five dimensions. Furthermore, it is of utterly importance for an additional dimension, which comes into play when considering the ongoing progress of the pilots: the *comparability*. Hence, a measuring system is necessary to determine the success of each connectivity trials within the former trials. Therefore, TOOP project has developed a threefold division in the result classification: [1] passed, [2] partly passed and [3] failed. All trials between the member states participants' where graded following this system and also commented with qualified information, which resulted in a traceable and comparable result documentation, as depicted as an example in the figure below (TOOP, Pilot Documentation 5).

Connectathon results on 03.02.2020		
Result valid identifier	Result false identifier	Comment
Passed	Passed	Takes time to display the result the first time (2min)
Partly passed	Partly passed	Invalid: global error message needed
Passed	Passed	Delay with first invalid identifier
Passed	Passed	
Passed	Passed	Error message: 004 - unavailable. Global error 001 or 004
Passed	Passed	Check new concept names
Passed	Partly passed	Invalid: global error message needed
Passed	Passed	
Failed		Timeout
Passed	Passed	
Passed	Passed	
Passed	Partly passed	Miss global error message
Partly passed	Failed	Data retrieved but timeout and not displayed
Passed	Passed	
Passed	Passed	
Partly passed	Passed	Timeout issue
Passed	Partly passed	Miss global error message
Partly passed	Failed	Data retrieved but timeout and not displayed
Passed	Passed	

Figure 2: Structure of result classification

4.   Conclusion

TOOP project has adopted the instrument of Connectathon for the pilot operation and has established a structure of documentation, which almost entirely followed the five dimensions of *transparency, actuality, completeness, traceability* and *readability*. Furthermore, the structure allows the user to *compare* the progress of the pilot within the Connectathons to a very large extent. This documentation of results has been followed *consistently* since the beginning of the pilot execution.

From the perspective of a piloting member state this documentation of results provides a holistic view and thus supports the improvement process at all. Therefore, the authors recommend both the pilot instrument as such and overall the method of documentation of results *as a model for further adoption in this kind of dislocated and widespread pilot projects, such as Large-Scale-Pilot projects*.

References

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(EU 2018) European Parliament and the Council (2018) REGULATION (EU) 2018/1724 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 2 October 2018 establishing a single digital gateway to provide access to information, to procedures and to assistance and problem-solving services and amending Regulation (EU) No 1024/2012

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(IHE 2017) IHE Europe (2017) Whitepaper on Connectathon

(TOOP 2019_2) Lampoltshammer, T., & John, K., & Helger, P., & Piswanger, C.-M. (2019) *Connectathons - A Sustainable Path Towards Development in European Large-Scale Pilots.* Proceedings of Ongoing Research, Practitioners, Posters, Workshops, and Projects of the International Conference EGOV-CeDEM-ePart 2019*, 207-214*

(EC OPEN ACCESS) https://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/open-access-dissemination_en.htm

(TOOP Pilot Documentation 1-5) Specific pages of the TOOP pilot documentation - viewed latest on March 25, 2020 for this article

 1) http://wiki.ds.unipi.gr/display/TOOPPILOTS/

 2) http://wiki.ds.unipi.gr/pages/viewpreviousversions.action?pageId=77267276

 3) http://wiki.ds.unipi.gr/display/TOOPPILOTS/Testing+reporting

4) http://wiki.ds.unipi.gr/display/TOOPPILOTS/Connectathon+-+12.03.2020

5) http://wiki.ds.unipi.gr/display/TOOPPILOTS/Connectathon+-+03.02.2020

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