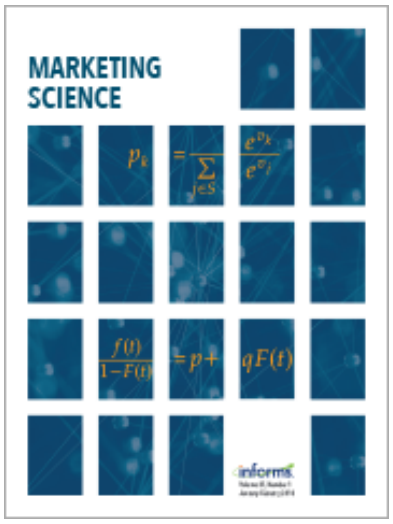

Marketing Science

Publication details, including instructions for authors and subscription information:
http://pubsonline.informs.org

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To cite this article:
Martin Natter, Andreas Mild, Udo Wagner, Alfred Taudes, (2008) Practice Prize Report—Planning New Tariffs at tele.ring: The Application and Impact of an Integrated Segmentation, Targeting, and Positioning Tool. Marketing Science 27(4):600-609.
https://doi.org/10.1287/mksc.1070.0307

MARKETING SCIENCE
Vol. 27, No. 4, July–August 2008, pp. 600–609
ISSN 0732-2399 | EISSN 1526-548X | 08 | 2704 | 0600

informs

DOI 10.1287/mksc.1070.0307

Practice Prize Report

Planning New Tariffs at tele.ring: The Application and Impact of an Integrated Segmentation, Targeting, and Positioning Tool

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Tele.ring is a mobile phone organization selling contracts and cell phones in the Austrian market. The market situation in 2005 was highly competitive and dynamic, resulting in relatively short tariff life cycles. Excessively long lead times made tele.ring's management feel dissatisfied with their new tariff development process. Furthermore, a new competitor had entered the market, posing a major threat, and it was unclear how to effectively safeguard tele.ring's position in the market. In cooperation with the management, we implemented and tested a new segmentation, targeting, and positioning tool, which provides managers with information on their target markets, customer preferences, competitors' strengths, and customer segments. It allows for the simultaneous visualization of these data on a single map and facilitates timely and accurate decision making. In particular, we report on the design and the implementation of a new pricing scheme, "Formel 10," which became the most successful new tariff introduction in this competitive market. tele.ring's managers were very much impressed with our tool's ability to represent the market on a single map and with its capacity to allow for intuitive interpretation. In addition, the tool enhanced internal communication between its users and different stakeholders during the new tariff development process.

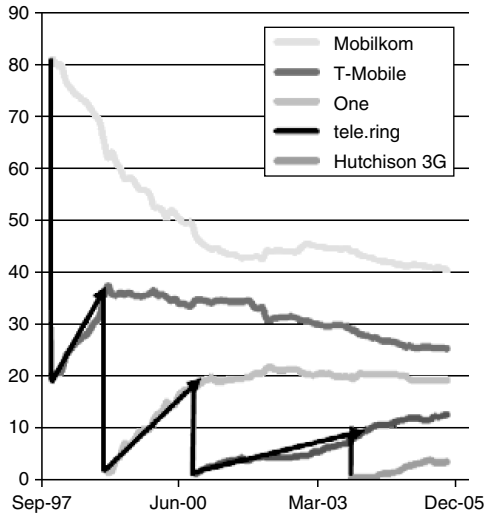
Key words: segmentation; targeting; positioning; preference mapping; pricing; mobile phone market
History: This paper was received September 26, 2006, and was with the authors 3 months for 2 revisions; processed by John Roberts. Published online in *Articles in Advance* May 15, 2008.

1. Company Background and Management Problem

In 2005, tele.ring served more than one million customers in the Austrian market, i.e., 1,029,000 cell phone users and 98,500 conventional telephone network customers. At that time, there were five providers selling contracts and cell phones through their own retail outlets and other distributors. These were Mobilkom, the former monopolist (41% market share in 2004), T-Mobile (26%), One (19%), tele.ring (12%), and Hutchison 3G Austria (2%). With a market penetration as high as 106%, the Austrian mobile phone market is worth about $4.5 billion per year and is therefore highly competitive[1] and dynamic (see Figure 1), which has resulted in providers introducing new tariff schemes every six to eight months. A reduction in tariff life cycles combined with high market dynamics made tele.ring aware that their new tariff development process was lacking in efficiency. With an average lead time of seven months at its disposal, tele.ring decided to develop a new pricing scheme for April 2005. In dynamic markets, long lead times limit predictive accuracy and, although

[1] A comparison of the Herfindahl index for market concentration between 19 European countries ranks the Austrian market in third place, confirming its competitiveness.

