

FACTORS INFLUENCING THE DESIGN OF MOBILE SERVICES

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Abstract: Due to emerging technologies and a high speed of innovation the planning and development process of mobile services is highly dynamic. Numerous failures of mobile services emphasise the need for a comprehensive analysis of all relevant influencing factors. A widely accepted understanding of the number and type of factors to be analysed during the development of mobile services does not exist.

This paper provides a theory based framework that helps to identify a balanced set of relevant influencing factors. For this purpose the contribution of different scientific approaches is examined. By combining these approaches a framework for the classification is derived within a two step process. First experiences confirmed its suitability for the systematic classification of factors influencing the design of mobile services.

Key words: Classification of Influencing Factors; Theory Based Classification Framework; Design of Mobile Services

1. MOTIVATION

Mobile services for end-users (e.g. messaging, navigation, yellow pages, chats) are more and more influencing our private life. The Gartner Group estimates the annual turnover for mobile services in 2005 to be more than 32 billion US\$ with a rapidly growing trend in the future¹. In contrast to the development of regular end-user products the development of mobile

services is characterised by a permanent and frequent appearance of new technologies. This makes the planning and development process of mobile services highly dynamic².

Potential end-users often do not recognize the added value or are not willing to pay the price for a specific mobile service. Even extensive marketing campaigns do not lead to a satisfying dissemination and revenue of a broad spectrum of mobile services. As a consequence mobile services are often not developed any further, marketing campaigns are stopped or the services are displaced.

Böcker and Kotzbauer empirically verify the positive coherence between systematic planning of an innovation and its success³. Influencing factors that are not adequately considered may lead to an incomplete or incorrect specification of mobile services. As any misinterpretation affects all following phases of development, the analysis and planning process is particularly important for the design of a mobile service^{4,5}.

To support these processes scientific approaches help to manage the existing complexity. Models that especially focus on mobile services and regard the identification of influencing factors are not established. According to this lack of suitable approaches this paper discusses different approaches for an identification of influencing factors in a two step process. Chapter 2 presents four basic dimensions for a classification of influencing factors. Chapter 3-6 discusses a sub-division for each of these dimensions. Chapter 7 summarises the results, chapter 8 gives an outlook.

2. CLASSIFICATION OF INFLUENCING FACTORS

For a systematic planning process there is a need for a comprehensive, complete and disjunctive classification of influencing factors of mobile services. Regarding the state of the art literature leads to several classifications that either provide an abstract overview or regard parts of the entirety of influencing factors more detailed. These detailed approaches do not identify concrete influencing factors in general, but provide classifications with a level of abstraction that is regarded as appropriate for identifying influencing factors for specific mobile services.

The combination of general and detailed approaches leads to a two step process for the classification of influencing factors of mobile services⁶. In a first step general dimensions can be identified. In a second step these dimensions can be subdivided to permit the identification of tangible influencing factors of mobile services.

In the first step mobile services can be divided into the four dimensions *Structure, Process, Outcomes* and *Market*^{6,7}. This classification traces back

to several approaches that identify the first three dimensions for a systematic service engineering⁸⁻¹¹. Taking external dependencies of mobile services into account these dimensions can be extended by the fourth dimension *Market*⁷. Amberg et al. give a detailed overview of current state of the art approaches⁶.

The *Structure* dimension describes the required input factors for the service development¹². The *Process* dimension represents all required processes during the product lifecycle¹¹. The *Outcome* of a mobile service can be divided into procedural outcome and impact of the outcome^{13,14}. The procedural outcome can be evaluated at the end of the service provision. The impact of the mobile service has a medium or long term character (continuous quality)¹⁵. Especially for mobile services the *Outcomes* focus on the result of the process from the end-user's perspective. This is significantly determined by the end-user's acceptance¹⁶. Thus, the dimension *Outcomes* is termed *Acceptance* in the following. The relevant actors of the mobile value chain are regarded in the *Market* dimension⁴.

