Automation @ FE RBG Test Wafers are an Integral Part

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January 2025

Agenda

Speaker Intro

Talking about Automation

What does this mean for us

Our approach to handling test wafers

Speaker Introduction

Career started in the semiconductor industry in 1998 in Dresden (Siemens)

At Infineon Regensburg since 2004

Head of Automation since 2017

Background: Unit process engineering (CMP, Wafertest), Technology, Project Management, Operations and AMHS
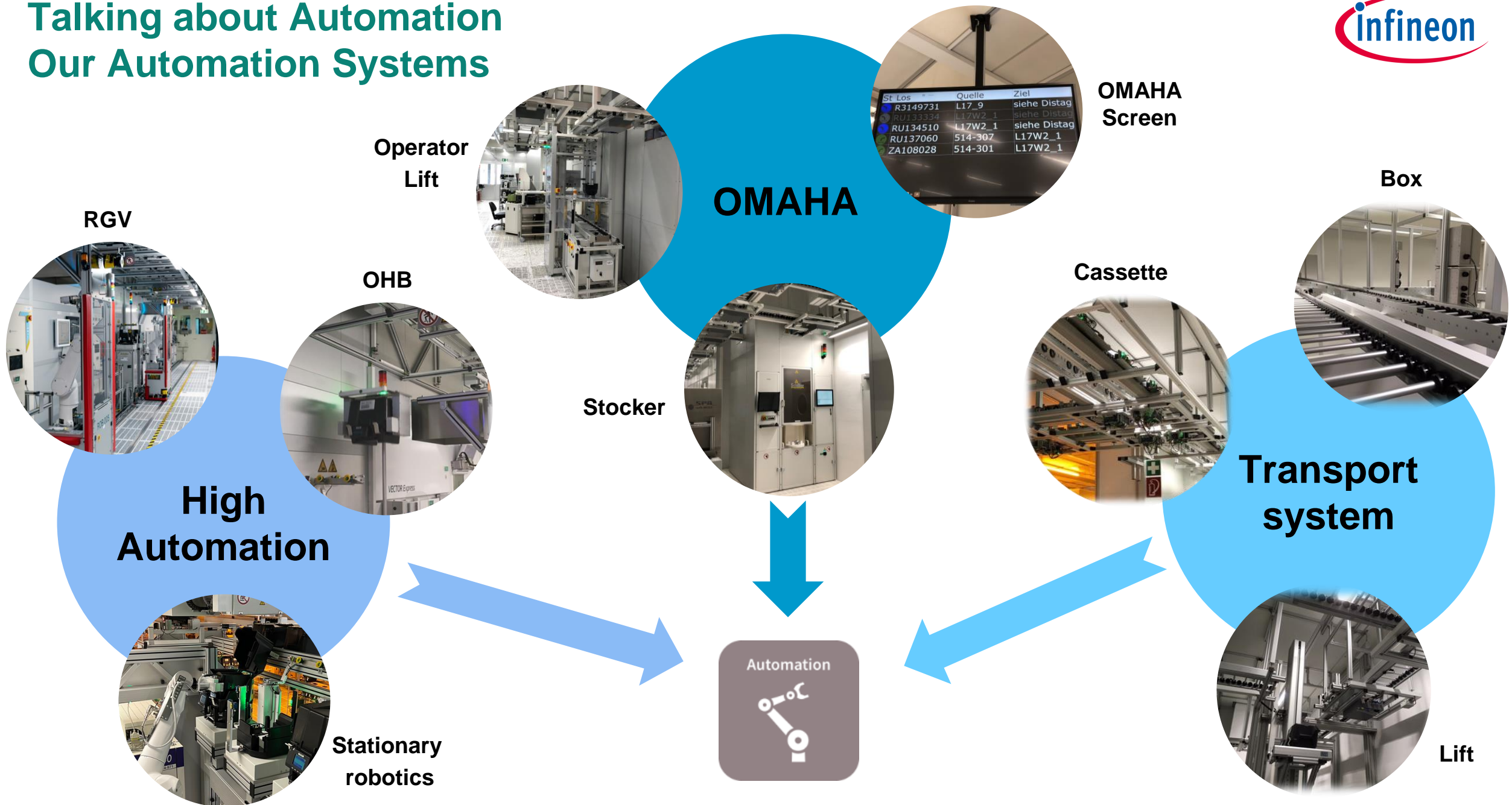
Talking about Automation
Our 4 Automation Levels

	Transport	Storage/Delivery	Tool Load/Unload
Level 4 (H_{igh} A_{utomation})	› Transport System › E84 Handover	› J-I-S PULL Delivery › Automated Stocker › Overhead Storage (OHB)	› Tool Load/Unload w/ Robot
Level 3 (OMAHA)	› Transport System › Operator Lift close to Work Center	› J-I-S PULL Delivery ('Perfect Dispatch') › Automated Stocker	› Tool Load/Unload by Operator (OMAHA)
Level 2	› Transport System › Operator Lift in Area	› PULL Delivery › Automated Stocker or RFID tracked Shelf	› Tool Load/Unload by Operator
Level 1	› Transport System › Operator Lift in Building	› PUSH Delivery to Lift › Manual Lot Storage & Lot Retrieval	› Tool Load/Unload by Operator

