



IT Outlook 2002

Recent Developments in Austrian IT Policies

Bernhard Dachs
Petra Wagner

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AUSTRIAN RESEARCH CENTERS

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Final Report

on behalf of the Federal Ministry of Transport, Innovation and Technology
and the Federal Chancellery

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Background

The OECD regularly presents recent trends concerning IT policies in its member countries in the bi-annual publication "Information Technology Outlook". In order to supply the OECD with an update on new developments and measures in IT policies in Austria, the Austrian Federal Ministry of Transport, Innovation and Technology (BMVIT) has commissioned the Division of Systems Research Technology-Economy-Environment of the Austrian Research Center Seibersdorf with a study to collect information on recent developments concerning IT policies in Austria. Valuable support has been given by the Federal Chancellery in coordinating the various contributions by the involved federal ministries and public agencies, which form the basis for this report.

The aim of this report is twofold: First, an outline of general trends and new developments in IT policies since 1999 will be presented. As in the latest IT Outlook¹ the focus is on recent developments, since the general rationale and direction of Austrian IT policies have already been laid down in strategic documents such as the Report of the Working Group of the Austrian Government on the Information Society (1996). New directions can be expected by the Task Force report "e-Austria" (forthcoming 2001). Secondly, we will also include examples of recent policy initiatives which can be regarded as good practice and representative of the host of activities in Austria and are thus hopefully of interest to other OECD member countries. These examples have been described in more detail for likely presentation in the policy section of the IT Outlook.

¹ Austrian contribution by Polt, Wagner 1999.

1. Policy Environment

1.1 General framework for IT policy

Austria has made considerable progress on its way towards the Information Society. If we consider common indicators for ICT diffusion such as Internet penetration, ICT spending, or the number of PCs and other equipment per capita, Austria ranges ahead of its Southern European neighbours but behind the Northern European countries². Most noticeable has been the rapid diffusion of mobile telephone services during the last years, which can be attributed to the successful de-regulation of the Austrian telecommunications market in 1997.

As in most other OECD-countries, information technology is a cross-cutting topic for which different ministries and agencies assume responsibility. The institutional set-up is, therefore, quite complex. The **main policy makers and their competencies at the federal level** are:

- the Federal Chancellery (international co-ordination on activities related to IT and the Information Society, public procurement, privacy)
- the Federal Ministry of Economic Affairs and Labour (IT related research, technology diffusion, e-commerce, promotion of SMEs and start-ups, competition policy, labour related aspects of the information society)
- the Federal Ministry of Education, Science and Culture (promotion of IT-related research, IT-training at the secondary and tertiary level, IT equipment for federal schools and universities, research networks)
- the Federal Ministry of Finance (electronic payment and revenue, security of the information technology, Corporate Network Austria)
- the Federal Ministry of Justice (consumer protection, electronic signature, e-commerce)
- the Federal Ministry of Public Services and Sports (information technology in the federal administration, e-government)
- the Federal Ministry of Transport, Innovation and Technology (promotion of IT-related research and technology diffusion, telecommunications policy, IT applications in transport)

Other important players are:

- the Austrian Federal Economic Chamber (WKÖ) with its regional organisations (including the Chamber's training institute WIFI)
- the Länder and local governments and their affiliated promotional institutions, which are mainly active in three fields: IT infrastructure for local and Länder schools, e-government applications in the local and Länder governments and the promotion of the diffusion to firms and households at the local and regional level.

² See the Austrian Report on Research and Technology 2001, http://www.bmbwk.gv.at/4fte/materialien/fober_2001/index.htm

- the general research and technology promotion institutions like the Austrian Science Fund (FWF), the Austrian Industrial Research Promotion Fund (FFF) and the ERP fund, which also devote considerable sums to IT research and diffusion.
- the Austrian Regulatory Authority for Broadcasting and Telecommunications (RTR GmbH) (telecommunications and broadcasting regulation and digital signature)
- the Public Employment Service (AMS), which is associated with the Federal Ministry of Economy and Labour
- the Austrian Federal Chamber of Labour (BAK)

Due to the complex institutional set-up with highly fragmented competencies, it has not always been easy to co-ordinate single measures at the federal and/or Länder³ level. This applies to both, IT and general technology policy. Therefore, the Austrian Council for Research and Technology Development⁴ was established in 2000 in order to formulate recommendations on the research strategy and act as a "gatekeeper" for the programme-oriented research promotion system. The establishment of a central IT policy co-ordination has been recommended by the Council⁵.

1.2 Austrian IT Policy - Current Developments

IT policy has been on the political agenda in Austria since the early 1990s. Some characteristic features are:

First, IT policy developments in Austria have been strongly influenced by policy-making at the European level. The Delors White Paper of 1993 and the Bangemann-Report can be regarded as starting points for a process, which led to the **Report of the Working Group of the Austrian Government on the Information Society**⁶ (1996). However, in comparison with some other European countries, in Austria the report did not lead to a continuous discussion on the development of the Information Society.

