

Volvo Group magazine 3.2016

**THIS
TRUCK
IS THE
LEADER**

Platooning points to
the future of transport

AFRICAN INSIGHT

VISITING VOLVO GROUP S
NEW DEALERSHIP IN ZAMBIA

VALUED OPINIONS

SHARING THOUGHTS AND
INSIGHTS ON THE NEW VALUES

Thank you for your trust

As I write, we have just finished our AGM, the annual meeting with the shareholders.

This is an important meeting as it gives us an opportunity to tell our shareholders about the Group's operations during the past year. In addition, it gives shareholders a chance to ask questions and influence the way the Group is governed. We were asked questions about important areas like research and innovation, market development and environmental programmes. Without exception, the questions reflected people's genuine involvement and determination to ensure that the Volvo Group succeeds.

This year's AGM was characterised by a sharp improvement in results for 2015. All the Group's operations contributed and profitability improved as a result of huge efforts throughout the organisation. This has been an extremely challenging period, with difficult yet necessary decisions that have had significant consequences, not least for individual co-workers. I expressed the management's respect for the efforts that have been made by co-workers, trade union organisations and management teams.

We have now largely left our large restructuring projects behind us and are instead moving ahead with the emphasis on continuous improvement throughout the value chain. We are going to improve quality, lead times and delivery precision, increase the sale of services and simplify the way we make decisions. In everything we do, we shall be focusing on the profitability of both our customers and the Group.

What makes our job so enjoyable is the fact that we are operating in an industry of the future. When the global population increases, consumption increases. As increasing numbers of people live in large

towns and cities, the demand for transport and infrastructure rises.

At the same time, it is decisive that the transport solutions we develop are sustainable and safe, and help to increase the standard of living throughout the world. It is also important to remember that the standard of living is not only measured in terms of income and profit but also by the environment, society and safety.

We are ready to contribute and lead this development.

In addition, we have fantastic people with the enthusiasm that is needed to make a difference. The executive management team is responsible for removing barriers, simplifying, challenging and releasing forces – together with all the teams all over the world. The basis is our values: customer success, trust, passion, change and performance.

We are now continuing to build a strong Volvo Group for the future!

Our shareholders range from institutions that safeguard the pensions of millions of people to private individuals who have chosen to invest their own money in the Volvo Group.

What they all have in common is the fact that they believe in our ability to deliver. Everyone who attended the AGM felt this.

I took the opportunity to thank them for their trust and belief.

MARTIN LUNDSTEDT
PRESIDENT AND CEO,
VOLVO GROUP



“We have fantastic people with the enthusiasm that is needed to make a difference.”

MARTIN LUNDSTEDT

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10

10

African dynamic

SPECIAL *Volvo Group Magazine* travels to Zambia to talk to customers about the challenges and opportunities of operating in southern Africa.

22 Vehicles made to order

Demand for product customisation is growing. Since its creation in 2014, Special Vehicles Development at GTT has cut lead times for customised vehicles by up to half.



22



26

26 Understanding the new values

What does 'trust' mean? And how can 'customer success' be achieved? Volvo Group employees share their reflections on the five new Volvo Group values.

34 Connecting to the future

The world is on the way to more vehicle automation. Andreas Svenungsson, Senior Vice President of Public Affairs, talks about platooning and the future of transport.



34



46

46 Better ergonomics and sales

Prioritising the development of Volvo Dynamic Steering for buses took a bit of friendly persuasion. Sales have now exceeded everyone's expectations.

ALWAYS INSIDE

4 START

49 INSIGHTS

52 THE QUIZ

TURBO SOLUTION *IN NEW POWERTRAIN* OFFERINGS

Several new integrated powertrain solutions, including multiple engine enhancements, were recently unveiled by Volvo Trucks and Mack Trucks in North America. The new features are designed to offer customers better performance, productivity, fuel efficiency and lower total cost of ownership.

For the first time in North America, Volvo Trucks' D13 engine and Mack Trucks' MP8

engine will be available with turbo compounding. This is a technology that recovers waste-exhaust heat and converts it to usable mechanical energy which is transferred back to the engine. It results in an improvement in fuel efficiency of up to 6.5 per cent in comparison with previous engine models. This is expected to be especially beneficial for the long-haul sector.

Volvo Trucks' 2017 D13 engine and Mack Trucks' 2017 MP8 engine features turbo compounding, designed to improve fuel efficiency for long-haul drivers in North America.

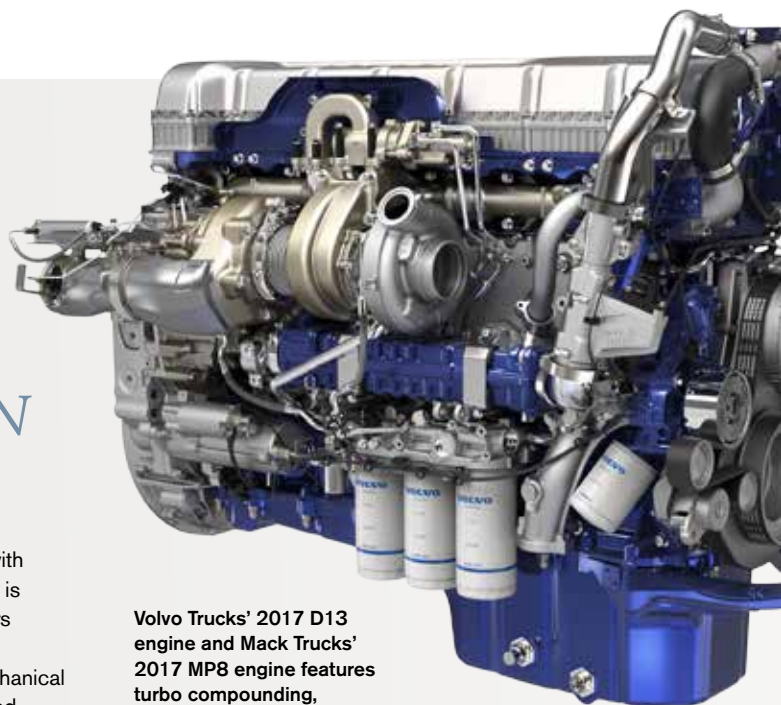


PHOTO: ANIHOA SANCHEZ/VOLVO OCEAN RACE

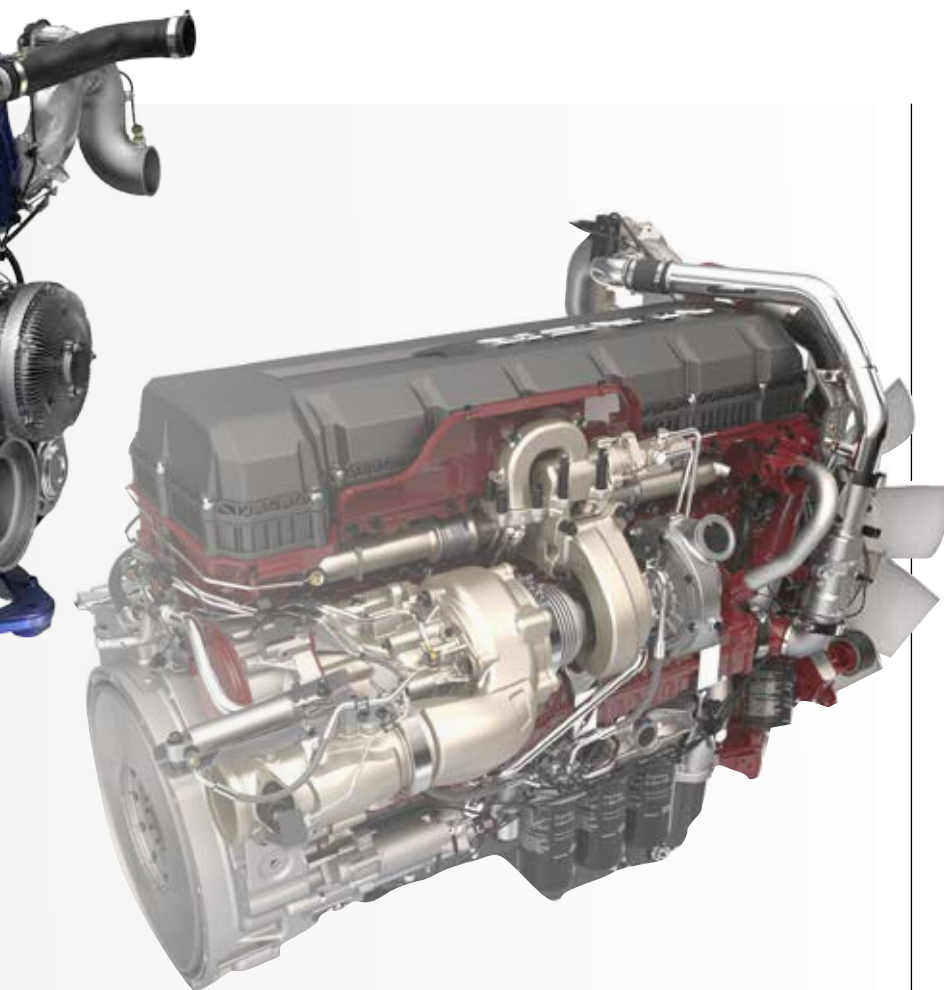


Anders Gaasedal and Johan Sahlström, engineer at Volvo Trucks, constructed a Lego replica of the boat sailed by Team SCA. It was built using 100,000 Lego pieces.

Model boat makes journey home

A model boat of Team SCA is now being exhibited at the Volvo Ocean Race museum in Alicante, Spain. The boat, made entirely of 100,000 Lego pieces, has been donated by SCA, the Swedish global hygiene company, which sponsored the all-female crew of Team SCA for the round-the-world race in 2014–2015.

The Lego boat was displayed at each of the 11 ports en route before being transported to its new permanent home. "The boat is now in the best place possible. After a long journey around the world, it has returned home," said Anders Gaasedal, one of the boat's constructors.



Hagerstown ready for 2017

Volvo Trucks North America and Mack are prepared for production of its updated 2017 powertrain at the GTO Powertrain Production plant in Hagerstown, US.

Recent investments include an upgrade of the engine assembly process for improved efficiency, as well as the creation of a new assembly line, installation of new equipment and tooling, and employee training.



Hagerstown, US

23%

The percentage of net sales accounted for by service and spare parts sales (excluding financial services) during the first quarter of 2016.

AND THE WINNER IS...

Four Volvo Group employees have recently been recognised by various institutions for their groundbreaking work.



... MARCIA KULL

Vice President of Marine Sales for Volvo Penta of the Americas

► **Award:** STEP Ahead Award. Presented to

top women in US manufacturing by the Manufacturing Institute in the USA.



... JOHANNA FLANKE

Vice President HR Center of Expertise Sweden

► **Award:** Special Employer Branding Prize, given by

Universum, a Swedish survey company. Johanna Flanke was described as "a major source of inspiration to everyone in the industry".



... DELPHINE KAMINSKI

Logistician at Renault Trucks Defense in Limoges, France

► **Award:** Women Vocational Award in Technological Industries. Delphine Kaminski

was the first woman to work on the RTD production line back in 2007.