Figure 1 tele.ring's Threat



Note. Every new entrant into the market immediately stopped the growth of the previous entrant in terms of market share. This was the case for T-Mobile, which took away market share from Mobilkom, for One, which stopped T-Mobile's growth, and for tele.ring, stopping One.

tele.ring recognized this problem, poor communication between departments hindered a significant reduction in throughput times for new ideas and the incorporation of up-to-date market information in the final planning phase.

The new tariff introduction for April 2005 was an important project because the new rival in the market, Hutchison 3G Austria, had started to significantly gain market share, and, consequently, tele.ring's new tariff scheme would need to be sufficiently attractive to slow down Hutchison's growth rate. Figure 1 highlights that in the past every new entrant into the market immediately stopped the growth of the previous entrant in terms of market share. Although it was clear that something had to be done to avoid this, it was not clear *who* Hutchison's potential new customers were or *how* to attract them. In saturated markets with strong competition, it is difficult to gain market share without negatively affecting the price. In a situation like this, a segment-based positioning strategy can be a source of competitive advantage and can provide solutions for the selection of an appropriate target group (i.e., who) and the definition of a suitable offer (i.e., how).

As a result of the economic importance of this market, competitors commonly use state-of-the-art techniques to explore business opportunities. Pricing studies and what-if analyses, for example, are usually undertaken using commercially available conjoint analysis software. Because the use of these tools is common practice in this market, it is no longer a source of competitive advantage for a company. Being aware of this, the management at tele.ring began to look for another success factor and was willing to adopt an alternative marketing science method.[2] As a result, the management decided to use the marketing science tool that we developed to support their new tariff development process.

The tool's basic methodological components consist of procedures for representing heterogeneous competitive market structures (for an overview, see, e.g., Lattin et al. 2003). The primary aim of this class of methods is to derive a configuration of brands in a product class on the basis of competitive relationships between brands. The degree of interbrand competition serves as a measure for substitution as perceived by customers (cf. Day et al. 1979).

Multidimensional scaling (MDS) methods are primary vehicles used to visualize product positioning in marketing (DeSarbo et al. 1997). However, the positioning and analysis of competitive market structures are not independent tasks; instead, they are often integrated into more encompassing frameworks such as the segmentation–targeting–positioning (STP) approach (Lilien and Rangaswamy 2004). In integrated frameworks like these, in which a firm targets one or more groups of customers, product positioning analysis shows itself to be a segment-specific concept. In many cases, applying clustering and MDS to the same proximity data can result in much greater insight into the data's structure than either approach on its own (Carroll et al. 2005). This justifies the need to develop models that integrate measurement, segmentation, targeting, and positioning.

With regard to segmentation, there is an apparent gap between academic research that has followed normative and rational routes and actual business practices (Kalafatis and Cheston 1997). Wind and Cardoza (1974), for instance, point out that marketers judge segments on the basis of appropriateness and ease of implementation. Fish et al. (1995) see the main constraint of these methods in a manager's limited capacity to cope with the complexity of multivariate segmentation. One of the limitations of the use of preference mappings is that they can be difficult to interpret (e.g., DeSarbo et al. 1997, Lilien and Rangaswamy 2004).

In view of this situation, we designed a new software tool to assist management decision making. This tool takes the STP approach and guides market analysts through the STP process. The algorithmic procedures used employ a mix of existing methods in this field, combined in an innovative way. In contrast to the step-by-step approach taken by independent methods, our tool provides a comprehensive picture

[2] In a sense this situation is similar to the situation described by Kumar and Rao (2006), but for a different marketing context (i.e., pricing in a highly competitive supermarket environment). They found that data analysis was profitable whether or not a competitor undertook data analysis because implementing data analysis was a dominant strategy.

of the market, explicitly takes trade-offs between different performance measures into account, and facilitates interpretation and use. The software also integrates additional features to assist managers in charge of new product (tariff) development, e.g., a segment-based analysis of preferences and questionnaire responses, a conjoint modeling and market simulation framework, as well as interactive target group selection and positioning functionalities.

In the remainder of this paper, we first outline the ideas behind the modeling approach adopted in the development of the tool and discuss the procedural approach to the modeling. Then, we describe the project and the tool's implementation at tele.ring, and, finally, we report on the impact on profits and sales.

2. Basic Idea Behind the Modeling Approach

2.1. Desired Properties of the Management Tool for STP Decision Making

Over the years, researchers have developed a large number of models and algorithms for the integration of segmentation and MDS. At the same time, market researchers, managers, and analysts have developed and applied a large number of graphic representations to analyze (segment-specific) market structures. There seems to be some relationship between graphic representations of perceptual mappings and managerial applications (i.e., ease of interpretation tends to stimulate practical usage).