As a result of the first step the dimensions *Structure*, *Process*, *Acceptance* and *Market* classify the influencing factors completely and disjunctive. In the second step these dimensions can be subdivided into feasible sub-dimensions⁶. Chapter 3-6 discusses different approaches for a subdivision in detail. The choice of suitable approaches is based on the originality of approaches, the suitability for mobile services and a feasible level of abstraction.

3. STRUCTURE DIMENSION

A mobile service can be defined as a combination of internal potentials and usage factors (resources)^{5,17}. The *Structure* dimension focuses on the provision of mobile services i.e. the capability and willingness to combine internal potential factors to be able to provide a service¹².

Regarding theories that subdivide this dimension leads to a variety of different approaches. Significant models are McKinsey's *7-S Model* that focuses on change management and emphasises mutual dependencies of dimensions, Pfeiffer's *Five Factors Model* that is based on a procedural analysis of industrial processes in general and Porter's *Value Chain Model* that describes support activities for any kind of product or service. Most of the further approaches are derivatives of Porter's *Value Chain Model* and do not offer additional perceptions for a subdivision of the *Structure* dimension.

McKinsey's *7-S Model* identifies seven significant elements of an organization: *Strategy*, *structure*, *systems*, *style/culture*, *staff*, *skills* and *shared values*. Any change in one of the elements affects all others¹⁸.

Pfeiffer provides a *Five Factor Model* that describes the structural and procedural dimensions of industrial systems. It identifies the dimensions *input, personnel, organisation, technology* and *output*¹⁹. Porter's *Value Chain Model* identifies the activities *firm infrastructure, human resource management, technology development* and *procurement*. These so called support activities affect all processes along the entire value chain²⁰. Figure 1 shows these approaches in an overview.

Approach	Dimensions	Summary	Suitability
7-S model (Mc Kinsey)	<ul style="list-style-type: none"> • Strategy • Structure • Systems • Style/Culture • Staff • Skills • Shared Values 	Change management approach that divides an organisation into seven factors. Each change of one factor influences any other factors.	As information procurement and technology is not regarded, this approach is not directly appropriate.
5 Factors Model (Pfeiffer, et al.)	<ul style="list-style-type: none"> • Input • Personnel • Organisation • Technology • Output 	Closed model for the structural and procedural description of industrial systems.	Cross sectional model that does not fit in the superior dimension structure (e.g. Output).
Value Chain Model, Support Activities (Porter)	<ul style="list-style-type: none"> • Firm Infrastructure • Human Resource Management • Technology Development • Procurement 	Divides the support activities of an enterprise cross sectional. All Dimensions affect all processes of the primary activities along the entire value chain. Focuses primarily on manufacturing industry. Highly established.	Describes all relevant aspects of the structure dimension. Includes all relevant sub-dimensions of the other approaches.

Figure 1. Overview of Approaches for the Subdivision of the Dimension *Structure*

The dimensions of the *7-S Model* allow a detailed view on the characteristics of an organisation. Some aspects that are relevant for the provision of mobile services (e.g. technology and procurement) are not regarded. Pfeiffer's first four dimensions can be interpreted almost alike the dimensions identified in Porter's *Value Chain Model*. The additional element output is already subject of the *Acceptance* dimension. The supporting activities of the *Value Chain Model* include all relevant aspects of the other approaches. Even if Porter does not explicitly regard the specific characteristics of mobile services, a stronger focus of the procurement on information than on material goods is the only constraint²¹.

Influencing factors for Porter's sub-dimension *Firm Infrastructure* are financial resources, organizational structure and brands. *Human Resource Management* contains factors like knowledge as well as the quantity and qualification of personnel. Regarding the sub-dimension *Technology Development* leads to influencing factors like IT systems, technical standards and experience with emerging technologies. In the sub-dimension

Procurement influencing factors like content acquisition, information retrieval and situation determinants can be identified. Figure 2 gives an overview on the four sub-dimensions of *Structure*.

