Cover Story

## Smart Factory in four steps
Industry 4.0 disarmed

Industrie 4.0

Stage 4: Functionally Linked Factory

Stage 3: Autonomous Factory

Stage 2: Reactive Factory

Stage 1: Transparent Factory

Highlights

MANUFACTURING INTEGRATION PLATFORM

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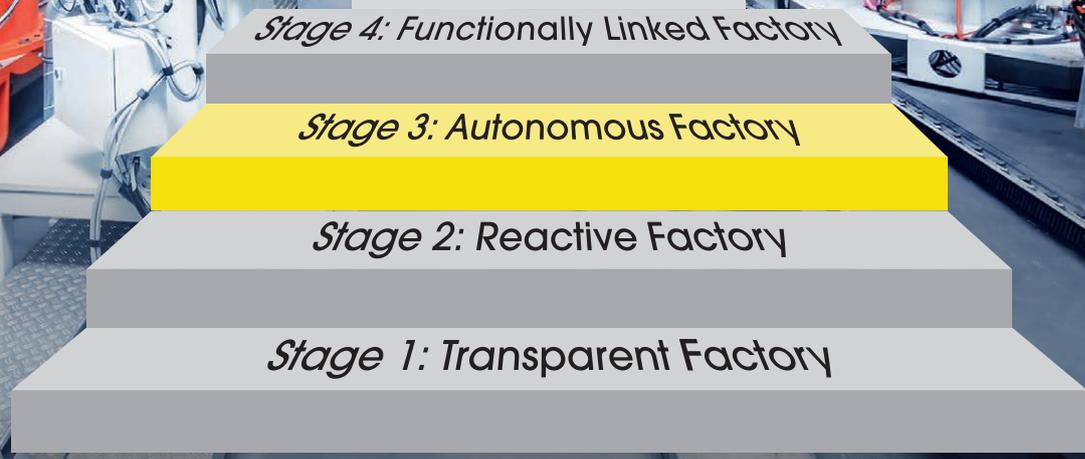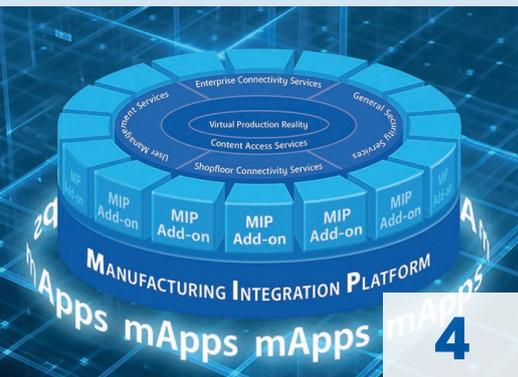
www.vtgarment.com

VT Garment Co., Ltd. with headquarters in Bangkok, Thailand, specializes in design and innovative manufacture of outerwear, casual wear and sportswear ranging from jackets, functional clothes, ski wear to jogging suits, shorts and vests. VT Garment deploys latest technologies in the production processes of pressing, screenprinting, engraving, laser cutting, pocket welding, sewing and embroidery. In addition to the Bangkok headquarters, VT Garment operates a manufacturing plant in Myanmar, with a totally combined workforce of 3000 staff.

HYDRA introduction background

VT Garment management has been leading the way in innovative textile manufacturing processes in Thailand for a long time. Being a very IT-driven industry champion, in 2013 VT Garment embarked on the journey to implement a company-wide ERP-solution, namely Infor Cloudsuite Industrial. Along further efforts toward Industry 4.0-driven digitalization of the complex textile production shop floor, it became apparent that additional shop floor control including machine connectivity is required. Two main objectives had to be fulfilled, as a foundation for all further improvement efforts from thereon:

1. Full transparency of actual production resources performance "Man and Machine", i. e. reliable management of labor time performance and machines' / workplaces' overall OEE performance.

2. Reliable finite capacity planning, in interaction with the ERP system, to have true real-time visibility about the current WIP situation and the short- to mid-term planning horizon.