... KERSTIN RENARD

Executive Vice President HR

► **Award:** The Swedish Magnus Söderström Award for important contributions to the field of human resources.

The prize is awarded by the city of Växjö, Linné University and a Swedish labour union.

Mack Trucks official hauler for NASCAR

Under a new multi-year agreement, Mack Trucks is now the official hauler for NASCAR, the premier stock-car racing organisation, and has provided a fleet of customised Mack Pinnacle sleeper models. Throughout the 36-race, 10-month long season, the new NASCAR haulers will travel thousands of miles between race locations, delivering tons of critical technology and equipment to help ensure a

successful race weekend.

"The Mack Trucks brand has been a part of American culture for more than a century and is globally recognised for manufacturing a best-in-class product," said Steve Phelps,

NASCAR Executive Vice President and Chief Marketing Officer. "The custom-designed Pinnacle models are masterfully engineered and we are proud that they will lead the NASCAR convoy to the track each race weekend."

PHOTO: MACK TRUCKS



PHOTO: MCLAREN-HONDA

Formula 1 team choose Volvo Trucks

Volvo Trucks is now an official supplier for McLaren-Honda's Formula 1 team and will deliver a brand-new fleet of 24 Volvo FHs for the duration of the four-year agreement. The trucks will provide essential transport and logistics support for both the race team and hospitality operations.

"We're very proud to partner with such a prestigious brand as Volvo Trucks, which is renowned for its innovative and high-performance heavy goods transport solutions," says Jonathan Neale, Chief Operating Officer, McLaren Technology Group.

New head of GTT



Lars Stenqvist

Lars Stenqvist has been announced as the new head of Group Trucks Technology. Starting in October 2016, Lars Stenqvist will be Executive Vice President of Volvo Group Trucks Technology (GTT) and a member of the Volvo Group Executive Board. He will also hold the title of Volvo Group Chief Technology Officer.



10 tips for handling your emails

LET'S IMAGINE that the emails in your inbox instead land as a pile of letters on your desktop. Do you have time to open and reply to them all in a day? Or sort them into folders? Which do you prioritise?

Email is an amazing way to communicate quickly and efficiently with colleagues around the world. However, it can also cause stress as the quantity increases and the emails are often accessible via mobile phone.

Here are ten tips for emailing more effectively.

- 1** Use clear and concrete information in the subject line, it helps when searching and prioritising.
- 2** Try to focus on one main subject per email.

3 Think about what you want to say, write short and to the point, proof-read before pressing "send".

4 Only send to those who require the information.

5 Use bullet lists and paragraphs for readability.

6 Consider the tone of the email, never write an email if you are angry.

7 Use the 'out of office' function when you are away.

8 Be careful with 'reply all' – only use it if everyone needs to know the content of your response.

9 Try to avoid sending large attachments.

10 Feel free to write FYA and FYI in the Subject line (FYA – For Your Action, the receiver is expected to act; FYI – For Your Information, the receiver should just be informed).

What are your best tips for handling work emails? Please contact groupmagazine@volvo.com

TEXT ANN-MARI ROBINSON

FACTS EMAIL WITHIN THE VOLVO GROUP

- ▶ 80,000 employees use email at work
- ▶ 40-50 million emails are sent each month
- ▶ 20-25 emails and 5 chats on average per user per day
- ▶ 1-2 hours per day is the average for managing email

PHOTO: CICC JONSON



The winning team, left to right in back row: Martin Sanne, Ove Hjortsberg, John Lord, Andreas Gillström and Fredrika Berndtsson (next to CEO Martin Lundstedt). Front row, left to right: Edward Jobson, Roger Andersson, Patrik Pettersson, Mats Andersson, Mattias Åsbogård and Erik Lauri.

Volvo Technology Award 2016 Electricity team rewarded

Volvo Buses is the world leader in electric buses, thanks to the powertrain which was developed in-house. This work recently received the 2016 Volvo Technology Award.

There were many prizewinners this year – six employees from GTT and five from Volvo Buses. Yet it was also the first time the award

went to a whole vehicle with several new technical solutions; the new powertrain, new control system, quick charging and zonal control.

The development and integration has been done in record time. Everything was to be completed in time for the climax of the Volvo Ocean Race in June 2015. The electric

buses then began operating in Gothenburg's city traffic.

"It's a great feeling to be able to travel on the buses now," says Ove Hjortsberg, one of the recipients of the prize.

He and his colleagues are proud that many cities around the world are now showing interest in purchasing electric buses.



21

Number of countries with Volvo Buses' electric hybrids. The new electric bus is also creating global interest.



Renault Trucks T 2016 has two per cent lower consumption and 114 kg more payload.

Renault Trucks T2016 upgraded

Lower fuel consumption and a higher payload are some of the improvements to the Renault Trucks T 2016, introduced less than three years after its launch. The upgrade follows a very positive market response to the vehicle.

Renault Trucks is also launching a range of new services, designed to reduce fuel consumption even further. These include the Optivision navigation system, now connected to a GPS, which makes it possible to adopt a gearshift, acceleration and vehicle speed strategy for a route.

"We have been working along three tracks to make our customers even more cost efficient: improve the aerodynamics to reduce fuel consumption, reduce the weight to increase payload and encourage eco-driving by means of a predictive GPS navigation system," explains Sophie Rivière, Long Distance Range Manager, Renault Trucks.

Volvo Trucks vs 750 tonnes

In Volvo Trucks' latest live test film, a Volvo FH16 featuring the new I-Shift with crawler gears hauls a 300-metre long container train, weighing 750 tonnes, from standstill.

The purpose of the record-breaking haul is to demonstrate the capabilities of the new I-Shift transmission with crawler gears.

"I-Shift with crawler gears offers starting traction that is unlike anything else on the market for series-produced trucks," says Peter Hardin, Product Manager FM and FMX at Volvo Trucks.

The film can be seen on Volvo Trucks' Youtube channel.

The film *Volvo Trucks vs 750 tonnes* stars former World's Strongest Man winner Magnus Samuelsson.



Márcio Monika,
Manufacturing Coordinator

Blue light from France to Brazil

Sharing ideas and learning from others are two great benefits of being part of a global Group. Márcio Monika, a Manufacturing Coordinator from the Curitiba plant in Brazil, is currently on a short-term assignment at the New

River Valley plant in the USA. He describes how he spotted an idea in *Volvo Group Magazine*:

"We've used an example to implement an idea from a plant in France at our plant in Brazil. We saw it in the magazine,

got in touch with the person and raised the information to implement the idea in Curitiba. It is the blue light on forklifts to increase safety for the hearing impaired to see when the vehicle is coming close to them."



Hello Africa!

Southern Africa is a tough and important market for the transport industry. Succeeding means handling constant change.

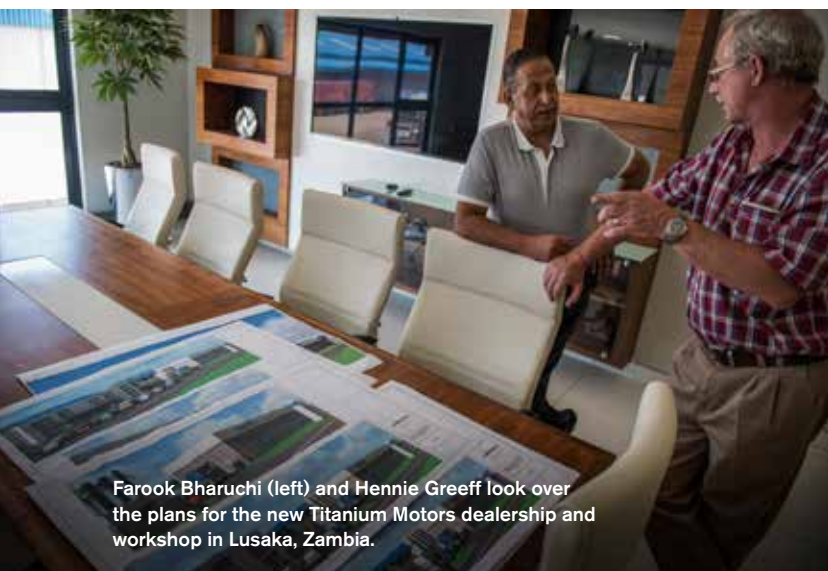




Keeping pace in Africa

In the competitive southern African truck market, customers are starting to demand new levels of service. *Volvo Group Magazine* has visited Zambia, a regional hub, where a state-of-the-art dealership will soon be opening.

TEXT GÖRREL ESPELUND PHOTOS ANDREAS KARLSSON



Farook Bharuchi (left) and Hennie Greeff look over the plans for the new Titanium Motors dealership and workshop in Lusaka, Zambia.

The afternoon sun is beating down on the asphalt at Southgate, one of Zambia's largest haulage companies. Rows of newly washed Volvo trucks are lined up between the workshop and the warehouse.

A group of drivers are waiting their turn to leave on the next trip to South Africa. It is 1,850 kilometres to Johannesburg, through several border posts and on varying road conditions.

The air-conditioned office room inside is pleasantly cool. Here, Farook Bharuchi and Hennie Greeff are leafing through architecture drawings of the dealership they will soon be opening in the Zambian capital, Lusaka.

Titanium Motors will be home to both dealership and workshop for Volvo Trucks and UD Trucks. The old building has been demolished and in its place a modern truck centre is slowly taking shape.

"I bought my first Volvo in 1992. Since then, Zambia has developed into a real 'Volvo

Southgate, one of Zambia's largest haulage firms, transports ore, agricultural products and convenience goods across southern Africa.



Nicholas Lupiya has been driving trucks for 17 years. "Ten years ago, there was less traffic but the roads were worse."

country'. Today I have 95 trucks and that's why it's important that the Volvo Group is represented here and has a professional workshop that is able to offer customers quality service and supply genuine parts," says Farook Bharuchi, the owner of Titanium Motors and Southgate.

The head of the new operation, Hennie Greeff, has been recruited from South Africa and has a long history with UD Trucks and the Volvo Group.

"Customer service is my passion. In Zambia, aftermarket support has been largely neglected. The majority of the trucks on the roads here are used Volvo trucks as it's less expensive to import them from the UK than to buy new ones from South Africa. It's a price-sensitive market and that's one of our challenges," says Hennie Greeff.

UNTIL NOW, FAROOK Bharuchi's core business has been freight. Trucks leave Southgate every day, carrying ore, agricultural products and

convenience goods to the different countries in southern Africa.

In the past, he purchased trucks from South Africa and serviced them himself. He is now looking forward to being his own customer.

"Titanium Motors will be able to provide service to every Volvo Trucks and UD

>



TITANIUM MOTORS

Founded in: 2015

Owner: Farook Bharuchi

Business: dealership and workshop in Lusaka. Planning a branch with service and parts in Kitwe, the Zambian mining district.

Brands: Volvo Trucks and UD Trucks, new and used

Inauguration: planned in August-September 2016



A harsh climate and poor roads mean that many customers need trucks built for African conditions.



Trucks customer, regardless of whether they have new or used trucks or are just passing through. With seven neighbouring countries, Zambia is a transport hub and the opportunity to get service locally is going to be vital for our customers,” says Farook Bharuchi.

