

Understanding Third Mission Activities as Services to Cooperatively Design the Non-Academic Environment

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The UNESCO World Action Program on ESD assumes that universities bear social responsibility by generating and transferring knowledge and innovations (BMBF 2022) to their non-academic environment. Those activities are often referred to as Third Mission Activities (TMA) besides the two initial university missions research and education. In this paper it is investigated whether considering TMA as “services offered by universities” is an adequate option for the analysis and management of those activities.

In problem-centered interviews conducted between 2019 and 2020, 127 university members at three German universities presented detailed information about various TMA, which was examined in a qualitative content analysis. In this investigation, properties of classic and complex service types were compared to the characteristics of the TMA by deductive category formation. Inductive category formation additionally enabled a more detailed analysis of knowledge-intensive and cooperative service sub-types. As a result, it can be shown that classic, complex, knowledge-intensive and cooperative service types exhibit strong parallels with TMA.

Keywords: third mission, university, higher education, transfer, cooperation, services

INTRODUCTION: THE THIRD MISSION OF UNIVERSITIES

Along with their activities in research and education, Institutions of Higher Education (HEI) are increasingly required to operate in bilateral exchange with society (Hachmeister et al., 2016, p. 7). Moreover, the UNESCO World Action Program on ESD remarks that universities take social responsibility by generating and transferring knowledge and innovations (BMBF 2022) to their non-academic environment. Examples for the variety of this potential exchange range from continuing education as well

as contract research, cultural, ecological and social engagement to the solution of practical problems of regional companies or public institutions. Those activities are often named Third Mission Activities (TMA) describing a mission of HEI that exceeds the two initial missions of research and education (Hachmeister et al., 2016, p. 7; Krainer & Winiwarter, 2016, p. 111; Roessler et al., 2015, p. 4; Etzkowitz, 2003, pp. 110).

In recent research a variety of different and sometimes overlapping definitions of Third Mission can be found (see Jongbloed et al., 2008, p. 312; Vorley & Nelles, 2008, pp. 120; Berthold et al., 2011, p. 21; Pasternack & Zierold, 2015, p. 281). With respect to the differentiation from HEI other missions these definitions are not fully appropriate. Hence, for this empirical study based on the given literature above the following definition of TMA was developed (Boden et al., 2019, pp. 200).

Activities are considered Third Mission Activities when they actively shape the non-academic environment, consume institutional resources and are associated with higher education core activities such as education and research or the strategic goals of the respective HEI.

It is important to consider the consumption of HEI (physical, financial and human) resources in the definition as when HEI members use their own resources (e.g., leisure time or personal equipment) this type of activity is referred to as volunteering. Another crucial distinction refers to the relationship between TMA and education and research activities. TMA must always be complementary to those core activities while they have to be developed within the scientific area of the HEI or connect unambiguously to strategic goals defined by the respective HEI management.

As TMA can be applied to shape HEI profiles in order to gain recognition, budgets, researchers and students it is necessary to account for the activities and their content as well as their organization, resource consumption and the achieved efforts (Hachmeister et al., 2016, p. 7). In order to provide adequate management concepts and the relating tools for accounting, evaluation and controlling of TMA, the aim of this paper is to tackle the following research question in the form of a “properties by definition check”:

Can TMA – as defined above – be classified as “services provided by HEI” according to their underlying characteristics, compared to the properties of services – as defined in the relevant literature?

METHODOLOGICAL APPROACH TO THE PROPERTIES BY DEFINITION CHECK

In problem-centered interviews (Witzel, 1985, pp. 227) conducted and transcribed between 2019 and 2020, 127 university members at three German Universities of Applied Sciences (Harz UAS, Magdeburg-Stendal UAS and Merseburg UAS) provided detailed information about various activities that met the above given definition of TMA. Among others, the interviews addressed questions about motivation, characteristics, processes, non-academic partners, goals, evaluation and funding related to TMA. These data were – besides more quantitative and management-oriented research questions (Westermann et al., 2022) – examined through qualitative content analysis (Mayring & Fenzl, 2014, pp. 543). In this investigation, properties of classic services and some service sub-types (i.e., complex, knowledge-intensive and cooperative services) were compared to the characteristics of TMA.

