

# Systemizing the Requirements of Technology Platforms in Diversified Companies

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**Abstract**—The importance of technology platforms in diversified companies as networks of unique technologies in diverse applications is increasing. The reason is that technology platforms support diversified companies to handle the conflicting priorities of fulfilling the customer demand for individualized innovations, while generating company-wide technological synergies. Thus, the success of diversified companies can be decisively determined by the implementation of technology platforms. A significant prerequisite for this matter, among others, is a coherent concept for the systematization of the requirements of technology platforms. In practice however, systematizing the requirements of technology platforms is a huge challenge for most of the diversified companies interested in applying the concept of technology platforms. The reason is that there is no established opinion in theory how the requirements of technology platforms should be systematically described and how they should be systematically structured. Therefore, the objective of this paper is the development of a model realizing a systematical description and structuring of the requirements of technology platforms in diversified companies.

**Keywords** — *Technology Platform; Technology Management; Technology Planning; Requirement Management; Diversification*

## I. INTRODUCTION

Shorter innovation cycles and more complex customer demands for novel products increase the competition among diversified companies. One possibility to achieve long-term success is the creation of strategic prerequisites for the synergetic use of technological knowledge as well as the implementation of unique technological solutions [1]. That is why an increasing number of diversified companies organize their technologies within knowledge networks, technology platforms, and exploit a defined set of distinctive technologies across multiple businesses to offer unique technological solutions for the customer [2,3]. Therefore, the technology platform concept constitutes for many diversified companies a huge factor for their corporate success.

However, in practice a low degree of systematization regarding the description of technology platforms requirements can be observed. This leads to an insufficient linkage between the relevant requirements of technology platforms and the design elements of technology platforms.

Waste of resources (“over-engineering”) or the rejection of key requirements among existing technology platforms (“under-engineering”) are noticeable in the operational practice of diversified companies. From the theoretical perspective, there is a lack of research regarding the description of requirements of technology platforms within diversified companies. This is surprising, due to the huge problems in the daily practice of diversified companies and the negative economic impact of insufficiently defined and described requirements for technology platforms.

Section II illustrates the applied methodology within the paper. Subsequently, section III gives a definition for the technology platform term and illustrates the differences to other relevant platform concepts. Moreover, section III outlines the theoretical fundament of this paper in terms of requirements and requirement engineering. Section IV comprises a literature review of previous research concerning technology platform requirements. Based on the need for further research, the model to describe requirements for technology platforms in diversified companies is developed in section V. The conclusion and the outlook on future research in section VI complete the paper.

## II. METHODOLOGY

A continuing methodical challenge in the technology management research can be seen in overcoming the ‘academic-practitioner divide’ [4]. While practitioners continue to emphasize the benefit of research, they criticize often a lack of focus on problems with practical relevance [5]. This paper adopts the research process of applied sciences, shown in figure 1, in order to overcome the ‘academic-practitioner divide’ and propose practical relevant results [6]. Applied sciences, according to ULRICH, focus on the description, explanation and configuration of reality extracts and aim on developing rules and models to create possible future realities [6]. Following the process of applied sciences, a problem of practical relevance with an underlying theoretical deficit has to be identified and structured at first (Fig. 1, step A). Projects and discussions with decision-makers in the field of technology management have been here the key input for the derivation of the underlying

practical problem. Subsequently, in step B and step C problem-specific theories and methods of existing research have to be identified, analyzed and interpreted as the groundwork to identify the need for further research and the development of adequate solutions. Step B and C will be addressed within the paper in section III and IV with the illustration of the theoretical background and the literature review. Hereinafter, step D is focusing on the conception of an adequate model, in order to describe technology platform requirements. The following step E addresses the detailing of the model. Consecutively, the model must undergo practical testing and therefore needs to be evaluated in the context of industrial practice, according to step F. Once it has been validated, the model can be applied in industrial practice (step G). Both steps do not fall within the scope of the paper and therefore need to be addressed subsequently in future empirical research, as explained in the outlook on future research.

