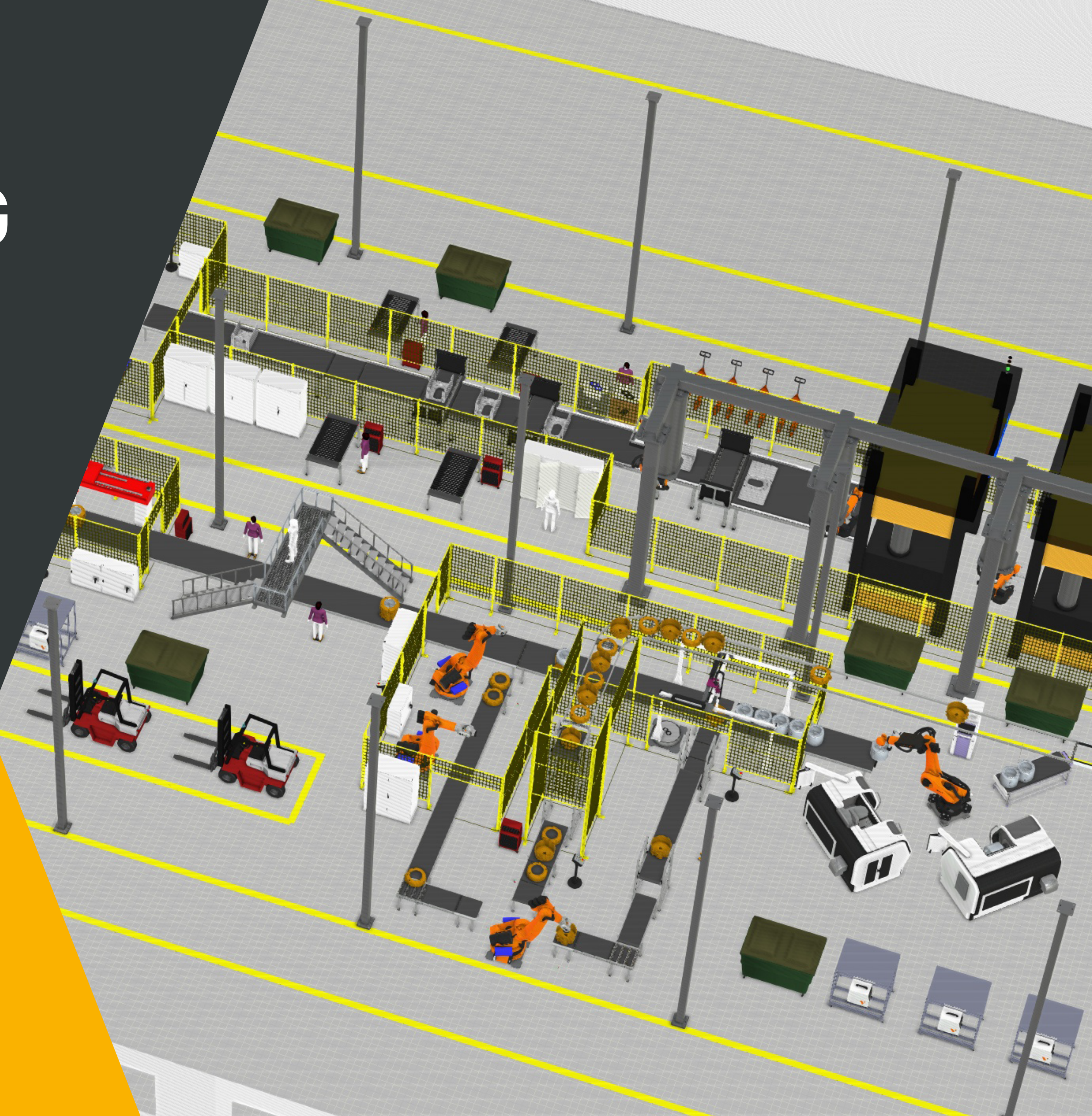


3D MANUFACTURING SIMULATION SUCCESS STORIES

See how Midea, the world's largest producer of major appliances, used Visual Components to increase the capacity and flexibility of a high-end washing machine assembly line, while reducing costs by 15%.