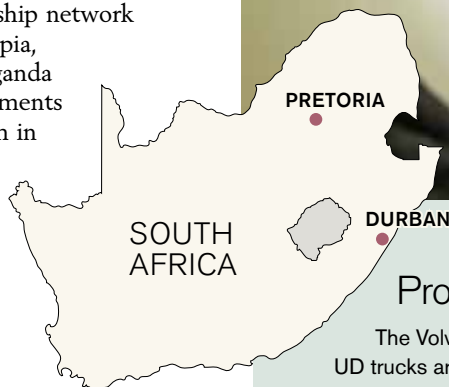
Titanium Motors as a one-stop, state-of-the-art-facility is a good example of how the Volvo Group wants to operate in southern Africa. The Group is now reviewing its dealership network in other countries, including Ethiopia, Mozambique, Kenya, Tanzania, Uganda and Namibia. New dealer developments are planned over the medium term in new markets like Burundi and Rwanda.

The strategy is to invest in new, modern dealerships, which are able to provide a customised, yet cost-effective service to local operators.

“We aim to obtain the right representation and to work with dealers who are willing to go to the next level with us and establish facilities that comply with world-class standards,” says Torbjörn Christensson, Vice President Volvo Group South East Africa.



Nompumelelo Duma, assembly worker in Durban



Production in South Africa

The Volvo Group has two production facilities in South Africa. UD trucks are produced in Pretoria, while Volvo trucks and buses are manufactured at the Durban plant. The future prospects for locally produced vehicles look good. Firstly, demand for high-quality transport solutions is expected to grow. Additionally, some countries in the region are beginning to restrict imports of used trucks.



Ikrama Bux was born into a family of freight forwarding agents. Today his haulage company Time Time has 25 trucks and transports all sorts of goods in the region.

“We are seeing a lot of economic growth potential in the region and we believe that, if we want to increase our market share, our aftermarket service has to be outstanding. Key to this is also the training of technicians, sales and support staff to sell, maintain and service trucks according to the Volvo Group’s stringent standards.”

Southern Africa is developing into a modern truck market. Driving the change are the high expectations of South African customers, whose demands resemble those of fleet owners in Europe.

“Many haulage companies in South Africa operate regionally, they drive new trucks and expect the same level of service, regardless of country,” says Torbjörn Christensson.

Large parts of African economic growth have been based on raw materials, but as China’s economy slowed down it had a major impact on the region.

“Nevertheless, we have decided to still expand our support, even if the market’s growth is not

as strong as we would have liked. The economy fluctuates rapidly in this part of the world and it’s important to keep pace. This year, we expect to sell 6,000 trucks of all truck brands, medium and heavy duty, in southern Africa, while the target for 2020 is 10,000.”

THE NEW DEALERSHIP is therefore a strategic investment in the future.

“It will enable us to support our customers more efficiently, especially in light of the significant volume growth our brands have experienced over the last few years.”



Torbjörn Christensson

Torbjörn Christensson calls southern Africa one of the most challenging markets in the world, with 26 different brands represented. At the moment the Volvo Group has a market share of approximately 25 per cent.

However, the truck market >



Nicholas Lupiya (left)
and Kephass Tembo are
drivers at Southgate

Nicholas Lupiya and Kephass Tembo:

“Driving a new truck is a great feeling!”

“WE ARE TRUCK drivers and we drive to different places and see things we have never seen before. It's like being on a world tour,” says Kephass Tembo, who has been driving for Southgate for nine months.

He and his colleague, Nicholas Lupiya, focus almost entirely on regional transport between Zambia and neighbouring countries.

“Ten years ago, there was less traffic, but the roads were also worse,” says

Nicholas Lupiya, who has been driving trucks for 17 years.

To overcome challenges imposed by the roads, maintenance is absolutely key.

“After each assignment, the engine, tyres and all the electronic systems are checked. We drive our trucks a maximum of 500,000 kilometres and then they are replaced. Driving a new truck is a great feeling and the only thing I would like is a small fridge. Right now, I take a cooler

bag with me,” says Kephass Tembo.

Both he and Nicholas Lupiya are pleased with their company's choice of truck brand.

“I often see colleagues at the side of the road whose engines have broken down or who have other problems. But I only get the odd puncture on my Volvo truck,” says Nicholas Lupiya, as he climbs into his Volvo FH13 to set off on yet another trip to South Africa.

is undergoing many significant changes. Sales of imported budget trucks, which previously dominated the sector, are declining due to more rigorous customer demands, tougher legislation and new regulations.

“The South African haulage companies establishing themselves in neighbouring countries are used to calculating total cost, not just the purchase price, which makes new vehicles more profitable. Meanwhile, new emission legislation is being introduced in some countries and others are already stopping imports of trucks that are more than five years old. South Africa has gone the furthest by introducing a total blockade on used-truck imports,” says Torbjörn Christensson.

VOLVO GROUP TRUCKS AND BUSES IN SOUTHERN AFRICA

Present since: 2000

Employees: more than 1,000

Dealers and partners: 69 across South East Africa

Trucks sold in 2015: 4,563

Brands represented: Volvo Trucks, Volvo Buses, UD Trucks

These developments could give local production a boost, but there are also other aspects that give local manufacturers an advantage.

BACK IN ZAMBIA, trucks from the haulage company Time Time return after a long-distance journey to Tanzania and DR Congo. As they pull into the dusty yard, owner Ikrama Bux explains the problems with used trucks from Europe.

“I need trucks that are made for Africa, that are able to withstand the climate conditions and have the kind of suspension that can handle our road conditions. African-made trucks have a large fuel tank and all-wheel drive rear axles, the British ones don’t. British import trucks are also adapted to diesel with a much lower sulphur content than ours, so that’s another problem.”

Ikrama Bux was born into a family of freight forwarding agents and he is happy that he will soon have a local workshop that is able to service his Volvo trucks.

“I used to go to South Africa once a month to buy spare parts and we’ve had to fly in mechanics. A local Volvo trucks workshop will save us both time and money,” he says. ☺



Jester Banda

DRIVER AT TIME TIME

“I’ve just got back from Nairobi where I was delivering soya from Zambia. I was carrying steel on the return journey. It’s 2,950 kilometres in one direction and it takes nine days, including border crossings. The fuel in Tanzania is no good, so I take enough with me to cover the whole journey. I then fill up in Nairobi.

“I’ve been driving trucks for 15 years and the biggest change is the roads – they have gotten a lot better. I trust my Volvo truck – even when I sometimes have to drive through high mountain passes, the engine never overheats.”

1962

The year UD Trucks entered the South African market. Today, South Africa is the brand's second most important market, after Japan. In 2015, UD Trucks launched its new Quester extra heavy range truck in South Africa.

11 %

The projected average increase in transport spending in sub-Saharan Africa from 2015 to 2025. The expectation is that this will be the fastest growing regional infrastructure market in the world.

Transporting water to areas in need

The Volvo Group is involved in social responsibility in South Africa in many different ways. At the end of 2015 and the beginning of 2016, large parts of the country experienced one of the worst dry periods in modern times.

The lack of rain had a major impact on agriculture and, among other things, the Volvo Group loaned trucks to provide assistance and help with the transport of water to the worst-hit areas.

"We try to be a partner who sees the big picture and we are involved in building and developing the society in which we operate," says Torbjörn Christensson, VP Volvo Group South East Africa.

95 TONNES

In April, Volvo CE launched a number of products that are ideal for the African market. They include the A60H, a hauler with a load capacity of 60 tonnes. Another new arrival is the EC950E. With its 95 tonnes, it is Volvo CE's largest excavator ever.

“With these machines, we are opening the door to even better solutions for our customers in the mining industry.”

JONAS GARDETUN, VICE PRESIDENT HUB
SOUTH REGION EMEA, VOLVO CE

VFS

Volvo Financial Services (VFS) will establish an independent company in South Africa next year. This is a way to bring more service to regional customers. Interest in renting vehicles is increasing since many customers want better control of their costs and would like to pay in monthly instalments.

“Establishing a company responds to a demand from customers,” says Morten Gamborg Nielsen, Vice President Africa and Middle East at Volvo Financial Services. VFS supports Volvo Trucks, Volvo CE and Volvo Buses in South Africa.

Local dealers key to success

Even though the mining industry is facing some tough times, Volvo CE continues to capture market share in southern Africa. Effective total solutions and wholehearted customer focus are two of the reasons.

TEXT LINDA SWANBERG PHOTO VOLVO CE

JUST A FEW years ago, Africa was a fast-growing market and many people believed that trend would continue. That is not how it turned out. Declining growth, first and foremost in China, has reduced demand for important export goods, such as minerals, oil and gas, with prices falling as a result.

Since September, Jonas Gardetun has been responsible for Volvo CE's commercial business operations in Africa and the Middle East.

What impact does the low price of raw materials have on Volvo CE?

"Many of our customers operate in the mining industry. Reduced demand and lower prices mean that they are unable to invest on the same scale as before and, as a result, they are not upgrading their vehicle fleets. Their machines are also not running for as many hours as before. In southern Africa, a large part of the mining industry has come to a standstill or is operating at lower production levels. This means that our total market is smaller."

What are you doing to tackle these challenges?

"Well, there's nothing we can do about raw material prices. What we can do is to make sure that our customers are satisfied and that we continue to capture market share. In South Africa,



Jonas Gardetun,
Vice President
Hub South Region
EMEA, Volvo CE

we've got off to a record start this year, with an upswing in sales. Together with our dealer, Babcock, we have put together an excellent package that enables us to offer our customers good products, good uptime, high availability and help with competitive financing solutions."

How important is collaboration with local dealers?

"They are the be-all and end-all of our sales. They are totally decisive. They have the local relationships and knowledge of the way business is conducted in each specific country. If they fail to deliver strong service and parts to our customers, we can't be successful. Our success in capturing market share in South Africa can be largely attributed to Babcock. Their main strength is the fact that they always focus on the customer's needs and go the extra mile."

You sell products from Volvo CE and SDLG. How important is it to be able to offer products in the value segment?

"It's incredibly important in this region. The markets here can quickly swing from premium

Prices of raw materials have a knock-on effect on Volvo CE, with lower prices reducing production and by extension the market for mining equipment.



“The markets here can quickly swing from premium to value products and so it’s important that our dealers have an extensive product offer.”

JONAS GARDETUN, VICE PRESIDENT HUB SOUTH REGION EMEA, VOLVO CE



to value products and so it’s important that our dealers have an extensive product offer. In southern Africa, there are countries in which we almost only sell value products. While in more mature markets we mostly sell premium products, for example when selling to mining companies in South Africa. Most of our customers who operate large-scale mines are global companies with international demands for support and uptime.”

What is your take on the future?

“Southern Africa is an incredibly important market for us. We are hoping that raw material prices will stabilise at a higher level so that the

wheels can start turning again. It’s difficult to predict when that’s going to happen.

“It’s essential that we continue to focus on customer satisfaction and make sure that we live up to our customers’ expectations. When the market is a little slower, we also have more time to talk to our customers and they weigh up their options in a different way – usually to our benefit. We are also investing in training and supporting our distribution network. When it comes to SDLG, we are focusing heavily on improving our aftersales support. We are now aiming to be best at service and parts availability in the value segment as well.” ☉

CUSTOMISATION

With support from Special Vehicles Development, Volvo Trucks has designed a unique Volvo VM for harvesting sugar cane – an important segment throughout Latin America.