Qualitative content analysis is particularly suitable to condense and extract information from large amounts of text material that is to be analyzed and applies categories as a main tool of reduction. The structuring type of content analysis was chosen for the evaluation of the research material against the background of the present research question. This technique enables the analysis to be based on deductive, literature-based categories which can then be supplemented with inductive categories along the analysis process. A tabular coding guide defines a unique code for each category and records coding rules as well as typical text examples. These anchor examples guide the assignment of text passages to the adequate category code. (Mayring & Fenzl, 2014, pp. 543)

Figure 1 shows the typical theory-based process of the qualitative content analysis (Mayring & Fenzl, 2014, pp. 543) with adaptations to this particular investigation. In a first step, the properties of classic and complex services, as defined in the relevant literature, were compared to the characteristics of TMA by deductive category formation. Thus, the properties were transferred from the definitions provided by

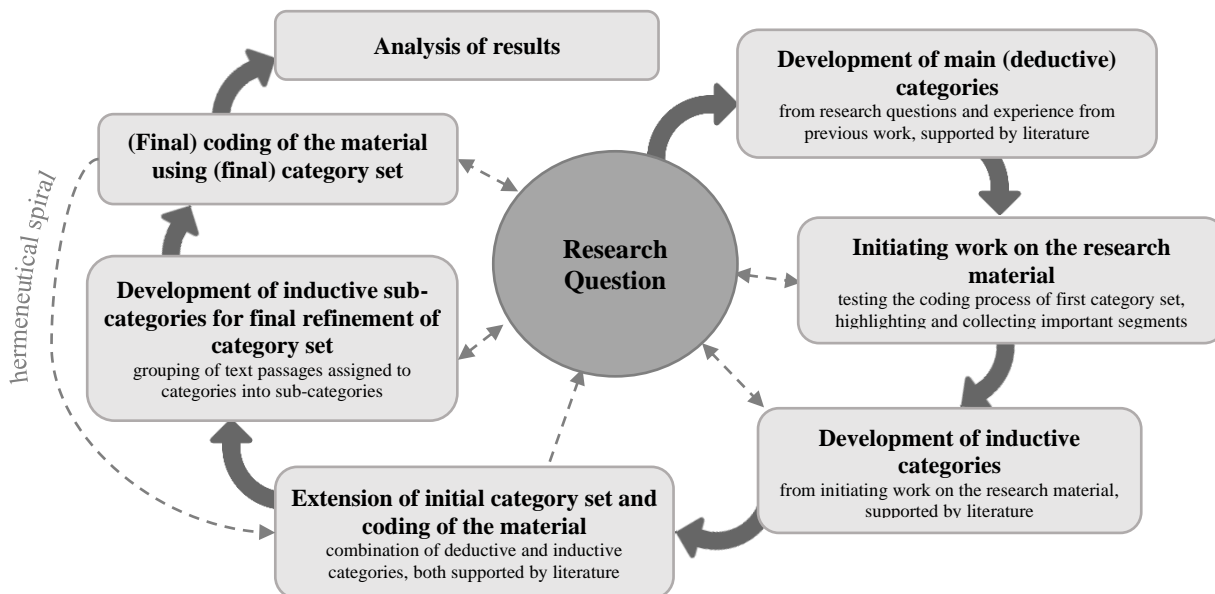
literature into distinct categories. The definitions from literature have therefore been used to create initial categories before starting the analyzing process. Applying inductive category formation, inspired by initiating work on the research material, allowed slight changes of, additions to and subcategorization of the initially deducted literature-based categories. Here, the information and knowledge incorporated in the analyzed material originating from the 127 transcribed interviews has been used to adapt the categories even better to the empirically raised data. Furthermore, induction also offered the opportunity to investigate much deeper for matches and similarities between the characteristics of TMA and the properties of knowledge-intensive and cooperative service sub-types. Every change of the category set was made to comply with the research question, which is at the center of the analysis. This procedure is based on the principle of a hermeneutical spiral (Hussy et al., 2010, p. 239) and allows going back and forth between finding new categories and sub-categories and adapting the category set until it is final and has covered the research material completely. The developed categories and their assigned text passages finally allow the analysis on result-orientation in section 3.1.

All categories finally comprise different numbers of text passages containing significant pieces of information according to the coding rules of the respective category. Therefore, the comparison between the number of matches between a “services” property deducted from literature and a property found for TMA in the interviews to the number of text passages comprised by the respective category sheds some light on the “magnitude” of the match.

Nevertheless, these findings are of qualitative character, meaning there is no claim made to have achieved a complete listing of possible ways the properties can match. Moreover, it is not to be determined, that a certain amount of the entirety of TMA match the respective characteristic, especially since the interview questions and answers do not always directly address each property. The following translated citation from an interview demonstrates the typical content structure of a text passage. This relatively short section contains multiple information about the activity in question. Thus, it was assigned to several categories regarding characteristics of complex services (see chapter 3.1), namely composition and external factor. Moreover, some of the information matches with the analysis of knowledge-intensive and cooperative service types (see chapter 3.2).

