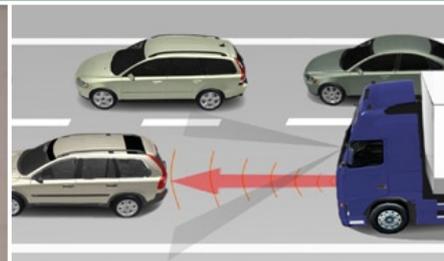


Intelligent Transport Solutions



VOLVO



Leading products backed by world-class services

THE VOLVO GROUP'S vision is to be valued as the world's leading provider of commercial transport solutions.

To realise this objective, it is not enough just to manufacture and sell high-quality products; many customers want long-term cooperation and total solutions to operate their businesses as efficiently as possible, with maximum profitability and uptime.

For this reason, the Volvo Group's focus on offering services such as fleet management, telematics and information services,

as well as product-related offers, such as design for maintainability and the aftermarket, has never been more important than it is today. Indeed, the increasingly broad range of 'soft products' offered by the Volvo Group has now developed into a distinct competitive advantage. Strengthening this offer is an important means of satisfying the evolving demands of our customers over the entire life cycle of the product.

The role of our engineering community in developing these soft products is crucial. It is the innovative work of our engineers and product developers that will enable us to develop customer-driven soft products that will assure long-term profitability.

This brochure describes several good examples of what we are achieving in this area, as well as a number of current, related projects involving various Volvo Group units

in the areas of Active road safety, Transport security and Transport effectiveness.

There is broad agreement that transportation needs will increase significantly over the coming decades. I am convinced that our competence in engineering and other soft product development areas will enable us to take the lead in this exciting and growing area as we go forward.

Tony Helsham

*Senior Vice President, Soft Products
Volvo Group*



Mats Rosenquist of Volvo Technology.

The Volvo Group has been manufacturing world-class products for over 80 years. To an increasing extent, these are being supported by services – or soft products – associated with the core products, with the aim of offering customers more profitable solutions. The Group has now raised its sights even higher and a focus on soft products is now part of overall transport system development. Working in close cooperation with other stakeholders, the Volvo Group is a leader in this area.

THE VOLVO GROUP has been participating and playing an increasingly

prominent role in the field ever since the world's ITS (Intelligent Transport Systems) organisations held the first of their 16 world congresses to date in 1994.

“The importance of the Volvo Group in the ‘ITS world’ is clear from our comprehensive participation both in the ITS congresses and a large number of ITS-related research projects,” says Mats Rosenquist, who is responsible for Soft Products at Volvo Technology Corporation.

He explains that the Volvo Group is currently carrying out projects in three main areas – *Active road safety*, *Transport security* and *Transport effectiveness*.

“All public stakeholders, together with the industry, the academic community

From product to system focus with ITS

and our customers, share the common goals of developing transport systems that are more effective, safer, more secure and less environmentally harmful. For this reason, the Volvo Group is performing major research as part of many projects – regional, national, European and American – to develop functioning systems that will enable us to achieve these goals together.

“Much of the Volvo Group's work in the ITS area is related to cooperative systems and connected vehicles. One example is CVIS, the EU-funded project in which vehicles communicate with each other and with the infrastructure in different ways using the new CALM standard. Our demonstrations clearly show the benefits that this will bring to the road user of tomorrow.” ■



Engineers Erika Jakobsson and Stefan Bergquist test HAVEit functions in a driving simulator.

Active road safety

Safety is the Volvo Group's most fundamental corporate value. The focus of development has shifted from passive (protective) safety to active (preventive) safety systems designed to prevent accidents occurring in the first place.

IN RECENT years, Volvo Trucks has introduced a number of driver support systems in its vehicles. These include Lane Keeping Support, Lane Change Support, Driver Alert Support and Adaptive Cruise Control, all of which contribute to improved *Active road safety*.

The Volvo Group is also participating very actively in a large number of EU projects designed to develop even more safety systems for trucks, buses and construction machinery alike.

One example is *HAVEit*, in which the Volvo Group has been assigned to develop a system known as automated queue assistance. *HAVEit* also includes the development of systems for linking

active safety systems to energy-efficient driveline management in a hybrid vehicle.

The *Intersafe2* project is based on the use of sensors of all possible types, especially at low speeds in the urban traffic environment, for example to detect cyclists and pedestrians when turning at intersections.

SAFESPOT is an active safety project based on cooperative systems in which vehicles 'talk' to each other and to the surrounding infrastructure. This project also includes significant elements of environmental and effectiveness issues.

euroFOT (European Field Operational Test) is a project for testing and evaluating all on-board active safety systems in normal service with hauliers around Europe. Information regarding driver behaviour is collected and analysed to evaluate the extent to which the systems help the driver to drive more efficiently, with improved fuel economy, and to avoid accidents. ■

Transport security

In Europe, goods to a value of EUR8 billion are stolen every year – many of them carried by the 200,000 trucks that are also stolen. One in every six truck drivers have been threatened or assaulted in the course of their job. Vehicles, cargoes and drivers need effective protection, while the public needs to be protected against smuggling, sabotage and terror.

THE VOLVO GROUP is participating in many national and international projects to develop systems to protect all parts of the transport chain. Volvo's aim in the area of transport security is to supply secure road transport vehicles offering protection against the threats that can arise. The sub-areas are interconnected by the fact that the same procedures and technologies are often used by both commercial and public interests to protect transport.

