

What Do We Need to Collaborate? Transfer in Universities for Cross-organizational Collaboration

Claudia Doering^a, Finn Reiche^b and Holger Timinger^c

Institute for Data and Process Science of University of Applied Sciences Landshut, Germany

Keywords: Transfer, Collaboration, University, Process, Reference Model, Process Library, Knowledge Sharing, University Collaboration, Platform.


Abstract: In addition to education and research, the Third Mission is one of the pillars of today's universities. The third mission includes lifelong learning, transfer, and community engagement. It comes with new tasks and activities for dedicated resources. To fulfil these tasks, many universities are looking for cross-organizational cooperation. However, there is no standardized framework for such cooperation. In this paper, such a framework for support processes is presented. It aims to provide a standardized approach to building cross-organizational collaboration to accomplish the tasks associated with the third mission. The framework is derived by applying the Design Science research approach. An initial evaluation is carried out by expert reports. The framework has the potential to facilitate the establishment of new collaborations and structure their joint activities.


1 TRANSFER MANAGEMENT FOR COLLABORATION


The original public mission of universities comprises research and teaching. Nowadays, however, the activities of universities go well beyond this. The sharing of knowledge and technology from university and industry and society is encouraged by policy makers throughout national governments and regional authorities. These activities often go in line with the so-called “Third Mission” of universities, which incorporates the concept of a profound sharing of research finding in form of knowledge and/or technology from the universities to industry and society (Rubens et al., 2017). Part of this mission are life-long learning offers, knowledge transfer and support for start-ups performed by universities today (Pinheiro et al., 2015). Multiple concepts try to describe these activities, but there is still no common understanding of it as these activities are largely tied to individual commitment or are anchored at an institute level (Henke et al., 2016). However, the tasks associated with the third mission bring along

many challenges to universities, both small and large. Alongside with a scepticism towards an academic commercialization, there is often only limited support and resources for transfer projects especially in smaller universities (Rubens et al., 2017). Therefore, the sharing of knowledge, the formation of university-platforms and the creation of university alliances is gaining increasingly importance. Within a university alliance or a shared platform, best practices, processes and knowledge can be shared across all universities, which are member of this alliance. For this reason, university alliances, networks and platforms are gaining increasingly importance as they offer, especially for smaller universities an increased visibility, more resources, cost savings through synergy effects and a common appearance (Doering and Seel, 2019).

To simplify this process, a shared platform for third-mission support processes could be used, which will be proposed within this paper. Business processes in general can be grouped into core, support and management processes, whereby “*support processes were defined as instances of processes that*

^a  <https://orcid.org/0000-0002-3727-8773>

^b  <https://orcid.org/0000-0003-2066-7323>

^c  <https://orcid.org/0000-0001-7992-0392>

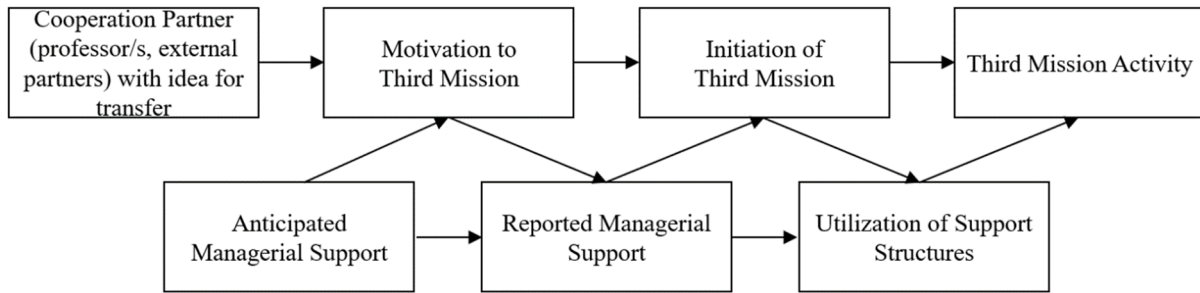


Figure 1: Causal Relation of the Initiation of Third Mission (own representation according to (Foxon 1997)).

generated or delivered products to internal customers of an organization” (Kock and McQueen, 1998) (Hammer and Champy, 2006). With regards to third mission activities, support processes are for example financial or judiciary processes within universities. Based on the previous considerations, the following research questions arise:

RQ1: How can universities support their third mission activities with only limited resources?