‘Yes, so what could the goals of your cooperative partners be in this project? ‘ – , Yes, that is divided in this project. We are for example responsible for the realization of the drive and the drive control (...). The other participants are responsible for the development of the mechanics or (...) we have already done ultrasound studies with a company from Halle. So these are the different (...) tasks that are being realized by the partners.’

FIGURE 1
QUALITATIVE CONTENT ANALYSIS SPIRAL



SOURCE: AUTHORS OWN WORK, BASED ON KUCKARTZ, 2019, P. 186; MAYRING & FENZL, 2014, PP. 543; HUSSY ET AL., 2019, P. 239

RESULTS OF THE PROPERTIES BY DEFINITION CHECK

Chapter 3 of this paper provides on the one side the results of the deductive category formation process with respect to the properties of classic services and complex services definitions in section 3.1. Section 3.2 is dedicated to the outcome of the more adapted and differentiating inductive category formation method which was additionally used to test the definitions of knowledge-intensive and cooperative services.

As a first step, the literature-based definitions of the selected service types, which were used to form the categories, are presented in both sections. After this, the results of the respective definition properties check in relation to the characteristics of TMA are described. The check is done by showing how often the respective characteristics in the form of deducted or inducted categories can be found in the relevant transcribed texts from the interviews on TMA.

Classic and Complex Services compared to TMA (Deductive Category Formation)

Classic Services

Definitions of the classic service concept can be found in management literature from the early 1980s on (see Winsora et al., 2004 for an overview on the development) and are still developing since then. More recently published definitions (Bruhn et al., 2019, pp. 25; Bruhn et al., 2009, pp. 7; Hofmann et al., 2018, pp. 2; Petz et al., 2016, pp. 30; Rieck, 2011, pp. 20; Schnabel, 2013, pp. 16) provide an up-to-date overview on the characteristics of services, are subsequently paraphrased in their pivotal elements and interpreted with reference to TMA.

(Classic) Services:

- are associated with the provision and/or the use of capabilities (potential)
- combine internal and external factors during the creation process (process)
- aim at beneficial and marketable effects on the external factors and/or their objects (result)

Due to the limitations of the applied method (see section 2), it was not possible to extract text passages from all TMA interviews matching exactly and distinctly the three properties of services. Therefore, a single category for TMA examples with 295 matches has been created, containing sub-categories that assign the examples to groups of activities that share similar potentials, processes and results. These 295 matches represent clearly identifiable TMA, which could be grouped in order to serve for a comparison. Moreover, when appropriate, data from more detailed interviews and a previous analysis results have been integrated to enrich the purely qualitative data. The respective results have been marked in the corresponding paragraphs.

The potential orientation of the service definition is expressed through all production potentials that the HEI as a supplier combines to provide those services. These are primarily the resources of the HEI, which, according to their definition, must be consumed by activities if they are to be labelled as TMA. Insofar, the investigated interview transcriptions contain only activities that consume at least partially HEI resources like the workforce of students and employees as well as financial means, rooms and equipment. Otherwise, they would not have been included in the sample. Nevertheless, the analyzed data shed some light on the variety and relative intensity of consumed resources. Thus, financial means is mentioned 11 times whereas rooms (24 times), equipment (24 times), workforce of employees (26 times) and students (23 times) appear much more frequently. These results are based on 24 interviews of an additional qualitative case study from which a total of 29 TMA could be identified. The material of this study offered the opportunity to examine the properties of services using clearly definable and identifiable TMA. These results are marked with an asterisk (*) when presented in the tables beyond.

The process orientation describes all steps of production of a service as well as the integration of the external factor and the intensity of the contact between the requesting or receiving party and the provider. 219 TMA state that there is close cooperation between practice partners and HEI stakeholders. These TMA are characterized by a strong involvement of the external factor (i.e., knowledge, time and human resources). Usually, production and consumption happen at the same time, as especially immaterial services cannot easily be stored (uno-actu principle). The following TMA formats that comply with the uno-actu principle have been identified: further education (35 times), presentations (62 times) and projects (322 times). The data is based on the 127 interviews used for the present study, from which a total of 470 TMA could be identified. The material of this study also offered the opportunity to examine the properties of services using clearly definable and identifiable TMA. Therefore, the number of matching codes within the framework of individual TMA is also shown here. When applied for calculations the results are marked with a double asterisk (**).

