Using the Business Model Canvas to Support a Risk Assessment Method for Digital Curation

Diogo Proença
IST/INESC-ID
Rua Alves Redol, 9
1000-029 Lisboa
diogo.proenca@tecnico.ulisboa.pt

Ahmad Nadali
IST/INESC-ID
Rua Alves Redol, 9
1000-029 Lisboa
ahmad.nadali@tecnico.ulisboa.pt

José Borbinha
IST/INESC-ID
Rua Alves Redol, 9
1000-029 Lisboa
jlb@tecnico.ulisboa.pt

ABSTRACT
This poster presents a pragmatic risk assessment method based on best practice from the ISO 31000 family of standards regarding risk management. The method proposed is supported by established risk management concepts that can be applied to help a data repository to gain awareness of the risks and costs of the controls for the identified risks. In simple terms the technique that supports this method is a pragmatic risk registry that can be used to identify risks from a Business Model Canvas of an organization. A Business Model Canvas is a model used in strategic management to document existing business models and develop new ones.

Categories and Subject Descriptors
H.1 [**Information Systems**]: Models and Principles; J.1 Administrative Data Processing Government; K.6.4 Management of computing and Information Systems

General Terms
Management, Security, Standardization, Verification.

Keywords
Risk Assessment; Digital Curation; Business Model Canvas.

1. INTRODUCTION
The purpose of this research is to make good use of risk management [3] concepts to raise awareness of repository costs of digital curation. Costs are what we have to give up for controls, which in turn are the measures that we have to put in practice to minimize loss or to maximize gain. In that sense, a control is anything we are considering applying to either minimize negative impacts or to take advantage of opportunities to produce value and thus bring gains. However, we must also agree that, in most of the usual digital curation scenarios, it is usually very difficult to estimate the absolute value of an asset. For that reason, we are here ignoring the measurement of value, and focusing only in the identification of controls as the source of costs.

JCDL'15, June 21–25, 2015, Knoxville, Tennessee, USA.
ACM 978-1-4503-3594-2/15/06.
http://dx.doi.org/10.1145/2756406.2756965

The technique behind this method (depicted in Figure 1) analyses an archive with the support of a risk registry and is based on Business Model Canvas (BMC) [4]. A BMC allows organizations to fill their business model in a visual canvas that allows for easy understanding of their business in nine building blocks. The motivation behind it is to understand both what can positively affect the value propositions of your business (opportunities) and what can negatively affect those same value propositions (risks).

The idea is to identify and understand the risks and their impact (positive and negative) on each of the nine building blocks of the BMC. We demonstrate how the BMC technique can be used in the method above to find risks and then controls for those risks. This in turn makes it possible to estimate the related costs as part of the overall costs of curation. Digital curation "involves maintaining, preserving and adding value to digital research data throughout its lifecycle. The active management of research data reduces threats to their long-term research value and mitigates the risk of digital obsolescence." [2] The main steps done are:

1. Formulation of related risk questions: for each of the building blocks of BMC some questions are provided to facilitate the identification of risks for each of the building blocks.
2. Generic Risks and Controls for the Generic BMC: after the formulation of the risk questions, the next step is to identify the related risks, and then the respective controls.

Generic risks and controls were identified after analyzing the results of the DRAMBORA [1] report. The risks and controls that better align with the generic BMC model were selected.

The result is a generic BMC, depicted in Figure 2, based on the Open Archival Information System (OAIS) [5], with an associated generic registry of risk questions and common related controls, relevant for the domain of digital curation to cost evaluation. The pragmatic method was applied to estimate costs of curation focusing on risks and controls to three case studies: two data archives and one web archive. The details on the two case studies, generic BMCs and risk registry can be found at http://4ctoolset.sysresearch.org/.

2. ACKNOWLEDGEMENTS
This work was supported by national funds through Fundação para a Ciência e a Tecnologia (FCT) with references UID/CEC/50021/2013 and EXCL/EEI- ESS/0257/2012 (DataStorm), and by the project 4C, co-funded by the EU under FP7 under grant agreement no. 600471.