In 1999 the **eEurope initiative** of the European Commission put the Information Society back onto the Austrian political agenda and led to the initiative "**e-Austria in e-Europe**" in the spring of 2000. All ministries involved started new programme lines or restated their policies in order to reach the targets of eEurope.

Another feature of the Austrian IT policy is its orientation towards **measures to improve the framework conditions** for the diffusion of new technologies and the consideration of broader socio-economic goals. This approach can also be found in the general Technology Policy Programme of 1996⁷ or in IT-related programmes, such as the "Technologies for the Information Society" promotion programme (1996-2000). A total of 150 projects covering awareness, consulting, programme management and business support actions have been assisted with over ATS 600 Mio (EUR 43.6 Mio). The initiatives "edi business austria"⁸ and the "multi-media business austria"⁹ can be regarded as "best practice".

³ State or regional level

⁴ <http://www.rat-fte.at>

⁵ See: 'Forschungsstrategie Austria „2,5% + plus" Wohlstand durch Forschung und Innovation', p. 8, http://www.rat-fte.at/files/2_5plus.doc

⁶ <http://www.bka.gv.at/bka/service/publikationen/infoges.pdf>

⁷ <http://www.bmwf.gv.at/4fte/materialien/tkbr/tpkpf.htm>

⁸ <http://www.edi.at>

⁹ <http://www.mba.at>

Austrian IT policy is often covered by general measures of technology policy. One example is the rising share of IT projects, funded by the Austrian Industrial Research Promotion Fund. Public funding of large projects concerning IT infrastructure, like broadband infrastructure as in Bavaria or the Netherlands, however, have been rarely carried out in Austria. An exception may be ACONet, the Austrian research network between universities.

Observers have also noticed a certain **shortcoming on the strategic or "visionary" level** over the past years, which may be a consequence of the institutional setting. The Report of the Working Group of the Austrian Government on the Information Society, published in 1996, was the last strategic document on IT policy. A new impetus, however, is now underway with a strategic paper, which is currently being prepared by an expert group (Task Force E-Austria) on behalf of the Ministry of Public Services and Sport.

During the last years a **shift in the focus of Austrian ICT policy** from telecom regulation towards **skills and training** can be observed. This is partly due to the success of the telecom liberalisation since 1997, which created a competitive market with comparatively low prices and a high quality of service. The development has also been fuelled by current discussions on labour supply shortages in the field of ICT (a question, which turned out to be strongly interrelated with immigration) and the prevention of a "digital divide".

E-government has become another focus of Austrian IT policies in recent years. The current Austrian government has set some ambitious goals. First steps to provide citizens with access to information (example: www.help.gv.at) are to be extended into far-reaching communication and transaction services between citizens and the administration. Lead projects are the **Citizen Card** and **ELAK** (both described below). The working programme of the Federal Government envisions electronic transactions between government and citizen to be available for all Austrian citizens by 2005.

The efforts of the Federal administration will be co-ordinated by an **"ICT-Board"**, which has been established in the Federal Ministry of Public Services and Sports. Members of the ICT-Board are the Head and the Chief Information Officers of all Federal Ministries. The Board is responsible for infrastructure, as well as activities that spread over more than one ministry like portals, the Citizen Card or basic services for document handling and interfaces between departments. Furthermore, the Board will co-ordinate federal IT-activities with those of the Länder and local governments.

2. Technology Development

2.1 Promotion of R&D

Currently, there is no explicit R&D promotion scheme in Austria that is expressly devoted to ICT. FIT-IT, a new programme with a focus on embedded systems, is currently being prepared by the Federal Ministry of Transport, Innovation and Technology. It will be funded with more than EUR 10 Mio in the first phase and should start in fall/winter 2001.

The general promotion of research and development in the field of information and communication technologies, however, constitutes an increasing share of general Austrian R&D promotion activities. Two examples may illustrate this:

- In 2000, the **Austrian Industrial Research Promotion Fund** (FFF), Austria's largest public promoter of industrial R&D, devoted about a fourth of its funds to ICT industries¹⁰. The total net present value distributed to ICT-related industries in 2000 amounted to ATS 384.5 Mio (EUR 28 Mio) and has increased by 37% since 1999, a much faster rate than the overall development. ICTs also play a major role in the MOVE programme on transport and mobility by the Federal Ministry of Transport, Innovation and Technology.
- A second example of the importance of IT-related research in general promotion schemes are the **Competence Centre programmes** (K_{plus}), run by the Federal Ministry of Transport, Innovation and Technology and K_{ind} , run by the Federal Ministry of Economic and Labour, respectively. Currently, five K_{plus} and three K_{ind} centres deal with IT-related topics, which means that nearly half of the centres perform IT-related research. A general description and an update of the IT-oriented centres is provided below.

