#9 SmartFactory System Platform

・#10 Trung tâm tra cứu nhanh (*Quick search center*)

・#11 Trung tâm xử lý bất thường (*Abnormal processing center*)

・#12 Tra cứu truy xuất nguồn gốc SP (*Product’s root traceability*)

・#29 Tra cứu truy xuất nguồn gốc 2DID (*2DID’s root traceability*)

・#32 Quản lý nguyên vật liệu chính, phụ (*Material management*)

・#35 LQ Kanban (*Line quality visualization*)

・#36 OEE Kanban (*Overall efficiency equipment visualization*)

**Smart factory Note**

* 37 categories need to be satisfied
* 80% for all categories as B requirements, follow priority

**QC**

* E-mapping: auto check and auto upload data to system operation
* Holding time management: time btw operations (B and SMT operation)
* SPC management: Qty’s product and Statistic
* Maverick: …….
* Error management and statistic, process data, some fields to see the trend
* Real-time dashboard to see error lot, good lot….
* LQ Dashboard
* **10/9**
* SPC:

+ SMT: Auto SPC transfer from JPN, visualization: SPC dashboard,

+ Bareflex => add p-chart control item, SMT => add all control items. MMCV design concept and ask JPN IT team. Due date end Sep

* IPQC:

+ Process setting: tablet, use for SMT, due date begin Oct

+ Cosmetic: tablet, use for SMT, due date begin Oct

+ Measurement: Upload result to tablet system

* Maverick

+ Bareflex: MPE system or SPC system. MPE dashboard. Align target with ZH, align how to judge OK/NG with ZH

+ SMT: align with ZH. MPE dashboard

* Holding time: MMCV

+ Bareflex: holding time system (AS400). Holding time dashboard, alarm function. Lot => Sheet 2DID => start, finish by 100% 2DID by scan. =. Discuss with Prod and Engineering + fix concept

+ SMT: MAT system. Holding time dashboard, alarm function. 100% 2DID scan. Baking + packing

* Abnormal

+ Q stop system (AS400). System copy from JPN. Fix abnormal definition. Discuss with JPN QA + fix concept

* IPQC audit critical finding:

+ ZH system. Ask ZH to provide master list of check item of each process. System copy from ZH: compare audit format, modify system, P/O to MAT

* Quality performance:

+ Bareflex => Yield + top hitter: Overral, via AOI, pattern AOI, E-check, AVI. Data upload from machine to data center. Quality performance dashboard: per line, per machine, per process, overall. MMVC top hitter and yield trend

+ SMT => Yield + top hitter: Overall, SPI, AOI, ICT. Data upload from machine to data center

* OQC, OBA, OK2Ship => MMCV are developing
* dd

**IT**

* API, DLL same as FOX system: develop API, support Mechanic to push data from machine to database
* Centralize all systems to one: MMCV combine with MMCZ
* Some operations change can be alert by email to involved person automatically and support to search history
* Copy Z and Japan quick search part (optional). 9 – 12
* E-Kanban and OEE dashboard: verify with Prod what things need to display and avoid show sensitive, bad result…

**Fox System (8/9)**

* Copy from Z (JSON file, end date in Oct)
* Need API service from Apple to upload data to system under JSON format (some operations and some data fields relate to production operation)
* Need prepare JSON input to upload into API system

**Review will have 8 categories need to do (9/9)**

* Kanban to display OEE: Motion board approach
* Searching material: copy from Z
* Tablet: daily report, paperless => Prod, Prod Management => JPN will support to do this (tablet must have NFC features to scan electronic moving card because camera is banned in Shop-floor)
* Ensure network always work, never downtime, quickly to solve and recover. 2 lines parallel networks
* Security discuss more with Z and JPN

**FPC => SQE (7/9)**

**SMT => SQE**

* Manual upload master list or can pull data from server. Auto later
* Copy Auto SPC system from Z or improve our system

**MSA và Quản lý thiết bị đo (Machine management)**

* MSA done, QLTB not done
* Our current system is Lotus same as Z (meter lock)
* Quản lý hiệu chỉnh các thiết bị đo trên máy
* Copy MSA
* NMS (NOK Maintenance system)
* Japan will support, maybe build and transfer app