Designing a marketing science tool requires developers to study the needs and preferences of its potential users. Because the targeted users are not members of the scientific community but managerial decision makers, we interviewed managers from new product development companies, strategy consultants, marketing analysts from customer-focused companies, and marketing students. This empirical survey (Natter et al. 2008) identified first of all that the most important criterion in assessing different visual designs is the ability to intuitively understand graphic representations. Second, it found that the use of distance rather than vector models results in better decisions. Third, it also highlighted that managers consider information on market structure, preference structure, and customer heterogeneity to be relevant for decision making and regard the incorporation of segment-specific information in a graphic representation of the market as essential.

When creating so-called "homogeneous" segments, a certain degree of customer heterogeneity[3] is bound to exist, which could be of significant relevance to marketing decision makers. While analyzing twenty different empirical data sets, it became very obvious that segment structures are by no means clear-cut. This finding is in line with the literature (e.g., Wedel and DeSarbo 1996) and therefore we decided to include individual preference information in addition to segment membership in the graphic representation. To be specific, customers are assigned a different location on the map depending on their individual heterogeneity,[4] and specific colors portray their segment membership.

It was the desired properties of suitable graphic representations and the means of communication outlined above that guided the development of the marketing engineering tool. The approach taken is based on the assumption that the different aspects of segmentation, targeting, and positioning need to be integrated into the tool and that managerial applicability is of prime importance; i.e., practitioners should find the map generated by the model easy to interpret. In summary, the tool should fulfill the following five requirements:

- R1: The two-dimensionality of the maps is an essential requirement for practical usage. Maps of greater dimensionality are not understood, and they do not support group decision making. Two-dimensional maps provide a unique view of the market, which is of great importance when several departments are involved, whereas three-dimensional (or even greater) solutions are often represented by several two-dimensional partial views or by three-dimensional graphs and usually have to be rotated in order to perceive relationships of interest.
- R2: Brands, attributes, and consumers should be incorporated into a single map to provide an encompassing view of the market comprising the three important aspects of the STP approach. The size of the corresponding labels should reflect the brand's strength and the perceived importance of the attributes.
- R3: Spatial distances on the map should directly mirror substantive differences (i.e., the farther apart brands, attributes, and consumers are located on the map, the greater the difference in their perception). An overall performance measure should reflect whether a map is reliable.
- R4: Consumers should be grouped into distinct segments with clear boundaries (i.e., segment overlap should be minimized). The procedure we used in this case for segmentation (K-means clustering)

[3] See, e.g., Horsky et al. (2006) for a recent contribution that considers observed and unobserved customer heterogeneity within a model.

[4] Thus discrete market segments are formed and customers are not allowed to be fractional members of multiple segments as is proposed, e.g., by DeSarbo et al. (1995) in a similar context.

Table 1 Simplified Flow Chart of the Mapping/Segmentation Approach

(1) Provide *input data*: rankings of brands and attributes

(2) Calculate *intermediate results to represent*:
- (metric) distances between brands/attributes and respondents
- respondents' heterogeneity
- brands' and attributes' heterogeneity

(3) *Positioning*: MDS procedure in two-dimensional space based on distances between brands and attributes for all respondents
Result: positions of respondents, brands, and attributes on a two-dimensional map
Stress measures describing the solution's ability to replicate
- distances (based on ranks) between brands/attributes and respondents (C_1)
- respondents' heterogeneity (C_2)
- brands' and attributes' heterogeneity (C_3)

(4) *Segmentation*: *K*-means clustering based on respondents' heterogeneity *and* positions of respondents on the two-dimensional map
Result: number of segments and segment membership for all respondents
Goodness-of-fit measure for the cluster solution (C_4)

(5) *Reduce segment overlap* based on positions of respondents and their preliminary segment membership
Result: revised segment membership for all respondents
Percentage of nonoverlapping segments (C_5)

(6) *Check derived solution* based on C_1–C_5; if necessary reiterate steps (3), (4), and (5)
Result: overall goodness-of-fit $\bar{C}$

assigns each customer to their most appropriate segment. Nevertheless, there may be customers located close by on the map who have been assigned to different segments. This creates sectors of customers with different segment membership—in other words, overlapping segments. From a managerial point of view, decisions have to be made with or without clear-cut evidence from a formal model. For this reason, we feel that in our case managerial relevance has to prevail over formal rigor; i.e., our approach attempts to form nonoverlapping segments even if traditional models (e.g., *K*-means clustering) do not result in a well-defined picture.

- R5: Additional information linked to objects (brands, regions, attributes, customers, segments) on the map should be easily accessible via interactive features.