“In Brazil, in general the duty cycles are much tougher than in Europe and many customers are looking to increase load capacity.”

STEPHANE VEYNE, SENIOR PROJECT
MANAGER, GTT



Made to order

Since its creation in 2014, Special Vehicles Development within GTT has been able to reduce lead time for low volume vehicles by around 30 per cent – a huge competitive advantage in a global market where tailor-made solutions are in demand.

TEXT NIC TOWNSEND PHOTOS VOLVO GROUP

EVERY CUSTOMER IS different. Different industries, different conditions, different markets and different laws help to ensure that all customers have different needs. The ability to identify those needs and react quickly with a specially adapted offer is becoming increasingly important in highly competitive truck markets. It was with this challenge in mind that the Volvo Group decided to install Special Vehicles Development (SVD).

“Demand for product customisation

is growing globally and is a key business enabler,” says Thierry Hours, Vice President, Special Vehicles Development within GTT Complete Vehicle. “Many of our competitors are increasing their customisation capacity. In order to capture these opportunities, we need to be as agile as possible. We need to be located locally so that we can support the business closely.”

SVD IS A RELATIVELY small organisation with just 150 people, but it is global in reach, with an active presence on 11 sites in eight countries (USA, France, Brazil, India, Thailand, China, Japan and Australia). At each site, a team of advanced engineers works closely with all other line organisations, including production and sales, to ensure they cover all local market needs and can quickly adapt products accordingly. Those teams are supported by a locally based engineering and manufacturing partners, specially chosen for their ability in product customisation.

“Now, when we want to develop a specific low volume offer for a customer, we can respond with a proposal within a few months,” adds Thierry Hours. “The time to market is 30-50 per cent faster compared with the standard development process, and from the customer’s request, we can deliver a vehicle in as little as five months.”



“We need to be as agile as possible,” says Thierry Hours, Vice President SVD.

Adapting to *unique market* demands



Stephane Veyne,
Senior Project
Manager, GTT

BRAZIL

In Brazil, SVD developed a 32-tonne Volvo VM specially adapted to meet the needs of the country's construction industry.

The modifications included extra load capacity (chassis reinforcements, new front and rear axles, and new suspension); improved agility including ground clearance and approach angle; and the installation of a rear axle hub reduction and inter-wheel differential lock from the Volvo FMX.

With SVD's support, Volvo Trucks has also developed a unique Volvo VM for harvesting sugar cane – an important segment throughout Latin America. For this project, the AC condenser has been moved behind the cab, extra heat shields and protection have been added to the driveline, both suspension and the approach angle have been improved, and an adapted no wheel spinning system has been introduced.

"In Brazil, generally duty cycles are

tougher than in Europe and, to be cost effective, many customers are looking to increase the load capacity of European models," says Stephane Veyne, Chief Project Manager, GTT.

"SVD processes have enabled us to propose a profitable product for this niche market. Having a local dedicated team has been key to reducing lead time, and SVD's agile way of working has also been valuable in the development process."

In Australia, demand for product customisation is high due to extreme weather, demanding applications and local regulations.



Global brands, local products

THAILAND



Jacques Michel,
President, Volvo
Trucks, Asia Oceania
Sales

In less than two years, SVD is already having a significant impact on markets across the world and on every Volvo Group truck brand. In Thailand, the local SVD team has been able to help UD Trucks to adapt Quester rigid refrigeration trucks to meet customer requests concerning the location of the compressor. SVD was also able to help Volvo Trucks adapt its vehicles by moving the fuel tank from left to right of the chassis, so that they meet Thai regulations relating to the transportation of oil, gas and dangerous goods. In both instances, these are unique product offers developed specially for the Thai market.

"In the past, developing products like these would have taken two years and at a much higher cost," says Jacques Michel, President, Volvo Trucks

Area International Asia Oceania Sales. "But because SVD is located here in Thailand – close to the plant, close the sales team and close to our customers – they've been able to react much quicker and at a much lower cost. This has already proven to be the right approach."

**SVD has adapted
Quester trucks to create
a unique product for
the Thai market.**



FASTER INNOVATION

In addition to developing niche products, SVD's network can be used to build demonstrators for new products and innovations, such as alternative drivelines. "Our agility and cross-functional organisation mean that we can develop these new capabilities much quicker," says Thierry Hours. By fast-tracking new innovation, SVD continues to support customer success and profitability through product customisation.

Diverse range for diverse needs

USA

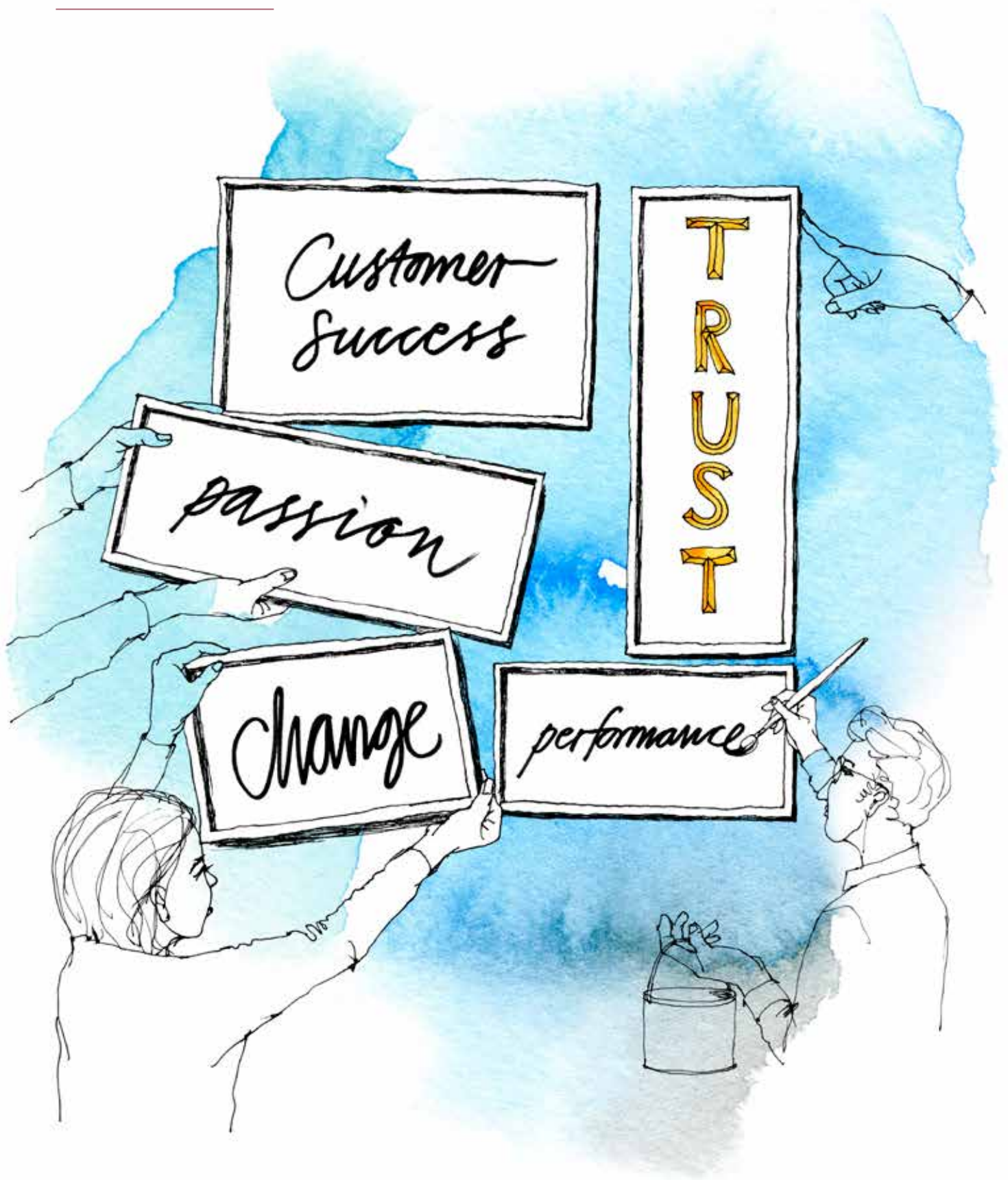


Göran Nyberg,
President, Sales &
Marketing, Volvo
Trucks North
America

As one of the most diverse markets in the world, the demand for adaptations in the US is particularly high. In fact, up to 90 per cent of vehicles delivered are customised in some way (by comparison, the customisation level in Europe is 30-40 per cent). "In many ways, each state is its own unique market," says Göran Nyberg, President, Sales & Marketing, Volvo Trucks North America. "It is also a highly competitive market and our customers are trying to squeeze every small improvement. To do that, they need specialised vehicles to

operate in different parts of the country and to carry different types of load."

In such conditions, any reduction in lead time that SVD can deliver is invaluable. "We may have the ideal solution for our customers, but, if it takes many months for adaptation and commercialisation, it will not work," stresses Göran Nyberg. "The more responsive we can be, the more they will see us as a true business partner. So, having a more streamlined and efficient organisation that is focused on fast responses is a very strong benefit."





SPEAKING OF VALUES

The new, updated values help form the foundation of the Volvo Group's new direction. How can they help navigate a complex world? *Volvo Group Magazine* asked a few employees to share their reflections.

TEXT LINA TÖRNQUIST & MARIA SKÖLD

ILLUSTRATION ANNE-LI KARLSSON PHOTOS PONTUS JOHANSSON & PAULO FRIDMAN

OVER THE PAST few years, employee engagement in the Volvo Group has dropped, which is reflected in the employee survey VGAS. As a key part of the work to address this, the Group

Executive Team decided to focus on revitalising culture. The first step was to define a wanted culture, which is better aligned to the current needs and wishes of employees around the world.

But defining a culture is no small project. During 2015, the Executive Team worked in a series of workshops, relying on input from interviews with 300 employees and managers, analysis of VGAS and external benchmarks.

"We tried to define the kind of a company we wanted to become and what the ingredients were to realise that," says Peter Grönberg, Senior Vice President Culture & Organization Development. This work resulted in five values: Customer Success, Trust, Passion, Change and

Performance – which will now replace *The Volvo Way*.

Together with the new mission, vision and aspirations these values are the foundation of the Volvo Group's new direction.

"Values that are meaningful throughout a global organisation and lived by each employee create tremendous engagement, which in turn boosts performance," says Peter Grönberg.

"We are now out talking to a lot of people and there is so much energy around the new values," says Christer Brasta, Director Culture Development. "There is a hunger to make our culture strong again. Managers and employees are curious as to how they can take the first steps and contribute. They are convinced that working with these values will create a lot of engagement and make us perform better."

Volvo Group Magazine asked a number of managers and employees to reflect on the values and talk about one or a few that are special to them and impact their daily work. ●

>



"Seeing what needs to be done and being able to act immediately creates motivation."

CLAES NILSSON:

"The five values fit together"

What do you think of the Volvo Group's new values?

"I like the logic. The five values fit together well – from the outside and in. First, there is the customer. That relationship has to be characterised by trust, in the same way that all of us in the company have to trust one another. When people feel that

passion for their jobs, it makes it fun to work and they are able to cope with change. That in turn leads to strong performance."