RQ2: How can support processes be displayed in a structured manner?

In order to answer these research questions, this paper first discusses the proposed research methodology. Then a shared platform for third-mission support processes is proposed, with pointing out all relevant processes and finally, a conclusion with an outlook on future work is outlined.

The importance of support processes in the successful realization of third mission activities can be seen in the analysis by FOXON, who developed a causal model to describe the relationship from an idea for a transfer project to the real execution of such a project (see Figure 1). At the moment when cooperation partners gather together for a third mission activity (e.g. a transfer project), they first rely on managerial support from e.g. the university or faculty lead and only when everything is already reconciled, the support structures of the university need to be in place and provide their support. As this is quite late in the whole initiation process many things can deviate from the anticipated outcome. Even if it is just that the support structures are not capable to handle the third mission activity capacity-wise, this can result in a failed project. Therefore, the sharing of support structures and processes between multiple universities and the implementation of a structured process framework can support third mission activities of universities immensely.

2 RESEARCH METHODOLOGY

High quality research findings are assured by a profound and established research methodology, which was applied in this paper (see Figure 2). The design science research approach by HEVNER et. al suggests distinct guidelines for the determination and evaluation of research (Hevner, 2007). As this research aims to provide a process model for third mission activities, specific methodologies for information systems (IS) research were applied.

Therefore, the literature search and analysis was conducted according to the principles of VOM BROCKE and OKOLI (OKOLI, 2015; VOM BROCKE ET AL., 2009).

- Step 1: Planning of the literature search, definition of the search area and conceptualizing of the search
- Step 2: Identification of data bases and search string. Scopus, ScienceDirect and IEEE Xplore were the three main sources for bibliometric data. In order to determine all relevant search results, no restriction to a time frame or publication type was applied. To identify relevant publications in these databases a search string was developed with the standard phrases “transfer process” and “third mission” and the extension phrases “university”, “support”, “reference model” and “administration”.

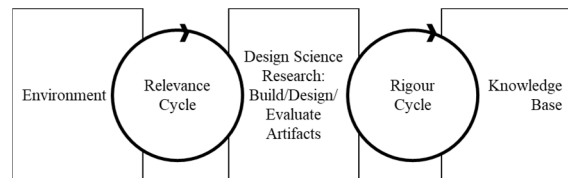


Figure 2: Design Science Research Methodology according to HEVNER et. al (Hevner, 2007).

- Step 3: Application of selection criteria. The following inclusion and exclusion criteria were applied to narrow down the search results: removal of duplicates, publications in English, citation of the publications one time or equal to one and a mission focus on the university sector.
- Step 4: Selection of literature according to first title, then abstract and then full-text scan. First irrelevant publications were removed based on their title and their abstract, which left 11 publications for a full text reading.

The framework for support processes for third mission activities of universities was created according to the guidelines of HEVNER et. al (Hevner, 2007). The design science research approach comprises the areas knowledge base, environment and build phase along with the rigor, design and relevance cycles. All these aim to design and build artifacts, which can be models, methods or constructs. Within the scope of this research, the process framework serves as artifact of the design science research methodology, which was created in the design cycle. The scientific discourse on the topic of third mission support processes was analysed based on the literature search (knowledge base and rigour cycle). Expert interviews on third mission processes in universities derived the requirements and support processes from the environment in the relevance cycle. All participants were employees in universities with direct relation to third mission activities.

3 SHARED PROCESSES IN UNIVERSITY ALLIANCES

Platforms are often used in business to achieve uniformity and drive standardization (Gawer and Cusumano, 2014). GAWER points out that the term has been used since the 16th century and has always described something that serves as a foundation (Gawer, 2011; Harvard Business Review, 1992).