Sub-Dimensions	Influencing Factors
Firm Infrastructure	<ul style="list-style-type: none"> • Organizational Structure (e.g. existing Structure) • Financial Resources (e.g. sufficient Ressources) • Brands (e.g. usable or transferable Brands)
Human Resource Management	<ul style="list-style-type: none"> • Knowledge (e.g. existing knowledge) • Personnel Quantity (e.g. manpower requirements) • Personnel Qualification (e.g. key qualifications)
Technology Development	<ul style="list-style-type: none"> • IT Systems (e.g. Servers, Content Management Systems) • Technical Standards (e.g. UDDI, WAP, UMTS) • Experience with the Integration of Emerging Technologies
Procurement	<ul style="list-style-type: none"> • Content Acquisition (e.g. Contacts, Relationships) • Information Retrieval (e.g. Information, News, Location Information) • Technical Procurement (e.g. Server, OS, DB, Software)

Figure 2. Influencing Factors and Examples in an Overview

4. PROCESS DIMENSION

A mobile service can be interpreted as an assessable process of internal and external interactions¹¹. The internal interactions include the development of the mobile service. The external interactions refer to the participation of the end-user in planning, developing and providing mobile services.

According to Porter the overall value creating logic of the value chain with its generic categories of primary activities is valid in all industries. Although Porter's framework plays a central role it is challenged in resource-based critiques^{22,23}. Considering the weaknesses of Porter's framework two alternative models for the value configuration, the *Value Shop* and the *Value Network*, can be discussed²⁴.

According to the *Value Shop Model* the value creation bases on the five dimensions *problem finding/acquisition*, *problem solving*, *choice*, *execution* and *control/evaluation*. Within these dimensions a firm relying on intensive technology is able to solve customer or client problems²⁴. The *Value Network Model* considers the main dimensions *promotion* and *contract management*, *service provisioning* and *infrastructure operation*. This approach focuses on value creation in firms that rely on mediating technology to link clients or customers²⁴. The primary activities of Porter's *Value Chain Model* describe the whole building process of products or services. Porter specifies the dimensions *inbound logistics*, *operations*, *marketing/sales*, *outbound logistics* and *after-sale service* as generic activities of the process. This approach originally focuses on manufacturing

industries²⁰. Figure 3 gives an overview of approaches for the subdivision of the *Process* dimension.

Approach	Dimensions	Summary	Suitability
Value Shop (Stabell, Fjeldstad)	<ul style="list-style-type: none"> • Problem-Finding and Acquisition • Problem Solving • Choice • Execution • Control/ Evaluation 	Approach for value creation logic in firms that rely on intensive technology to solve a customer or client problem	Regards the stages of service provision; relevant aspects of the <i>Process</i> as information handling are not considered
Value Network (Stabell, Fjeldstad)	<ul style="list-style-type: none"> • Promotion and Contract Management • Service Provisioning • Infrastructure Operation 	Approach for value creation logic in firms that rely on mediating technology to link clients or customers	Focuses on the value creation of MNO's; does not consider relevant aspects as customer care
Value Chain Model, primary activities (Porter)	<ul style="list-style-type: none"> • Inbound Logistics • Operations • Outbound Logistics • Marketing and Sales • After-Sale Service 	Primary activities are directly involved in creating and bringing value to the customer. Approach focuses primarily on manufacturing industry	Regards all relevant influencing factors for the structure of organisations

Figure 3. Overview of Approaches for the Subdivision of the Dimension *Process*

As the *Value Shop Model* especially regards problem solutions it is suitable for analysing concrete aspects of mobile services but not for a profound classification of the *Process* dimension. Depending on the interpretation the value shop model can be regarded as a subset of Porter's primary activities²⁴. The *Value Network Model* focuses on network providers. From the view of providers of mobile services the provision and operation take place at the same time²⁵. For mobile service providers the contract management is not part of the provisioning process. Taking Bullinger and Schreiner's classification into account it has to be regarded in the *Structure* dimension⁷.

Regarding mobile services the critiques of Porter's *Value Chain Model* have no effects on its suitability. The primary activities are appropriate to describe the different stages of value creation of mobile services. They are suitable for a detailed classification of the *Process* dimension. The only adaptation refers to the generally termed dimensions.