2.1.1 K_{plus} Centres of Competence

The K_{plus} Competence Centre Programme¹¹ is run by the Technologie Impulse Gesellschaft on behalf of the Federal Ministry of Transport, Innovation and Technology. The aim of K_{plus} is to stimulate the long-term cooperation between innovative enterprises and top-quality research organisations in pre-competitive research and development. This goal should be achieved by establishing Competence Centres which are joint research institutions between science and industry. K_{plus} centres have a total operating time of 7 years. Initially, the centres are jointly financed by federal and provincial authorities and the participating firms for a period of 4 years. Public financial assistance for the following 3 years depends on the results of an evaluation in the fourth year.

K_{plus} Centres are often located at universities, although an extra-university research institution or an enterprise may also form the core of a Competence Centre. In a first round of calls in 1998 and 1999, 12 centres were selected. Some 60 Mio EUR have been earmarked for these. The evaluation process of a third call is well underway now, leading to the selection of additional 5 to 6 centres later this year.

¹⁰ NACE 30, 32, 74; see: <http://www.fff.co.at>

¹¹ <http://www.kplus.at/>

Advanced Computer Vision – ACV (www.prip.tuwien.ac.at/acv/)

ACV strives – in co-operation with its 15 industrial and 5 academic partners – to develop cutting edge technologies in digital image processing and pattern recognition. Gained results shall be transferred into industrial applications both, by the partners and by ACV itself. Based on the needs and wants of the Austrian and international industry, the centre will concentrate its research on 5 areas: Video Surveillance und Monitoring; 2-D Pattern Recognition; 3-D Measuring, Modelling and Reconstruction; Classification and Matching. Possible applications range from access control, using biometric sensors, to automotive technology, robotics, industrial inspection, remote sensing and surveying.

Scientific personnel: about 30 scientific employees (when in full operation)

Total budget approved for the years 1 to 4: ATS 153.2 Mio (EUR 11.1 Mio)

Virtual Reality and Visualization – VRVis (www.vrvis.at)

VRVis consists of 5 partners from the academic community and 8 industrial partners. The research goal of VRVis is the development of intelligent three-dimensional user interfaces. Research topics include Virtual Reality fundamentals, Interactive Visualization, Virtual Reality for Marketing and Edutainment, Virtual Habitat and Virtual Reality for Scientific Applications.

Scientific personnel: 40 scientific employees (when in full operation)

Total budget approved for the years 1 to 4: ATS 129 Mio (EUR 9.37 Mio)

Competence Center for Knowledge-Based Applications and Systems (www.know-center.at)

The research focus of the Know-Centre is on the pre-competitive development of knowledge-based systems and applications. The Centre takes on the challenge of addressing all ICT-related dimensions of the management of knowledge. The research focus lies on Knowledge Management, Knowledge Portals, Organisational Memories, eLearning, Knowledge Retrieval and Knowledge Visualization. In addition, psychological and cultural aspects of the management of knowledge are addressed by the 8 industrial and 4 academic partners.

Scientific personnel: about 40 scientific employees (when in full operation)

Total budget approved for the years 1 to 4: ATS 149.1 Mio (EUR 10.8 Mio)

2.1.2 K_{ind} Centres of Competence

Industrial competence centres (K_{ind}) are funded by the Federal Ministry of Economic Affairs and Labour as cooperative science-research institutions with an explicit high performance in specific areas of technology. The industrial competence centres promote the concentration of R&D activities of several enterprises and research institutions in a single location. The Ministry of Economic Affairs and Labour supports the eligible projects with non-repayable grants for a period of four years. Federal grants amount to a maximum of 60 percent of the total, private co-financing of at least 40 percent is obligatory. Project leaders may be legal persons or associations.

Evolaris (www.evolaris.at)

The E business competence centre, located in Graz, Province of Styria, defines the following three research areas: business models, "trust" and "wants". Its goal is to "make headway in understanding the way, the Inter-

net works and finding guideposts". Approved in July 2000 for a period of four years, the centre's total costs amount to ATS 122.8 Mio (EUR 8.9 Mio). Seven business partners (five founding and two project partners) work together with 11 scientific partners.

Scientific personnel: 45 scientific employees (when in full operation)

EC³ Electronic Competence Centre (www.ec3.at)

The Electronic Commerce Competence Centre EC3 in Vienna represents a partnership among four university departments and ten Austrian companies, whose common purpose is to spur on research and development as well as knowledge transfer in the field of e-commerce. The centre aims at supporting businesses and universities with the development and application of e-commerce solutions as well as education and training. The planned business units are networking and web, database technology and software engineering, knowledge-based systems, formal methods as well as market research and the transfer of knowledge and technology.

EC3 was approved for subsidy under the K_{ind} programme in September 2000. The four-year period of operation will cost ATS 93 Mio (EUR 6.8 Mio). Currently, 15 researchers are employed within EC3.

2.2 Governmental Demonstration and Development Projects

If e-government applications are to go beyond rather simplistic one-way information systems¹² and permit real transactions between citizens and the public administration, two important problems – amongst others - have to be solved. First, e-government requires a system of secure electronic signatures, which enable citizens to identify themselves electronically and enter into legally binding agreements. Second, sophisticated electronic services between citizens and administration only make sense if back-office functions like retrieving, transferring, processing and storing of information are also performed electronically and allow an easy exchange between various governmental departments.