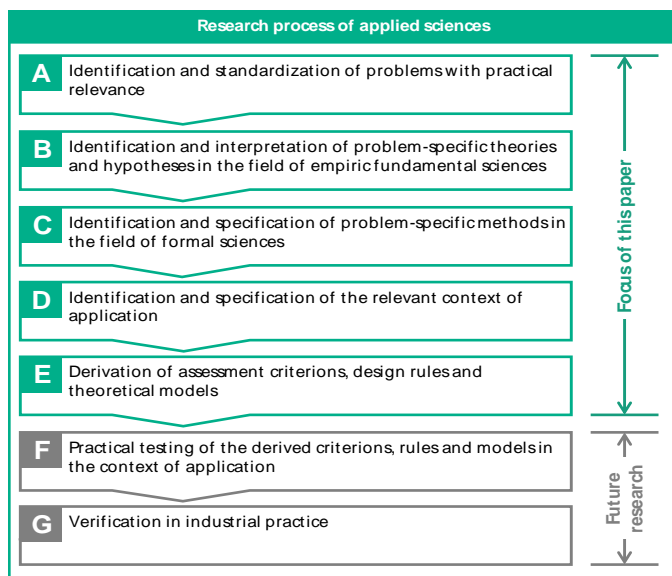


Fig. 1. Structure of the chosen methodology based on the research process of applied sciences according to ULRICH [6]

### III. THEORETICAL BACKGROUND

The following section addresses the definition of the term technology platform in diversified companies and educational institutions as well as the terms requirement and requirement engineering, in order to prepare a systematical description of the technology platform requirements for diversified companies in section V.

#### A. Technology platforms in diversified companies

The term 'technology platform' (TPF) has been used inconsistently in the past [2]. Thus, it is necessary to define the term clearly for the purpose of this paper. It is defined that technology platforms represent a unique and interconnected network of a diversified company's internal technological knowledge base [7,8]. This internal network of technological knowledge stretches over multiple business units and central areas, in order to enable the exchange of relevant technological information and to enable the exploitation of a maximum amount of product applications [3,9]. Figure 2 illustrates exemplary technology platforms in this understanding.

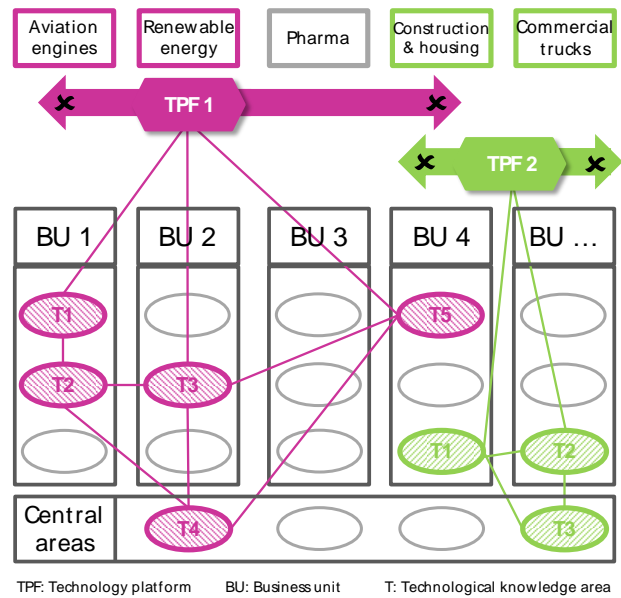


Fig. 2. Schematic excerpt of two exemplary technology platforms within a diversified company

The first exemplary technology platform connects the technological knowledge (T) on sealing technologies within a diversified company. The interconnected network of technological knowledge consists of five individual technological knowledge areas (T1-T5). These knowledge areas include personnel and informational knowledge on materials, production processes and follow-on operations as well as non-destructive test methods. By connecting these initially separated knowledge areas, which span in total over the three business units (BU) "renewable energy", "aviation engines" and "construction and housing" as well as the central areas (e.g. central R&D), the diversified company is able to collectively facilitate new products for their various business units. For example, the diversified company is able to improve their seal lip profiles and decrease the fuel consumption of their aviation engines with the effort of the technology platform experts. The second exemplary technology platform "additive manufacturing" connects in total three technological knowledge areas (T1-T3) within two business units "construction & housing" and "commercial trucks" as well as the central areas.