What do you think other co-workers feel?

"I've actually only heard positive comments. People love customer focus – it's something

Claes Nilsson,
Executive Vice
President Volvo
Group and
President Volvo
Trucks. Based
in Gothenburg.
Previous position:
Senior Vice
President Latin
America.

they are passionate about. I think many people have been waiting for something like this.

"At the same time, I'm sure that there is some sense of uncertainty, especially when people hear words like 'change' and 'performance'. Many people have found all the reorganisations really difficult. But we live in a

changing world, so it's important to find effective ways of handling change. After all, change also means developing relationships and our business offer."

What is most important when it comes to handling change?

"Trust! This is something we have lost to some degree and we need to find it again. For that transparency is incredibly important – talking openly about problems, making sure the figures are transparent. In an organisation like ours, this will also help to improve performance."

You are now moving back to Sweden from Brazil. Based on your experience – how important is it that more decisions can be made by the people who meet the customers on the actual markets?

"It's extremely important. Customers expect to be able to talk to the manager on site to resolve problems. Co-workers want to be able to make the decisions they think are necessary, regardless of whether it's about replacing a computer or deciding which vehicle bodies to focus on. Seeing what needs to be done and being able to act immediately creates motivation."

How will customers be affected by the new values?

"If we succeed in creating a good culture based on our new values, this will strengthen our brand even more. Our customers should always come first – understanding and tackling our customers' challenges and needs is what lays the foundations of their, and thereby our, success." ☉

ANA MARQUES:

"It's an opportunity"

You wanted to talk about customer success – why?

"When I started at Volvo eleven years ago, I organised customer visits, before working with vehicle handovers at our customer centre. Now it's my job to follow up on all surveys related to customer satisfaction. This has given me a sense of the big picture of how our brand is viewed on the market. But also, maybe, because I am the big sister of four brothers. I feel a strong sense of responsibility for others; it's a big part of who I am."

So how do you view customer success?

"It's not a new value: it's an improvement on how we have been working previously. I think this gives us a role as a partner to our customer. It puts the customer in Volvo's business."

It's also an outward-facing value.

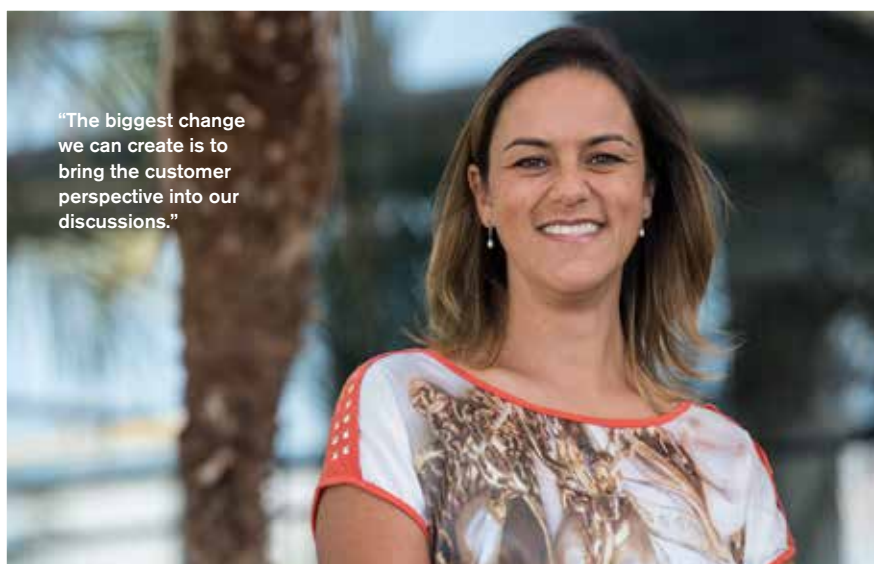
"Yes, I think that a change

of perspective is important. We have to feel that we are responsible for our customers' results. So how can we improve their business? And how do we extend that responsibility beyond the commercial crew to the whole organisation?"

The Brazilian economy has been hit by some difficulties. What are you seeing as key factors to provide customer success?

"We will probably face difficult times in both 2016 and 2017, but we can also see this as an opportunity to transform our culture. If we want to make a change from satisfaction to success – it's a long journey. When we talk about a specific KPI, do we really understand how this KPI can help customers? This is the biggest change we can create: to bring the customer perspective into our discussions." ☉

Ana Marques,
Customer
Satisfaction,
Aftermarket –
Volvo Group Latin
America. Based in
Curitiba, Brazil.



"The biggest change we can create is to bring the customer perspective into our discussions."

"As a member of the Group Executive Team, I was very involved in formulating these values. There was a lot of discussion but also great consensus on what to keep and what to develop."



SOFIA FRÄNDBERG:

"Engagement brings performance"

Why is it so important for a company to have clearly defined values?

"The culture in an organisation is incredibly important. There is a strong connection between engagement and performance. It's fun to work when you are in favour of your company's values and support them. A company's culture also impacts the way it's perceived by its business partners, suppliers and

customers. This is something that is becoming more and more important."

It sounds as though it is fairly difficult to change a company's culture.

"Yes, it is. You can't just sit down and prescribe a change in culture, it has to be brought about by action. The management has to walk the talk. Now, discussions about

these values and what they mean to individual teams are starting throughout the company, so that everyone will have a chance to reflect on whether there is something in their way of working that needs changing."

You work with legal compliance. How do you see the relationship between a company's values and the legal context?

"Well, we have a Code of Conduct which is based on compliance with legislation and rules, but it also focuses on taking additional responsibility. The healthier a company's culture is, the easier it is to make sure the code is followed, without overly detailed guidelines. This is an area in which the Volvo Group has made real progress. Our co-workers feel responsible and know how to behave."

Are there any values you particularly like and support?

"Trust is something I feel passionate about, there should be a culture based on trust and collaboration. It also relates to customer focus, since trust and partnership are essential for the success of both our customers and ourselves."

"I think there is a risk that large organisations can become too inward looking. The company's inner life can then take over at the expense of the customer focus that is so important. We need to work to ensure that we constantly have the customer's best interests in mind and that we establish confidence-filled partnerships both within the company and with our business partners." ●

Sofia Frändberg,
Executive Vice
President
Group Legal
& Compliance
and General
Counsel. Based
in Gothenburg,
Sweden.

MARTIN WEISSBURG:

"These values are easy to connect with"

What do you think employees are thinking about the new values?

"The values seem to be off to a very good start with employees. But, of course, it's one thing to understand them, another to really feel them and live the values in all that we do."

Volvo CE has gone through a period of major change following the downturn in, for example, China. What has this meant?

"It's true that Volvo CE has experienced significant change. In China, for example, we have lost 75–80 per cent of the market volume – that's a downturn on a scale that is rarely seen in business. But we have met this with a new strategy for Volvo CE, stronger cross-

Martin Weissburg, Executive Vice President Volvo Group and President Volvo Construction Equipment. Based in Brussels, Belgium.

functionality and adjustments to our portfolio. All of this has been executed in an exemplary way by our employees.

"I think the reason it's been handled well is that change is part of Volvo CE's culture. We try to embrace change in an optimistic way, as an opportunity to grow and improve. This is very important and connects directly to one of the five Volvo Group values – change."

What lessons have you personally taken away from this experience?

"The importance of being humble. We can't bend the world to our strategy instead we must adjust our strategy to the world, to drive customer success and higher levels of



"Companies with a culture based on fear are not successful."

customer satisfaction. As a leader I must be a continuous learner, the higher one gets in an organisation, the more humble one must be, always listening and learning." ☉

SUNGEUN RACHEL SHIN:

"Trust is a building block"

What was your reaction when you saw the five Volvo Group values?

"The values seem business driven and practical. It's a positive change – I think it will bring good energy."

You wanted to talk about the value of trust especially – why?

"To me, trust is building block. It helps achieve the other values."

In terms of your own life, are you a person who builds trust easily?

"I think I am a person people find they can trust but trust takes time and effort. Once I experienced a situation where it was difficult to build trust with a colleague. So, I tried to get to know him. It started with some



"Everywhere, trust goes hand in hand with respect."

very basic small talk – about his habits and his life. I started to respect his work. Finally, we started cooperating well and we had a lot of fun."

Sungeun Rachel Shin, Manager Corporate Communications, Volvo Construction Equipment. Based in Seoul, Korea.

Dialogue seems to be a good way to establish trust.

"Yes, but it also requires an open mind-set. I have two children and as soon as you don't trust them, they can sense it and they act differently. I try to keep a motto in mind: treat others, as you yourself want to be treated. I try to practise it in my daily life, but it's sometimes very difficult."

The meaning of 'trust' can vary between cultures. Are there any specific differences in Korea?

"In Korea, we have different types of trust and respect depending on a person's age group. But I think that everywhere, trust goes hand in hand with respect." ☉

"I believe in people. The rest is technical. If you don't believe in people, don't expect to get the right results."



BRUNO BLIN:

"My belief in people drives me"

How will these new values help in our daily work?

"We are living in a very complex world and these values can guide us. We can't regulate everything in writing, so instead of specifying exactly how to work, it's better to put trust in people. The values can act as a framework – they can guide us in varied and changing circumstances and help us form our culture."

You are described as someone who values trust. Why is that?

"I believe in people. The rest is technical. If you don't believe in people, don't expect to get the right results. It's been something that has been driving me for many years. Whenever I have been successful, it's because I have a team around me that trusts each other and cares about each other. When you get

Bruno Blin
Executive Vice
President Volvo
Group and
President Renault
Trucks. Based in
Lyon, France.

that chemistry right in a team, everyone gets a lot of energy and you learn from each other."

You also seem to be a very passionate person?

"I get my energy from my team – working with my team and working with customers. Spending time with other people is how I recharge my batteries. It's also important to

work with others to deal with complexity, since none of us on our own can know what we know together."

What is the key to making these values become real and not just slogans?

"It's a living process. Some of the values are already a part of our culture and who we are, so we are not starting from zero. For example, we have already made a lot of changes and now we have to continue to be agile to meet future challenges, which requires trust and is also very much about performance.

"It starts with us in leadership positions – it is the management's responsibility to ensure that values are not just words on a poster and that they become reality."

How do you see the journey ahead?

"There's a lot to do and it is important to be transparent. Here, I feel I have an enormous responsibility. Every month I hold town-hall meetings to explain where we are and what we are doing. I am also starting a blog for my management team where we can share thoughts, feelings and try to give a personal angle on things. It's important that people both understand and feel. We will try to spend time with people, run workshops and get people on board to build the new Renault Trucks." ○

CHRIS MURRAY:

"Change needs a new mind-set"

Among the Volvo Group's values – you selected talking about change.

"I have instinctual responses to all the values, but what's crucial about change is that, in order to have a change, we have to have a different mind-set. Otherwise we have no room for growth."

You've authored two books about life choices. You sound like someone who has thought a lot about life.

"Before working here, I had been working in radio since I was 16. When I was on air, I talked to millions of people and needed to hold that audience. It was an experience that made me appreciate people and appreciate life. At work, the thing to remember is: nobody's tolerance level is the same and it's also going to vary from day to day. We have to have some tools within ourselves to make sure we don't get overloaded."