**PRODUCTION (paperless, chemistry management) (8/9)**

**Paperless: prod**

* Z: Daily report (just input and display by tablet not automatically send email, attached file or images…) => We can build an own system (define some error, description, standard word for quick input instead of typing many words waste a lot time) => Copy from JPN
* Do SMT has a system for Tablet to input if not we can copy from JPN
* Input Checksheet => how??? (copy mobile app from JPN, Z)
* Moving ticket (will discuss more with production)

**Paperless: chemistry management**

* Z do not have (machine Id, chemistry Id, Operation code, chemistry box Id, ) => save into excel => upload to system (solution: Will scan barcode directly then save into system)
* chemistry box Id from AS400
* => Use Z (developing), copy from JPN (just enter time, what lot???)

**Action: traceability, tool/jig (9/9)**

* Z

**PRODUCTION Management (paperless)**

* **Electronic moving ticket (emv)**

+ Scan QR-code, get available information and input some fields relate to prod…

+ Z are still using 2 method paper and emv parallelly (store data to immediate database after that save into AS400 database later – do not have right to insert directly)

+ Use software in JPN are built in Tablet so data will be inserted to AS400 directly

* **Material Management**

+ Truy xuất nguyên vật liệu và quản lý hóa chất

+ Quản lý trong AS400

+ Kiểm soát holding time, thời gian xuất kho, hạn…

* **Change operation alert**

+ Building and getting support from JPN (improve more)

+ Replace AS400 => it means we have right to write to AS400 Database??

+ Quality confirmation will be inputted in system with Moving ticket

+ In JPN have a smart system so we can apply

* Auto send mail and information attach in mail body (user email need to be setup before)
* **10/9: copy system from JPN for moving ticket and change design operation**

**Devices Management (9/9)**

* Devices management via QR code, all sheet or just a piece, mold… all process, machine relate to product
* QR code scan device will use both in manual (use hand) and auto (setup in fixed position)
* Push data from devices (punching Yamaha???) to system directly via API
* Air punching machine (máy dập không khí): how to trace => setup API endpoint in machine to push data into system
* Air suck machine (máy hút chân không): Can install Camera on above to scan QR code
* OEE: use DLL to upload
* Copy from Z, IT will be transferred

**Environment (9/9)**

MSA, Hóa chất, thiết bị đo, quản lý thiết bị

**Thiết bị đo:** nhiệt độ, đổ ẩm, độ sạch

* HW tự mua, SW & Kanban thì thảo luận với IT tự làm (Bên Z trông rất ổn nên copy)

**Quản lý thiết bị:**

* MSA system: copy from Z
* NMS: NOK Maintenance system

**Smart factory (23/9)**

* Need to make detail documentation for VN know more about the total process

**2D – QR code**

* Use 2d scanner connect with tablet via Bluetooth
* Use camera but need to build app install on tablet
* All data related will be stored in AS400
* Standardize “line number” to … easy to get and synchronize data

**NMIS**

* NOK do software then send to Vietnam

**Tool/ Jig**

* **Traceability**
* **Qualification**
* **Life-time control**
* **Preventive Maintenance**
* **Auto-lock**

**Current tool/jig are being managed in AS400 in MMCV => List down all and explain**

* Tooling fixture: #ID unique: MPN + tool + number layer; process + code + MPN + tool + number layer (process and code are master data has been named by JPN) => Apply for all operation in SMT
* Rack Management: rack contains Tool/jig
* 2D ID size: 18, 8, 25 mm
* Purchase management system to manage buy tool/jig
* Set rule and register number of tool/jig: ex: 1-100
* Diagram and info of tool/ jig management (version index when update)

**18/10/2022 – meeting with MMCZ**

* **Upload data to server by API**

+ Load balancing

+ Loss data while uploading if electric out or do not know the data has been uploaded => use queue

* Top management of each category: process, equipment, quality, operation
* Participant (system and process guys)
* **IT** => Visualization: Need in one screen not scroll - UX (export excel to see all easily)

**03/11/2022**

* **OEE**

+ Copy from Z or build MotionBoard

+ List down some kind of data need to collect for specific Machine

+ Formula to calculate OEE => need to review (other meeting)