2.2. Procedural Outline of the Modeling Approach

As already highlighted, our tool draws on two different concepts: the general marketing concept of STP and the more technical issue of alternative ways of perceptual mapping. These concepts were combined by:

(1) integrating STP into a single procedure rather than viewing it as a linear sequence of subsequent decisions.

(2) concentrating on producing a graphic representation that managers can immediately implement in their decision making.

From a methodical point of view, we combined two well-known procedures into a single framework to accomplish these goals, i.e., MDS by means of iterative majorization (e.g., Borg and Groenen 2005) and *K*-means clustering (e.g., McQueen 1967). However, these two procedures are linked so that the results from the MDS[5] are used as further input for *K*-means clustering. Moreover, because these two procedures were developed independently, each employs individual measures of goodness-of-fit. Our approach applies a range of fit criteria to account for this diversity. By including a criterion measuring segmentation overlap, we took into consideration that the results need to be suitable for managers. Because the basic procedures applied are well known, Table 1 provides a simplified flow chart of the modeling approach. A more detailed Technical appendix is available on the *Marketing Science* website at http://mktsci.pubs.informs.org.

The analysis of market structure has a long-standing tradition in marketing. One stream of research tackles this issue by studying patterns of substitution implied by brand switching. Partitions of the market into consumer segments are determined by means of modeling choice behavior, and the positioning of the brands on offer is established by taking certain attributes (e.g., price sensitivity) into account (cf. Kamakura and Russell 1989, DeSarbo et al. 1995). Another stream of research is based on a kind of unfolding procedure originating from the psychometric literature (e.g., Kruskal 1964). Marketing scholars

[5] Researchers have criticized MDS for stability problems, which arise when the number of objects is small. Stenson and Knoll (1969) and Klahr (1969) studied the properties of nonmetric MDS when these algorithms are applied to randomly generated data. They report that, for a small number of objects (six or seven), it is very likely that a good fit can be found even if the data are generated by a random process. Therefore, they doubt the stability of MDS solutions in such situations. We do not expect stability problems to occur in our application, because we are dealing with a very large number of objects (i.e., more than one thousand, because products, attributes, and customers are to be positioned on the map simultaneously).

have successfully developed models that simultaneously represent brand and attribute positions on a single map.

When considering heterogeneity, there are two important classes of models. On one hand, there is the class of STUNMIX models (Wedel and DeSarbo 1996), which provide segment information in terms of a vector or ideal point but no individual level preference information. On the other hand, there are models like GENFOLD2 (DeSarbo and Rao 1984) or PARFOLD (DeSarbo et al. 1997), which reflect customer heterogeneity. However, this group of models does not account for segment membership.

The procedure we propose in this paper builds heavily upon research in the latter area of mapping and tries to improve on the graphic representation of customer heterogeneity, i.e., by portraying both individual level customer preferences and segment membership. As a consequence, segment overlap becomes an issue and has to be considered. Table 2 compares the standard models in marketing outlined above with the approach we adopted in terms of relevant mapping features.

3. Project Outline and Implementation at tele.ring

Having outlined the basic ideas behind the new marketing engineering tool, we now focus on its implementation at tele.ring.

3.1. Design of "Formel 10"

In August 2004 the project to design a new tariff scheme began with a workshop to define the market (i.e., competitors, tariff attributes, characterization of customers). Subsequently, we designed a questionnaire and, in October and November 2004, carried out 988 CAPI interviews. By the middle of December 2004, analysis and service development had also been completed, and, after a three-month preparation period, tele.ring launched their tariff scheme, "Formel 10," on April 1, 2005.

The analysis and design phase started with an investigation of the overall market, from which it was evident that tele.ring was perceived as a cost leader. tele.ring was also stronger in terms of share of preference rather than current market share, which was confirmed in an analysis of switching intentions. It was clear that a new tariff scheme's perceptual position should not deviate greatly from its present positioning to avoid inconsistency with the current image. Additionally, managers agreed that the fact that the new position was remote from that of its competitors might be of strategic advantage and could reduce the risk of imitation. At the time, the tariff scheme was based on attractive "free-minute" packages and an enticing one-cent tariff within the tele.ring network.

Table 2 Comparison Between Related Methods and Our Approach with Respect to Mapping Features

Approach	Provides segment information	Provides individual preferences	Considers segment overlap
STUNMIX	+	−	−
GENFOLD2 PARFOLD	−	+	−
Our approach	+	+	+

In the next step, we studied the integrated market map and identified four segments (Figure 2); we estimated the segment sizes to be 31% (segment 1), 29% (segments 2 and 3), and 11% (segment 4). Because this map could be interpreted based on distance, segment-specific colors, and label size alone (overall importance of attributes and overall market share), the whole development team was quickly able to gain a mutual understanding of the market situation. Tentatively, the horizontal axis corresponds to the market entry time of the competing brands. Whereas the latest entrant, Hutchison 3G Austria, is positioned on the very left side, the former monopolist Mobilkom is positioned on the right side. Usually, the perceived quality of a mobile phone provider increases with its time in the market, because the firm can improve its network and services. Consequently, only customers on the very right side of the map view a provider's image as their most important criterion.

