



ŠKODA
SIMPLY CLEVER

PRESS RELEASE

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ŠKODA AUTO Logistics optimises use of container space with help of artificial intelligence

- › **Maximum loading capacity:** AI app OPTIKON identifies the most efficient placement of different-sized pallets in freight containers
- › **Increased efficiency and lower emissions:** optimisation results in three cubic metres more space per unit, saving the company 151 container shipments and 80 tonnes of CO₂ emissions in the first six months of the year
- › **Artificial intelligence:** OPTIKON learns from every loading process and draws on the expertise of the ŠKODA AUTO staff who work in the parts warehouse

Mladá Boleslav, 30 September 2020 – Everyone knows the classic computer game where the aim is to drop differently shaped pieces into a given space without leaving any gaps. ŠKODA's logisticians face a similar task when loading a 40-foot sea container. However, they are now supported by OPTIKON – an app that uses artificial intelligence technologies: the AI app calculates how and in what quantity different pallet types must be loaded in order to maximise the container's loading capacity. This allowed ŠKODA to save 151 container shipments and 80 tonnes of CO₂ emissions in the first six months of 2020 alone.

David Strnad, Head of Brand Logistics at ŠKODA AUTO, said, "This AI app is a major development step on our way to digitalising logistics and our work processes. The OPTIKON project makes the work of the employees in the parts warehouse easier whilst also lowering our transport costs. Furthermore, it has allowed us to reduce CO₂ emissions because we only dispatch full containers now. OPTIKON therefore also has a positive impact on our Green Future environmental strategy."

There is an endless number of ways to fit the different-sized pallets into a container, which makes loading a challenging task for logisticians. This is made even trickier by the fact that, every day, the pallets available for dispatch in the parts warehouse are different sizes. The OPTIKON app – which was jointly developed by ŠKODA AUTO Logistics and ŠKODA IT, and whose name is an amalgamation of OPTImisation and the Czech term 'KONtejnér' – helps to master this challenge using AI. The program calculates how the different pallets must be loaded in order to make maximum use of each container's capacity.

Klaus Blüm, Head of ŠKODA IT, added, "OPTIKON illustrates how we use Industry 4.0 and artificial intelligence technologies at ŠKODA AUTO to make everything we do even more efficient. When determining how the respective items should be placed to maximise container space, the app includes up to 400 pallet types in its calculations. Furthermore, the program also balances the weight distribution within the container and checks that the freight will be shipped in good time."

The ŠKODA AUTO Logistics department has been using OPTIKON since November 2019, in particular for loading containers that are shipped to Nizhny Novgorod. In addition to body components, production materials such as adhesives are also shipped to Russia from Mladá Boleslav. Using OPTIKON allowed ŠKODA AUTO to save 151 container shipments and 80 tonnes of CO₂ emissions in the first six months of 2020 alone.



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In terms of the technicalities, the program uses mathematical combinatorial analysis methods to find various solutions to what is known as the 'knapsack problem'. It addresses the question of how certain objects can be optimally fitted into a limited space. While the classic knapsack problem only takes into account the weight and value of the items to be packed, OPTIKON also considers the floor space, volume of the freight item and when the goods have to be shipped.

Artificial intelligence is a key pillar of ŠKODA AUTO's digitalisation strategy

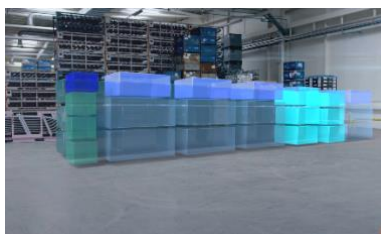
Technologies based on artificial intelligence perform cognitive functions that otherwise only humans are capable of. Such programs can interact with their environment, perceive and weigh up facts, solve problems and even carry out creative tasks. As one of the cornerstones of the company's Strategy 2025, artificial intelligence plays a key role for ŠKODA AUTO in the ongoing advance of digitalisation. For the Czech car manufacturer, this applies not only to products and processes, but also to services where AI technologies help to make the customer experience more personal.

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Media video and images:



Video: ŠKODA AUTO Logistics optimises use of container space with artificial intelligence

Using a computer animation, this video shows how the OPTIKON AI app supports ŠKODA AUTO's logisticians in making maximum use of each freight container's loading capacity.

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Source: ŠKODA AUTO



ŠKODA AUTO Logistics optimises use of container space with artificial intelligence

The program uses artificial intelligence technologies and includes up to 400 different pallet types in its calculations.

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Source: ŠKODA AUTO

ŠKODA AUTO

- › is this year celebrating 125 years since the company was founded during the pioneering era of the automobile in 1895, making it one of the longest-established car manufacturers in the world.
- › currently offers its customers ten passenger-car series: the CITIGO® iV, FABIA, RAPID, SCALA, OCTAVIA and SUPERB as well as the KAMIQ, KAROQ, KODIAQ and ENYAQ iV.
- › delivered 1.24 million vehicles to customers around the world in 2019.
- › has belonged to Volkswagen Group since 1991. The Volkswagen Group is one of the most successful vehicle manufacturers in the world. In association with the Group, ŠKODA AUTO independently develops and manufactures vehicles, as well as components such as engines and transmissions.
- › operates at three locations in the Czech Republic; manufactures in China, Russia, Slovakia and India mainly through Group partnerships, as well as in Ukraine and Kazakhstan with local partners.
- › employs approximately 42,000 people globally and is active in more than 100 markets.
- › is pressing ahead with the transformation from a traditional car manufacturer to the 'Simply Clever company for the best mobility solutions' as part of the ŠKODA 2025 Strategy.