1 Evaluation

1.1 What were the contents of the kontiki Recommendations for Action 2000?

The multi-step concept of the kontiki Recommendations for Action 2000, **"THE PATH TOWARDS ELECTRONIC TICKETING,"** focused on the description of

- an initial and requirements platform
- a systems engineering platform
- an integration and decision-making platform.

Based on a comprehensive analysis of the public transportation situation and technological developments in Europe, Asia, and Germany, this approach ensured the establishment of an information platform with comparative evaluations according to defined indicators.

The requirements platform focused on the mobility process, and thus did not address mobility exclusively in the sense of public transportation, although this was the core area of emphasis. The requirements specification developed on this basis considered eFM processes from customers' and operators' perspectives, initially viewing the functional, informational, economic, process-related, legal and marketing requirements in an initially composite form.

The core content of the systems engineering platform was the description of the current state of all components of eFM systems and the standardization of the technical and application layers according to a clear definition of the term interoperability.

The descriptions of the integration, migration, and decision-making platforms were designed to assist the respective decision-making situation to be defined.

1.2 What developments have taken place, and what results have been achieved?

In retrospect, developments have arisen in the past two years that necessitate evaluation in the context of the above-mentioned platforms. In terms of the requirements platform, developments related to mobility in the integrated sense have taken place. The consideration of the mobility chain and the adequate electronic authorization of mobility functions necessary for this in the eFM system have proven their long-range suitability. The representation of the profitability has proven to be not well-founded; this analysis must be refined in the kontiki Recommendations for Action 2003. The focus here must be directed first and foremost toward the methodological platform, including the direct and indirect evaluation of indicators.

As expected, highly dynamic developments have taken place within the systems engineering platform.

The overall results can be summarized as follows:
- the occurrence of the expected developments in the field of ISO 14443-based proximity technology, including the availability of the dual-interface chip cards
- the development of automatic presence detection with the 868 MHz-based access technology and a range of user media, and the resulting "be-in/be-out" technology
- the development of alternative and complementary user media such as mobile telephones, with both voice and data portals as well as an on-board passenger tracking interface.

The most important developments in the area of the integration, migration, and decision-making platforms took place with respect to expectations in the kontiki Recommendations for Action:
- the development of flexible electronic fare determination, proportional to service provided, on the basis of variable parameters
- the development of a proprietary public transportation application based on the VDV's core public transportation application.

1.3 How accurate and realistic were the kontiki Recommendations for Action?

With respect to actually realizing productive systems, the developments that actually arose in introducing eFM systems in Germany fell short of the expectations implied in the kontiki Recommendations for Action. The unquestionably present euphoria and the numerous trials did not materialize into the expected number of productive systems. There were a number of reasons for this development, unrelated to any lack of realism in the kontiki Recommendations for Action.

In light of the highly dynamic developments that have taken place, the following achievements indicate how accurate and realistic the kontiki Recommendations for Action were:
- the complete implementation of the conceptual approaches towards electronic fare management from the kontiki Recommendations for Action in usable solutions, including the availability of simulation tools for optimizing earnings capacity, as well as models for illustrating fare migrations and price elasticity
- the expansion of the range of available user media, including the mobile telephone, the shell with be-in/be-out passenger tracking function, and the dual-interface card with ISO 7816 and 14443 interfaces
- the development of on-board passenger tracking technology with automatic presence logging, based on electronic fare determination and both credit- and debit-based authorization
- the launch of the public transportation core application

These developments anticipated and recommended in the kontiki Recommendations for Action 2000 have taken place or are in the conceptual implementation phase. It must be conceded that a number of processes have developed much more quickly than expected.

It was not possible to implement the expectations regarding the credit sector's cash card. This applies to both the availability of a dual-interface cash card as well as further developments in the applications field.

1.4 What conclusions can be drawn for the kontiki Recommendations for Action 2003?

The conclusions for the kontiki Recommendations for Action 2003 lie in two directions:

1. There is a clear objective, confirmed by the developments, to update the Recommendations for Action based on a product- and system-neutral platform. The integrated vision of mobility and market processes and the derivation of resulting requirements for eFM are the most significant additions. The most important topics are the development and magnitude of influence of the future mobility and market process, future services and service processes, the influence of new technologies, the structural conversion of transportation companies to mobility providers, and the representation of all resulting requirements for access, organizational, and customer systems.

2. Results from intermediate development are to be integrated.

These include first and foremost
- Economic and business decision-making models for assessing the cost-benefit relationships in introducing eFM systems
- Models for electronic fare determination
- Inclusion of new innovative technologies (on-board passenger tracking, UMTS), customer media (mobile telephone, PDA, shell) and background systems in the systems engineering platform.