

Next stop: the future

A bus with no steering wheel and seats that seem to hover in space? Berlin students join MAN engineers to develop new ideas for bus operators of the future.



INNOVATIVE IDEAS: Paul Weihe, Julian Senk and Julian Berg (left to right) with their bus concepts, and the design from fellow student Julia Rotenberger

Photo: Anja Weber



FOCUS ON BUS DRIVERS

Julian Senk's bus lacks a steering wheel, but offers a relaxed working atmosphere.

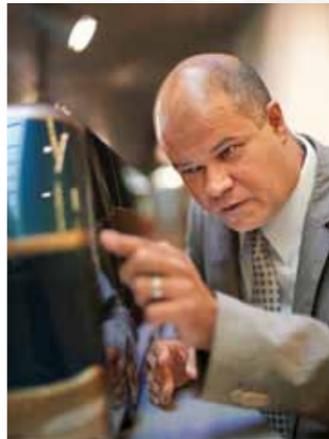
A city full of ants – that is the vision of Paul Weihe. “Ants”, in fact, is the name of his idea for the bus of the future. It does actually look like an ant, at least the model does – with dark glass and panoramic windows on all sides, interrupted only at the front and the rear by lighter-coloured “legs” in the shape of wheel housings. But the bus also operates much like an ant, Weihe points out: “It functions autonomously, it knows just what other buses are doing, where it is currently needed and so it is always in motion – it’s as busy as the proverbial ant.” Paul Weihe is a 31-year-old product design student at the Kunsthochschule Berlin-Weissensee (khw) – the Berlin-Weissensee College of Art. His

“ants” are one of eight projects that students at the college have realised in partnership with MAN. They spent a whole term considering what the municipal bus of the future should look like, how it should function and what role it could play on the roads of the world. The ideas that emerged ranged from cycle racks to aerodynamic design details to smart systems that would make it possible to line up buses in convoys to meet demand in peak periods, or even have them taking on freight shipments.

THE BACKGROUND to these developments is that ever more people live in cities. In the EU, urban dwellers already account for more than 60% of the population, and the ratio continues to rise. In addition, an increasing



THE "HUB" DESIGN allows the passenger cabin to be lowered to make it easier to get on and off.



“What are young people thinking? What is the Zeitgeist?”

Stephan Schönherr,
Head of Bus Design at MAN

population – above all in developing and threshold countries – is giving rise to space problems. If you try to extrapolate the model of individual mobility to a country like China, the dwindling reserves of mineral oil would soon cause the attempt to fail. Smart traffic management is not enough, and alternative mobility strategies are urgently needed.

THIS IS ALSO Helmut Staubach's conviction. He is the professor in charge of the project at khb. He has been focusing on local public transport for 40 years and has kept a close eye on developments in Asia. For example, the Chinese city Guangzhou (population over 12 million) has introduced Bus Rapid Transit (BRT) systems. This involves bus services using lanes of their own, with their own traffic lights and thoughtfully laid-out bus stops. "An example like this shows that we are currently experiencing a renaissance of bus transport," Staubach says. In Guangzhou alone a million people use the BRT system every day. In 2010 this reduced CO₂ emissions by 45,000 metric tons. Of course, this doesn't make Guangzhou a health spa, but at least it is a first step.

Higher populations in European cities and increasing environmental awareness are leading to demands for alternative modes of transport. Paul Weihe decided the best place to start was on his own doorstep, in the Berlin district of Friedrichshain. "The streets are full

of parked cars and there's nowhere for children to play. So what can we do to get cars out of the city?" His "ants" answer comes in two parts. The main part resembles the bus of today, and with its panoramic windows and externally fitted wheel housings it is not so bulky, takes relatively little space and travels in its own dedicated lane. To make the main routes accessible from any place and at any time, Weihe envisages that smaller "ants" can be booked online – they will pick you up from your own door. "If you pay a bit extra, they could also function as mobile workstations or provide a personal programme of entertainment." Another advantage is that the "ants" don't need parking spaces, because they are in constant movement, making them more efficient than car-sharing schemes. Neighbours will also finally get to know one another by getting organised into transport groups."

STEPHAN SCHÖNHERR, too, emphasises the futuristic character of bus transport. He is responsible for the Bus Design division of the MAN and NEOPLAN brands, and he, along with colleague Sven Gaedtke, initiated the university project and has been supervising the students. In his student days he was fascinated by bus transport because it was so much cheaper and more flexible than rail: buses take up less space on the roads and don't need any infrastructure of their own, because they

Photo: Simon Katzer (f)

can use the existing roads. "And when a bus breaks down – unlike a train – the next bus just comes along and drives around it." In his work with the students, Schönherr wanted to find out what young people were thinking, which way the Zeitgeist was headed. He was struck by the focus on the qualitative upgrading and individualisation of the bus, a tendency in keeping with modern times: "As the public budget is generally short, bus operators need to earn additional money. And this is only going to work when you offer paying passengers something extra."

HOW THIS MIGHT LOOK is revealed in the "Hub" project. "This was inspired by what are known as portal hub vehicles, which can lift ship's containers weighing several metric tons without trouble and easily move them around the port," says 24-year-old Julian Berg, from Bremen, about his hybrid model. Previously, he was principally interested in innovative materials and material combinations in connection with furniture. The bus project has opened up new avenues for his imagination. His vehicle frame is flexibly suspended, so the passenger cabin can be quickly lowered to the level of the pavement at the bus stop and then raised again. Most importantly, at times when there is little demand for passenger transport, you can replace it with a transport container and turn it into a delivery vehicle. With his professional background, Berg also places emphasis on external appearance. With plenty of wood, aluminium, panoramic windows and seats that seem to hover in space, travelling on his bus becomes an adventure.

When presenting their results at the end of the term to a large MAN audience, Julian Berg and his fellow students were also expected to ask critical questions, which Helmut Staubach sees as particularly important. He sees the partnership with MAN as a win-win situation: "Students get acquainted with the way things are done in the real world." Moreover, the university benefits from the subsidies that MAN provides, for materials and so on, while working with young people gives the company, conversely, a glimpse of its own future. MAN designer Stephan Schönherr also emphasises the variety of the designs: "It's all

about intelligent systems for transport, as well as about inside and outside, passengers and drivers. Like pieces of a puzzle that all come together to make a whole."

Another of these puzzle pieces is the design dreamed up by 27-year-old Julian Senk, whose idea has the driver at its heart. As a product-design student he has always been interested in designing interfaces. In connection with the bus project, it struck him "that the driver is often distracted by the passengers". Therefore, Senk's drivers, like drivers on the Underground, have separate cabins, where they can focus better on their work. In this case, electronic payment systems using a card or SMS – such as those already in use in Holland and South Korea – served as a model. With a view to saving drivers from back problems, Berg also devised an electronic steering system: instead of steering wheels, drivers sit in front of monitors and control buses by means of electronic impulses, joysticks for instance, meaning an end to hunching over the wheel.

WHO KNOWS? Maybe one day the students will actually get to put their ideas into practice. In the meantime, their models were exhibited in October 2013 at the world's biggest trade fair, Busworld in Kortrijk, Belgium – a respectable showing on the strength of one term's work. Stephan Schönherr likewise emphasises the importance of this partnership to MAN: "Working with the students has been an inspiration, and it has reaffirmed my conviction that the bus is the transport system of the future." ■

60 % CITY- DWELLERS

GROWING URBANISATION
In Europe, more than half of the population now live in cities.

“The bus could work autonomously, like an ant.”

Paul Weihe, student



IN PAUL WEIHE'S BUS VISION, panoramic windows look out onto streets free of traffic jams.