

# 3D DIGITAL TWIN FACTORY SIMULATOR MODEL

Over the past four years, WSA USA and Warak have developed a powerful 3D Digital Twin Factory Simulation Model which has become integral to how they design new greenfield factories or how they upgrade existing facilities with the WSA Material Handling & Automation Solutions.

The Digital Twin Factory allows WSA to customize all parameters, predict factory behavior and validate a layout or project goals. Each Digital Twin Factory model is unique and customized to a specific plant layout and business data. Complete simulation includes the loading and unloading of paper rolls from the corrugator, the exit of corrugator stackers to loading the intermediate warehouse, the distribution to all the converting machines and their reprocessing, the palletizing of orders, the finished goods line processing (including insertion of pallets, strapping and wrapping requirements), delivery into and out of the finished product warehouse and finally the loading of trucks for shipping. The main goal of the project is to generate a valid digital twin of the factory to successfully predict the general behavior of the factory and to optimize performance now and in the future.

As a starting point WSA and

Warak require the following basic input data:

- Plant layout (existing or proposed);
- Paper flutes and grades;
- Corrugator production;
- Converting production;
- Characteristics of all equipment (corrugator, converting machines, etc.);
- Hours of operation of all machines;
- Breakdown times and frequency.

Once the input data is entered the plant-specific behavior must be defined in addition to setting the target goals of the project (total board produced, machine idle times, components cycles, utilization of the plant machinery, warehousing efficiency, etc.). Each of the following models is customizable to the plant specifications and layout:

- Rolls feeding the wet end & returning to roll storage;
- Corrugator discharge & block creation;
- WIP warehousing (vertical or floor conveyor);
- Converting Machine distribution, transfer cars, tooling carts, processing and palletizing;
- Finished goods line processing and storage to Vertical Warehouse or Floor;

- Material transportation including Fork Lifts.

Once the Factory Digital Twin is created to show capacity and flow it can be used to validate an existing project and business plan or in the future to see what effects changing a parameter will have on the behavior of the entire factory. This could include everything from adding an additional converting line, changing the operating hours of the plant or a component, modifying the maintenance schedule, running a new flute profile, etc. The possibilities are near endless and the value of the model priceless.

[www.wsa-usa.com](http://www.wsa-usa.com) or  
[www.warakblock.com](http://www.warakblock.com)