The result orientation includes the benefit creation for the inquiring actors in the non-academic environment. Marketability in general means that there exist supply and demand for a service and it is delivered in exchange for a corresponding return. This return, mostly of monetary nature, is provided by the requesting party for receiving the service and its result (OECD, 2003). Investigating the transcribed interviews about TMA, it is evident that the HEI members involved generally see themselves or their institution as the providing party, with the non-academic environment in the demanding or requesting role. The material of this study only offered the opportunity to examine the properties of services using different interview text passages. However, it was not possible to relate these to clearly identifiable TMA. Therefore, the number of matching text passages in the context of individual interview passages is shown here. Various matching text passages in the transcribed interview material could be assigned to factors of supply (68 matching text passages from 55 interviews) and demand (96 matches from 65 interviews). Hence, it can be clearly confirmed that there exists demand for TMA by the non-academic environment as well as supply of TMA by HEI or their members.

Moreover, in the case of TMA, the return is much more often of non-monetary nature (195 matches from 88 interviews) than of monetary nature (82 matches from 51 interviews). This emphasizes a special feature of the provision of TMA by HEI in contrast to privately operated service-providing companies. Since currently, TMA are not a mandatory, regulated, or even central part of the product portfolio in most German HEI, both capacities and opportunities are limited. HEI offer and supply TMA but fulfill the

demand according to their usually very individual rules that are dependent on each situation and the people involved, instead of following a classic profit intention.

Table 1 provides an overview on the relations and a comparison of the most important properties deduced from the classic services definition and their respective counterparts or characteristics detected in the 127 transcribed interviews about TMA at three German HEI.

TABLE 1
CHARACTERISTICS OF CLASSIC SERVICES COMPARED TO TMA

Characteristics of Classic Services	Characteristics of TMA according to the database of categories from interviews	Number of matches
<p>Potential Orientation: The providing party consumes resources or potentials in order to produce the service.</p>	<p>HEI as providers of TMA possess unique potentials (or resources) that enable them to take on this role. According to the definition, TMA use HEI resources such as knowledge, workforce, specialized premises and materials.</p>	<p>Equipment: * 24 matches from 29 TMA</p> <p>Rooms: * 24 matches from 29 TMA</p> <p>Financial means: * 11 matches from 29 TMA</p> <p>Workforce of employees: * 26 matches from 29 TMA</p> <p>Workforce of Students: * 23 matches from 29 TMA</p>
<p>Process Orientation: Creation of the service includes process steps as well as the integration of the external factor and the intensity of the contact to the receiving party.</p> <p>The Uno Actu Principle assumes that production and consumption happen simultaneously because services are often immaterial in nature.</p>	<p>Various external factors are involved and combined within TMA (e.g., knowledge of external partners, properties and assets of receiving institutions).</p> <p>In the case of TMA that are immaterial in nature (e.g., any form of event), production and consumption often take place in the same situation.</p>	<p>Cooperative activities: ** 219 matches from 470 TMA</p> <p>Further education: ** 35 matches from 470 TMA</p> <p>Lectures: ** 62 matches from 470 TMA</p> <p>Projects: ** 322 matches from 470 TMA</p>

<p>Result Orientation: Results of a service can be highly heterogenic and are individual for each request of a receiving party.</p>	<p>Depending on the type of TMA, the result can be a popular science publication, a membership to an organization, etc.</p> <p>According to the definition of Third Mission, the result always has an influence on the HEI's non-academic environment (e. g., increasing knowledge for non-academic actors, forming networks with non-academic actors)</p>	<p>Popular science publication: ** 51 matches from 470 TMA</p> <p>Membership to an organization: ** 67 matches from 470 TMA</p> <p>Increasing knowledge for non-academic actors: ** 21 matches from 470 TMA</p> <p>Forming networks with non-academic actors: ** 13 matches from 470 TMA</p>
<p>Marketability of the service requires supply and demand as well as a monetary or non-monetary reward.</p>	<p>HEI or their members are usually seen as the suppliers/providers of TMA. In some cases, the roles of the providing and receiving party are not clearly distinct (see chapter 3.2, Cooperative Services).</p> <p>Any actors of the non-academic environment involved in TMA can take the place of the receiving party, being the main direct recipient of benefits from the service.</p> <p>Sometimes, there is a "sales" price to be paid by the recipient of a TMA, which is usually the amount of money needed to support the execution of the activity, not for profit.</p> <p>The reward is more often provided in non-monetary terms such as offering the possibility to conduct the activity in the first place, testing a theory or methodology, sharing resources, or creating synergy.</p>	<p>68 matches from 55 interviews</p> <p>96 matches from 65 interviews</p> <p>82 matches from 51 interviews</p> <p>195 matches from 88 interviews</p>

