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Boost for digitialisation: Artificial intelligence brings the production of sweets and snacks up to the next level

From smart automation through to an optimised supply chain: At ProSweets Cologne 2025, innovative AI solutions will show how efficiency and flexibility can be redefined within the industry

The mega trends digital interconnectivity and artificial intelligence are increasingly heralding in a new era in automation. From the optimisation of the production processes through to the improvement of food safety: From 2 to 5 February, the exhibitors of ProSweets Cologne 2025 will demonstrate their know-how for the sweets and snacks industry and present AI tools that offer a host of opportunities for increased efficiency. The event and content programme comprising of o a series of lectures, panel discussions and practical examples of application will also enhance these themes. The participants will have the opportunity to get to know concrete solutions and innovative approaches for the implementation of AI in the production and the supply chain and gain valuable insights into the future of the industry.

From jelly products, toffee and caramel through to bonbons: Sweets impress over and over again with their exciting flavours. And anyone, who is looking for an alternative to chocolate and biscuits, can opt for crisps, pretzel sticks or peanut flips Since there are so many individual consumer preferences, the manufacturers have to rely on fast, flexible and economic production machines. At the same time, strong competitive pressure requires the continual optimisation of all production steps - from processing the raw materials through to the packaging. The lines have to precisely dose, mix and mould, while at the same time fulfilling the highest hygiene standards.

All of this demands highly automated machine concepts, like those showcased at ProSweets Cologne from 2 to 5 February 2025. With their portfolios the exhibitors in Cologne implement modular systems for the sweets and snacks industry that provide both the connectivity for existing as well as a high scalability for new plants. The focus here lies on the interplay between industrial robotics and artificial intelligence (AI) on the one hand and on the increased automation of the supply chain using AI on the other.

Process intelligence provides the necessary insights
The digitalisation enables companies to gather large amounts of data directly at process level. AI has the potential to generate complex information from this data so that sweets and snacks can be produced more efficiently while at the same time improving the quality of the products. Typical application scenarios include

predictive maintenance and quality controls. In this connection, experts like Dr. Andreas Müller talk about technology-centred AI: "It normally works in the background, stabilises processes under variable conditions and emulates human decisions." But what are the prerequisites for the successful use of AI? The owner and founder of stem-in-foodsafety.de will provide an answer to this question on the "Expert Stage" in Hall 10.1 on 4 February. Here, on all four days of the trade fair various aspects of the themes AI and machine learning will be examined from different perspectives in the scope of lectures and panel discussions. Visitors will learn in detail where the challenges in implementation lie and how these obstacles can be overcome – for example in the supply chain management section.

In this area, AI tools enable complete transparency of the processes in real-time. By using advanced algorithms they reveal hitherto hidden inefficiencies and deliver precise recommendations of action to increase the flexibility of the production and optimise the use of resources. In his lecture entitled "AI-based Supply Chain Planning for the Food Industry", to be held on the Expert Stage on 4 February, Maximilian Köhler, Co-Founder & Chief Revenue Officer Optiwiser A.I. Solutions GmbH, will explain which advantages this offers sweets and snacks producers. The key element here is the Predictwiser. Cloud, a fully-automated supply chain software that implements intelligent algorithms specially tailor-made for the food industry to determine the precise demand, the optimal inventory level and cost-optimal production volumes. "The solution is designed as a plug-and-play software that can be integrated in less than a week," emphasised Köhler.

A special highlight in this section is the first ever Sweet Week Production Summit that is being staged on 3 February 2025. This event brings the exhibitors and visitors of both trade fairs together and presents first-class examples of best practice that demonstrate the implementation of AI tools for a cost-efficient and future-proof production. The theme "Process optimisation in production with the aid of AI" will also be addressed here in detail. The programme will be enhanced by short pitch sessions by suppliers exhibiting at ProSweets Cologne, followed by a matchmaking forum in the Networking Area that aims to promote the exchange between suppliers and interested parties and initiate concrete business relations.

Digital tools as problem solvers in the supply chain
The new "Sweet Week - Talks & Tasting" stage offers an opportunity to exchange experiences and network to ensure the successful integration of AI into the day-to-day business. Here, on 2 February, Matthias Banike, VP Business Development at OMMM Operations Management Solutions GmbH, will illustrate the benefits of AI-supported production and supply chain planning in the sweets industry, based on a use case example with Zentis. It will be demonstrated how software can create the decisive edge for companies in this highly competitive industry.

However, with a view to the solutions of ProSweets Cologne 2025, it is also becoming clear to what extent artificial intelligence is already shaping the engineering of sweets and packaging machines. Digital twins and AI-based model-based systems engineering (MBSE) are trends that offer huge advantages for the development of complex, technical systems. Using simulation the interplay between mechanics, software and food packaging in diverse scenarios can be visualised and optimised

with the help of models – without prototypes and physical systems. This allows errors that can otherwise only be determined through extensive tests on the machine and are thus found and eliminated very late in the development process, to be recognised at an early stage.

Optimal packing using deep learning
The example of Gerhard Schubert GmbH illustrates that the latest simulation models are an efficient tool for packaging machine builders. Here, the AI models enable a decisive step in the direction of a new type of robot movements. Because up until now these movements had to be elaborately parameterised and put into practice on the machines manually. This becomes superfluous thanks to "Schubert Motion", a software that is based on the use of artificial intelligence.

"The robots run at high performance almost automatically and the products and processes come immediately under focus," the Department Direcotr, Michael Döring, explained. In a combination between a tubular bag machine and a cartoner, the robots demonstrate what potential the performance increase has in the real packaging process. A single figure elucidates the difference this makes: Controlled optimally, the same robot functions around 20 percent faster – without having to be adjusted manually. Hence, thanks to AI packaging machines can be operated at significantly higher cycle rates. ?

In addition to robot optimisation, Döring and his team are also working on the theme condition monitoring and predictive maintenance. In future, the control software is to be implemented for instance with the data gathered in the production directly on soft floors and nevertheless still enable fast production. As a result the entire system will be subject to less stress, which will have a positive effect on the process accuracy, gentle product handling and durability of the machinery.

ProSweets Cologne 2025 offers a unique look into the future of the production of sweets and snacks. With innovative AI solutions that increase both the efficiency and the quality of the products, the participants will experience first-hand from 2 to 5 Feburary 2025 how digital interconnectivity and automation are transforming the industry.

The event programme of ProSweets Cologne can be found under the following link:
On-site events | ProSweets Cologne

Koelnmesse – industry trade fairs for the food technology sector: Koelnmesse is an international leader in organising trade fairs in the field of food and beverage processing. Anuga FoodTec and ProSweets Cologne are established, world-leading trade fairs, hosted in Cologne/Germany. In addition to the events at its Cologne headquarters, Koelnmesse also stages further food technology trade fairs with different sector-specific areas of focus and content in key markets across the world, including India, Italy and Colombia. These global activities enable Koelnmesse to offer its customers bespoke events and leading regional trade fairs in a variety of markets, thus creating the foundation for sustainable international business. Koelnmesse is also ideally positioned in the field of food and beverages with its leading international trade fairs Anuga and ISM and its global network of

satellite events.
Further information: https://www.prosweets.com/fair/industry-sectors

The next events:
ProSweets Cologne - The international supplier fair for the sweets and snacks industry, Cologne 02.02. - 05.02.2025
India International Livestock Expo , Mumbai 16.04. - 18.04.2025
Anuga FoodTec India - India's global gateway to cutting-edge technology for the food & beverage industry, Mumbai 20.08. - 22.08.2025

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