 VISUAL
COMPONENTS



The World's Largest Producer of Major Appliances

Established in 1968 and headquartered in Southern China, the [Midea Group](#) is the world's largest producer of major appliances and #1 brand of air-treatment products, air-coolers, kettles, and rice cookers. The company specializes in air treatment, refrigeration, laundry, large cooking appliances, large and small kitchen appliances, water appliances, floor care and lighting.

Its Laundry Appliances Division includes a Digital Center, which consists of a team of simulation engineers responsible for verifying the product, mold, and equipment designs, as well as robotics, logistics, and factory layouts.

A Unique Project With Complex Demands

In 2018, the Midea Group initiated a project to launch a flexible assembly line producing high-end washing machines. The new assembly line was to be constructed in the Wuxi factory of Midea's Laundry Appliances Division in Wuxi, China.

CHALLENGES:

- **CUSTOMIZATION:** Capable of accommodating orders of personalized and customized washing machines.
- **TIGHT PRODUCTION REQUIREMENTS:** High technical control requirements in terms of materials, processes, and finished products.
- **FLEXIBLE PRODUCTION:** Capacity to produce more than 10 different product platforms and over 100 SKUs at the same time — all mixed and with their own individual processing times, materials requirements, and quality control procedures.

“

As a comprehensive and professional simulation tool, Visual Components played a very important role in this project. Previously, we were using three different products to build 3D layouts and verify equipment, logistics, and production capacity.

Kong Fanshi, Ph.D, - Simulation Engineer
on the Digital Center team, Midea Group

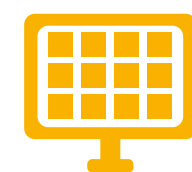
Why Midea Chose Visual Components



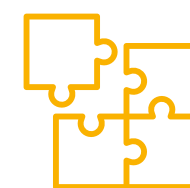
ADVANCED PLATFORM: From model building and layout planning to equipment verification and process optimization.



EASY TO USE: Simple workflows for modeling equipment and processes.



ECATALOG: Extensive library of parametric and reusable models included in the [Visual Components e-catalog](#).

