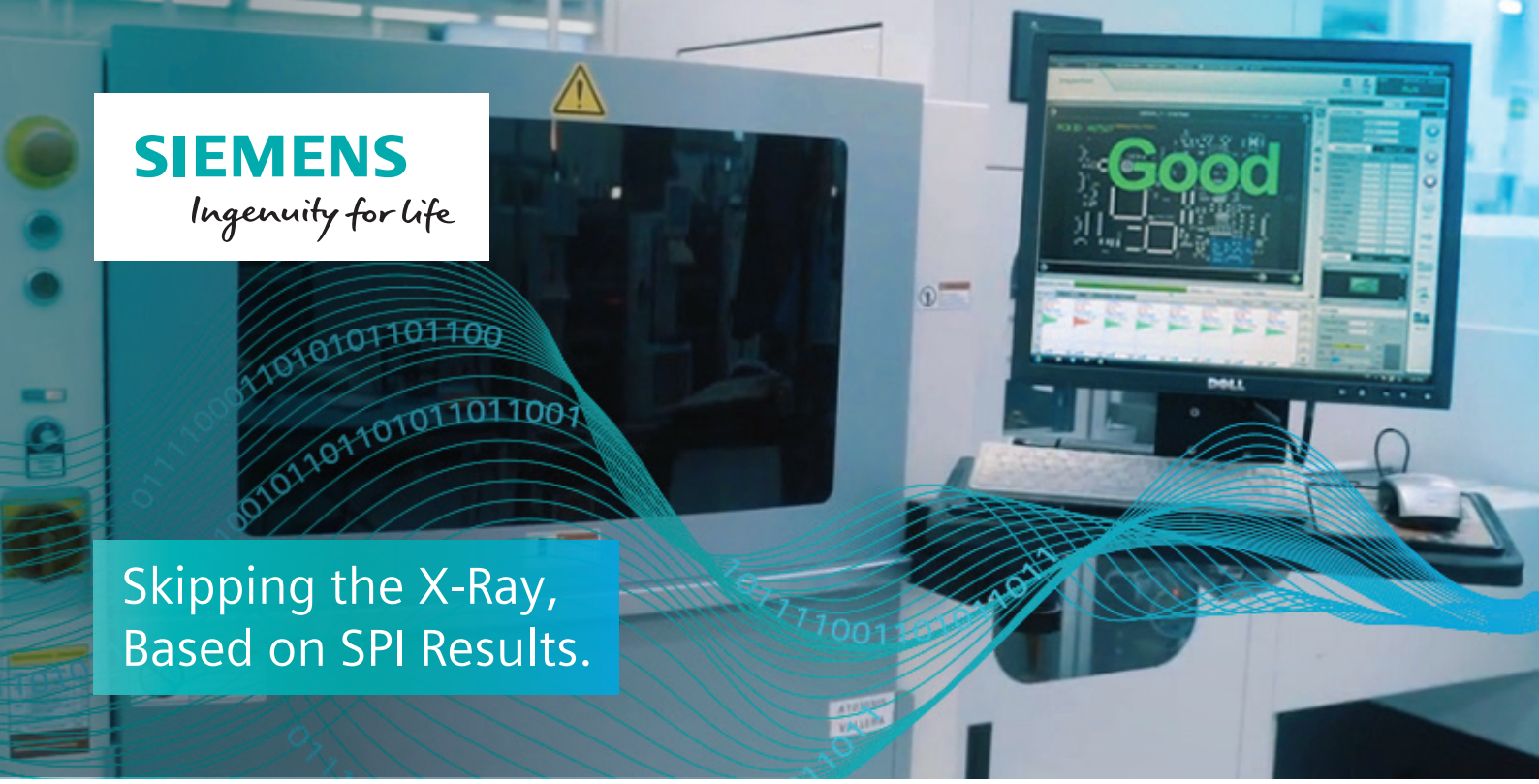

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Skipping the X-Ray, Based on SPI Results.

The challenge: X-ray machines are expensive to purchase and operate. In order to reduce costs and not exceed capacity, only a sampling of boards are inserted into the X-ray machine for testing. In the event that the customer (or the customer's customer) requires X-ray tests for the entire batch, the resulting bottleneck will degrade line performance, or lead to investments in additional X-ray machines.

If we could anticipate the results of the X-ray tests in advance, we could reduce the load on the X-ray machine, improve line performance, and reduce investment in new equipment.

Our solution: Based on Solder Paste Inspection (SPI) results, and implementation of machine-learning algorithms, we can predict in 99% of the cases if a board is going to pass the X-ray test. In this way, we can direct the operator to use the X-ray *only on those boards that are likely to fail*.

How it works: Using artificial intelligence to process SPI results, we can predict the X-ray results with 99% accuracy.

What data is required: SPI and X-ray results for a preliminary batch of boards (both passed and failed) for machine learning purposes.

Supportive diagram to explain the solution (created by Siemens DSM team)

Today SMT 100% X-Ray

Improvement SMT <69% X-Ray

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