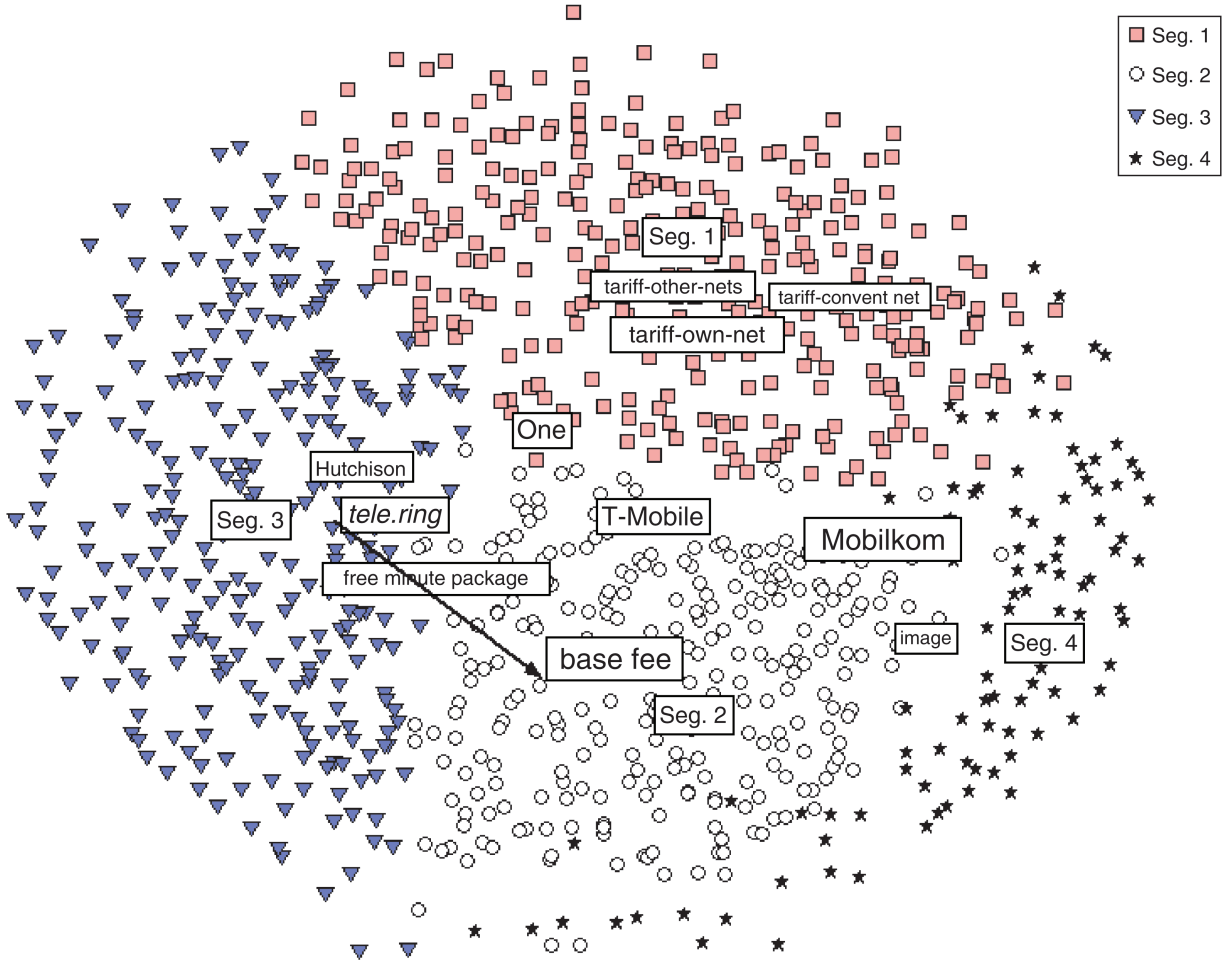
The vertical axis represents customers' perceived importance of various price components. The position of the different price components suggests that usage intensity might explain a customer's location on the map. Customers with low usage intensity seem to put more emphasis on the fixed components of their bills ("base fee" and the price for "free-minute" packages), whereas customers with a high usage profile focus more on the various variable components of a mobile phone tariff scheme (labeled "tariff-other-nets," "tariff-convent net," and "tariff-own-net"). In fact, the average monthly bill in segment 1 is approximately 35% higher than in segments 2 and 3.