The public aspect of security involves work on systems designed to protect against the type of incidents capable of crippling ports, road networks or perhaps society as a whole. In this area, the industry is working together with bodies such

as the Swedish Civil Contingencies Agency (MSB) and the US Department of Homeland Security.

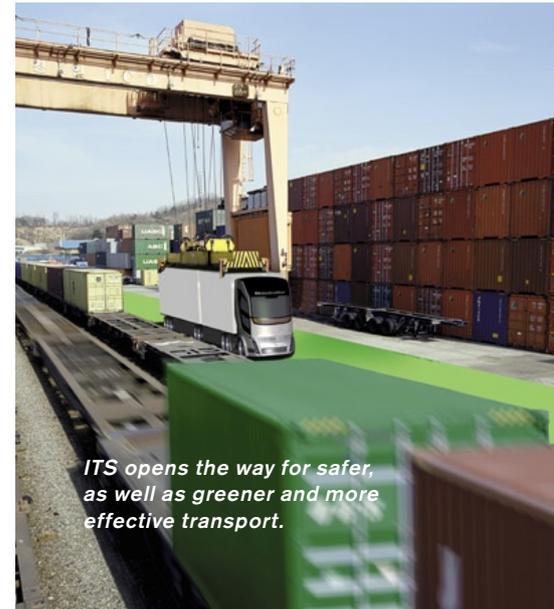
Joint Swedish projects are under way at the Security Arena at the Lindholmen Science Park, where the industry is participating with universities and various public agencies in a 'triple-helix' environment. One of the sub-projects deals with transportation critical to the public good for purposes including the improvement of port security and the provision of protection against organised crime.

A three-year business development project sponsored by the Volvo Group with the aim of monitoring and influencing the security needs of the market and society, and stimulating the timely launch of suitable transport security solutions, has recently been completed.

The aim of the EU project NS FRITS (North Sea Freight and Intelligent Transport Solutions) is to rationalise transnational transport operations in the North Sea region. This includes improving information dissemination and using the

'right' language to communicate with the various players in each country.

Volvo Trucks North America has been working for several years on both safety and security as part of the 'Trusted Truck' project. The purpose is to transmit information about the truck wirelessly to control stations along the highway. ■



ITS opens the way for safer, as well as greener and more effective transport.



Transport effectiveness

The Volvo Group's vision of offering its customers the best transport solutions in the world calls not only for the world's best vehicles and traffic information systems - of which Dynafleet is an outstanding example - but also for active participation in the global community's efforts to develop safer, greener and more effective transport solutions.

THE EU COMMISSION expects freight volumes in Europe alone to increase by 50 percent between 2000 and 2020, accompanied by a heavy and sustained growth in urbanisation. The trend is similar throughout the world.

Major improvements are required in the effectiveness of all forms of transport. Since all of these must be utilised to the maximum, and also interactively, it is necessary for all stakeholders to work together to develop the systems of the future, such as in various projects to develop intermodal solutions.

The Volvo Group is a participant in many projects, both at national and international level, to contribute to more sustainable transport systems. These include projects designed to improve the effectiveness of long-distance freight transport, including aspects such as driver and fleet assistance, load factors, empty runs, on-demand market models, assignment/flow-specific transport and e-freight solutions. The vehicle industry also plays an important role in the development of new concepts for co-modality based on innovative load carriers and transshipment terminals, and in work on vehicle dimensions (European Modular System). Other activities include ongoing vehicle technology research in areas such as weight, aerodynamics, driveline optimisation, and so on, not to mention research into hybrid solutions and alternative fuels.

An interesting example of the aim of increasing transport effectiveness is provided by the *Green corridors* initiative of the Swedish government and Swedish industry. This includes a number of projects, some of which are funded by

FFI (Strategic Vehicle Research and Innovation). The initiative further highlights the importance of collaborative efforts and an international perspective in developing sustainable transport solutions for the future.

ITS solutions are important elements of the Green corridor work for both public bodies (on factors such as weight and road safety), and hauliers and drivers (e.g. transport optimisation, fuel economy and working environment).

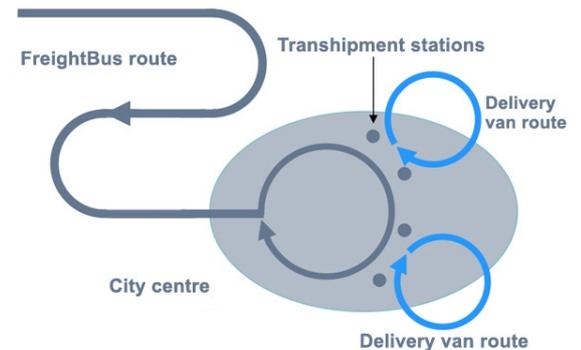
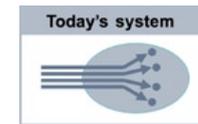
The FreightBus concept is attractive in the area of urban transport. In this application, today's direct transport using big long-haul rigs delivering to city centres is replaced by a 'FreightBus' carrying both passengers and goods. The vehicle uses purpose-designed load modules that can be transferred to smaller delivery vehicles designed specifically for urban conditions.

In an initiative known as *Commute Greener!*, Volvo Group employees

are using a personal 'CO₂ pedometer' that helps them to reducing their carbon footprint by more than 30%, using information recorded by a service connected to their mobile phones and the Internet. ■

How the FreightBus concept works

At present, four vans leave a hub and deliver their goods to four separate, central destinations. In the CITYLOG system, the containers carried by a FreightBus arriving at a city centre location are transhipped to two delivery vans that distribute the goods to their final destinations.



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