How did your switch from radio to maintenance come about?

"The radio station closed and the Lehigh Valley plant provided stability. The work environment here was great and it turned out that I'm a great fit for my department. Now, I have been working here for nearly five years."

Moving to Mack must have been a big change?

"Yes, but I believe we have to be open-minded. We have



Chris Murray joined the GTO Lehigh Valley Operations plant in the US five years ago, after a long career in radio. He is the author of two books: *Married Together*, *Single Apart* and *Ugly Makes us Beautiful*.

Chris Murray, Maintenance, GTO Lehigh Valley Operations plant, which produces Mack trucks. Based in Pennsylvania's Lehigh Valley, USA.

to be at least willing to look at things from a different angle, because, when we limit our perspective, we also limit our possibilities.

"We've also faced adversity and change here. Recently we began upgrading our entire manufacturing process. Some people were apprehensive about that change. But our plant's leadership team pulled us together here. They have established confidence and a belief in all of us – and it's remarkable to know what we are able to accomplish." ○

THESE TRUCKS ARE CONNECTED

Automation is here and it is set to make transport more efficient.

A trio of Volvo FHs drove through Europe this spring. The trucks, connected wirelessly in a platoon, were driving through five countries to convince lawmakers to allow more automation in vehicles.

TEXT: LINA TÖRNQUIST FOTO: PONTUS JOHANSSON





Assistant Developer Edvin Valtersson (left) and Test Leader Robert Laxing in GTT (right) make final preparations before the trip to Rotterdam.

A convoy of three Volvo trucks drove in a platoon from Volvo Group's headquarters in Gothenburg, Sweden to Rotterdam in the Netherlands as part of the "EU Truck Platooning Challenge".

The event was organised by the Dutch government to push for an upgrade of European legislation to allow for more vehicle automation.

In all, six truck makers took part in the challenge.

Driving tightly to reduce drag, the trucks were connected wirelessly to each other. By connecting to the vehicles in front, the following vehicles were able to maintain a steady distance and did not need to brake or start.

The Volvo Trucks platoon turned out to be a surprise hit with the public. In Denmark, picnicking families waited at the side of the road to watch, as the platoon drove by.

To discuss why the Volvo Group is investing

in platooning technology, *Volvo Group Magazine* spoke to Andreas Svenungsson, Senior Vice President of Public Affairs. A few years ago, he joined the Volvo Group from Google and, among other things, he is tasked with making the public case for greater vehicle automation – technology that he thinks will develop much quicker than many expect.

Why did Volvo Group choose to take part in this platooning event?

"During technology shifts, it's important to demonstrate technology to the public, customers and decision makers, so that people are used to seeing these types of automated vehicles driving on our roads. It's also a push – we want to increase buy-in among decision makers to introduce these solutions faster."

What has the response been?

"We've had a fantastic response. It's also changing the conversation. Before, there was a lot of focus on self-driving cars. This has broadened the conversation on automation to include other types of vehicles."



What are the benefits of platooning technology for customers?

"Firstly, it saves fuel – we estimate that fuel consumption can be cut by as much as 15 per cent. Even today some of our customers use an off-line version of platooning where truck drivers team up to drive in a convoy to save fuel. But driving that way isn't always very safe. Connecting wirelessly increases both safety and fuel efficiency. Since these platoons take up less space on the road, there will be less traffic. So, our customers can plan their trips better. Vehicles also get to where they are going more quickly, which in turn, increases the productivity of the entire economy."

How will it change the driving profession?

"Increased automation will not mean driverless trucks on highways but perhaps 'driver-free' trucks. In the future, drivers will perhaps use some of their time to perform other activities, such as logistic services."

What other applications can a technology like this have?

"Platooning for trucks is the first step. We are also testing solutions for both construction machinery and buses. There are a lot of possibilities for more automation in vehicles."



**Andreas
Svenungsson**

Several competitors are also part of the demonstration. What's the advantage of working on R&D projects alongside competitors?

"Our industry needs common long-term, solutions. We can't have lots of site-specific or brand-specific solutions. So it's good that the whole industry is part of this."

What is the timeframe for bringing this technology to market?

"I like to say a 'few' years. After the initial phase of development, I think it's going to go very quickly, since the technology is already developed. The main obstacles are legal. I imagine it will be allowed on specific thoroughfares to test it first, before it is introduced more widely."

Is there any country that has come especially far in implementing this?

"I think that Sweden has a strong position. The Volvo Group's home of Gothenburg is interesting. Volvo Cars' 'Drive Me' initiative with self-driving cars starts there next year. It's good when there are several players working on solutions in the same area – you build up local know-how and momentum."



WIRELESS CONNECTIVITY

The communication between each truck takes place in G5, a special frequency that is a system for future communication between vehicles. All data traffic is encrypted.

Florida introduces driverless crash trucks

USA. Two driverless crash trucks were introduced onto highways in Florida, USA, in late 2015. The vehicles can drive using GPS waypoints and following a lead car, mimicking its path. They have been developed in partnership with technology firm Micro Systems.

500,000

The Volvo Group has approximately 500,000 connected vehicles being operated by customers today.

SELF-DRIVING BUS IN CHINA

CHINA. Chinese manufacturer Yutong announced that its autonomous bus drove 32 km between two cities, handling 26 traffic signals, several lane changes and a passing manoeuvre.

'Drive me' to start in 2017

SWEDEN. Volvo Cars is going to put 100 customers in cars with autonomous capabilities in Gothenburg, Sweden and to drive on public roads under a programme it calls 'Drive Me'. The company has announced it will conduct the same trials in China.

Automated 18-wheeler makes debut

Freightliner Inspiration, an upgraded version of the Daimler 18-wheeler, made its debut on public roads in Nevada, USA, in May 2015. Daimler's autopilot system has a stereoscopic camera to read lane lines and short- and long-range radar to scan the road for obstacles up to 250 metres ahead.

4 billion

President Obama's 2017 budget proposal includes nearly USD 4 billion over 10 years for pilot programmes to test connected vehicle systems.

22

During the demonstration there was one second's braking time (22 metres distance at 80km/h). Optimised, each truck can travel with as little as 5 metres between each truck.



PLATOONING

THE ROAD TO ROTTERDAM



A photograph of three men standing in front of a Volvo truck at night. The truck is illuminated with blue and yellow lights. The men are smiling and looking towards the camera. The man on the left is wearing a black jacket with yellow accents. The man in the middle is wearing a black shirt with a white stripe and glasses. The man on the right is wearing a black t-shirt with 'FH16' printed on it. The background is dark with blue curtains.

When the Volvo Trucks platoon safely and successfully arrived in Rotterdam as part of the EU's Truck Platooning Challenge, few people were as proud as the GTT team who developed and prepared the platooning vehicles.

TEXT
NIC TOWNSEND

PHOTOS
SÖREN HÅKANLIND

From left to right: Shant Abraham, Christer Lundevall, Ida Esberg, Susanna Leanderson Olsson, Robert Laxing, Edvin Valtersson and Wilhelm Wiberg. Other valuable contributors: Stefan Bergquist, Petter Wirfält and Katrin Sjöberg

PLATOONING

IN RECENT YEARS, advances in automation have seen self-driving vehicles go from science fiction to being a realistic proposition. Yet the technology is still in its infancy, so it was no small request when GTT was asked to create a fully functional automated platoon and then drive it through five different countries. And to do it in five months.

“A lot of things needed to happen in such a short time,” recounts Susanna Leanderson Olsson, Technical project manager and coordinator of the Truck Platooning Challenge at Advanced Technology and Research (ATR), GTT. “We first had to get and install all the necessary components, and then perform all the necessary integration and development tests and fine tune the function. At the same time, we had to do a lot of preparation just to get permission to drive through all the different countries.”

This was not the Volvo Group’s first foray into platooning, so the team did not need to start completely from scratch. Volvo Trucks was a



Wilhelm Wiberg and Susanna Leanderson Olsson

partner in the EU’s SARTRE (Safe Road Trains for the Environment) project, which ran between 2009-2012 and concluded with the first-ever platoon to operate on a public motorway in real traffic. It consisted of a Volvo truck leading another truck and three Volvo cars. However, the EU Truck Platooning Challenge was the first time Volvo Group developed and operated a platoon on its own, exclusively with trucks.

In building the platoon vehicles, Volvo Group’s previous research and development work into



UP AHEAD

A camera is installed in the lead truck, which transmits footage to the other platoon vehicles.

NO FEET

The other drivers continue to steer their vehicles but acceleration and braking is automated.

LANE CHANGE

A warning system lets the driver know when the lead vehicle will change lanes.



“We’ve had to build everything in just five months.”

ROBERT LAXING, INTEGRATION AND TEST LEADER, PLATOON DRIVER

active safety systems and vehicle automation formed an important foundation. “The system is based on the radar and camera, which is something we’re already using for Adaptive Cruise Control, and then we added Vehicle Communication so that the trucks can communicate with each other,” says Edvin Valtersson, System Developer (Communication), ATR.

When in motion, the system ensures a one-second time gap between each vehicle. Antennas have been fitted into the side mirrors to facilitate communication between each truck, while a camera installed in the lead truck relays images

to the drivers. “When we combine all the sensors and communicators, we get more information and quicker information,” says Wilhelm Wiberg, System Developer (Control Systems), ATR. “We have been able to use this to close the gap between all the vehicles, while maintaining the same level of safety.”

FOR THE DRIVER, being in the platoon is much like driving with Adaptive Cruise Control, albeit with some additional symbols on the dashboard and potential warnings. While the platoon is just a prototype, the need to consider the driver experience of the system is vital to its long-term development. “Quite simply, we need to have acceptance from the drivers otherwise they will not use it,” says Ida Esberg, Human Machine Interface (HMI) Strategy Developer, also ATR, whose role includes ensuring the development team take the driver into consideration.

“Driver comfort can often be put aside in favour of cool technology, but, if we don’t have input from the driver side from the start, it is easy for us to build in the wrong direction,” says Wilhelm Wiberg.

AFTER SUCCESSFULLY arriving in Rotterdam, the Truck Platooning Challenge represents a significant breakthrough for GTT and Volvo Group, yet much still remains to be done before platooning becomes a common sight on European highways. “We still need an investigation into how platooning affects surrounding traffic, how drivers should form a platooning formation and how to get acceptance from drivers,” says Ida Esberg. “We also need a common understanding of what a platoon is and what information should be communicated,” adds Edvin Valtersson. “We need standardised requirements, so that we’re all speaking the same language, since a function like this is most useful when everyone has it.”

However, most of these challenges are social, cultural and legal, not technological. Thanks to the Truck Platooning Challenge, it is clear that the technology exists and it is ready. ☉



The Bus Rapid Transit system in Rio saves its passengers from time-consuming traffic jams. Now a third BRT route is set to open, right in time for the Olympics.

TEXT ROGÉRIO JORDÃO PHOTOS EDUARDO MARTINO

EN ROUTE TO THE RIO OLYMPICS

IT IS FRIDAY afternoon and the teacher and saleswoman Lucimara Silva Oliveira sits by the window of the Volvo bus that takes her from Curicica, a neighborhood in western Rio de Janeiro, to Madureira in the north. She glances at the other side of the Bus Rapid Transit (BRT) lane where cars begin to slow down as a traffic jam mounts. "The main advantage of BRT is that it saves time. I don't get stuck in traffic jams," says Lucimara Silva Oliveira.