Important steps towards an electronic administration have already been made with the decision to introduce SAP as the standard accounting software for the federal administration. The introduction is led by the Ministry of Finance. SAP is expected to raise efficiency and is a pre-requisite for electronic procurement and increased interconnectivity of payment systems between public authorities and citizens. The roll-out in all federal ministries is scheduled to be finished in 2003. Two further examples how to solve the posed problems will be presented below: The introduction of a Citizen Card and the Electronic File ELAK.

Example: Citizen Card – Introducing the electronic signature

Background

The Citizen Card¹³ builds upon the chip card project¹⁴ of the Main Association of the Austrian Social Security Institutions. This card is intended to be a proof of eligibility for health services to serve for each contributor and

¹² help.gv.at which has been described in the IT Outlook 1999, is one example

¹³ A-SIT (2001),", <http://www.buergerkarte.at/DATEIEN/WEISSB.pdf>

¹⁴ Main Association of the Austrian Social Security Institutions (2001), <http://www.hauptverband.at/chipkarte/index.htm>

substitute about 40 Mio. annual paper vouchers. The card will solely serve as a tool for identification and will not hold any medical information or other personal data.

Since the electronic Social Security Card provides capacity which goes beyond these original requirements, it seemed obvious to enhance its features by a digital signature.

In November 2000, the Austrian Government took up this opportunity to extend the Social Security Card into a "Citizen Card" by adding an electronic signature. One decisive feature for the usage of the Social Security Card as the carrier of the electronic signature is its wide scope: by 2003 each Austrian will receive a card, which will have a much larger coverage than credit cards or other chip card systems in the financial sector.

Technological Specifications

The Citizen Card may combine three different applications:

- The Social Security Card is based on symmetric cryptographic keys, which entails that the social security data on the card can only be used in combination with the card of a hospital or medical practitioner. This means that the ability to read social security data is limited to health institutions.
- The secure electronic signature. Adding an electronic signature will be voluntary and may be implemented by a Trust Service provider¹⁵ any time. The large scope of the Social Security Card guarantees a uniform standard of electronic signatures.
- "Info-boxes" may utilize the remaining capacity and thus provide additional functionality, like student identification cards, identity cards for professional purposes or access authorisations. Citizen Cards could also vary in their appearance, e.g. as an identity card with a photo or with a customised back.

Time Schedule and Costs of the Project

In April 2001, the Main Association has accepted the tender of a consortium for the provision of the Social Security Card. The final implementation of the Citizen Card can be expected in summer 2003, but will rest upon the schedule of the Social Security Card.

The total costs of the Social Security Card will amount to ATS 1.3 bn. (EUR 95 Mio) for a period of 5 years and will cover approx. 8 million cards, 13.000 terminals and other kinds of infrastructure. The Republic of Austria will participate in the operating agency with a share of 26% (the total capital is EUR 3.6 Mio).

Privacy Concerns

Reservations about the Citizen Card may be raised due to a heightened sensitivity on privacy issues, which emerged in Austria as a result of intense discussions last year. A major concern is that a single card will incorporate social security data, an electronic signature and also other applications. A second point of critique is that the benefits of electronic signatures for the administration may lead to a certain pressure on the citizens to use the new technology instead of the traditional face-to-face communication.

¹⁵ Trust Service Providers validate the linkage of the signature to its owner, create electronic keys and key pairs and hold a directory of keys and key owners.

Example: Electronic file (ELAK)

As a second cornerstone of the Austrian strategy on e-government, the Governmental Programme (2000) foresees the introduction of the electronic file (Elektronischer Akt, abbrev. ELAK) for all federal ministries by 2003. This will entail the transfer of paper files to electronic files for all inter-ministerial processes at the federal level. In a first phase, the systems are currently being implemented in the Ministry of Foreign Affairs, the Federal Chancellery and the Ministry of Defence. Electronic filing at the leading authority, the Federal Chancellery, is conducted according to the following principles:

- The electronic file is the original
- Signatures in the file are provided electronically
- Incoming paper mail is scanned, except for large amounts
- paper prints of the complete file (in order to be able to communicate with other authorities without electronic filing) is feasible
- the existing office system will be implemented electronically
- standard software as technical basis

2.3 Government procurement

Applications like the publication of tenders on the Internet are already implemented in most administrations. More complex applications are still in a trial period. The City of Vienna, for example, administering one of the largest public budgets in Austria, has already implemented a procurement system for expandable goods, based on XML, which allows the seamless hand-over of an order from the server of the City to the deliverer's order management software. The system is compatible with standard software like SAP. Currently, however, no deliverer uses the XML feature. This may indicate that barriers concerning the diffusion of electronic procurement systems may also exist at the user's side. A new impetus for electronic public procurement may also come from the newly founded Federal Procurement Agency, which will manage an annual budget of about ATS 30 bn. (EUR 2.2 bn.).