In business, they serve as a foundation and set new standards. thus, the largest companies rely on platforms because they offer the best cost-benefit relationship (Appold and Kasarda, 2011; Cusumano, 2010; Gawer, 2011). But platforms are not only used in business, they are also used by Higher Education Institutions. For example, universities use platform models heavily in e-learning as e-learning platforms, but also in other areas (Piotrowski, 2010). Increasingly, they are also using them in the area of

transfer, although so far, they have been rather rare in comparison (Reiche, 2022).

Since universities are becoming increasingly process-oriented and the use of process-based software systems is also growing continuously, the number of modelled business processes is increasing at the same rate (Becker et al., 2012). In consideration of the fact that some of the third mission processes in a university alliance also take place across universities, the use of a shared process framework will be demonstrated in the following.

In consideration of the fact that universities always have to carry out comparable processes in the initiation and implementation of Third Mission activities (e.g. the application for funding or the preparation of a contract between project partners), it makes sense to use a shared process framework. These reusable process models, which represent context-independent standard procedures are called reference models (Schuette and Rotthowe, 1998). The most important advantages of the usage of reference models are time and cost savings and an improvement of quality in the creation of such information models (Thomas, 2006).

Reference models can meet the special requirements of a university alliance and simplify collaboration. These requirements include:

- Processes must be modelled in a standardized manner but allow for customization to individual university circumstances.
- It must be possible to search for processes, process descriptions and process elements.
- Processes and their descriptions must be kept consistent.
- Processes must be visualized in a way that users can understand.
- Employees in the university collaboration should have the opportunity to further develop processes and exchange information with each other.

A shared process framework can not only simplify the work in the administrations of the universities participating in the university alliance, but also promotes intra- and interorganizational cooperation and knowledge transfer (Foxon, 1997). The ability to extract knowledge about an organization's processes from the collection of processes significantly supports knowledge management.

The implementation of a common process framework can also trigger a sustainable knowledge transfer through the use and sharing of best practice processes. But, the functions of a shared process framework go even further and can not only enable a

HR Processes	Finance Processes	Methodological Processes
Human Ressource Planning	Financial Ressources Planning	Start-Up Consulting
Application Procedure for Transfer Employees	Incentives Planning for Scientists	Ensuring Transparency of Research
Recruitment Procedure for Transfer Employees	Carry Out Allocation of Funds	Ensuring good Scientific Practice
Planning of Time-Off for Transfer Activities	Application for Grants	Training on Transfer Platforms/ Research Information Systems
Alumni and Career Services	Manage Donation Revenues	Judiciary Processes
IT Processes	Carry Out Service Accounting	Define IP-Strategy
Infrastructure Planning	Request Funds for Project Proposals	Plan Incentive System for Scientists
IT Tool Provision	Perform Segregation Accounting	Carry Out Allocation of Funds
Maintain IT Infrastructure	Perform Cost Comparisons	Establish Cooperation Agreement (incl. Non-Disclosure Agreement)
Detailed Description of Processes in BPMN 2.0 (Example from Process "Define IP Strategy")		Create Sponsorship Agreement
		Manage Donations
		Agreement between University and Students/external Partners for These

Figure 3: Overview of Support Processes for Third Mission Activities (own representation).

profound knowledge management and transfer between and within universities, it can also be used to optimize business processes through sharing of best practices beyond university borders (Doering and Seel, 2020).