#### B. Technology platforms in educational institutions

The following part of the paper will address technology platforms in educational institutions and describe the differences and similarities regarding technology platforms in diversified companies, to achieve a broader perspective on platform requirements. Technology platforms in educational institutions are defined as a physical organizational unit, pooling and providing dedicated research infrastructure, instruments and equipment as well as scientific expertise and service for researchers [10–12]. They are centrally organized and make the services available to a wide and mostly interdisciplinary research community in an educational institution [10–12]. The technology platforms have strategic significance for the educational institution, due to their institution-wide range and have the ability to be build up, sustained, developed or dissolved based on the orientation of

strategy and planning processes [11]. Their objective is similar to the technology platforms in diversified companies, as they strive for scale effects, synergy usage, reducing of duplicate purchases and improving the utilization rate of equipment to use available financial resources more efficiently, while not losing research quality [11,13]. Due to these similarities, the requirements of technology platforms in educational institutions will be carefully considered in section V during the specification of the requirement model.

### C. Requirements and requirement engineering

This paper follows the definition of the IEEE that define requirements as “a condition or capability that must be met or possessed by a system or system component to satisfy a contract, standard, specification or other formally imposed documents [14].” Additionally, in the requirement literature it can be differentiated between the three main requirement categories of functional requirements, quality requirements and constraining requirements [15–17]. Subsequently, these requirement categories will be detailed, due to the fact that the distinction of the requirement categories is crucial for the specification of the requirement model in section V.

A functional requirement is a requirement that specifies a function that a system or system component must be able to perform [14]. The functional requirements ensure and describe the functionality a system must deliver for its users [15,17,18]. Therefore, this category of requirements describes what a technology platform does functional-wise from the platform point of view. They are relatively easily identified during the requirement elicitation and the validation is straightforward [17]. Their level of complexity can range from a very general description to a very detailed level [15,17,18]. Quality requirements define and refer to qualitative characteristics of a planned system [15,17]. Typical quality requirements are the performance, reliability or availability of a system [15]. Quality itself is defined as the degree to which a system meets specified requirements or agreed characteristics [14]. Quality requirements only make sense in relation with functional requirements, because they specify behavioral and quality characteristics of functional requirements [15]. Therefore the existence of functional requirements imply the need for quality requirements [15]. A constraining requirement is an organizational or technological requirement restricting the way how a system is developed, organized or realized [16,17]. Constraining requirements are non-changeable and limit the process of developing a system [19].

The term requirement engineering refers to a cooperative, iterative and incremental process of defining, documenting and maintaining requirements with the goal to know and understand all relevant requirements of a system [20]. According to FINKELSTEIN as well as GRANDE, the process of requirement engineering can be defined into three main activities, as shown in figure 3.

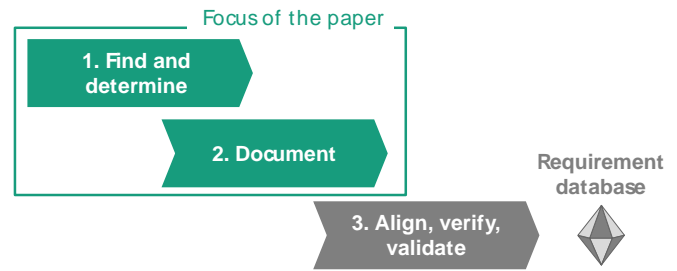


Fig. 3 Process of requirements engineering according to FINKELSTEIN as well as GRANDE [16,21]

The beginning of the requirement engineering process is marked by the information gathering, in order to get an orientation about the requirements of a system [16,21]. This can be done by interviews, questionnaires or literature research [21,22]. The focus of this paper is on the literature analysis to ensure general applicability of the requirements, independent from the opinion of specific stakeholders that can be detected with singular interviews. The documentation of the requirements, as the next step, need to be made understandable, expressed in sentences and considered in regards to their necessity [22–24]. The final step consists of aligning, verifying and validating the requirements, in order to obtain the requirement database [16]. The described process and the first two activities are utilized within this paper, to offer a starting point for the systematization of the technology platform requirements in diversified companies.