2.4 Venture finance

Despite its positive development during the last years, the market for venture capital in Austria is still very small compared to other European countries and the importance, capital markets have for IT start-ups. The total volume of venture capital companies amounted to ATS 3.2 bn. (EUR 232.6 Mio) in 2000, the share invested in SME was ATS 2.2 bn. (EUR 163 Mio).

Similar to the IT-related R&D-promotion, there currently exists no promotion scheme which is exclusively devoted to venture finance in the field of information technology. In fall 2001, the Federal Ministry of Economic Affairs and Labour will start a new initiative on venture capital as a part of the "eBusiness in a new economy"-initiative.

IT start-ups are likely to constitute a considerable share of existing programmes. One example is the **Seed-financing programme**¹⁶ by the Innovation Agency, which supports technology-orientated start-ups with capital and know-how. The programme comprises two phases, the conception phase and the implementation phase. In the conception phase, the analysis of the market potential and the technical and economic feasibility prior to the formation of an enterprise is supported. In the implementation phase the seed financing programme offers capital for the initial period of growth. Since the start in 1989, ATS 220 Mio (EUR 16 Mio) have been invested in 117 new enterprises. 40% of the firms belong to the fields of microelectronics and information technology.

Other important schemes are the Innovation Programme for Small and Medium-sized Enterprises of the B rger Fund¹⁷, the Technology Financing Programme of the Finanzierungsgarantie-Gesellschaft¹⁸ (FGG), or tecnet and i² by the Innovation Agency.

3. Technology Diffusion

3.1.1 Promotion of ICT diffusion to households

Until now, no large promotional activities towards the diffusion of information technology to households have been carried out by federal authorities. Successful initiatives in this field were, however, mainly originated by the private sector, namely news magazines, ISPs and hardware companies. One example, the "Circus Internet", will be described below.

Example: "Circus Internet" - basic Internet skills and mobile computing for all Austrians

Project description

A private-private initiative to equip internet novices with basic IT skills for Internet access called "Circus Internet" (www.circusinternet.at) has been launched by a consumer electronics retail chain. A mobile training unit for Internet and IT access, which started in June 2001 in Vienna, will be touring Austria for two years. The project is sponsored by the Federal Ministry of Science, Research and Culture and private companies in the fields of IT hardware manufacturing and Austria's largest IT service provider. The mobile "circus tent" has the shape of a huge notebook and houses two seminar rooms and one training room equipped with a total of 30 computer notebooks.

Project goals

¹⁶ http://www.innovation.co.at/english/_fset/seed.html

¹⁷ http://www.buerges.com/en/naviset/f_ford.html

¹⁸ <http://www.fgg.at/national/index.html>

The main goal of this project is to raise the Internet competence as well as the intensity of Internet use by novices. The awareness concerning the need for continuous further education and training, particularly in new communication technologies, computers and the Internet should be raised. The interest in new information technologies will be stimulated through a simple access via a free Internet training for everyone. At the same time, the transfer of know-how and concrete personal benefits is conveyed through the Internet for everyone by a team of trainers. Various access options, training and support for every target and knowledge group are presented by so-called "circus internet-zones"

3.1.2 Promotion of ICT diffusion to businesses (SMEs)

The promotion of IT-use in businesses, in particular SMEs, is a major concern of the Austrian IT policy at the federal and regional level. In 2000, the Federal Ministry of Economic Affairs and Labour has started the „**e-business in a new economy**“ initiative¹⁹.

In a first stage, seven working groups of national and international experts identified 35 measures in various fields ranging from „e-location“ to content and tourism. The final report of the working groups served as the basis for an **Action Plan** which will comprehend the following areas of activity:

- information and awareness (“ebiz” communication platform, multimedia and “ebiz” awards)
- creation and growth of businesses (contact point for start-ups, which provides infrastructure, advice, information on venture capital...)
- research and development (K_{ind} and K_{net} Competence Centres, competition for R&D projects)
- eContent Austria (promotional activities for the content industry)
- innovation through eBusiness (technology transfer to SMEs, eBusiness for clusters)
- eLocation Austria

The Action Plan serves as an umbrella for all IT-related activities of the Ministry and includes schemes like K_{ind} and Triple A (see below). Most measures will start between fall 2001 and spring 2002. The Ministry plans to distribute ATS 300 Mio (EUR 22 Mio) to the various measures within the next two years.

Moreover, the Länder governments and their regional development and technology centres play an active role in the diffusion of IT to businesses. Another important player, both at the federal and regional level, is the Austrian Federal Economic Chamber (WKÖ), providing consulting services and promotional activities for its members as well as the Chamber's training institution WIFI.

Example: Triple A – Electronic Marketplace for the Austrian Automotive Industry

B-2-B internet commerce is one of the few fields where analysts still predict high growth rates in the future. It is likely that business between enterprises will move online to a high degree in some sectors, leaving one or a small number of platforms as the central marketplaces between suppliers and demanders. One of these sectors is the automotive industry, which has emerged as one of the most important industrial sectors in Austria in recent years. It seems crucial for Austrian enterprises to participate in these developments and adopt relevant standards.