To be more specific, while members of segment 1 tended to evaluate variable tariffs highly, "base fee" seemed to be most relevant within segment 2, "base fee" and "free minute package" within segment 3, and "image" was seen as the most important attribute in segment 4 (cf. Figure 2 and Table 4). The market leader, Mobilkom, dominated segment 4, and tele.ring was competing with Hutchison 3G Austria in particular for customers in segment 3.

3.2. Strategic Considerations

Considering the above-mentioned criteria as well as the trade-off between attribute importance and relative distance toward the target position, tele.ring's

Figure 2 Market Map with Providers, Attributes, and Customer Segments 1–4



management found that "base fee" was the most promising attribute to focus on. This attribute proved to be the most relevant attribute for segment 2 (see Figure 2), which is adjacent to the segment currently dominated by tele.ring (segment 3), and none of the competitors was well positioned there (i.e., undefended territory). The arrow in Figure 2 points to the proposed new position. A separate analysis for customers located around this position indicated that the attribute "base fee" was the most relevant feature in both absolute and relative terms.

While the map provides a comprehensive view of the market and supports strategic thinking well, we adopted Choice-Based Conjoint analysis[6] to fine-tune the tariff for the target group (i.e., segments 2 and 3 in Figure 2). It became apparent that the level of the "base fee" had a nonlinear impact on tariff choice probability, inspiring the idea to offer the first tariff scheme with no base fee at all. This type of offer has a very obvious advantage to (low-usage) customers because they are invoiced only for their actual telecommunication service usage and in proportion to the amount of usage. Therefore, the development team devised "minimum turnover" as a new attribute, which was a compromise between cost covering and utility goals. Because variable tariffs for all available nets amount to 10 cents per minute each, tele.ring's communication activities also point out that customers only have to divide their actual usage time by 10 in order to calculate the amount they have to pay (in €). This was also the reason for calling this tariff scheme "Formel 10" (i.e., Formula 10).

Survey data also highlighted that the respondents were extremely confused by the different tariffs in this market. It is interesting to note that this observation is in line with the literature on perceived financial risk because the actual price paid for a specific telecommunication service remains hidden from the individual consumer (e.g., Sheth and Venkatesan 1968).

Besides defining this service concept and its target group, analysis of other survey data such as media preferences gave clear indications with regard to the

[6] See Jank and Kannan (2005) for an approach to considering graphical relationships within choice models.

potential communication strategy and sales channel (cf. Iyer et al. 2005). Moreover, after about four months on the market, comparison of the conjoint-based forecasts with actual market share of new contracts revealed that the (ex-ante) forecasts were accurate within a range of 1%. This was an additional benefit given that tele.ring is owned by financial investors who place great value on these aspects.

It was not only the efficient new service development within a four-month timeframe that was the novelty, but the new method also profoundly transformed the way tele.ring designed its new offers. In addition, internal communication between managers using this tool at tele.ring improved considerably. Traditionally, tele.ring's marketing analysts compiled the market analysis, and then the results were transferred to other functional areas, in particular to managers concerned with internal auditing. This often led to information loss and disagreements caused by conflicting interests, and additional feedback loops. Now, for the first time, using the integrated market map, managers could check the feasibility of a new idea quickly and could clearly understand the rationale for the new offer from the outset.[7]

On completion of the analysis stage, we discussed the segment-specific outcomes and the importance assigned to the different attributes with strategic decision makers. It transpired that the results provided were very helpful in convincing the external stakeholders, i.e., those not involved in the development team (owner, lower level management). In the beginning, they were very skeptical of the success of Europe's first tariff without a base fee. Using a data-driven calibration of concepts, which they were familiar with from their strategic marketing studies such as Porter's analysis of the situation in question, they were quickly shown that "Formel 10," which attacked poorly defended "territory" but did not cannibalize their current customers, was the correct strategic choice for tele.ring.

The speed of development, the quality of the results, the accuracy in forecasting, and the improvement in internal and external product concept communication have convinced tele.ring to organize its service development process around this new method. Currently, tele.ring is working on the development of another new tariff using this tool.

[7] This observation is in line with remarks made by Divakar et al. (2005), who also experienced that their CHAN4CAST model was being rolled out for more users and more divisions in the company they were working with than initially expected and that CHAN4CAST changed (or modified) the way senior management looked at the forecasting process.

4. Impact on Profit and Sales

When assessing the proposed solution from a statistical point of view (i.e., by considering the goodness-of-fit measures), the results are satisfactory. Statistical measures alone, however, are not conclusive proof that the use of the new method was the only success factor. We took great care to identify potential violations of the "ceteris paribus assumption" (caused, e.g., by effects of other marketing instruments or organizational or structural changes). Share-of-mouth of all competitors over time, for instance, did not show any striking patterns, and tele.ring's advertising expenditure remained relatively constant during that period of time.