## IV. LITERATURE REVIEW

The following section comprises the review of literature, illustrating the current status of requirement research in the context of technology platforms. The existing literature can be divided into two approaches. The first approach discusses the application of requirements within the context of technology platforms in diversified companies and the second approach discusses requirements in the context of educational institutes. It is discussed on the basis of exemplary literature, how to systemize requirements in the context of technology platforms. Additionally, it is illustrated, which contributions and deficits are made within the investigated papers.

BÖHLKE ET AL. discuss the successful management of technology platforms as an essential part of the realization of the company's strategy [3,25]. Additionally, SCHUH ET AL. are mentioning similar requests for technology platforms [26,27]. Both literature sources deliver applicable approaches on the requirement description, since they are focusing on the specific problem space of this paper: technology platforms in diversified companies. A different reference about requirements of technology platforms in diversified companies can be found in BREUER'S literature as well as ROSIER'S work [7,8]. They design models to successfully manage technology platforms and determine requirement statements [7]. Even though the illustrated literature focuses on technology platform in diversified companies and states some relevant requirements, the authors miss to put their results into a broader context of a systemized requirement framework.

TAHAR ET AL. describe several requirements of a technology platform in educational institutions based on the example of the ETH Zurich [13]. Additionally, authors like REINHARD as well as CHIESA AND FRATTINI describe technology platforms in educational institutions and address several aspects of requirements, like the operational requirements perspective or the human resource requirements perspective [28,29]. The above-mentioned authors offer a wide variety of requirements and their work represents a huge potential for the derivation of technology platform requirements in the context of diversified companies. However, the literature on technology platform in diversified companies has not picked up yet this huge pool of interesting insights about technology platform requirements and appears to be too closed-minded on potential input from a different literature stream. Therefore, figure 4 sums up the findings and deficits of the literature review.

Findings	Deficits
<ul style="list-style-type: none"><li>■ Few clear requirements stated</li><li>■ Broad perspective on requirements in the context of technology platforms is existing</li><li>■ High potential for the derivation of further requirements statements</li></ul>	<ul style="list-style-type: none"><li>■ Incomplete and unspecific formulation of requirements</li><li>■ Too closed-minded view on platform approach</li><li>■ No systematization of requirements</li><li>■ No requirement framework</li></ul>

Fig. 4 Findings and deficits of the literature review

In total, seven exemplary research papers have been analyzed, demonstrating individual requirements in the context of technology platforms. However, the illustrated literature mainly lacks a consistent requirement framework for technology platforms. The purpose of this paper is to address this need for research and to develop a cohesive requirement framework for technology platforms in a systematical way.

## V. RESULTS

The development of a requirement framework in the following section V is based on the relevant definitions for the purpose of the paper in section III as well as the identification of a need for research in section IV. At first, we will conceptualize the requirement framework and select an applicable model. Afterwards, we will specify the framework by detailing the relevant elements.

### A. Conception of the framework

In literature a variety of approaches exist for the classification of models [30–32]. The classification that is used in this paper refers to the purpose of a model and differentiates between descriptive models, explanatory models and decision models [32]. A descriptive model is commonly applied, in order to display and characterize the logic of a system [30,32]. Next, explanatory models are used to explain the cause-and-effect-relationship between the measures and actions of a system [30,32,33]. Finally, a decision model is based on the input of the two previous models. It comprises a target function and the preferences of the model's user [30,32]. The purpose of the paper is to develop a cohesive framework that describes the requirements of technology platforms in diversified companies. This requires the selection of a descriptive model, leaving the other two models as a potential for future research.

### B. Specification of the framework

The framework for systemizing the requirements of technology platforms in diversified is specified based on the requirement engineering process in section III. As a first step, requirement statements are found and determined based on a literature analysis. Secondly, the requirement statements are categorized into the three main requirement categories (see section III) and clustered based on similarities to deliver requirement statements. Thus, an understandable documentation is ensured. The documentation serves as a basis for the validation of the requirements in the practice, which is however not in the scope of the paper.

#### Find and determine

In total, 26 requirement statements (RS) have been identified in the finding and determining activity of the requirement engineering process. These statements intend to contribute to the understanding of technology platforms in diversified companies and serve as an input for the documentation activity within the requirement engineering process.