Particularly important for the sub-dimension inbound logistics is the handling of information. The outbound logistics can be reduced on service distribution as mobile services use only digital distribution channels. In addition after-sale service can be termed customer care.

Regarding the sub-dimension *Information Handling* the transaction standards and the handling of content and situation determinants can be

identified as influencing factors. The sub-dimension *Technical Operations* includes influencing factors like service generation, reliability and situation dependency concepts. The analysis of the sub-dimension *Service Distribution* leads to co-operations, distribution concepts and access technologies. The sub-dimension *Marketing* contains factors like promotion, placement and price of a mobile service. Customer support, customer relations and service enhancement are influencing factors of the sub-dimension *Customer Care*. Figure 4 shows the five sub-dimensions and influencing factors of the *Process* dimension.

Sub-Dimensions	Influencing Factors
Information Handling	<ul style="list-style-type: none"> • Content Handling (e.g. Storage, Databases) • Transaction Standards (e.g. Interfaces, Technologies) • Handling of Situation Determinants (e.g. Location Information)
Technical Operations	<ul style="list-style-type: none"> • Service Generation (e.g. Databases, Content Management) • Reliability (e.g. Security, System Stability) • Situation Dependency Concepts (e.g. Location, Personalisation)
Service Distribution	<ul style="list-style-type: none"> • Co-operations (e.g. Portals, MNO's, SP's) • Distribution Concepts (e.g. Push, Pull) • Access Technologies (e.g. GSM, GPRS, UMTS)
Marketing	<ul style="list-style-type: none"> • Promotion (e.g. Advertisement, Public Relations) • Placement (e.g. Target Groups and Markets) • Price (e.g. Elasticity, Structure)
Customer Care	<ul style="list-style-type: none"> • Customer Support (e.g. Help Systems, FAQ's, Hotlines) • Customer Relations (e.g. Controlling, CRM) • Service Enhancement (e.g. Ideas, Adaptation Mechanisms)

Figure 4. Influencing Factors and Examples in an Overview

5. ACCEPTANCE DIMENSION

The end-user's acceptance is more and more regarded as a critical factor for the analysis and evaluation of mobile services²⁶. The acceptance significantly depends on the end-user's perspective of the mobile service.

The *Technology Acceptance Model* (TAM) is a highly established model to evaluate the end-user's acceptance and considers the end-user's perception²⁷. The *Compass Acceptance Model* is a model that explicitly regards mobile services. It extends TAM for general conditions that are not determined by the specific mobile service and has been approved in several projects²⁸. Another concept that is focused on mobile services is Silberer's layer concept. It focuses on the customer satisfaction of mobile commerce applications. Other acceptance models (e.g. Goodhue, Degenhardt, Kollman) do not regard the specific aspects of mobile services.

According to Davis' *Technology Acceptance Model* the user acceptance is determined by the factors *perceived usefulness* and *perceived ease of use*.

It regards the acceptance of technologies in general²⁷. The *Compass Acceptance Model* is a model for (re-) evaluating the end-user's acceptance for mobile services²⁶. As an extension of *TAM* it subdivides the influencing factors of the end-user's acceptance into *perceived usefulness*, *perceived ease of use*, *perceived costs* and *perceived network effects*²⁸. Silberer's *Customer Satisfaction Approach* considers the dimensions *hardware*, *transmission costs* and *mobile commerce application*. Regarding these dimensions experiences, expectations and the conformity of expectations can be examined²⁹. Figure 5 gives an overview of approaches for the subdivision of the *Acceptance* dimension.