The Triple A project²⁰ aims at establishing a B-2-B marketplace for the Austrian automotive industry. Triple A builds on the cluster-approach and stresses the need to form critical masses in order to increase competitive-

¹⁹ <http://www.bmwa.gv.at/ebusiness/index.htm>

ness and improve the co-operation of businesses. Therefore, one of the most important tasks of Triple A will be to prepare Austrian automotive firms, especially SMEs, to participate in the sectoral marketplaces. The platform will provide:

- a central entrance to electronic commerce for SMEs in the automotive sector
- connectivity to sectoral marketplaces like Covisint and SupplyOn
- a virtual catalogue which is compatible with the catalogues of major marketplaces
- additional services, such as logistics and supply-chain management, sector-specific information like job markets
- exchanges for research and production capacities

A second important aspect of the project is to provide tools to ease co-operation in development and production for the member firms.

Triple A has been initiated by a consortium of 16 Austrian firms and organisations in the automotive sector and by the Upper Austrian Technology Policy Management Company TMG²¹ as the operative project manager. The project is currently in the preparation phase and will go on-line in April 2002. Total costs of the creation and the first year of operation are expected to amount to ATS 50 Mio (EUR 3.63 Mio). The project is financed by the participating firms, the Federal Ministry of Economic Affairs and Labour and the Länder governments of Upper Austria and Styria.

Example: Electronic tourist registration form (Elektronisches Gästebblatt)

Within the „e-business in a new economy“-initiative, tourism has a special position due to its high economic importance for Austria. In order to raise Austria's competitive advantage in the international electronic tourist market, the electronic registration form has been identified as a specific measure of high importance. In Austria, places of accommodation are legally obliged to register their overnight tourists at the local authority; electronic transfer has not yet become obligatory.

The goals of this initiative are:

- raising the IT penetration in the accommodation sector; raising the competitiveness of the Austrian tourism
- electronic transfer of registration data and its electronic processing and statistical analysis, thus
- allowing faster and improved product development in tourism
- simplification and cost-reduction for accommodation and administration, improvements in marketing

The Ministry will support small businesses in the accommodation sector with the acquisition and implementation of the technical infrastructure and training for this internet-based application (max ATS 20,000 or EUR 1,453).

²⁰ <http://www.triplea-marktplatz.at/index.php>

²¹ <http://www.tmg.at/Defaulte.html>

4. Business Environment

4.1 Measures to improve the framework for electronic payment

Internet-based electronic payment and settlement systems still notoriously suffer from the potential users' distrust in the security and privacy. Problems regarding the security have also been identified as a major barrier in extending **FinanzOnline**²² to a larger number of potential users. Problems regarding the authentication have been of minor concern, because access to the „electronic tax file“ is restricted to professional tax consultants, lawyers, notaries. New groups of users such as individual tax payers and enterprises will require new methods of secure authentication (including the electronic signature as a part of the Citizen Card project) and secure data transfer.

Beside settlement systems that require electronic signatures or similar means of authentication, several other innovative financial transaction services have lately been introduced by Austrian companies. Two trends can currently be observed:

- **Pre-paid cards**, which can be used anonymously and independent of a current account. This system is intended to be used for micro-payments on the Internet. One example is **paysafe** (www.paysafe.at)
- **Bill-presenting systems**, which require a current account. For example **bezahlen.at** (www.bezahlen.at).

Example: Bezahlen.at - an electronic transaction service (www.bezahlen.at)

Bezahlen.at aims at providing a cheap and secure way to pay via the Internet. It is hosted by Austria's largest clearing bank. This real-time payment service combines online invoice and payments in one single electronic transaction.

Clients, Terms of Business and Costs

Retail customers (natural persons) have to be holders of an account with any Austrian bank. They have to register on the homepage of bezahlen.at and are required to deliver a proof of identification (copy of passport) per mail. The service is free of charge for retail customers. Participating (e-commerce) organisations must have an existing account with the clearing bank., a first-class credit standing, as well as a volume of 100.000 transactions per month. The clearing bank charges a fee of 0.58 EUR per invoice, cleared by the customer.

Method of Electronic Transaction

The firm or organisation, transfers the invoice after the purchase to the clearing bank's telebanking host or web server. On maturity, the customer is notified by e-mail on the web site about incoming invoices. The authorized person may view the complete list of invoices and can then decide to settle them or refuse payment. Details on single invoices can be viewed as well. The invoice is finally forwarded to the account holder's bank for settlement at a specific date. Users are required to identify themselves with their user-ID and password when they enter the web-site of bezahlen.at.

Types of Services

²² FinanzOnline is an electronic tax return and data exchange system, launched by the Federal Ministry in March 1998. It has already been described in the IT Outlook 1999

- "E-invoice" for online payments offers safe payment of invoices from home (e-mail alert for new invoices).
- "E-commerce" for online shopping with an e-mail service for documentation purposes and 42 days of warranty on the receipt of a bank statement.