*RS 1: The orientation of a technology platform has to be aligned with the competitive strategy*

Technology platforms need to transport crucial elements of the company's strategy [34]. One goal of technology platform lies in the strategic planning of the technology development to strengthen the differentiation on the market [34]. If the technological development takes place in an environment of a technology platform, which is closely aligned with the strategy of the company, it ensures the direct effectiveness of a company's strategy in the technology development [3].

*RS2: Ensure a dynamic behavior by constant rejuvenation of technological assets*

A technology platform needs to have the ability to renew, rejuvenate and enrich its technological assets to respond to market and technological changes quickly [2]. Additionally, it needs to be able to enhance these current assets by recombining them into new applications to achieve diversification in a company's products and business [2]. The technology platform needs to be dynamic in the sense that mature technologies are sorted out and replaced by new technologies constantly [2,3].

*RS3: The technology platform's system boundaries need to be defined precisely*

To provide clarification about the technology platform's area of activity and operations, it is inevitable to specify the system boundaries [8]. The system definition of a technology platform depends on the clearness of its technological area and its technological goals [35]. It can be easily identified, if core competencies and core technologies are documented and established as the main input for technology platforms [35].

*RS4: A long-term orientation of the technology platform has to be ensured*

A long-term orientation of a technology platform needs to be ensured, because of the close alignment with the company strategy [3]. Also, the close interaction between technology management, which strives to ensure the long-term technological competitiveness leads to the necessity of a long-term orientation [36,37].

*RS5: Reduction of time-to-market*

The technology platform should reduce the time-to-market for possible technology development [3]. In order to achieve this objective, technology platforms need to foster cross business unit collaboration and ensure technological synergies between business units [38]. Technological synergy potential is particular present in R&D and production processes and the essential impact of synergy potential is to significantly improve the time-to-market [39].

*RS6: Creation of enough synergy potential*

Following the approach of PORTER, competitive advantages are based on the creation of synergies, one of the main tasks of the corporate management and the only justification for diversification of a company [38,40]. Therefore, a company's strategy needs to be aimed at exploiting synergy potential for the business units [40]. This implies that technology platforms need to develop synergies [3]. A critical size of the platform has to be exceeded, in order to provide applicability of the technology potential in various business units [26].

*RS7: Deliver forecast for the technology development*

Technology platforms are having the characteristic to dynamically integrate new technologies into their operational network [41]. Among others, a benefit of a technology platform is therefore the ability of forecasting technologies and their development [3,41]. A technology platform needs to be able to predict attractive technologies in the future by constant monitoring activities in its technology domain [3,42].

*RS8: Ensure a transparent documentation*

Technology platforms need to provide a systematic and structured documentation of its technological assets [2,3,8]. The goal is to deliver transparency about the causal relations and make it clear, which technological assets are bundled and interacting with each other [2,3,8].

*RS9: Ensure independence between technology development and product development*

The technology platform approach strives for sustainable technological differentiation through a strategic "technology push" to seek and realize market opportunities [3,42,43]. By providing product-independent-technology development, a technology platform is able to deliver a broader spectrum of technological solutions and is not so much depended on shorter product life cycles [3,42].

*RS10: Realization of technology leveraging*

One of the fundamental advantages of technology platforms is the possibility to realize technology leveraging [9,13,26]. The structure of a technology platform has to provide prerequisites to leverage technologies with their maximum efficiency, in order to increase the profitability of a technology investment by multiple usages in different business units [9,26].

*RS11: Enable cooperation with external parties*

Cooperative arrangements are ways for a firm to expand its organizational and spatial borders [44]. Diversified companies deliver a broad spectrum of experience in their branches, but often enter into markets where their experience is limited [45]. The solution can be cooperation with external parties, in order to gain an increase in efficiency by joint operations and exploiting the advantages of division of labor with external authorities [44, 45]. The specific technology platform requirement is to involve external parties, which are not part of the in house knowledge [3,46].