SOURCE: OWN WORK

Complex Services

Beyond the classic service concept, the definition of *complex services* according to Rieck (2011, pp. 21), Bruhn et al. (2009, p. 3) and Petz (2016, pp. 31) was checked for applicability:

<p>Complex Services:</p> <p>are classic services with an above-average degree of complexity, determined by the summarized evaluation of the characteristic dimensions of ...</p> <ul style="list-style-type: none"> • composition • effect of time • stakeholder groups • external factor • information asymmetry • customer loyalty
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Table 2 demonstrates that the number of text passages with matching characteristics between the literature-deducted definition of complex services and the interview-based categories varies from a minimum of 124 (characteristic: time consumption) up to a maximum 305 (characteristic: information asymmetry). In total, 126 interviews contain at least one example of a TMA that shares at least one characteristic specifically with complex services. This result confirms the assumption that the literature-deducted characteristics can potentially be detected in most of the analyzed TMA.

The text material provided by the interviews from 2019 and 2020 is not suitable for determining a degree of complexity in combination of all features as Rieck (2011, pp. 33) suggests, neither for individual examples of TMA, nor in an overall view. For this purpose, individual examples would have to be examined more intensively and extensively. Table 2 shows those similarities that could be clearly demonstrated between complex services and TMA.

**TABLE 2
COMPARISON OF COMPLEX SERVICES TO TMA**

Characteristics of complex services	Characteristics of TMA according to the database of categories	Number of matches
<p>Composition: Number, variety, heterogeneity and independence of elements of the service and large number of people/parties involved in creation of the service</p>	<p>TMA can provide a high number of partial services as part of the whole activity (e.g., project planning, development, prototyping, public relations, networking, communication, presentation).</p> <p>The multi-personal integration of all internal and external factors (e.g., internal experts, partnering and funding institutions, companies) is essential in order to bundle the expert knowledge of the actors involved in the interests of regional growth.</p>	<p>255 matches from 86 interviews</p>

<p>Effect of Time: The amount of time that it takes to create the service, as well as the amount of time that the receiving party spends using the service and its results</p>	<p>When TMA are linked to regular study programmes at the HEI, they often require duration times of one or two semesters. TMA connected to research can last multiple years and potentially result in unlimited cooperation.</p> <p>If TMA include the development and implementation of a concept or other issues, the result can be used for potentially long periods of time. Associated processes can be protracted (e.g., due to early awakening of interest in studying through to student advice and student acquisition).</p>	<p>124 matches from 70 interviews</p>
<p>Stakeholder Groups: Inclusion and integration of different stakeholder groups, whose interests must be considered during creation of the service as well as before and after</p>	<p>Due to the many parties potentially involved in TMA, one example being public funding, there is often a combination of different stakeholder groups involved and interested in the activities. Especially because of the characteristic of Third Mission having an influence on the non-academic environment, governmental and non-governmental stakeholders are often interested in the goals, results or in the creation processes.</p>	<p>239 matches from 93 interviews</p>
<p>External Factor: Degrees of customization and integration of the external factor, resulting in highly individual services for each request</p>	<p>TMA offer a wide range of potential factors (e.g., student staff, knowledge, information material), which are often adapted to heterogeneous customer requirements. The participants on the requesting side are potentially closely involved in the activity and work on it beyond the mere provision of information or resources.</p>	<p>239 matches from 94 interviews</p>
<p>Information Asymmetry: Divergence in perception of the customers' goals between the receiving and providing parties as well as uncertainty/insecurity regarding the share of work of the other party</p>	<p>Especially when considering TMA a classic service, misunderstanding of the providers' possibilities and scope of the activity planned can occur. This is due to the heterogeneous and often academic goals of HEI members and the non-academic goals of the recipients, especially when SME or NGO are the demanding party.</p> <p>Academic knowledge from the TMA provider and the more practical knowledge brought in by the external factor can lead to uncertainty.</p>	<p>305 matches from 89 interviews</p>

<p>Customer loyalty: Degree of identification with the providing party of the service and frequency of requests from the same customer / receiving party, resulting in a long-term relationship</p>	<p>Long-term cooperation between the HEI and the external inquirers can occur. It is in the interests of the universities as well as the external parties to maintain and continue the cooperation in the shape of TMA.</p> <p>Recipients of TMA often communicate cooperation with HEI to their individual target groups in order to strengthen their positioning and therefore identify with the provider.</p>	<p>302 matches from 105 interviews</p>
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SOURCE: OWN WORK

Knowledge-Intensive and Cooperative Services Compared to TMA (Inductive Category Formation)

In addition to the above considerations, it is possible to classify services according to more specific definitions of services sub-types (for the relevant literature see Bruhn et al. 2009, Schlick et al. 2016, Hofmann et al. 2018). Inductive category formation allows to adapt the previously deductively developed categories more precisely in order to compare the sub-types of knowledge intensive and cooperative services with the characteristics of TMA found in the interviews with the 127 HEI members.