Approach	Dimensions	Summary	Suitability
Technology Acceptance Model (Davis)	<ul style="list-style-type: none"> • Perceived Usefulness • Perceived Ease of Use 	Approach for the (re-) evaluation of the acceptance of mobile services from the end-user's point of view	Highly established, mobile services are not regarded explicitly
Compass Acceptance Model (Amberg et al.)	<ul style="list-style-type: none"> • Perceived Usefulness • Perceived Ease of Use • Perceived Costs • Perceived Network Effects 	Approach for the (re-) evaluation of the acceptance of mobile services from the end-user's point of view that expands TAM for mobile services.	Approach especially for mobile services that regard all relevant sub-dimensions of this dimension from the end-user's perception.
Customer Satisfaction (Silberer et al.)	<ul style="list-style-type: none"> • Hardware • Transmission Costs • Mobile Commerce Applications 	Regards experiences, expectations and the conformity of expectations along three layers.	Approach of conformity of expectations is suitable. Usability is not considered explicitly.

Figure 5. Overview of Approaches for the Subdivision of the Dimension *Acceptance*

The *Technology Acceptance Model* regards the acceptance in general and does not consider mobile aspects explicitly. As Silberer's *Customer Satisfaction Model* is technology driven, usability aspects are not regarded. The *Compass Acceptance Model* is specialised on the acceptance of mobile services. It contains all relevant aspects of the other approaches²⁶ and is approved for a subdivision of the *Acceptance* dimension²⁸.

Regarding the *Perceived Usefulness*, influencing factors like added value, emotions and the information quality are relevant. The sub-dimension *Perceived Ease of Use* contains factors like initial operation, usability of the service and terminal equipment. An assignment of influencing factors for the sub-dimension *Perceived Costs* leads to factors like monetary costs, transparency of costs and health concerns. The sub-dimension *Perceived Network Effects* identifies general conditions of mobile services²⁸. Influencing factors that affect the mobile service indirectly are the network

coverage, terminal equipment or the image. Figure 6 shows the four sub-dimensions of the dimension *Outcomes* in an overview.

Sub-Dimensions	Influencing Factors
Perceived Usefulness	<ul style="list-style-type: none"> • Added Value (e.g. Fun Factor, Information) • Emotions (e.g. Feeling of Independence) • Information Quality (e.g. Timeliness)
Perceived Ease of Use	<ul style="list-style-type: none"> • Initial Operation (e.g. Registration, First Configuration) • Usability Service (e.g. Intuitive Handling, Idle Time) • Usability Terminal Equipment (e.g. Display, Keypad)
Perceived Costs	<ul style="list-style-type: none"> • Monetary Costs (e.g. Purchasing Costs, Basic Rates, Usage Costs) • Transparency (e.g. Tariff Models, Cost per Minute/Request/Bit) • Health Concerns (e.g. Dangerous Radiation)
Perceived Network Effects	<ul style="list-style-type: none"> • Network Coverage (e.g. Dissemination, Roaming) • Terminal Equipment (e.g. Design, Size, Colour) • Image (e.g. Service as Status Symbol, Group Affiliation)

Figure 6. Influencing Factors and Examples in an Overview

6. MARKET DIMENSION

During the early stage of the development of mobile services the consideration of the market plays an important role⁴. Current best practices for planning are often based on speculations about the market of mobile services³⁰. This inadequate market orientation is a main reason for deficits in the development of services³¹.

Regarding the market and its actors leads to Porter's *Five Forces Model* of competitive advantage that is highly established. Grove extended Porter's model by the sixth force *Complementors*. Regarding the telecommunication business Downes criticises this model due to adaptations to actual developments. He suggests a *Three Forces Model*. An alternative perception to classify this dimension is to regard the participants of mobile markets. Following this approach various models exist. These so called value chain models specify the actors in a varying level of abstraction. The *Wireless Value Chain* is a representative model that subsumes the relevant aspects as a superset.

For a classification of the *Market* dimension it has to be considered how promising the market and how competitive a service is. Porter terms this as competitive advantage³². He identifies *Competitors*, *Customers*, *Suppliers*, *Substitutes* and *Potential Competitors* as the five forces of competitive advantage. Grove enhanced this model with *Complementors* (e.g. Portals for Mobile Services) as a sixth force³³. Downes regards these factors as inadequate for the consideration of digital services. Therefore he proposes the factors *digitalisation*, *globalisation* and *deregulation* as new forces for

the determination of the competitive advantage in times of economical changes³⁴. JP Morgan's *Wireless Value Chain* provides a detailed classification of actors of mobile business. It specifies the categories *equipment, networks, software and services*³⁵. Figure 7 gives an overview of approaches for the subdivision of the *Market* dimension.