4 FRAMEWORK FOR SUPPORT PROCESSES

Process models which aim to manage knowledge can be divided into the group of descriptive or in the group of prescriptive models (Sprague Jan., 1999). Whereas descriptive models outline the characteristics of knowledge management, prescriptive models describe aspects and approaches and thus the management of knowledge. The proposed process framework aims to describe the target state of knowledge sharing and transfer in university collaborations in regard to support processes, which characterizes it as a prescriptive model. This process framework is an information model, which represents an artifact of the Design Science process. It is therefore a result of an in-depth literature analysis and the European survey on third mission processes. Within the framework, the

processes were grouped into these categories (see Figure 3):

- HR Processes
- IT Processes
- Methodological Processes
- Finance Processes
- Judiciary Processes

Within these categories, there are single processes, which are modelled in detail in BPMN 2.0 (Business Process Model and Notation) to show the control and data flow. In Figure 3 an overview of all identified support processes for third mission activities can be seen. An example of such a process is illustrated in Figure 3. As this is beyond the scope of this publication, the process model just serves as an example and shows a part of the process "Define IP Strategy". BPMN 2.0 as a modelling language was chosen, as it is a standard in graphically describing processes and it is also fairly understandable, even without any process modelling background (Chinosi and Trombetta, 2012). BPMN 2.0 therefore, fulfills also the requirements set by the usage of a reference model, as it offers a standardized way of process modelling and allows for easy customization. As the used symbols in BPMN 2.0 are also kept quite simple (e.g. rhombus for gateways), the processes can be

visualized in a way, that users can understand them straightforward. Today, there are around 60 implementations of BPMN, according to the official BPMN website (Object Management Group, 2022). Consequently, the variety of tools from which universities can choose is broad and a lot of tools are also free to use (e.g. the Modeler by the company Camunda).

The evaluation of the key findings of research is one of the core activities of the Design Science Research Methodology and aims to prove and justify the created artifacts. An evaluation of the process framework was conducted within universities, which cooperate in a university collaboration in Germany. As form of evaluation expert interviews were chosen. All experts are employees in technology and knowledge transfer offices, research funding departments, finance and legal departments. They were selected as a result of their possession of privileged information and their responsibility in third mission activities of their universities (Meuser and Nagel, 2009).

5 CONCLUSION

The third mission promises new possibilities for collaboration and transfer. It has the potential to bridge the gap between academia, industry and society. Education, research, lifelong learning, transfer, and social commitment are integral parts of today's universities.

This paper presented a framework that structures and guides the establishment of cross-organizational collaborations to accomplish the tasks of the third mission. Such structures and guidance are of great importance in facilitating the fulfilment of the third mission. It helps to design suitable support processes that form the basis for efficient and effective transfer processes. The support processes are considered important building blocks to ensure the long-term success of the third mission.

The framework includes support processes for human resource management, information technology, finance, justice, and methods and processes.

The evaluation by means of expert interviews showed that the framework is suitable for fulfilling its purpose.

In a further step, the proposed framework is to be integrated into a higher-level reference model that includes all transfer activities of the universities.

ACKNOWLEDGEMENTS

The transfer project "Transfer and Innovation East-Bavaria" is funded by the "Innovative University of Applied Sciences" East-Bavaria 2018 – 2022 (03IHS078D).

REFERENCES

- Appold, S.J. and Kasarda, J.D. (2011) 'Seeding growth at airports and airport cities: Insights from the two-sided market literature', *Research in Transportation Business & Management* 1: 91–100.
- Becker, J., Algermissen, L. and Falk, T. (2012) *Modernizing processes in public administrations. Process management in the age of e-government and new public management*, 2nd edn, Berlin: Springer.
- Chinosi, M. and Trombetta, A. (2012) 'BPMN: An introduction to the standard', *Computer Standards & Interfaces* 34: 124–34.
- Cusumano, M. (2010) 'Technology strategy and managementThe evolution of platform thinking', *Communications of the ACM* 53: 32–4.
- Doering, C. and Seel, C. (2019) 'Collaborative Knowledge Management in University Alliances with Information Models', in: *INSTICC (Hg.) 2019 – 11th International Conference on Knowledge*, pp. 243–249.
- (2020) 'Konstruktion eines Referenzmodells für den Wissenstransfer in und aus Hochschulverbänden', in: D. Bork, D. Karagiannis, H.C. Mayr and G.f.I.e. Gesellschaft für Informatik e.V. Bonn (eds) *GI Edition Proceedings Band 302 "Modellierung 2020". Tagung vom 19.-21. Februar 2020 Wien, Österreich*, Bonn: Köllen, pp. 93–108.
- Foxon, M. (1997) 'The Influence of Motivation to Transfer, Action Planning, and Manager Support on the Transfer Process', *Performance Improvement Quarterly* 10: 42–63.
- Gawer, A. (ed.) (2011) *Platforms, markets and innovation*, Cheltenham: Edward Elgar.
- Gawer, A. and Cusumano, M.A. (2014) 'Industry Platforms and Ecosystem Innovation', *Journal of Product Innovation Management* 31: 417–33.
- Hammer, M. and Champy, J. (2006) *Reengineering the corporation. A manifesto for business revolution*, New York: Harper Collins.
- Harvard Business Review (1992) *Creating Project Plans to Focus Product Development*. Online. Available HTTP: <<https://hbr.org/1992/03/creating-project-plans-to-focus-product-development>> (accessed 9 May 2022).
- Henke, J., Pasternack, P. and Schmid, S. (2016) *Third Mission bilanzieren. Die dritte Aufgabe der Hochschulen und ihre öffentliche Kommunikation*, Wittenberg: Institut für Hochschulforschung Halle-Wittenberg.

