ITS in Sweden
– looking back and ahead

The industrial and technological tradition explains in many ways the strong Swedish interest in ITS. Hence trade marks as Volvo, Saab, Ericsson and Combitech are important elements in the national ITS evolution, but they do not explain fully its strength. And they do not explain the shifts in priorities and focus that can be seen through the years. This paper describes the development of ITS in Sweden from 20 years back to 10 years ahead, through identification of the key driving forces during the different periods.

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The first industrial era

The beginning, here defined as the early 1980's, was dominated by the car industry. Initiatives like "The Future of the Automobile" and Prometheus were basically aiming at making the European car industry more competitive. Typical ITS projects included e.g. head-up displays and joystick driving, but the key issues related to the need for the vehicle to communicate with roadside systems were also identified. ITS like Intelligent Green Wave were brought into the vehicle and it became obvious that an important actor had to be involved – the public agency responsible for information concerning the road network and its installations.

The European boost

The extensive Swedish presence in the PROMETHEUS Programme, gave Sweden a good foothold in international development. When the European DRIVE programme was established in the late 80's to balance and support the industrial approach in PROMETHEUS, Swedish participation was considered a national interest.

A major tool in support of this strategy, was the launch of an extremely supportive programme for funding Swedish participation in European R&D. Swedish project participation was "for free", i.e. additional Swedish man-months consumed no EU resources, and Swedes were invited to participate in a large number of projects.

Meanwhile, the Swedish National Roads Administration (SNRA) performed a strategic shift in ori-entation from "road builder" to "transport service provider". Here the idea of ITS fitted extremely well in, and SNRA decided to take a national lead in ITS.

ARENA – Test Site West Sweden

Following the strategic interest of the SNRA, the organisation decided in the early 90's to establish a national test site in Gothenburg for co-ordination of ITS research and development – Test Site West Sweden, later renamed ARENA. For many years ARENA was the centre of Swedish ITS, hosting projects and creating a network for ITS professionals. ARENA meant also a shift in focus of Swedish ITS: From hardware development to a more user service oriented approach. An important obstacle in this process became however obvious: Although successful demonstrations were made, wide implementation of ITS services required access to information from various public sources, and this was not available. It all worked in the lab, but success in the field was not estab-lished.

### A governmental investigation on ITS

In the mid 90's the telecom industry, led by Ericsson, had grown in importance and was regarded as more "hot" than the automotive industry. Consequently ITS became even more interesting to the government. However, old structures created for building and operating roads and rail networks was perhaps not the best solution for successful operation of cross-organisational information infra-structures. The key question was raised: How do we organise ITS to the benefit of the transport systems users?

A governmental investigation on ITS was initiated to sort this out, and found that the current struc-ture were responsibilities were split between public agencies was not good. It was obvious that in-formation management and co-operation with others came second in priority in all organisations.

The application era

Beside the question on how ITS should be organised in Sweden, the governmental investigation on ITS left two huge footprints: The identification of the need for a navigable road database, and the launch of a national programme of ITS experiments and studies. The programme was launched in 1995-96, and one result stands out: In two Swedish cities small field trials with Intelligent Speed Adaptation gave astonishingly good results. The results fitted extremely well with the Vision Zero traffic safety policy recently adopted by the Par-
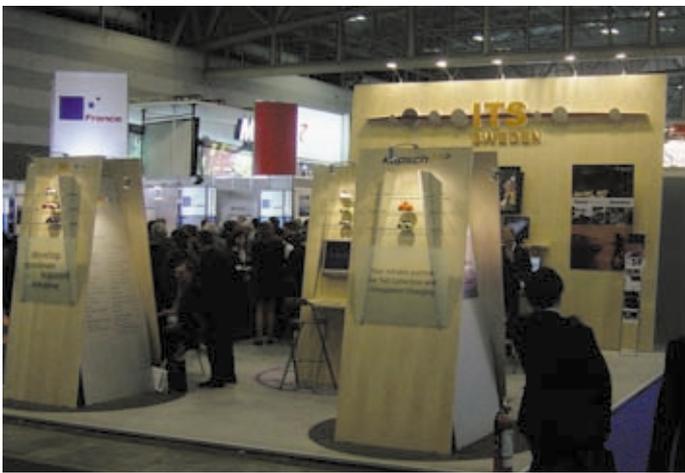
ITS Sweden was present at the ITS World Conference in October 2004.