*RS12: Outer platform orientation towards technology markets with technological similarities*

Companies need to use the experience in platforms technologies to exploit business and industries, which are technologically similar and have a market potential, but have not been exploited business wise [42,46]. Since these potentials are dependent on the environment of each industry, the experience in platform technologies is increasing the likelihood of successful diversification, when environmental opportunities are favorable [41,47]. Consequently, there is a correlation between the experience in platform technologies and its direction towards new favorable businesses [26].

*RS13: Consideration of technologies with different application ranges*

A technology platform has to have the ability to consider multiple technologies with different ranges in market and technological opportunities [2,41,48,49]. The reason is that technologies with wider application ranges ensure to reach different industries with different scopes and different objectives by diversification [2,49].

*RS14: The platform amount needs to be manageable*

A company's amount of platforms needs to be limited, in order to keep them manageable [3,49]. Since every company has limited resources, the amount of technology platforms is limited too [3].

*RS15: Orientation towards technological uniqueness*

The activities of the technology management need to be orientated towards the generation and expansion of technological uniqueness [3,50]. Since technology platforms are a mean to enhance technological planning and therefore part of technology management, they also need to contribute to technological uniqueness [3,26]. A lack of technological uniqueness in a technology platform has the consequence of an inconsistent long-term orientation [3].

*RS16: Ensure technology development*

Technology platforms need to offer the development of established methods, resources, abilities and technologies as a service to its platform users [3,13]. The necessity in technology development is mentioned as one major challenge to be solved and referring to the research-oriented task of the platform [11,13,46]. This can enhance the ability to strive for technological uniqueness in diversified companies [3].

*RS17: Deliver organizational fairness*

Technology platforms are rooted in process thinking, focused on special technologies and dedicated equipment, instead of being part of any disciplinary or project organization [51]. Therefore, they can solve the problem of organizational fairness by offering access to all users, regardless of disciplinary affiliation or their internal network [13,51].

*RS18: Linking marketing with technology platforms*

One major objectives of a technology platform is to develop capabilities that are mapping over a wide variety of market opportunities [2]. This indicates the huge importance of a close interaction between technology platforms and market knowledge that can be often found in the marketing department [2,47]. Therefore, a strong linkage between technology platforms and marketing is required [3].

*RS19: Ensuring the preservation of know-how*

The resulting problem of high fluctuation among employees and their leave on a constant basis, can be divided into brain-drain and educational lack of new hires [13,52]. Technology platforms therefore need to ensure knowledge preservation within the platform by central organization and documentation of knowledge [13].

*RS20: Realize technology evaluation*

A technology platform needs to have the ability to evaluate different technological solutions constantly, in order to assess both mature and new technologies and their contribution to provide technological uniqueness for its stakeholders [3,35]. The constant evaluation makes the success of the technology management measurable, whereas a lack in evaluation leads to uncontrolled actions [3].

*RS21: Enable the exploitation of multiple applications*

The exploitation of multiple applications and its experiential knowledge provided by a platform leads a company to the evolution and increase in technological capabilities in other environments [2,41]. Hence the platform is expected to enable as many applications as possible and deliver access to further applications [26].

*RS22: Ensure simple usability*

Despite the individual perspective of making the platform accessible for every technology reuse, a simple usability improves the operational efficiency [49]. Technology platforms should realize a focus on essentialities, a reduction in redundancies and therefore a decrease of the coordination effort between development teams [49].

*RS23: Provide economies of scale and scope*

A technology platform enhances a firm to share mutual technological knowledge between business units and therefore fosters companies to benefit from shared cost and economies of scope [2,49,53,54]. Providing economies of scale and scope may not be crucial for the functionality of a technology platform, but the more benefits from them, the better the platform performs [55].

*RS24: Ensure employee involvement and contribution*

Technology reuse is enhanced within a company with an increased employee's involvement [56]. This requirement can be applied for technology platforms as well, since it can be seen as a mean for technology reuse [56,57].

*RS25: Drive branding & communication*

Technology platforms can be perceived as a brand itself and provide identification for the customer [3,58]. Audi's technology platform "Quattro" is used nowadays used in more than 180 models and delivers recognition for Audi [3].