In the following section, we provide further reasoning to support the link between the usage of our tool and the success of the new tariff.

4.1. Benchmarking the New Tariff Scheme Against Earlier Tariff Launches

To measure the impact of the method proposed, we benchmarked[8] the success of the newly introduced tariff scheme against seven former new tariff launches in the Austrian mobile phone market in terms of the increase in share-of-new-customers relative to the share-of-new-customers in the month before the launch. All new tariff scheme launches show a life cycle pattern of relatively short durations (six to eight months). As expected, the share-of-new-customers increases for a few months after tariff launch before starting to decline. Usually after about eight months, only a few additional new customers are acquired. In the beginning, there was a 20 percentage point increase in new customers with the new tele.ring tariff scheme, which rose to 23 percentage points in the third month after its introduction. Seven months after its launch, the newly introduced tariff scheme was still outperforming other new tariff schemes. On average (over seven months), the increase in share-of-new-customers was 17 percentage points, compared to the 2.4 percentage points benchmark (the average of the seven other tariff scheme launches). This benchmark shows a standard deviation of 4.3 percentage points.

Based on an average of 45,500 new registrations per month and on the observed changes with regard to the increase in share-of-new-customers in the seven months of available data, tele.ring acquired 46,350 additional (compared to other tariff scheme launches) customers. Because on average customers maintain

[8] Although scientifically appealing, we could not set up a control group using other tools and introducing a rival tariff scheme to the market at the same time for obvious reasons and also cannot repeat the "Formel 10" case with rival STP models because of changed environmental conditions. We thus have to turn to prior/alternative tariff scheme introductions, conducted with rival approaches, as proxies.

this tariff scheme for 24 months (18 months is the contractual minimum period) and because the average monthly profit per customer amounts to approximately \$25.20, the additional (i.e., above-benchmark) profit generated using our method amounts to about \$28,000,000. tele.ring's CEO, Michael Krammer, also pointed out that tele.ring's newly improved market position had even made them an attractive candidate for a takeover by one of its competitors at the end of 2005.

4.2. Assessing Targeting Precision

Share-of-New-Customers. Having analyzed the impact of the new tariff scheme launch on the share-of-new-customers for various competitors, the mapping approach supported our view of the competitive structure of the market (cf. Figure 2). Based on this analysis, we expected Hutchison 3G Austria and One to be the main competitors because of their proximity to tele.ring. Table 3 compares the average share-of-new-customers over a period of six months for all major providers before and after the introduction of the "Formel 10" tariff scheme. The share-of-new-customers for all competitors decreased from 80.6% to 68.9% after the introduction of "Formel 10." The (weighted) average loss in the share-of-new-customers was 15%. However, this did not affect all competitors equally. Those competitors positioned (cf. Figure 2) closest to tele.ring, i.e., One (−25%) and Hutchison 3G Austria (−33%), suffered a significantly higher decrease in their share-of-new-customers in comparison to Mobilkom or T-Mobile, who were located farther apart. This further supports the conjecture that a large proportion of the new customers attracted by the "Formel 10" tariff scheme were from the targeted group.

Competitive Analysis. One year after the introduction of the "Formel 10," a similar market survey was conducted to investigate the targeting precision of the method applied. For this purpose, the characteristics of tele.ring's customers were compared in terms of their favorite product attributes (most important product feature) before and after the introduction of the new tariff. Table 4 shows the results of the studies conducted in 2005 and 2006 and gives segment-specific figures for 2005 (e.g., 38% of all respondents stated that "base fee" was the most important attribute in 2005, in contrast to 48% in 2006; however, 91% of the respondents belonging to segment 2 felt that "base fee" was the most important attribute in 2005).

Table 3 **Average Share-of-New-Customers of All Major Competitors Over a Period of Six Months Before and After the Introduction of tele.ring's New Tariff Scheme "Formel 10"**

Provider	Avg. share before introduction	Avg. share after introduction	Change in %
Mobilkom	29.5	26.8	−9
T-Mobile	22.0	21.2	−4
One	14.8	11.2	**−25**
Hutchison 3G	14.3	9.7	**−33**
$\sum$	80.6	68.9	

Table 4 **A Comparison of tele.ring Customer Preferences for 2005 and 2006 and Segment-Specific Customer Preferences in 2005**

	Study 2005	Study 2006	Seg. 1	Seg. 2 (target)	Seg. 3 (target)	Seg. 4
Base fee	38	48	0	91	46	3
Price into own net	32	21	61	1	17	5
Image	3	3	0	0	1	78
Free minutes	18	15	4	5	28	4
Price into other mobile nets	6	10	24	1	6	8
Price into fixed network	3	3	11	2	2	2

Note. Data are percentages of top-ranked attributes.