The sub-type of internal services has been found to not be applicable to TMA. Internal services are not offered on an external market. They are executed exclusively for internal benefit of the providing institution. (Braun, 2016, pp. 1) Some HEI activities pursuing internal and often strategic goals of the institution show exactly this characteristic. Nevertheless, points of contact with the non-academic environment are absolutely necessary due to the TMA definition. Moreover, the environment must be actively shaped as a result of a TMA. From this, it can be concluded that the definition of internal services excludes the possibility of compliance with the definition of TMA. TMA cannot be internal services; therefore, the following sections only focus on service types that do show parallels to TMA.

Knowledge-Intensive Services

Services can also be classified with respect to their knowledge intensity and *knowledge-intensive services* can also be referred to as (a type of) complex service(s) (Petz et al., 2016). The emphasis on knowledge was added to the existing classification of services based on their capital intensity and labor intensity, considering knowledge as another important potential factor used in service creation (von Garrel & Marutzki, 2016, pp. 66). By the use of individual knowledge of a service provider, knowledge-intensive services, such as business consulting, are differentiated from services that can be carried out more routinely, e.g., cleaning services. Nielen & Schlick (2016, p. 172) define essential characteristics of knowledge-intensive services. These primarily include the intensive use of and the high demands on expertise and qualification of the provider as well as the high degree of interaction between the recipient and the service provider. This can require the service to be executed in the form of a project, allowing a customer-specific design and the existence of learning effects as knowledge consolidates and increases by each individual service provision.

According to Schnabel (2013, pp. 16), these characteristics can be classified within the constitutive characteristics of services, namely potential, process and result orientation, analogous to the classic service definition. The potential perspective includes the high knowledge intensity embodied by the performing institution and its people, which often creates a high level of dependency on these people due to their individual skills and capabilities. The process perspective describes the high degree of individualization with intensive involvement of the customer and the external factor as well as the usually high number of process steps. Due to the subject matter of these services, the provider often comes into contact with confidential information about the requesting institution during service provision. Finally, the result perspective of knowledge-intensive services describes the intangibility of the benefit creation for the customer, which potentially has a high impact on their business success. The result can also have an

innovative character, since, due to the knowledge intensity and individuality, a new idea or product can come forward.

For education-oriented TMA, the main goal is the transfer of theoretical knowledge that students have learned to operational solutions of practical problems in their future professional field under real circumstances. By nature of being provided by an HEI, the potentials used in TMA are often knowledge-intensive – 113 matching text passages have been identified in the study material that show examples of how TMA can be knowledge-intensive regarding the potential dimension.

In research-oriented TMA, usually another group of HEI members is involved. Professors or scientific staff carry out the TMA and transfer knowledge from earlier or more theoretical research and education into practice of the non-academic environment. 88 text passages match the knowledge-intensity assumption of TMA in the process dimension. Analogously, the categories built from the definition of classic respectively complex services can be used here to underline more specific characteristics of (complex) knowledge-intensive services. This part of the category set contains 219 respectively 239 text passages matching the characteristic of close cooperation with the external factor, i.e., the recipient and their properties. 239 text passages describe how activities generally contained multiple parts, while 322 matching segments further reveal that the TMA in question was conducted in the form of a project according to the theory of project management.

Knowledge is then consolidated and expanded as a result of working on the TMA, which are often carried out in cooperation with corporations, big or small, or other institutions that have economic goals. Descriptions of the potentially high impact on the economic success of the enquirer of an activity and potential innovations coming forward from the results of TMA have been found in 126 text passages matching the characteristics of knowledge-intensive services with respect to the results dimension. The designation of the knowledge-intensity can generally be applied to different TMA especially due to the connection to the core activities of the university, namely research and education.

Cooperative Services

Analogous to the importance of complexity for the service sector, the increasing dynamics in markets, business models and competition are also causing the increasing importance of *cooperative services*, closely linked to *service cooperation* (Bruhn & Hadwich, 2019, p. 5). This term, as a combination of the terms “cooperation” and “competition”, describes the cooperation of companies with the aim of achieving joint success instead of losing versus winning in a purely competitive environment. The services of the two cooperating partners should complement each other in order to increase their attractiveness for the ultimate recipient of the service, such as a final customer. Thus, cooperation aims at promoting the individual success of two competitors. As possible results, new markets are entered, resources are used more efficiently and the parties involved can learn from each other and benefit from the combination of their tangible and intangible properties. For example, very often both partners gain reputation through the resulting association and image transfer when communicating the cooperation to their environment. The cooperation between provider and customer of a service blurs this division of roles and offers numerous opportunities, but also correspondingly potential risks (Bruhn & Hadwich, 2019, pp. 11).