*RS26: Ensure a dynamic organizational structure*

A technology platform needs to have the ability to be programmed for perpetual transformation and for generating new organizational arrangements [42]. Therefore, there is not a one-fit-all-solution for the structure of technology platforms. Rather flexibility and dynamism need to be the determining driving forces of the structural organization of a technology platform [9,42].

Document

In order to ensure an understandable documentation, the following part will address two objectives. The first objective is to align the documentation of requirements in accordance to the categorization standards of the requirement engineering process. The second objective is to ensure that the documentation of the technology platform requirements is manageable. Therefore, the individual requirement statements are clustered. These two objectives are identified, in order to deliver a systemized model of technology platform requirements.

The categorization of the requirement statements occurs into the three main requirement categories. RS2, RS4, RS7, RS8, RS10, RS15 and RS24 describe elementary responsibilities of a technology platform in diversified companies. Therefore, they are categorized among the functional requirements. These requirements are essential for the platform to work and perform. The behavior and performance of the technology platform is characterized by RS1, RS5, RS9, RS11, RS12, RS13, RS16, RS17, RS18, RS19, RS20, RS21, RS22, RS23, RS25, RS26. These qualitative requirements complement the functional requirements by ensuring their effectiveness and drive the architectural design of the system technology platform. The three remaining requirements RS3, RS6, RS14 define the technological or organizational constrain within the company. Hence, they are categorized among the constraining requirement category.

After dividing the requirement states in the formal requirement categories, the clustering process assort the individual requirement statements into logical and consistent groups. Following this approach, in total, 9 requirement clusters (RC) have been identified.

*RC1: Technological leverage*

RS6, RS10, RS21, RS23 describe the characteristics and functionalities needed to leverage technology within the company. They define the function, its efficiency, its performance as well as the constrain. Hence these four requirement statements can be summarized within a cluster called *technological leverage*.

*RC2: Organizational structure*

The organization of and within a technology platform is mostly driven by the requirements RS3, RS8, RS14, RS17 and RS26. Hence, they form a cluster called *organizational structure* describing the documentation and constrains as well as important organizational characteristics. The cluster is mostly needed to ensure organizational fairness, traceability and a clear structure within the platform.

*RC3: Market consideration*

The cluster *market consideration* is shaped by the requirements RS7 and RS18. They ensure that the technology platform has a linkage with the market. Thereby, the cluster defines how the market and consumer needs are considered within the technology platform.

*RC4: Interaction with the individual*

RS19, RS22 and RS24 relate the technology platform with the employers of the company. They involve the persons using the platform, ensure a simple usability and address the problem of employer fluctuation. Therefore, the requirement statements describe the cluster of *interaction with the individual*.

*RC5: Platform orientation*

RS1, RS4, RS12 and RS15 describe multiple facets of the orientation of a platform. The platform's orientation is important to drive innovation over a long time and guarantee their sustainability. They consider different perspective which can be summed up in a cluster called *platform orientation*.

*RC6: Adaption and agility*

The functional requirement RS2 and the qualitative requirement RS5 define behavioral abilities of a platform. They consider the dynamic behavior and the reduction of the time-to-market and thereby form a cluster called *adaption and agility*. The cluster is very dependent on individual preferences of the company towards the platform and their desired behavior.

*RC7: Technology assessment*

The evaluation and consideration of different technologies is described by RS13 and RS20. They can be summarized in a cluster called *technology assessment*. The interaction with different independent technologies and the resulting consideration in the platform is explained by this cluster.

*RC8: Technological development*

RS9 and RS16 address the continuous development process of a platform, in order to stay competitive and innovative. The different development considerations can be grouped within an overall *technological development* cluster. It ensures independent product and technology development as well as an overall competence for development within the platform.

*RC9: Outside-in perspective*

The external domains of the platform can be explained by RS11 and RS25. They connect the technology platform with external parties. Hence they ensure the shape and perception of the platform and can be summarized within a cluster named *outside-in perspective*.

The final model summarizes the research results. It can be found in figure 5, providing an overview about the technology platform cluster on the left side and the requirement categorization on the top.