Accompanied by her two children, Leonardo, 7, and Gabriel, 8, she is heading for Mercadão Madureira, a popular shopping centre in Rio. For Lucimara Silva Oliveira, who makes this trip twice a week, the time she saves is significant. "Before the BRT, this trip took an hour and a half. Now it takes 50 minutes."

Lucimara is one of the 230,000 cariocas (as the inhabitants of Rio are

called) who use BRT Transcarioca route every day. Transcarioca is an exclusive lane for articulated buses which extends from Terminal Alvorada in the west of the city to Galeão International Airport in the north. In operation since 2014, Transcarioca is the second BRT track in the city. A third line is now set to open ahead of the Olympic Games.

LAUNCHED IN BRAZIL in the 1980's in Curitiba – and currently also part of the transport network in cities like Santiago in Chile and Bogota in Colombia – the BRT arrived in Rio in 2012 as a fast and comfortable transport solution. "The BRT can be set up quickly and at a relatively low cost compared with a subway line. It really helps to connect different parts of the city," says Jorge Dias, President of BRT Operating Consortium, which is responsible for managing the system.

Jorge Dias spends much of his day >



One of 450 articulated buses that run in Rio's BRT system.



An articulated Volvo B340M bus drives along one of Rio's BRT routes. Its fleet management system makes information about the operational efficiency of the bus available to the operator in real time.



Lucimara Silva Oliveira is travelling with her two children. The BRT system allows her to save time on her frequent trips north to Rio's Madureira district.



"I ALWAYS TRAVEL SEATED"

Maria Bethania, a resident of Irajá neighbourhood in northern Rio, uses the Transcarioca every day to go to work. The work as a cleaner is hard, so comfortable transport is important. "I arrive early and always travel seated. The bus has enough space and that's good." Maria Bethania takes the "semi-direct", a fast-track bus service with few stops. It takes her 45 minutes to get from Vicente de Carvalho to Terminal Alvorada, some 18 kilometres away. "The BRT saves me an hour and a half compared with before," she says.



"I SAVE TIME AND MONEY"

Few Rio residents know BRT as well as William Bezerra. For many years, he worked at a construction site at Galeão Airport, 79 kilometres from his home in Santa Cruz on the far west side of the city. Before the BRT, his commute took six hours a day. Now it takes 2 hours and 45 minutes. "I save time and money. It's a smart system and it saves me from the psychological stress of traffic jams," he says. This evening he is also on his way to the airport. This time it is not to work but to catch a plane. Just in time for holidays.



Buses arrive at the Alvorada Terminal, an end terminal on the Transoeste line, launched in 2012. Compared with previous options, the BRT has reduced travelling times for its passengers by 60 per cent.



Jorge Dias (left), President of BRT Operating Consortium, which manages the BRT system in Rio, and Alexandre Antunes (right), Director at Grupo Redentor, which own 120 articulated Volvo B340Ms.

at BRT's Operation Center. Here the flow of some 450 articulated buses that run through the system are monitored in real time, 145 of the articulated buses are Volvo B340Ms.

"We have followed the project in Rio from the start," says Clóvis Lopes, Commercial Director at Treviso, the Volvo dealership in Rio de Janeiro and Minas Gerais.

Clóvis Lopes cites the B340M's size as an advantage. Each bus is 21 metres long and has a capacity of 183 people. "It transports more people in safe and comfortable conditions. It suits our customers' demands well."

One of these customers is Grupo Redentor. The Group has acquired 120 articulated Volvo B340Ms – 65 to run on Transcarioca, 15 on Transoeste

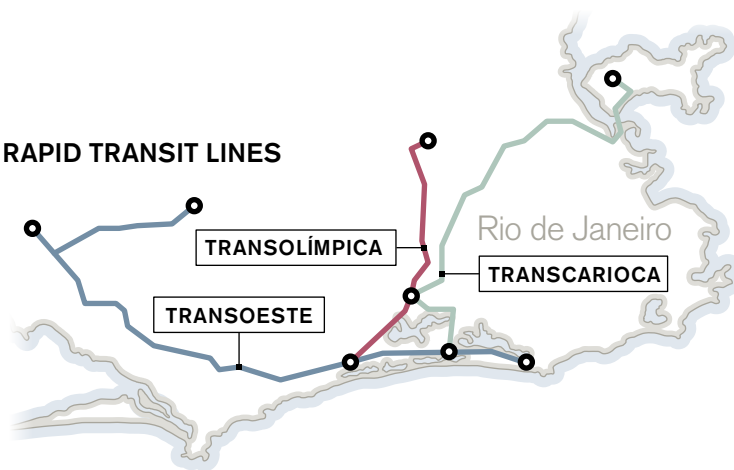
Reduced travelling times in Rio

THE SYSTEM HAS reduced passengers' travelling times by 60 per cent, according to BRT.

Passengers can choose from three types of ticket: 'parador' (stops in more stations), 'expresso' or semi-direto' (fast track). The fares are the same. All stations are equipped with security cameras. Along the route, there are connections to subway lines, trains and buses in order to reach the central and southern parts of the city.

Unlike most bus services in Rio, all BRT departures are scheduled, allowing passengers to better plan their trips.

BUS RAPID TRANSIT LINES



■ TRANSOESTE

Launched: 2012
Directions: From Terminal Campo Grande to Terminal Alvorada
Distance: 52 km
Volvos operating there: Volvo B340M
Passengers/day: 200,000
Number of stations: 57

■ TRANSOLÍMPICA

Launched: 2016
Directions: From Deodoro Station to Recreio Station, both in the west
Distance: 22.5 km
Volvos operating there: Volvo B340M
Passengers/day: 87,000
Number of stations: 21

■ TRANSCARIOCA

Launched: 2014
Directions: From the International Galeão Airport, north zone, to the Alvorada Terminal in Barra da Tijuca, west
Distance: 39 km
Volvos operating there: Volvo B340M.
Passengers/day: 230,000
Number of stations: 47

and 40 to serve Transolímpica.

"The relationship with Volvo Buses allowed us to access tools to better manage the fleet," states Alexandre Antunes, Director at Redentor.



Clóvis Lopes

Volvo Buses' fleet management system makes information available about the operational efficiency in real time. "It's possible to track fuel consumption, engine speed, kilometres travelled and emission of pollutants," says Alexandre Antunes.

AS BRT SPREADS to new areas of Rio, the task of maintaining the network also grows. "We aim to keep a close relationship with our customers and pay special attention to aftersales. We have mechanics and garages available and hold regular meetings to discuss the performance of the fleet. This generates both savings for customers and new businesses," says Clóvis Lopes, from Volvo dealer Treviso. ©

Transolímpica: well beyond the games

TRANSOLÍMPICA is one of the major public transport investments ahead of the Olympics. The newest BRT line will be a key transport route both during and after the Games.

Seen from above, the Transolímpica virtually splits Rio de Janeiro in half, as if it were a part of an immense 'S'. Soon it will connect, through BRT lanes, the larger west side of the city to its historical centre. 40 articulated Volvo B340Ms operated by bus company Grupo Redentor will run along the line.

Starting from the neighbourhood of Deodoro, which hosts competitions in sports such as horseriding and field hockey, Transolímpica will have its terminus at the Olympic Park, some 20 kilometres to the west. The park, an area of 1.1 million square metres, is considered the "heart" of the

Games. It holds the main arenas and pavilions where competitions such as swimming and basketball will be held.

But Transolímpica's importance extends beyond the Games. Cutting through 23 neighbourhoods, it will soon connect to the fourth BRT line, Transbrasil, which is under construction. Transbrasil will offer a fast-track connection between Rio's west and the commercial centre and port areas. Stretching 32 kilometres, it will carry 500,000 passengers a day.

According to BRT planners, Transolímpica will help to ensure a more functional and well-connected transport network for Rio residents. So far, that seems to be the case. A survey carried out by an independent institute showed that 74 per cent of passengers were satisfied with Rio's BRT service.

SUCCESS FOR DYNAMIC STEERING

Thanks to a change of job and target-oriented teamwork, Volvo Dynamic Steering (VDS) is now also available on Volvo buses. As far as bus drivers are concerned, it offers increased driving stability and an enhanced working environment.

TEXT LINDA SWANBERG PHOTOS CHRISTER EHRLING

IT IS LATE on a winter evening at a restaurant in Kiruna, northern Sweden, in 2012. The team working on the development of VDS at GTT is celebrating the completion of the final test drives. For test engineer Mats Nilsson, this is his last night with the team. He is soon due to begin a new job at Volvo Buses.

When a colleague asks whether the first bus prototype with VDS will be available within the next year, Mats Nilsson's answer is an unequivocal "yes". Despite the fact that he does not actually believe it is possible.

"Of course I knew that VDS was a great piece of technology, but at that point I had no idea how the Volvo Buses organisation was designed," says Mats Nilsson, now Feature Leader Handling & Ride Comfort.

At that time, Volvo Buses was focusing on electromobility and the resources for other product development projects were limited. Nevertheless, Mats Nilsson attempted to convince his new colleagues of the advantages offered by VDS. He made sure that they test-drove trucks and Peter Danielsson, Director Vehicle Features and Safety at Volvo Buses, quickly invested money from his budget to begin a pre-study.

"VDS OFFERS MANY advantages in terms of both ergonomics and safety. When it comes to innovations that help to improve safety, we are doing everything we can to reduce the lead time," says Peter Danielsson.

Since 2012, Mats Nilsson has been Feature Leader Handling & Ride Comfort at Volvo Buses. Prior to this, he was a member of the VDS team at GTT.



Using technology borrowed from GTT, Mats Nilsson and his colleagues started work on producing a prototype. A year after that evening in Kiruna, the first two buses with VDS rolled onto the Volvo Buses site outside Gothenburg.

"These prototypes made it far easier to explain why we wanted to invest in this system. VDS has to be experienced. It isn't something you can simply talk about," says Mats Nilsson.

In 2014, a formal project got under way at >

Earlier this year, motor journalists from Europe were invited to the Volvo Group's test facility in Hällered, Sweden.



WHAT IS VDS?

- ▷ Volvo Dynamic Steering (VDS) has been available in Volvo trucks since 2013 and it is one of the Volvo Group's innovations that has attracted the most attention in recent years.
- ▷ VDS is an example of CAST (Common Architecture Shared Technology). It is a shared technology platform that can be included in products from several different brands within the Volvo Group.
- ▷ The system provides improved driving stability, comfort and safety and reduces the risk of drivers suffering occupational injuries.
- ▷ VDS was launched for long-distance coaches in October 2015 and the first delivery was made at the beginning of 2016.
- ▷ Later this year, the production of intercity and city buses, as well as chassis, with VDS will get under way.

Volvo Buses. At the end of 2015, production work began on the first long-distance coaches and sales have exceeded everyone's expectations. The sales targets for 2016 had already been met in February. The production of city buses and intercity coaches with VDS will begin later this year.