Approach	Dimensions	Summary	Suitability
6 Forces (Grove)	<ul style="list-style-type: none"> • Competitors • Complementors • Customers • Suppliers • Substitutes • Potential Competitors 	Enhances Porter's 5 Forces Model with the power, vigor and competence of complementors that are highly relevant for mobile services (e.g. terminal equipment)	Regards all relevant influencing factors for the market of mobile services.
3 Forces (Downes)	<ul style="list-style-type: none"> • Digitalisation • Globalisation • Deregulation 	Criteria for the consideration of services underlying economical trends	Criteria only valid in certain times; focuses on external influences on the market
Wireless Value Chain (JP Morgan)	<ul style="list-style-type: none"> • Equipment • Networks • Software • Services 	Approach for structuring the players in Mobile Business.	Regards all relevant market players; does not consider competition (e.g. Substitutes)

Figure 7. Overview of Approaches for the Subdivision of the Dimension *Market*

The *Wireless Value Chain* provides all relevant actors of value creation in mobile business. As it does not consider competition explicitly, it is not directly applicable for a subdivision of the *Market* dimension. Downes' three forces clarify the difficulties in regarding the market and its players due to external influences. The actors itself are not directly considered. Grove's *Six Forces Model* provides all relevant aspects of competitive advantages for the market and contains all significant aspects that are regarded by the other models. Therefore the *Six Forces Model* appears to be an adequate approach for a detailed classification of the *Market* dimension.

The sub-dimension *Competitors* includes influencing factors like service providers, mobile network operators and hybrid products that are competing in the same market. Mobile devices, portals and independent payment systems can be assigned to the sub-dimension *Complementors*. An actual example for the influence of *Complementors* is the lack of UMTS devices for the European market. The sub-dimension *Customers* includes factors like requirements, quantities and properties of potential end-users. The sub-dimension *Suppliers* is influenced by mobile network operators (in their primary role as MNO, not as service provider), content providers and third parties (e.g. for billing or encashment). The sub-dimension *Substitutes* contains traditional "non mobile" products as well as emerging technologies and new approaches for the replacement of mobile services. Besides actual

competitors new or already existing SP's or traditional enterprises may enter the market and have to be regarded as *Potential Competitors*. Figure 8 shows the six sub-dimensions of *Market*.

Sub-Dimensions	Influencing Factors
Competitors	<ul style="list-style-type: none"> • Other SP's that provide equal services • MNO's (in their role as SP) that provide equal services • Hybrid products (e.g. Service Combinations, Broadcast Information)
Complementors	<ul style="list-style-type: none"> • Portals and Platforms (Startpage of MNO or Intermediate) • Mobile Devices (e.g. Required Technologies) • Independent Payment Systems (e.g. PayPal, MoxMo)
Customers	<ul style="list-style-type: none"> • Requirements (e.g. Demands, Needs) • Quantity (e.g. Potential End-Users, Market Size) • Properties (e.g. Structure and Attributes)
Suppliers	<ul style="list-style-type: none"> • MNO's (Guidelines, Technology, Location Information) • Content Provider (e.g. Monopoles, Timeliness, Pricing) • Third Parties (e.g. Billing, Encashment)
Substitutes	<ul style="list-style-type: none"> • "Non Mobile" Products (e.g. Map instead of Navigation Service) • Emerging Technologies (e.g. Faster, Smaller, Better) • New Approaches (e.g. Automation instead of Mobile Service)
Potential Competitors	<ul style="list-style-type: none"> • Emerging SP's (e.g. Entrepreneurs) • Existing SP's (e.g. expanding existing services) • Traditional Enterprises (e.g. expanding with mobile strategies)