Based on these data, we performed a formal analysis and estimated that 56% of tele.ring's new customers had come from segment 2, and 34% from segment 3; i.e., 90% belonged to the target group. If the targeting had not been effective, new customers' preferences in 2006 would have been similar to those in 2005 and new customers would have switched to tele.ring in proportion to segment sizes in 2005, i.e., 29% from both segments 2 and 3. This provides further evidence that the targeting procedure applied was highly effective and responsible for the success of "Formel 10."

Given the significant increase in profitability and the fact that no violations of the "ceteris paribus assumption" could be identified, the marketing science method implemented appears to be responsible for this success.

As of May 2007, tele.ring has reported that their tariff called "Ätschpeck," which was also designed by our tool, generated as many as 200,000 new customers. Because of the success of tele.ring, other providers in the market (Hutchison 3G and Mobilkom) have adopted this tool as well.

5. Managerial Learning and Take-Aways

In this paper we have provided insights into the design of a new tariff scheme for a provider of mobile phone services in Austria by making use of marketing science techniques. As it turned out, the introduction of the new tariff scheme was very successful from an economic point of view. Although the report has focused on a single case only, several aspects of it seem to be of more general character. Therefore, these results might be interesting for a broader audience.

5.1. Internal Commitment

An external consultant depends heavily on the information provided by company members and their willingness to cooperate. Moreover, support from top management is essential in establishing teamwork, rapport, and trust in new research techniques. In our case, tele.ring's CEO enthusiastically supported our segmentation, targeting, and positioning tool and decided to use it at the beginning of the project. This pre-condition helped to facilitate the cooperation and gain the commitment of tele.ring's managers.

This observation is in line with remarks made by Divakar et al. (2005), who reported on the implementation of a forecasting model for a consumer packaged goods company.

5.2. Visualization of Results

Information needs to be disseminated efficiently across an organization, beyond those who have acquired it, and in a format that facilitates rapid interpretation and communication (DeSarbo et al. 2001). Graphic representations provide this type of format and often serve to communicate the very essence of marketing research results. Using the intuitively appealing concept of distance, the tool we developed visualizes the market structure in a two-dimensional graph supporting easy interpretation by managers. Furthermore, strategic considerations based on market positioning are familiar not only to marketing specialists, but also to managers with more general business training. This also enhanced adoption of our tool because it assisted management decision making.

These findings reinforce Lodish's (2005) experience that "it is much easier to get managers to adopt aids to help them to do their jobs *more easily*, than it is to adopt aids to help them to do their jobs *better*."

5.3. Communication Between Different Stakeholders

By generating easy-to-interpret graphic representations of the market, the tool improved communication between market analysts and top management and therefore had an important impact on the process of developing new tariffs within the organization. In particular, the tool facilitated the participation of top managers in defining the target group and the positioning statement. The development process also benefited from the tool's ability to shorten the new product development process from idea generation to analysis of resulting consequences.

5.4. Results Are Judged upon Face Validity and Usability

Managers did not question the methodological correctness of the underlying model, nor did they doubt its formal rigor. Rather, they evaluated the results provided by looking at face validity issues and the tool's features, e.g., ease of use and flexibility (cf. Little 2004 for a similar finding). An important feature of the procedure supporting the STP process is that it steers the idea generation process in the right direction. Managers at tele.ring found that the merits of this tool lay in its interactive and intuitive nature. Interestingly, they also paid considerable attention to descriptive statistics, e.g., goodness-of-fit measures, and, of course, to predictive accuracy.

5.5. Transportability

The mobile phone market in Austria is highly competitive, and the competitors in this market use state-of-the-art market research techniques. tele.ring's management considered the tool described here to provide a source of competitive advantage over other providers and demanded our exclusive cooperation. We, however, designed the tool for a variety of market situations with data available on brand and attribute rankings from a sample of customers. In fact, our tool has already been successfully applied to other markets (e.g., utilities, prefabricated homes, e-government, banking). The case presented here demonstrates its capabilities and illustrates further issues to consider when implementing it in a real-life setting.

Acknowledgments

The authors gratefully acknowledge the support of tele.ring CEO Michael Krammer, Thomas Wedl, marketing director at tele.ring, Alfred Brown, department of market research at tele.ring, and Marianne Rott, department of business analysis at tele.ring. Furthermore, we would like to thank Bernhard Goldberger, Britta Cornelius, Patrick Groenen, Patrizia Spella, the Area Editor, anonymous *Marketing Science* reviewers, and the judges of the INFORMS Society for Marketing Science Practice Prize Competition for their valuable comments.

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