Peter Danielsson

VDS is based on a standard mechanical steering system supported by an electric motor on the steering shaft. Two thousand times a second, the electric motor reads different factors such as speed and steering-wheel angle and calculates what is needed for optimal steering.

ACCORDING TO Mats Nilsson, the technology in buses does not differ to any large degree from that in trucks. However, as Volvo Buses is using an earlier generation of electrical system, it has been obliged to use a so-called gateway that interprets the signals between the VDS system and the bus.

"Otherwise, the design of VDS is very robust. In many ways, a bus is actually very like a long truck and we have quite simply used those parameters as our starting point. We have then

conducted tests and made minor adjustments to adapt the technology," he says.

Another difference is the responsiveness of the steering. Anyone who test-drives both a bus and a truck with VDS will find the truck easier to steer.

"A bus is often driven more calmly than a truck and so the requirements differ to some extent. In spite of this, VDS will still make a huge difference for bus drivers," says Mats Nilsson.

THE SYSTEM AUTOMATICALLY compensates for any unevenness on the road surface and reduces vibrations. Moreover, for the first time, VDS will give buses the same steering wheel return as a car, even when reversing.

"This enables the driver to concentrate on positioning the vehicle in the right place instead of having to steer it. As the vehicle is easier to drive, VDS results in less wear and tear to muscles and joints."

When will VDS be standard on all Volvo buses?

"I think this will happen more rapidly than we envisage. There are so many benefits. In view of the positive response, I'm pleased that we took the short cuts that were available in order to install the technology. This has called for a huge effort on the part of the entire organisation and true teamwork," says Mats Nilsson. ○



HOW IT WORKS

▷ VDS is based on a standard mechanical steering system in which one steering shaft is linked to a steering gear.

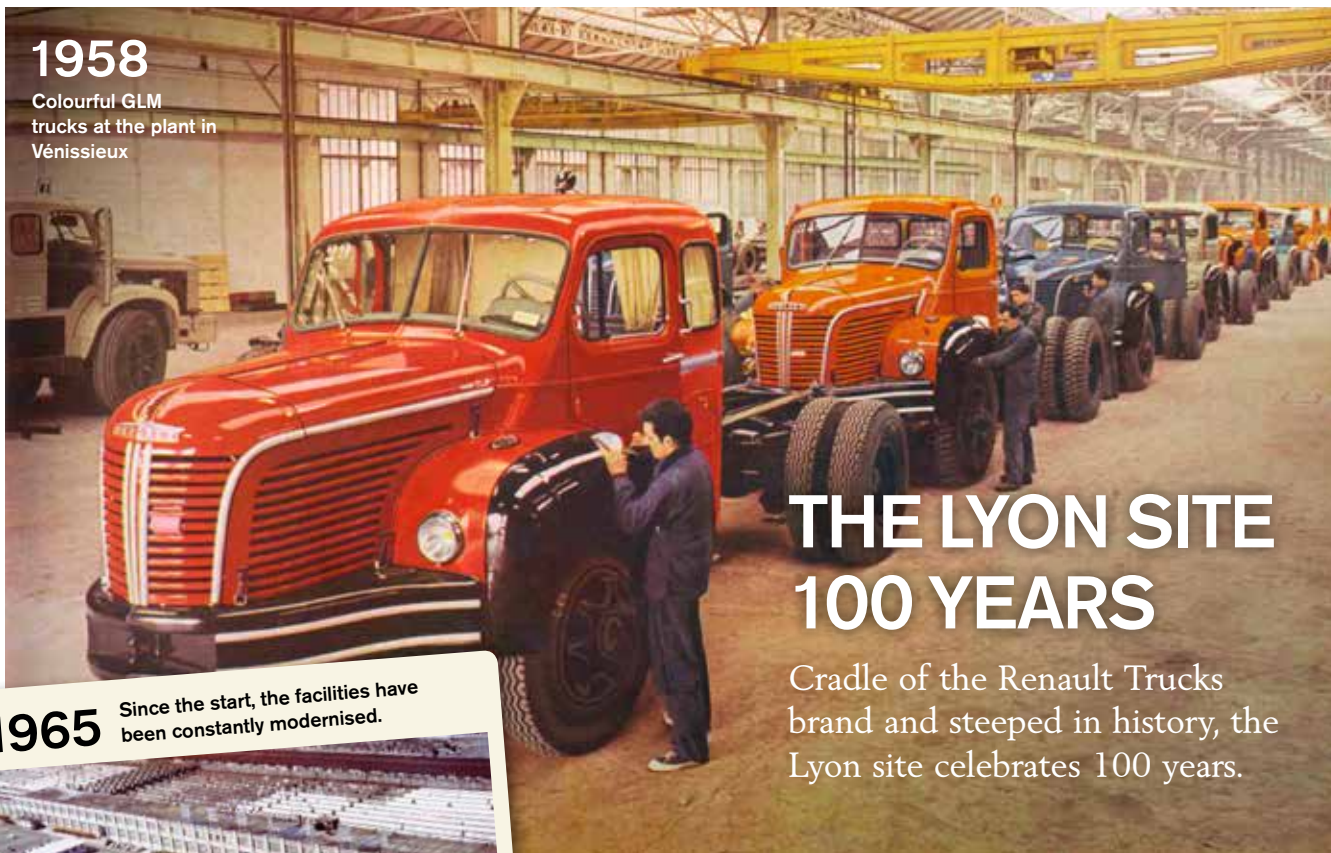
▷ The hydraulic power-steering system generates the power the driver needs to turn the wheels on the bus. The Volvo Group's system uses an electronically controlled electric motor and is controlled 2,000 times a second by the electronic management system.

▷ At low speeds, the electric motor produces extra power. At higher speeds, it controls the steering automatically and compensates for any unevenness, such as ruts or holes in the road surface, which is transferred to the steering wheel.

At an event in March, motor journalists were given the chance to test-drive long-distance coaches and intercity buses with VDS.

1958

Colourful GLM trucks at the plant in Vénissieux



THE LYON SITE 100 YEARS

Cradle of the Renault Trucks brand and steeped in history, the Lyon site celebrates 100 years.

1965

Since the start, the facilities have been constantly modernised.



1918

The 750th CBA truck is manufactured at the plant in Vénissieux.



1916

The construction of the huge industrial complex starts.

BETWEEN 1916 AND 1917 Marius Berliet built an industrial complex in Lyon spanning the districts of Saint-Priest and Vénissieux. The site consisted of immense buildings, separated by wide avenues, set up in a logical flow to supply assembly lines. It covered an area of almost 400 hectares.

From 1916, the site supported the assembly of almost 15,000 CBA trucks delivered to the French Army during World War I. In the 1930s, a new wave of construction gave rise to large offices for administrative activities.

After World War II, the site continued to grow. By 1974, the 24,000 trucks manufactured by Berliet made up half the French production and almost 60 per cent of the company's employees worked at the Lyon site.

Today, the site with its 4,000 employees is a reputed centre of excellence in several technical areas such as engine development and hybrid technology.

The centennial anniversary will be celebrated later this year. Congratulations!

PASCALE MEZIE

Marius Berliet
PHOTO: RENAULT TRUCKS

5

QUESTIONS TO CHRISTIAN HAFSTRÖM

WORKSHOP MANAGER AT
THE VOLVO PENTA TEST
CENTER AT KROSSHOLMEN
IN GOTHENBURG, SWEDEN

At the Volvo Penta Test Center, drivelines, engines and transmissions are tested 24/7. The requirements are rigorous which leads to new and smarter solutions.

You have been praised by the local environmental agency for your preventive work. How do you work with this area?

"We are based in a sensitive area and this means that there are a large number of regulations we need to comply with when it comes to safety, emissions and noise. The requirements are becoming increasingly stringent and we are constantly trying to find smarter solutions and better products. Our objective is to minimise the risks and reduce the impact on the external environment."

How have employees reacted to this way of working?

"Everyone is engaged and is working in a target-oriented way. We make security inspections once a month and we have both internal and external audits during the year. We also devote a great deal of time and effort to creating a good working environment for our test drivers. Driving boats in strong winds, fog and snow for several hours is really gruelling."

What do you actually test at Krossholmen?

"We test drives and engines of every conceivable kind, from the D1 to the D16. The test objects are determined together with the

projects at Volvo Penta's Product Development Department and they can include everything from minor updates to totally new products."

Do you only test engines for marine use?

"For many years now, we have been running tests on generator engines that are used at hospitals and airports, for example. Since the beginning of this year, we have also been able to conduct tests on other industrial engines that are normally installed in special machinery, such as mining machines and container handling equipment. There is a shortage of test chambers for engines, so these tests are good for business. It's a question of making the optimal use of the available facilities."

You also have a demo centre. What happens there?

"The demo centre is the face Volvo Penta presents to the outside world and it plays an important role for our marketing organisation. Both boatbuilders and industrial customers come here to test-drive engines and see how they function in real life. We have around 2,000 visitors a year. Making sure that the facility and boats are in top condition is part of the job."

LINDA SWANBERG



PHOTO: CHRISTER EHRLING

Christian Hafström is the Workshop Manager at the Volvo Penta Test Center in Gothenburg. "We have 30 different boats and a number of test chambers. Our operations are run around the clock, seven days a week."

1

The first vehicle built by Jack, Gus and William Mack was named "The Manhattan". What was it used for?

- A. School transport
- B. Sightseeing
- C. Construction

2

The company was originally known under a different name. Which one?

- A. The Mack Brothers Company
- B. The Bulldog Company
- C. The Fallesen and Berry Company

3

Mack has a long history. When did the brand celebrate its centennial anniversary?

- A. 2001
- B. 2000
- C. 1995

4

The longest-serving Mack dealer, Praco Didacol, has represented the brand for 93 years. In which country is Praco located?

- A. USA
- B. Mexico
- C. Colombia



What do you know about Mack?

It is pugnacious, blunt-nosed and durable. The bulldog has been the symbol of Mack Trucks since World War I. Answer the quiz and you have the chance to win your own gold bulldog.



5

"Mack the Transporter" was a lead character in which Disney-Pixar movie?

- A. The Incredibles
- B. Cars
- C. Toy Story

6

A Mack Titan holds the Guinness World Record for the longest road train after it towed 113 trailers over a distance of 150m on 18 February 2006. In which country did this record-setting event occur?

- A. USA
- B. Australia
- C. Canada

THE BULLDOG

Mack earned this nickname in 1917, during World War I, when the British government purchased the Mack AC model to supply its front lines with troops, food and equipment. British soldiers dubbed the truck the Bulldog Mack. It reminded the soldiers of the tenacity and strength of their country's mascot, the British Bulldog.



WIN A GOLD BULLDOG PAPERWEIGHT!

Email your answers to groupmagazine@volvo.com no later than 15 August 2016. Write "Quiz" on the subject line. Remember to include your name and address. Three lucky winners will get a Mack bulldog hood ornament, the same that has adorned the hood of Mack trucks since 1932. You can find more information at mack-shop.com. Good luck!

The winners of the quiz in Volvo Group Magazine #1 were Nicolas Delaunay, France, Yashwanth B N, India, and Piyathida Semsuk, Thailand. Congratulations!

The right answers were: 1-C, 2-C, 3-B, 4-A, 5-A, 6-B, 7-A.

PHOTO: MACK TRUCKS

VOLVO