The classification of cooperative services is also part of the present study. It became apparent during the examination of the classic service definition that the roles of the provider and the recipient of a TMA cannot always be clearly distinguished. Moreover, flows of knowledge in both directions are a pivotal element of TMA by definition. Both sides often provide their potential for the creation of services and, due to the high degree of integration of the external factor, the service is often provided in close collaboration. Matching examples that confirm this form of receiving and providing parties working together in TMA have been found in 123 text passages of the transcribed interview material. Furthermore, 58 text passages describe how image transfer effects are achieved from cooperation between HEI and their respective partners in the non-academic environment. This shows one of the main ways synergies can be created, resulting in benefit for both parties, as communicating the cooperative projects positively influences perception by the individual stakeholder groups.

Since HEI in Germany are not profit-oriented companies and because they operate on a regulated market, the co-competition feature in the definition of cooperative services does not play a prominent role in the analyzed material – these factors are therefore to be viewed in a differentiated manner. Usually, the HEI do not compete with the companies and organizations the TMA are potentially conducted with. The option of classifying TMA as a cooperative service should be evaluated with caution. Nevertheless, especially due to the potentially high degree of identification and the often closely interlinked cooperation with external partners within the framework of TMA, this knowledge supports the analysis.

CONCLUSIONS, LIMITATIONS AND PROSPECTS: TMA AS SERVICES

By analyzing interviews with 127 members of three German Universities of Applied Sciences, deep and detailed insights in 470 HEI activities could be gained. All investigated activities could be assigned to being TMA according to the definition in the introductory chapter 1 of this paper. Applying and combining deductive and inductive content formation techniques it could be demonstrated that all pivotal characteristics of the literature-based broad definition of classic services can be found in the transcribed interview material on TMA performed by HEI in the years 2019 and 2020. In detail, it was shown that TMA share their basic properties, with respect to the potential, process and result orientation, with classic, complex, knowledge-intensive and cooperative services.

This conclusion leads the authors to the assumption that TMA might be treated similar to services if they are to be managed. The same or slightly adapted methods and tools for accounting, evaluation or controlling might be applied. Moreover, it is suggested to transfer knowledge and methodologies from existing research about services to and test them within the field of research on Third Mission and the related activities of HEI.

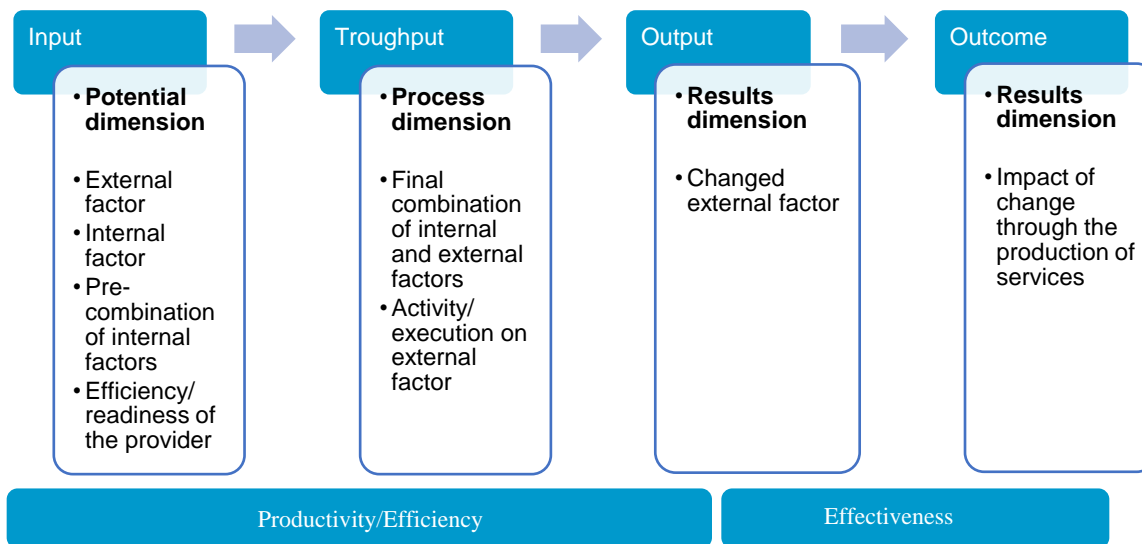
However, one should be very cautious in simply replacing the term “TMA” with “services” as known from the profit-oriented private markets for classic services. The definition in chapter 1 and the interviewed HEI members insist heavily on TMA requiring not only an output in the form of a produced service. Moreover, an outcome and impact should be achieved in the sense of influencing and shaping the non-academic environment or society. This leads to more complexity in the performance measurement of TMA – comparable to the measurement of success throughout the public and non-profit sector (Westermann, 2004). In addition, TMA could be performed in a wide variety of contexts. But HEI usually have (often legally) limited opportunities and resources to implement such activities. Thus, even if an activity was deemed attractive with respect to profitability, efficiency, or effectiveness, it sometimes cannot be easily performed at the request of any customer at any time by a HEI. It is also important to note that the study conducted in this paper is of primarily qualitative nature. Due to the heterogeneity of TMA, the activities had to be broken down into their simplest possible elements to be analyzed with the help of the qualitative content analysis. It cannot be ruled out that special forms of TMA exist which might not fulfill the criteria of services and that they have not been considered in this study.