Acceptance

The most important advantage of bezahlen.at for businesses compared with traditional methods of payment is that they avoid costly handling of incomplete payment forms and the customer is automatically reminded on the date of payment. Consumers are offered a cheap and free financial transaction service and - unlike direct debiting transactions - retain full control over their payments.

Currently, 22 private and public enterprises and institutions, 15 local governments and 23 non-profit organisations, as well as 4 e-shops are participating. One of the most prominent participants is the Federal Ministry of Finance. Since April 2001, all public dues can be settled with bezahlen.at. According to bank representatives, most transactions still relate to e-commerce, but tax applications have considerably increased in volume.

4.2 Intellectual Property Rights specific to ICTs

Compared to other countries, the topic of Intellectual Property Rights receives less attention in Austria. This report wants to focus on two aspects of IPRs: Inventions at universities and the use of public sector information.

Austrian **universities** have traditionally focused on scientific education and basic research and have shown only weak patenting activity. Therefore, the question of property rights for commercially successful inventions, made by academic researches, has so far rarely arisen. So far, 'gentleman agreements' have allowed successful scientists to yield revenues from their inventions, although these were owned by the university. However, in recent years, policy makers have made efforts to stimulate university spin-offs and strengthen research co-operation between universities and firms. It is very likely that the issue of IPRs will gain importance when the first outcomes of joint research projects will be introduced to the market.

Currently, access and exploitation of **public sector information** such as laws, statistical and geographical data, is a contested issue in Europe²³ and also in Austria. Public sector information constitutes the largest single information resource for the creation of value-added information content and services. Information is often fragmented and dispersed due to differing national legislation on the ways information can be accessed and exploited. Contested issues mainly refer to pricing, competition and copyright. Private companies point out the lack of security for investments and transparency of rules to separate the basic public sector information from commercial value-added services. Further issues at stake concern equal access for suppliers of information services, to publicly funded data bases and cost transparency regarding their operation.

4.3 Voluntary agreements

The introduction of the digital signature and the implementation of the EU directive on the protection of consumers in respect of distance selling will considerably contribute to reducing legal concerns regarding e-commerce transactions in Austria. Complementary measures to make e-commerce more attractive are voluntary agreements or codes of conduct.

Example: Internet Ombudsman and Austrian Quality Label for e-commerce

The website "**Internet Ombudsman**" (www.ombudsmann.at) deals with shopping and security in the Internet. It offers help and advice for online shopping. The project aims at becoming a source of advice and assistance for consumers, who are making purchases via the Internet. This means in particular that the consumer receives guidance and orientation in order to be able to do trouble-free Internet shopping, or - in the case of difficulties concerning agreements or performance - to offer out of court support in solving the problem. This project is operated and sponsored by the Austrian Consumer's Association (www.vki.at) in co-operation with the Austrian Institute for Applied Telecommunication (www.oiat.at). The development of this project was funded by the Health and Consumer Protection-Directorate General of the European Commission.

Within this project, the Austrian Consumer Association is continuing to support the development of an **Austrian Quality Label for Internet Shopping**. This Quality Label aims at guaranteeing consumer-friendly business transactions and obligates the holder of the Quality Label to recognize an out of court procedure for dispute settlement.

The project also includes the co-operation concerning the establishment of a general out of court arbitration system for Internet shopping in accordance with the relevant standards of the European Union.

Since Internet shopping is an international issue, the ultimate aim of this project is the collaboration with consumer organizations in other European countries in order to create a network of Quality Label holders, and the promotion of cross-border co-operations.

5. Special Topic: Policies and programmes related to ICT skills

The range of policies and programmes which are to enhance ICT skills in Austria is very broad. Various levels of skills, from basic IT know-how to expert IT knowledge, as well as formal qualification levels are being offered. An exhaustive description of the variety of ICT-related programmes and projects will go beyond the scope and aim of this report. (For instance, 21 new polytechnical colleges (Fachhochschulen) were founded in the past years). For a detailed description of ICT skills-related issues cf. the Digital Divide section of the IT Outlook 2002.

Alternatively, an Internet-based information service for IT-related education and training and the E-Fit programme will be described in more detail below.

5.1.1 Basic ICT skills

In the context of the government initiative "e-Austria in e-Europe" the Federal Ministry of Education, Science and Culture (BMBWK) has launched the programme "**E-FIT**".

The so-called "computer billion" (EUR 72.7 Mio) will be spent in the years 2001-2006 for a host of existing and planned projects on Internet-based learning, training in ICT of teachers, e-learning for universities, adult education, as well as for bringing all citizens into the net.