- Hevner, A.R. (2007) 'A Three Cycle View of Design Science Research', *Scandinavian Journal of Information Systems*.
- Kock, N. and McQueen, R. (1998) 'Knowledge and information communication in organizations: an analysis of core, support and improvement processes', *Knowledge and Process Management* 5: 29–40.
- Meuser, M. and Nagel, U. (2009) 'Das Experteninterview - konzeptionelle Grundlagen und methodische Anlage', in: S. Pickel, G. Pickel, H.-J. Lauth and D. Jahn (eds) *Methoden der vergleichenden Politik- und Sozialwissenschaft*, 1st edn.
- Object Management Group (2022) *BPMN Specification - Business Process Model and Notation*. Online. Available HTTP: <<https://www.bpmn.org/>> (accessed 8 May 2022).
- Okoli, C. (2015) 'A Guide to Conducting a Standalone Systematic Literature Review', *Communications of the Association for Information Systems* 37.
- Pinheiro, R., Langa, P.V. and Pausits, A. (2015) 'One and two equals three? The third mission of higher education institutions', *European Journal of Higher Education* 5: 233–49.
- Piotrowski, M. (2010) 'What is an E-Learning Platform?', in: Y. Kats (ed.) *Learning management system technologies and software solutions for online teaching. Tools and applications*, Hershey, PA: Information Science Reference, pp. 20–36.
- Reiche, F. (2022) *Mapping the Platforms in Higher Education – a systematic literature review*.
- Rubens, A., Spigarelli, F., Cavicchi, A. and Rinaldi, C. (2017) 'Universities' third mission and the entrepreneurial university and the challenges they bring to higher education institutions', *Journal of Enterprising Communities: People and Places in the Global Economy* 11: 354–72.
- Schuette, R. and Rotthowe, T. (1998) 'The Guidelines of Modeling – An Approach to Enhance the Quality in Information Models', in: G. Goos, J. Hartmanis, J. van Leeuwen, T.-W. Ling, S. Ram and M. Li Lee (eds) *Conceptual Modeling - ER 1998*, Berlin, Heidelberg: Springer Berlin / Heidelberg, pp. 240–254.
- Sprague, R.H. (ed.) (Jan. 1999) *System Sciences, 1999*, Los Alamitos: IEEE Computer Society Press.
- Thomas, O. (2006) 'Das Referenzmodellverständnis in der Wirtschaftsinformatik: Historie, Literaturanalyse und Begriffsexplikation', *Institut für Wirtschaftsinformatik (IWi)*.
- Vom Brocke, J., Simons, A., Niehaves, B., Niehaves, B., Reimer, K., Plattfaut, R. and Cleven, A. (2009) 'Reconstructing the giant: On the importance of rigour in documenting the literature search process', *ECIS 2009 Proceedings*.