Having the above-mentioned constraints in mind, the assumption of TMA possibly being treated similar to services would enable a much more systematical view on those activities and their respective production. Production processes in general follow the principle of transforming input (resources or potential) via throughput (process) to output (product or result) (Dyckhoff, 2006, p. 44). Haller & Wissing (2020, pp. 169) suggest applying this also to the production of services. Roessler et al. (2015, p. 43) extend this approach by labelling the immediate effects of the produced service (output) as “outcome” which can be seen as an additional fourth level in the provision of services. Bruhn & Hadwich (2019, pp. 19) and Bruhn (2009, pp. 7) develop a more services specific approach by dividing the production of services into the three dimensions of potential, process and result.

Figure 2 summarizes those approaches and demonstrates that input and parts of the throughput can be placed within the potential dimension. Here, the pre-combination of the internal factors takes place by ensuring the readiness to perform on the part of the service provider (Bruhn, 2009, pp. 7; Haller & Wissing, 2020, pp. 169). Further components of throughput are found within the process dimension where the final combination of the pre-combined internal and the supplemented external factors takes place. The service is

created and changes the customer or their external factor (Bruhn, 2009, pp. 7). The result dimension comprises the output of the service creation, which means the changes of the customer or their external factor (Bruhn, 2009, pp. 7) and, as an extension, also the outcome, i.e., the effect of the changes triggered by the service.

**FIGURE 2
PRODUCTION OF SERVICES**



SOURCE: BASED ON BRUHN, 2009; HALLER & WISSING, 2020

Considering HEI as providers of TMA resources like infrastructure, staff, knowledge, or budget would be accounted for as inputs or production factors within the potential dimension. The process dimension of TMA reflects the very heterogeneous and specific ways HEI react to the various requirements of their different external stakeholder groups (i.e., the non-academic environment or society). The results dimension comprises the direct output of TMA by changing the participating external stakeholders as well as the more indirect outcome shaping and influencing the university external environment – the society.

The hypothesis of similar production processes of (complex, knowledge-intensive, cooperative) services and TMA could be sufficiently proved in the paragraphs above. Hence, it is suggested to investigate the applicability of performance measurement approaches known from the service sector to TMA. Figure 2 provides two indicators often adopted for this purpose: Effectiveness and efficiency (Westermann, 2021, p. 36). Effectiveness generally refers to the result (output, outcome) of an activity without considering the utilized inputs. In expanding this view, efficiency takes into account the ratio of inputs to outputs of a production process. Both indicators have often been applied to production processes in the service sector and could be used to evaluate TMA depending on the goal of the evaluator.

It is suggested to apply adequate evaluation methods or procedures from the field of service production to account for efficiency or effectiveness of TMA. The main difficulty for (complex, knowledge-intensive, cooperative) services as well as for TMA seems to be the multidimensionality of highly specialized inputs and very heterogeneous outputs. Especially the task to transfer a multidimensional target system into a one-dimensional performance indicator without the use of a common monetary denominator rules out simple surplus or profit calculating procedures. A frequently used analytical method for determining effectiveness under these conditions is the utility (value) analysis (UA) (Westermann 2017; Westermann 2021). The UA offers the opportunity to assess and classify different actions accounting for their respective achievement of targets (Hoffmeister, 2008, pp. 278). Applying UA will be one of the next tasks the authors are aspiring to tackle.

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