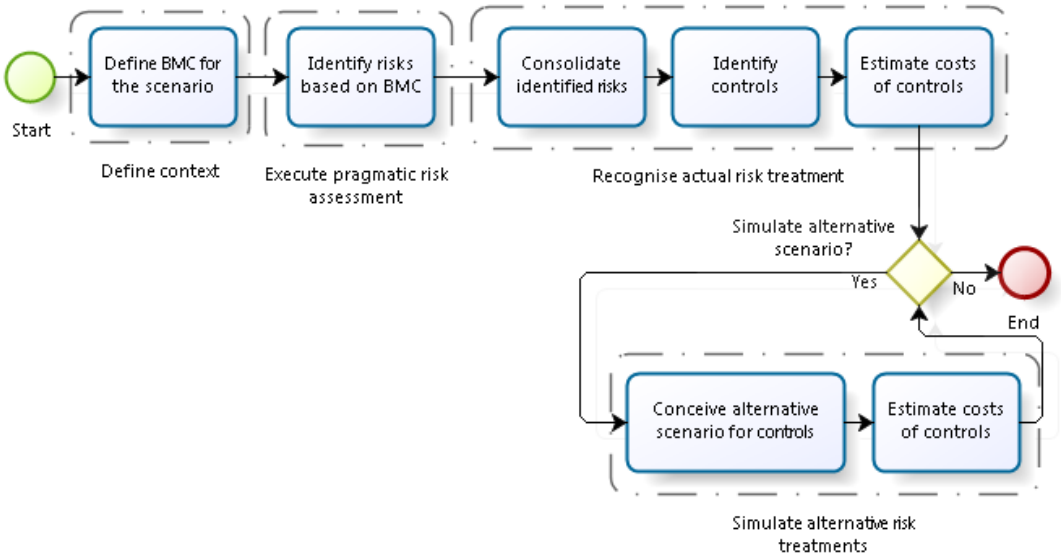

Figure 1: BPMN diagram of the pragmatic method to estimate costs of curation focusing on risks and controls

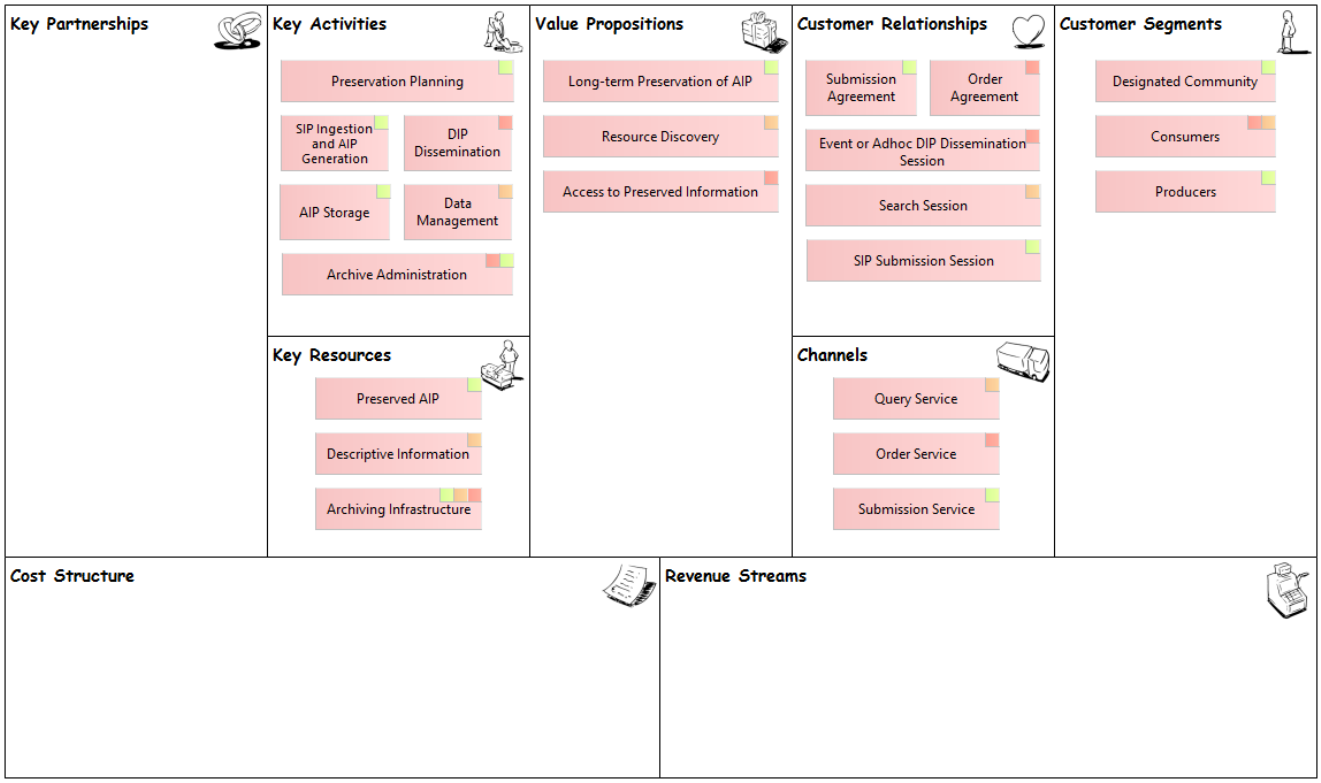

Figure 2: Generic BMC for Digital Curation based on the OAIS

3. REFERENCES

[1] Digital Curation Centre and Digital Preservation Europe, (February 2007), "DCC and DPE Digital Repository Audit Method Based on Risk Assessment, v1.0.", retrieved 22.03.2014, from http://www.repositoryaudit.eu/download

[2] Digital Curation Centre, "What is digital curation?". [Online]. Available: http://www.dcc.ac.uk/digital-curation/what-digital-curation

[3] ISO/FDIS 31000:2009(E): Risk Management—Principles and guidelines.

[4] A. Osterwalder, "Business Model Generation", Alexander Osterwalder & Yves Pigneur, 2009.

[5] The Consultative Committee for Space Data Systems, Space data and information transfer systems – Open archival information system – Reference model – Magenta Book. June 2012. CCSDS 650.0-M-2.