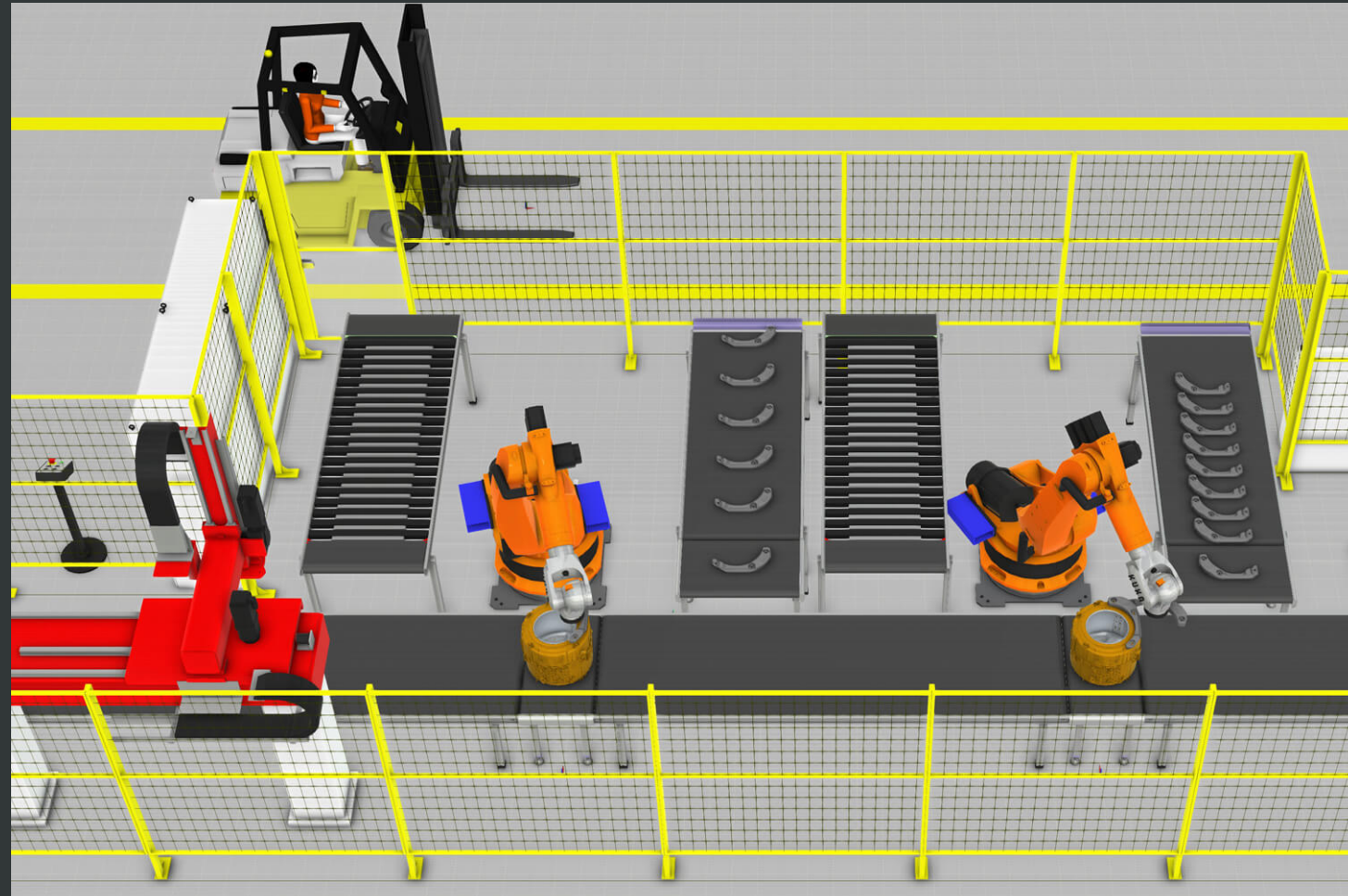


SIMPLIFIED COMPONENT MODELING: Fast and easy modeling of equipment and processes.