One of the important activities at the exhibition – take care of the guests.

liament, and hence ISA was seen as an important key to safe traffic.

Thus, for several years following, an important portion of Swedish ITS resources was allocated to the development of a national road database and to a national programme for large scale ISA field trials. The programme was carried out between 1999 and 2002, and tens of thousands of drivers were engaged in the experiments. The results from the important evaluation work showed continued promising results – ISA was on the Swedish agenda to stay.

Now – The Stockholm
ITS World Congress ahead
During each period it is obvious that a few events and processes dominate the landscape of ITS in Sweden. The country, and amount of ITS, is not bigger. It is likewise obvious that the presence of such driving forces stimulate the deployment of ITS, through the need for co-ordination and co-operation between all actors involved.

When looking ahead, we can see that the forthcoming ITS World Congress in Stockholm 2009 is an event that will be of key importance for the coming years. It brings together organisations and ex-perts towards a common goal: To demonstrate the capacity of Swedish ITS, with particular empha-sis on national strongholds as traffic safety, mobility for disabled and un-protected road users and co-operation between authorities and industry.

The coming World Congress brings also additional strength to ITS Sweden, and we can see the or-ganisation grow in power as its role as the centre of the national ITS network is established.

Ahead – The silent boom
This walk through of Swedish ITS development says little about the continuous deployment of ITS in Sweden: During the 90's we saw the establishment of infrastructure based systems like the na-tionwide road weather monitoring and information system. Information services like RDS-TMC followed around year 2000.

Basically, systems and services put in place by authorities and operated by authorities.

We expect the years ahead to bring new possibilities and open new markets. New platforms like PDA's in combination with the prospects of the Galileo system, will open up for new services and systems. And costs will go down: Communication will be cheaper, and so will hard- and software for public use. This opens up for new actors and we can already even see systems and services put on the market for "anti-authority" purpose. Warning systems for speed cameras is a good example.

In fact, what we can see ahead is a boom of ITS, which is not necessarily labelled as ITS.

Conclusion
As can be seen, ITS development and deployment has not followed a straight line from the begin-ning. Different periods have seen different driving forces.

A key observation for the future, is that public efforts at first hand shall focus on activities aiming at "opening up" information infrastructures and enabling ITS. Harmonisation (including standardisation) of interfaces and key information resources, development of systems architectures and models for co-operation (e.g. MoU's) between organisations are examples of such focus areas.

We believe that, given the right conditions, ITS will be an even more prominent part of the Swedish IT development than what we have seen so far. ∎

Next steps in Sweden
There are several different activities in ITS and Sweden today and here are some examples.

The Swedish ITS Strategy
The Swedish Road Administration will finalise the update of the Swedish Road Administrations ITS strategy in mid of February 2005.

World Congress of ITS 2009
Thanks to that ERTICO's board in 2003 decided to give the World Congress 2009 to Sweden, have the different actors in the ITS field got a unifying nominator to join forces and show the rest of the world what Europe, the Scandinavian countries and Sweden can do 2009. We are now in the process of establishing a implementation plan of ITS for Sweden and has started a Nordic reference group.

IVSS
The PPP project "Intelligent Vehicle Safety Systems" IVSS has after one year of structuring started the first project activities. The first five projects were rewarded with approximately 5 million euro in support. The total budget for the period 2003-2008 is 70 million Euro. The program is divided into seven different research areas. More information can be found on the web www.pff.nu

ISA
Tests with ISA, Intelligent Speed Adaptation, has been very successful in Sweden and we are stipulating that there shall be ISA equipment included in all the new vehicles that are bought by SRA.

Safety, security and environmental issues
As always in Sweden are the area with Safety and now security very high on the agenda. All the different ITS activities are checked what contribution the have to these areas.

Alco lock
Alco lock is one of the ITS applications that will be installed on all busses 2009.

EFC
An area, which has been more and more highlighted, is EFC. Special after that the EC decided for the Directive within the area. In Sweden we are working actively both in different projects as NORITS but also to try and establish a large scale demonstration and testing areas.