MPDV Asia Pte Ltd in Singapore, together with appointed Thailand Agent E.S.E. – Extra Solution Engineering Co., Ltd. from the Industrial Automation (IA) field, cooperated together with VT Garment on concept definition and proposal during an initial pre-sales phase, leading to a project kickoff in July 2017, with a clearly prioritized & phased implementation strategy within MPDV's Industry 4.0 four stage progress model
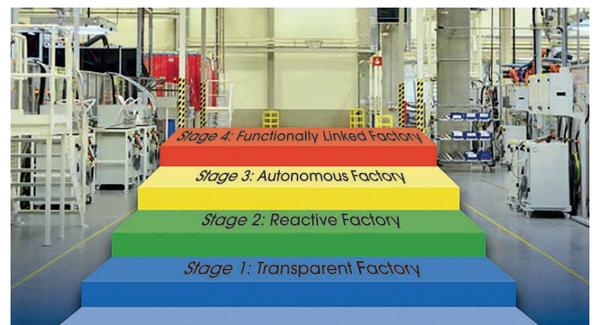
Step 1 Phase 1: Become transparent, through the deployment of HYDRA modules
Shop Floor Data and Machine Data including direct machine connection.
Step 2 Phase 2: Become reactive, through the deployment of HYDRA module
Shop Floor Scheduling, including ERP integration for planning.
Steps 3 & 4 are to be defined, when the time will be right in the mid-term future.

Implementation

The country partner E.S.E. had previously been trained in relevant HYDRA aspects for basic system deployment. Initial system configuration and trainings for step 1 were conducted in joint cooperation amongst MPDV and E.S.E., and the entire machine connectivity for status & cycle signal monitoring by MPDV's CT-UMPS machine interface was carried out solely by E.S.E.

Main application

In a very first step, VT Garment utilizes the HYDRA-internal workplan capability to maintain all relevant production routings and to generate their production orders. The priority is to obtain truthful figures about actual labor time incurrence and job duration. HYDRA Shop Floor Data offers this standard functionality out of the box with high configurability. Operations are executed on the shop floor, respectively.

Preparations for the integration with Infor ERP, for production order release and confirmation – are on the way and shall be realized in early 2018.
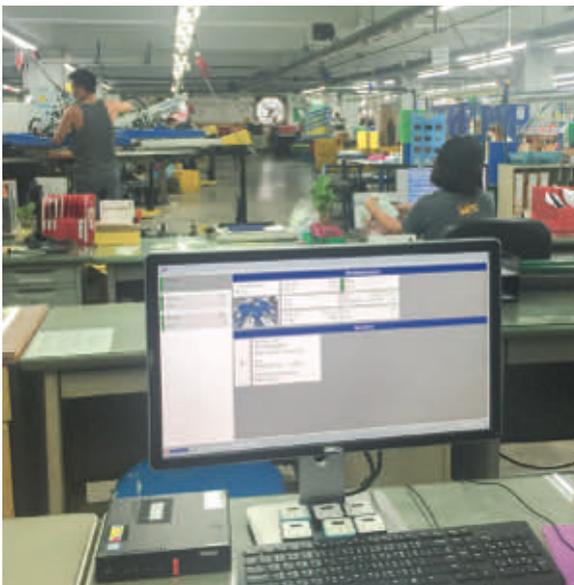
The textile-manufacturing environment poses multiple inherent technical challenges when it comes to industrial automation and machine connectivity. In many areas, there are highly advanced machine systems available, with state-of-the-art machine controls, yet there are other production processes that are still very much manual labor based or mechanically driven. To provide a simple-to-deploy and easy-to-manage machine connectivity for various machine statuses in the processes of screen-printing, spreading, cutting and embroidery, MPDV's hardwired CT-UMPS interface provided the right solution that translated into simple configurability. MPDV agent E.S.E. provided the right skillset and experience for identifying the right source signals within each individual process and machine.

Within HYDRA Shop Floor Data and Machine Data, all OEE-relevant information of machine statuses ("Availability"), performance cycles ("Efficiency") and output yield/reject quantity ("Quality") is now available by mouseclick.

Additonal standard reports about labor times and job durations, along with necessary categorizations in productive- and various downtimes, are available, too.

> **❝ Mr. Chalumpon Lotharukpong, Managing Director of VT Garment:**
> HYDRA has provided us an easy-to-deploy standard solution, through its very high degree of configurability, within a reasonable budgetary framework in our local environment. We can see all the order and machine data we are looking for in our step 1 deployment, to make informed decisions. As we are looking forward to further Industry 4.0-driven digitalization of our textile shop floor environments, we are confident that HYDRA can help us in getting things done efficiently. Our step 2 actions are currently being planned, in order to become more reactive. ❞