²³ Cf. Green Paper on Public Sector Information in the Information Society [http://europa.eu.int/ISPO/docs/policy/docs/COM\(98\)585/](http://europa.eu.int/ISPO/docs/policy/docs/COM(98)585/)

The following eight **fields of activity** with major projects have been identified:

- Teaching with new media: 120.000 teachers will receive Internet training until the end of 2002 (public funding ATS 16 Mio (EUR 1.2 Mio) with an equivalent amount of private sponsorship)
- IT Education Offensive: To better prepare students for IT-related jobs, 64 school classes in the year 2000 and 100 in the year 2001 have participated in the pilot project "notebook class". Every student is equipped with his/her own notebook for educational purposes. The ministry subsidizes each class with ATS 100.000 (EUR 7,267). In order to equip all public Austrian schools with Internet access by the end of 2001, some ATS 5 Bn (EUR 363 Mio) have been invested by public institutions since 1996.
- Education Gateway: In its final stage of development, this Internet portal will (expectedly in 2002) serve as a central access point to all relevant information for all levels of education and training in Austria.
- Science and Research: The major project aims at fostering co-operation between universities in order to develop e-research, train experts in e-technologies and provide adequate framework conditions for the e-producing businesses. The goal is to position Austria as a leader in some areas of e-basic research, as well as applied e-research in pre-competitive and competitive product development.
- Continuing education in IT : Projects aim at fostering lifelong learning for adults (cf. also "Circus Internet") through the establishment of adult education competence centres.
- Culture in cyberspace: Focus on preserving and providing access to Austria's cultural heritage.
- E-government in education: Introducing public management into the Austrian educational system in order to make administrative procedures easier with new technologies.
- Infrastructure: The main goal is to provide the technological base for all other fields of activity, mainly to gain high-speed access to international networks for ACONet and the Austrian School Network (ASN).

5.1.2 Professional skills

Example: Internet-based Innovation Network in the Tourism Sector (www.dmma.at)

The Destination Management Monitor Austria (DMMA) is an innovation network, consisting of public and private actors for the development and implementation of important innovations in management and marketing approaches. Based on suggestions from and the participation of public authorities, as well as experts, new approaches and innovative solutions for advanced structures in destination management are elaborated jointly by tourism managers, hoteliers, infrastructure-operators, experts and consultants. In innovation laboratories new forms of co-operation, marketing and management will be developed, issues of change management will be discussed. Tourism managers will test the projects in their regions. First experiences will be compiled and evaluated and the public will be kept informed about the results. The innovation network guarantees a mutual learning process of private and public actors, furthermore the renewal of co-operation and management in tourist regions is progressing step by step with concrete projects.

Example: IT4U - an Internet-based Information Service on IT-related Education and Training Programmes in Austria (www.it4u.ocg.at)

The wide range of IT-related offers of education and training has been collected in the electronic information system IT4U on the Internet. This Internet-based electronic information service allows the efficient pre-selection of potential education and training programmes.

Its goal is to provide decision-making support for people interested in pursuing an IT-related career or enhancing their career options (students, apprentices, graduates, employees and instructors).

IT4U contains information on IT-related education and training programmes at the following educational levels: apprentices, junior and senior high school levels, polytechnical colleges, university degree studies, non-degree university studies and continuing educational programmes and courses.

Every course or programme offers information regarding the description of training, job descriptions, degree/title, fees, admission requirements). Searches are feasible according to the following criteria: level of training, region, type (part-time, dual, full-time) or in alphabetical order.

5.1.3 Other Skills - Development Policies

Enhancing the use of information and communication technologies is an important element of the Austrian National Action Plan for Employment (NAP). Within the NAP, the Public Employment Service Austria (AMS) started a qualification initiative for growth sectors, such as telecommunication, software development and new media in 1999. This initiative is accompanied by other measures targeted at the improvement of knowledge and skills such as a corporate tax allowance for training (Bildungsfreibetrag), educational leave arrangements and more training incentives for elder employees.

Example: Tele.soft

The **tele.soft** programme introduces qualification "on demand" for the IT sector and features three key elements: active involvement of employers, demand-oriented qualification and specific selection of participants.

Furthermore, a gender mainstreaming approach is applied to these programmes. A gender ratio of 50% is targeted and successfully implemented on average. Gender mainstreaming can be found in other areas as well: a number of measures, targeted on women, are designed to place more women in technology-related jobs.

Based on an analysis on the demand for qualification among 50 Austrian IT companies, training has been geared towards the business IT-needs. Concentrated on the regions of Vienna and Lower Austria, shortages of IT experts were detected in the fields of sales and advise, telephone support, systems and network administration, as well as software development and programming.

In the first phase, more than 6,000 persons participated in this programme. A second phase of tele.soft, which took the demand of the employers even more into account, started in July 1999. The qualification measures of phase 2 were started in December 1999.

In the year 2000, 4,000 unemployed have been trained in business-tailored IT qualifications. Around 80 percent of the unemployed trained within tele.soft were able to (re-)enter employment. This type of business-

oriented training is under consideration to be extended to other economic branches. AMS will train unemployed persons and pay for their training, the company in turn will provide limited employment.

Raising the IT competence of all Austrians and to establish an international level of IT competence in Austria is the aim of the **ECDL** initiative of the Austrian Computer Association (OCG). The public administration is promoting the diffusion of this certificate to civil servants.