



Summary sheet

**Delphi Austria**

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Delphi Austria was selected for a deeper analysis because it is regarded to have some interesting features, in particular the broad inclusion of societal aspects.

**Objectives and Approach**

Delphi Austria was initiated by the Austrian Federal Ministry of Science and Transport in 1996 and it was concluded in 1998 by the publication of the final reports. Due to the specific Austrian situation - to concentrate and to search for research priorities - the objective of DA was not to detect emerging technologies but to identify innovation potentials and niches within technology trends and possibilities for Austrian leadership within the next 15 years. Delphi Austria was envisaged to strengthen the Austrian long-term competitiveness. A social problem-orientation was chosen with the underlying assumption that innovations solving existing real-world problems will find a market more easily.

**Features and Elements**

The main feature of Delphi Austria is the combination of a Technology Delphi with a Society and Culture Delphi. Both parts of Delphi Austria overlapped with respect to 4 thematic fields. The thematic fields in Delphi Austria were selected mainly on the basis of preparatory studies, which encompassed an analysis of foreign Delphi studies, a strength/weakness analysis of the Austrian competitive situation, secondary analyses of existing (economic) studies, a survey among 370 experts, a consumer survey (1,000 person questioned) and a media and trend analysis.

**Table:** Thematic Fields in the Parts of Delphi Austria

| <b>Technology Delphi</b>                                     | <b>Society and Culture Delphi</b>                            |
|--|--|
| Lifelong Learning  | Lifelong Learning  |
| Environmentally Sound Construction and New Forms of Housing  | Environmentally Sound Construction and New Forms of Housing  |
| Medical Technologies and Supportive Technologies for Elderly | Medical Technologies and Supportive Technologies for Elderly |
| Cleaner Production and Sustainable Development               | Cleaner Production and Sustainable Development               |
| Organic Food   | Ageing and Life Cycle  |
| Mobility and Transport                                       | Structural Change of Work                                    |
| Tailor-Made New Materials                                    | Social Segmentation  |

*Legend:* The highlighted thematic fields were also treated in an integrative analysis.

The questionnaire of the Technology Delphi contained a self-assessment of expertise for each statement, the statements/hypotheses describing the state of innovations, and questions to assess them (regarding innovativeness, importance, chance of realisation within 15 years, desirability, chance of Austrian thematic leadership in R&D, economic exploitation, organisational and societal implementation), lists of policy measures to be assessed, questions for suggestions of other innovations, and an assessment of 17 so-called 'megatrends'.

The questionnaire of the Society and Culture Delphi contained also a self-assessment of expertise, statements/hypotheses of almost 400 social, cultural, economic and political trends, questions of relevance/importance for Austrian society, desirability of the trend, potential for realisation in 5, 15, 30 years, degree of priority for Austrian politics, degree of priority for Austrian research policy, and the degree of conflict potential for Austrian society.

**IST Coverage**

Delphi Austria had no separate thematic field for IST applications and services, but treated IST as cross-cutting technologies in every thematic field. The most important field for IST applications was

“Lifelong Learning”. The IST applications which were considered at different places of Delphi Austria can be summarized as follows:

- combinations of home control technologies and information technologies and care of the elderly, emergency services, surveillance technologies,
- concepts of ‘intelligent offices’, ‘smart homes’ and home control technologies, as well as ‘smart constructing’,
- combined concepts of tele-working and office works, decentralised office parts,
- rehabilitation technologies and eye-controlled and voice-controlled systems for handicapped and ill people,
- conjunction of neurophysiology and communication technology,
- tele-learning (and educational reform),
- applications of virtual reality in building industry and architecture,
- safeguarding techniques,
- industrial information networks, data transfer, system providers (processing and intermediation of data), and
- transport logistics.

## Results

Chances of Austrian leadership were seen by the respondents mostly in fields in which Austria already had a strong position, i.e. fields with high (not highest) technology build in mid-tech products with highest quality. ‘Simulation technologies’ were regarded as the most promising technology.

The proposed policy measures which were taken for important had the character of broad networking-orientated measures including organisational aspects, rather than single promotion measures.

Delphi Austria was regarded as having a significant impact on Austrian technology policy with concrete impacts, for instance, on the establishment of Competence Centres, or the formulation of Research Strategies. An informal internal assessment by the Ministry of Science and Transport stated that 110 Million Euro were invested in public R&D initiatives, which were recommended or confirmed by results of Delphi Austria.

IST were involved in nearly all promising innovations and developments, but as independent technologies only in a few niches. The strongest impulses for IST innovations were expected by the field „medicine“. In this field the demanded policy measures were in first place a high-capacity and cost-efficient telecommunication infrastructure.

## Analysis

The range of IST applications and related policy measures, which were considered in the Delphi exercises, crucially depended on the initial selection of thematic fields and the formulation of topics within the thematic fields. This may have led to the problem of neglected fields of IST and specific IST applications and services (e.g. entertainment industry) and to the problem of the bias to societal problems and relevant IST which were most prominent at the time of selection. The critics of a modest innovation level of the whole Delphi Austria results also apply to the considered IST applications. As a result of Delphi Austria, the technological and organisational innovations, which were regarded as important or promising by the respondents, had mainly a modest innovation level. The modest level was a consequence of the lack of time for preparing the questions, the lack of interaction (no „pre-Delphi“ seminars or workshops were done), and the problem of closed groups.

Delphi Austria was beneficial to assess public evaluations of the societal and technological trends and the problem-solving functions of *selected* IST applications, to assess the domestic R&D, economic and organisational capability to contribute IST and IST applications for these fields, and also to assess the related recommended policy measures. However, due to the weaknesses in the selection of thematic fields and statements, the considered IST and their applications seemed to be relatively less innovative.