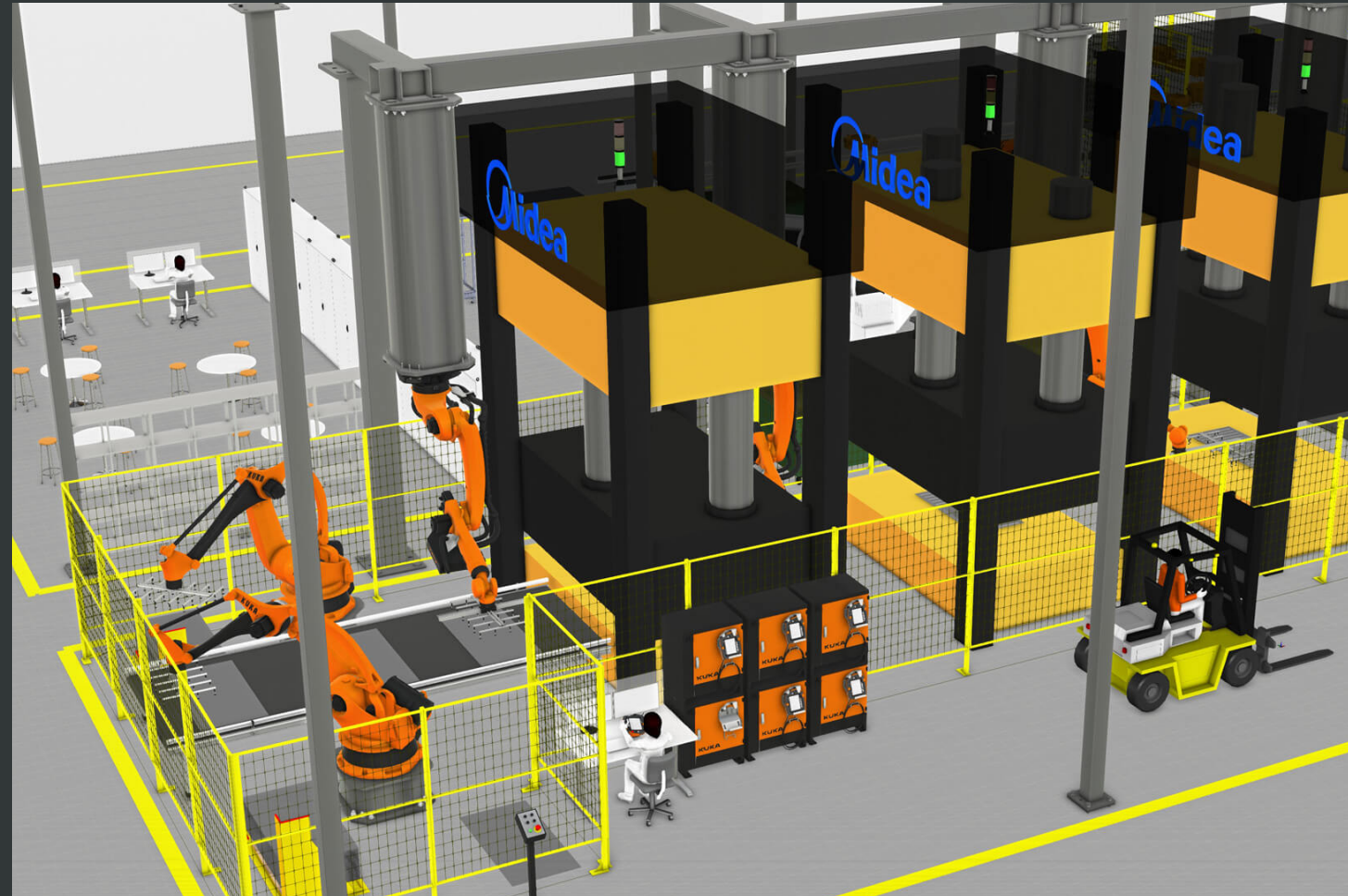
VISUAL COMMUNICATION TOOL: High quality graphics and video output.

More than 100 components need to be assembled to produce a high-end washing machine. The entire assembly consisted of three main lines:



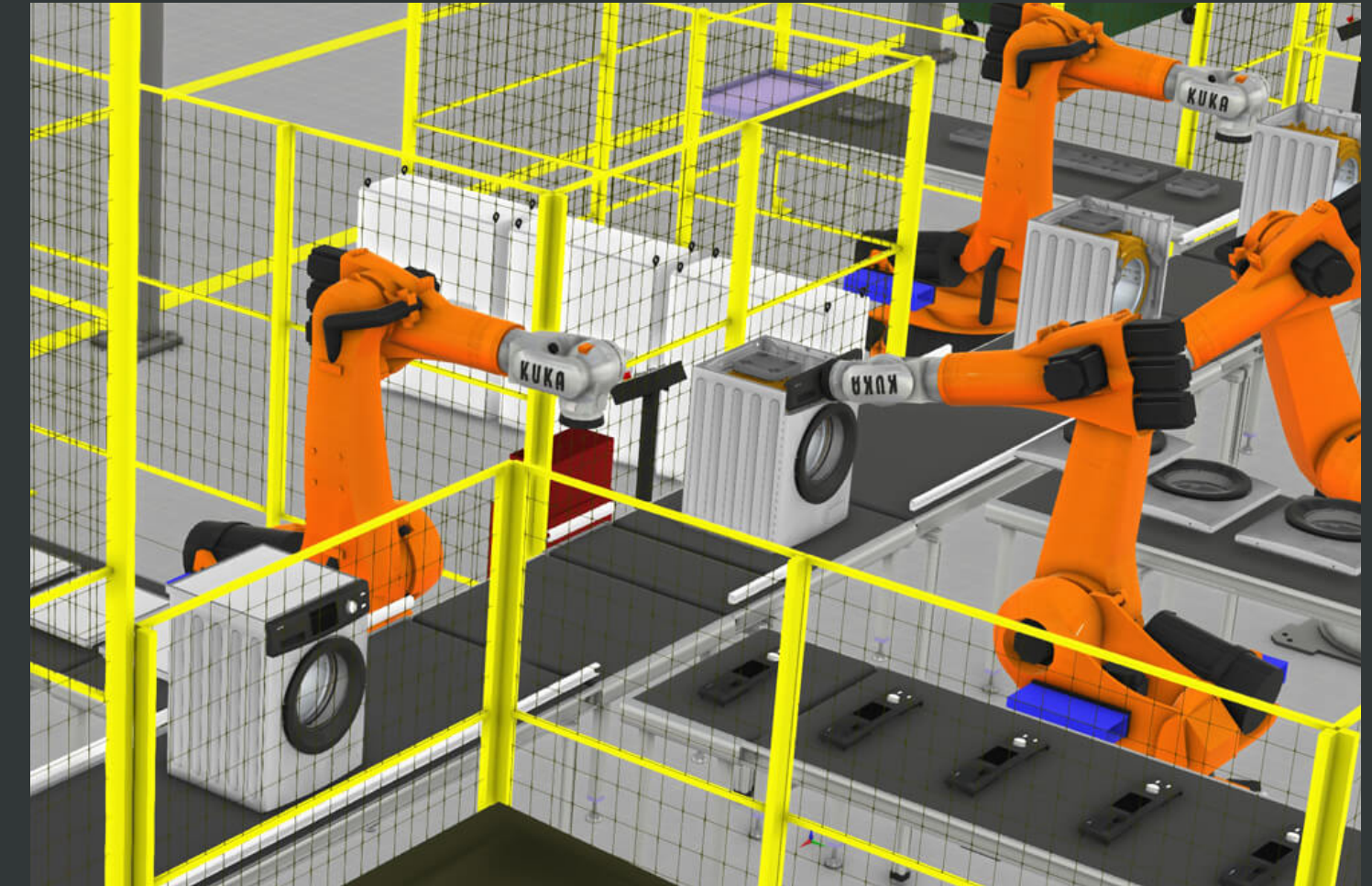
Tub assembly

The tub assembly is formed by placing an inner tub into a back tub and then sealing it with a front tub.



Box assembly

A steel plate is formed into a steel box using a horizontal punching machine. Accessories such as flexible pipes and wires are installed on the box, forming the box assembly.



Washing machine assembly

The tub and box assemblies, along with the balance block, control panel, door, and top plate are assembled to form the finished product.

[Case study video](#)

“ Using Visual Components, we were able to achieve lower investment and labor costs, as well as significant efficiency improvements. As a result, the total costs of the project were reduced by approximately **15** percent.

Kong Fanshi, Ph.D, - Simulation Engineer
on the Digital Center team, Midea Group

Exceeding the Project Goals

Using Visual Components, Midea was able to realize significant operational improvements and cost savings from their original design

1. IMPROVED SPACE UTILIZATION:

Reduced the floor area for the assembly line by **10 %**, while at the same time increasing production capacity by **10 %**.

2. FLEXIBLE PRODUCTION:

Can accommodate mixed flow production of more than **100** SKUs, compared to the normal **5-10** SKUs.

3. IMPROVED LINE BALANCING:

Line balance was improved by **20 %**, reaching more than **90 %**.

4. EFFICIENT ALLOCATION OF RESOURCES:

Reduced headcount by **45 %** from the original plan, without sacrificing output or product quality.

5. IMPROVED PRODUCT QUALITY:

Reject ratio reduced from **1,200** defects per million to **120** dpm.

6. FASTER IMPLEMENTATION:

Construction period reduced from **15** to **12** weeks, delivering a **20 %** savings in schedule.

Total cost savings realized for the project: **\$879,000**

SUMMARY

How did Midea use Visual Components to plan a new high-end washing machine line in their Wuxi factory?

- Design, optimize, and verify the process and production feasibility.
- Increase capacity and flexibility.
- Dynamically present solutions to executives and project stakeholders.



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