OMAHA = Optimized Material Handling

J-I-S = Just-In-Sequence

Talking about Automation
Our Automation Systems

OMAHA

OMAHA Screen

St Los	Quelle	Ziel
R3149731	L17_9	siehe Distag
RU133334	L17W2_1	siehe Distag
RU134510	L17W2_1	siehe Distag
RU137060	514-307	L17W2_1
ZA108028	514-301	L17W2_1

Operator Lift

Box

RGV

Cassette

OHB

Stocker

High Automation

Transport system

Automation

Stationary robotics

Lift

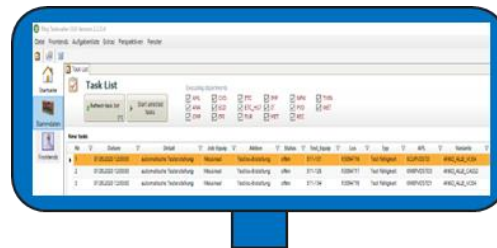# Automation Level 3 and 4
What does this mean for the WIP?

– Master data is maintained and available at all times

– Unique material identification (box, cassette, lot, wafers,…)

– All lots are 100% tracked

– Load & Go - no manual inputs

– Advanced dispatching rules (Push/Pull logistics) - no manual decisions

– Exception and deviation management established

– …

– And **no** difference between product/engineering and test wafers !

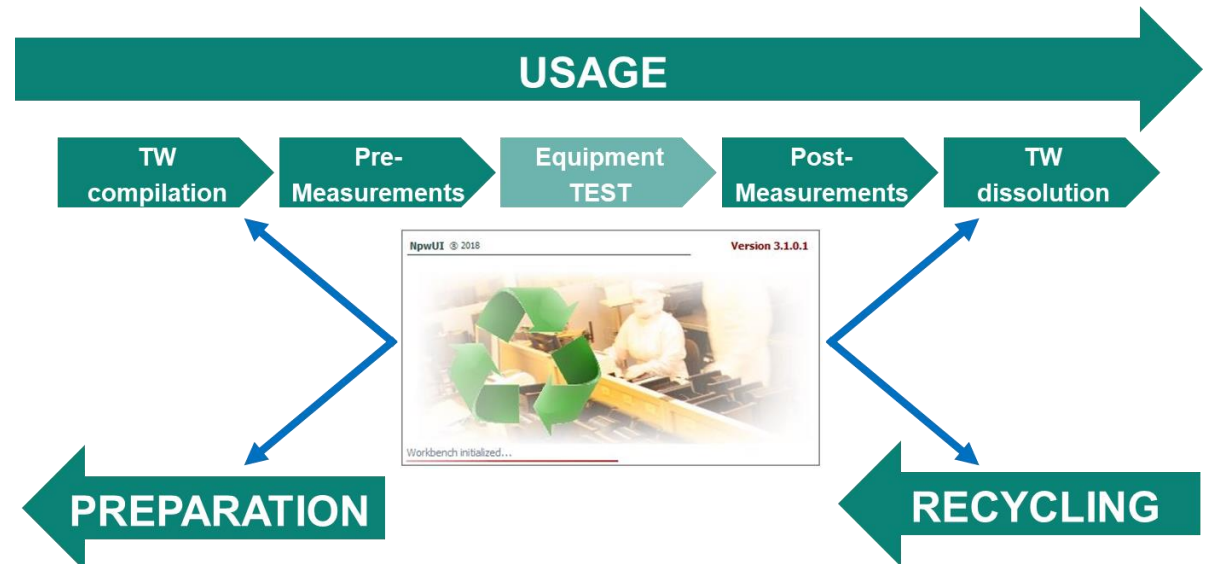# Our Approach for the Test Wafers Centralized Areas

Key Elements

– Dedicated Shop Floor Area (per hall)
  – Every kind of Test Wafer is stored in that area
  – Equipped with RFID-Shelfs/Stocker, Sorter/Mapper,…

– TW Operator
  – Compilation and dissolution of test wafers' lots
  – Processing of all Preparation and Recycling Wafers/Lots

– TW-UI (User Interface)
  – Task list for the TW operator
  – Scheduling the Test Wafers
  – Managing minimum stocks of Test Wafers

Workflow for Test Wafers

PREPARATION → USAGE → RECYCLING

USAGE

| TW compilation | Pre-Measurements | Equipment TEST | Post-Measurements | TW dissolution |

PREPARATION

RECYCLING

Handling of Test Wafers in Centralized Areas

Benefits

– TW Operator
  – Dedicated with clear responsibility for complete test wafers' flow
  – 24/7 availability
  – Well-trained with lots of experience

– TW-UI (User Interface)
  – Prioritization based on clear rules
  – Monitoring demand and consumption
  – Part of the MES

– Potential to fully automate the compilation and dissolution steps
  – Significantly reduced manual effort
  – No interruptions due to break times, shift change,…

Thank you.