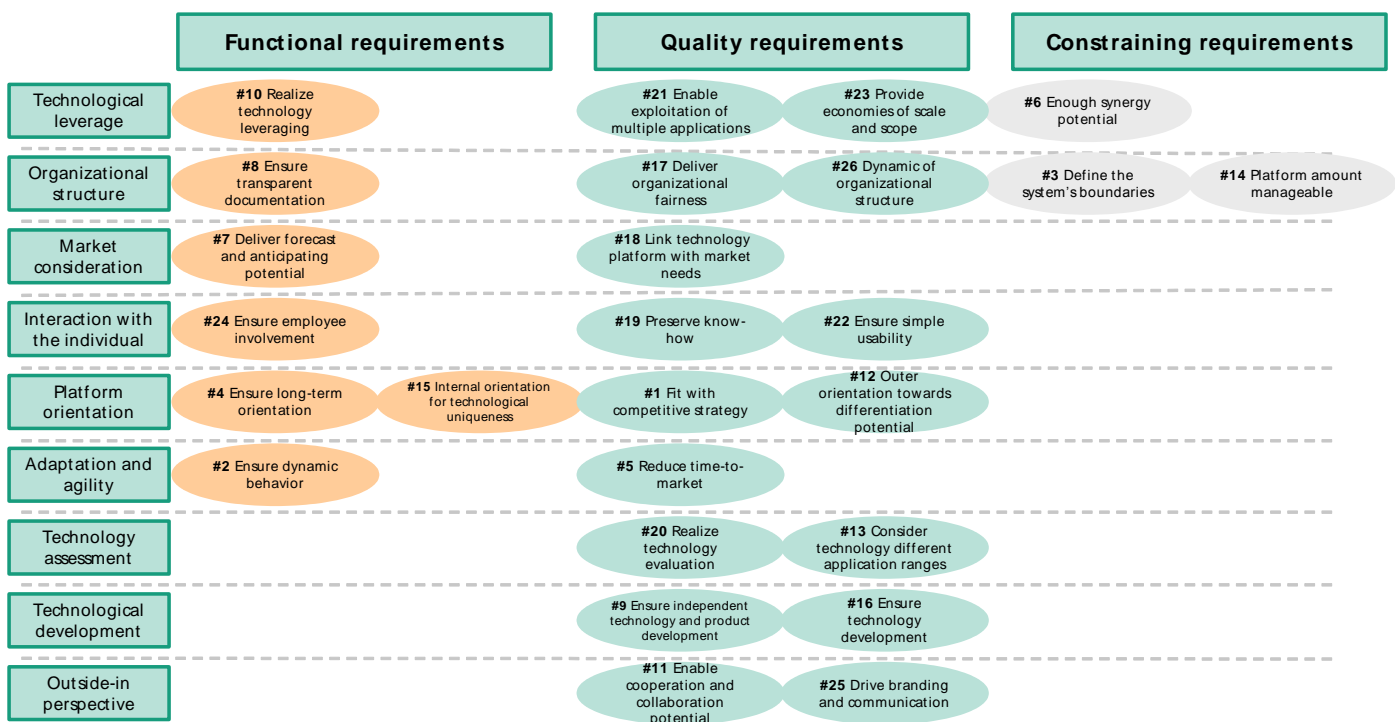


Fig. 5 Model for the systematization of the requirements of technology platforms in diversified companies

## VI. CONCLUSION AND FUTURE RESULTS

The paper gives a comprehensive model for structuring the requirements of technology platforms in diversified companies. In total, 26 individual requirement statements have been identified and have been grouped into 9 consistent requirement clusters. This systematization has been performed in accordance to the standards of the requirement engineering process. The developed systematization is applicable for any diversified company and provides a clear guideline in structuring the requirements of technology platforms in diversified companies. The research paper's outcomes emphasize the importance of a systematic description and systematization of the technology platform requirements. Practitioners, responsible for the strategic orientation of technology platforms, are given a framework and therefore a valuable input that enables the systematization of the technology platform requirements. However, future research in the form of empirical case studies is necessary to further validate the proposed results and complete the research process of applied sciences as well as the requirement engineering process. Also, the development of an explanatory model as well as a decision model would further promote the understanding of technology platform requirements in the context of diversified companies.

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