Figure 8. Influencing Factors and Examples in an Overview

7. FRAMEWORK

Initial point of this paper was the need for a systematic classification for identifying factors influencing the design of mobile services. As suitable approaches that directly address mobile services currently do not exist, different scientific approaches from nearby research disciplines were evaluated. By combining selected approaches a theory based framework for the classification of influencing factors was derived in a two step process. It identifies the four basic dimensions *Structure*, *Processes*, *Acceptance* and *Market*. For the subdivision of these dimensions, different approaches were selected and discussed. Based on this discussion sub-dimensions for the classification were derived. To evaluate the appropriateness of this classification representative influencing factors were identified for each sub-dimension.

For the dimensions *Structure* and *Process* Porter's *Value Chain Model* was applied. For the dimension *Acceptance* the *Compass Acceptance Model* was selected. For the subdivision of the *Market* Grove's *Six Forces Model* was used. Figure 9 shows the four dimensions and all sub-dimensions in an overview.

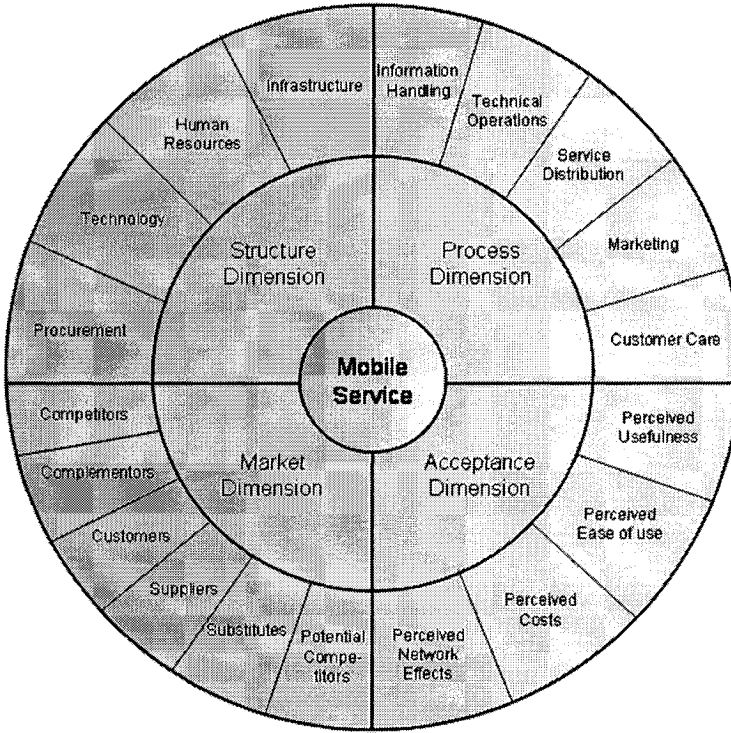


Figure 9. Classification of Influencing Factors

From the theoretical point of view, the derived dimensions appear suitable for identifying a balanced set of influencing factors. First experiences in the context of practical projects confirmed the suitability of the framework for the complete and disjunctive classification of influencing factors of mobile services.

8. OUTLOOK

The presented framework for the classification of influencing factors of mobile services is expected to lead to a significant improvement of the transparency of relevant influencing factors for the design of mobile services. Additionally, the framework can be applied for comparing and benchmarking different mobile services. Furthermore it can be used for planning (e.g. for the selection of mobile services in the early stages) or the controlling of mobile services during the product lifecycle. To prove its significance, the framework has to be challenged by an empirical validation.

Need for further research is seen in the qualitative and quantitative measurement of influencing factors. Especially the identification of suitable criteria, combinations between qualitative and quantitative criteria, weighting factors and the visualisation of results have to be regarded in the future. Furthermore the availability and suitability of methods for these aspects have to be analysed.

As a future target, the framework can be expanded for a support of appropriate measures considering effort and benefit for the evaluations of mobile services. Due to the general validity of the identified and selected approaches it is expected that the framework can be applied for services in general as well.

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