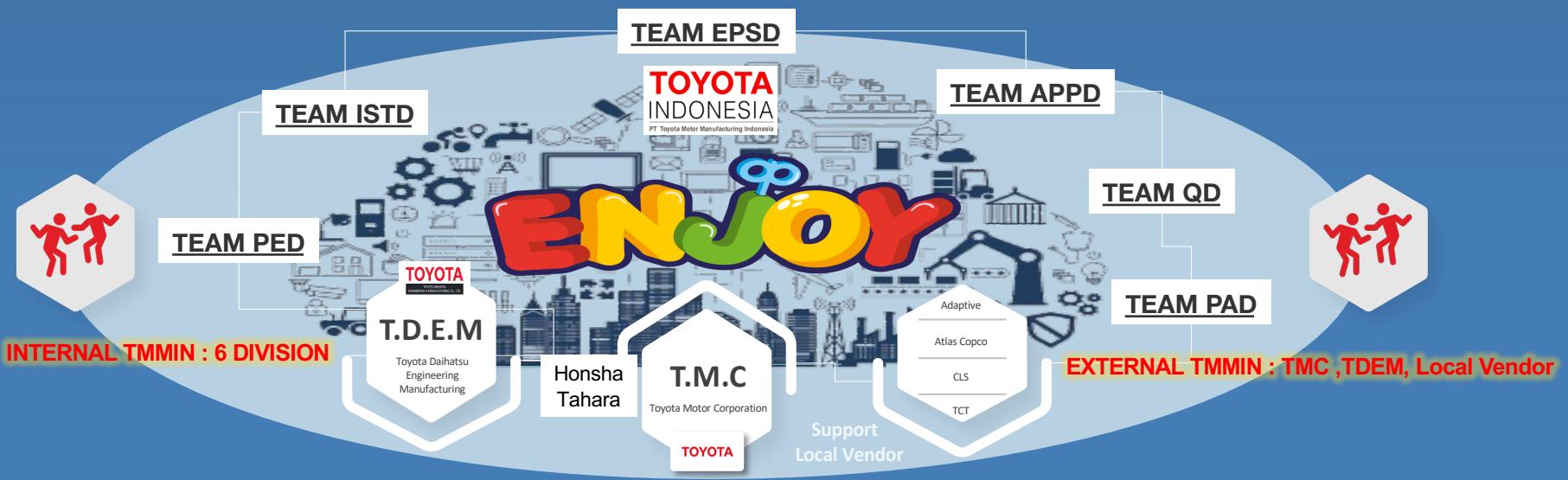




# PT. Toyota Motor Manufacturing Indonesia

Thema :

## The 1<sup>st</sup> xEV Battery Line Collaboration Unit & Vehicle for Safety & Quality



1.1

## GLOBAL POLICY for FUTURE CHALLENGES



Toyota Environmental Challenges



Sustainable Development Goals



### [Challenge 1]

**Development for New Vehicle Generation  
with Zero CO2 Emissions (Eco-Friendly Vehicle)**



Sumber ekon.go.id

**Toyota Tegaskan akan Tambah Investasi di Indonesia dan Berdayakan SDM Lokal untuk  
Menuju Era Elektrifikasi di Indonesia**

27 Jul 2022 08:48

KEMENTERIAN KOORDINATOR BIDANG PEREKONOMIAN

REPUBLIK INDONESIA

SIARAN PERS

HM.4.6/395/SET.M.EKON.3/07/2022

**Toyota Tegaskan akan Tambah Investasi di Indonesia dan Berdayakan SDM Lokal untuk Menuju Era Elektrifikasi di Indonesia**

Tokyo, 26 Juli 2022

Menteri Koordinator Bidang Perekonomian Airlangga Hartarto menyambut baik rencana tambahan investasi pembangunan kendaraan listrik oleh Toyota Motor Company di Indonesia. Komitmen ini disampaikan oleh Shigeru Hayakawa, Vice Chairman of the Board of Directors of Toyota Motor Corporation dalam pertemuan dengan Menko Airlangga di Tokyo, Jepang (26/07).

"Saya meyakini bahwa permintaan kendaraan listrik baik roda empat maupun roda dua di Indonesia maupun di kawasan ASEAN kedepan akan terus meningkat. Indonesia dapat dijadikan *industrial base* produksi *Electric Vehicle (EV)* untuk dipasarkan di kawasan ASEAN maupun di Indonesia sendiri," ujar Airlangga.

**New Vehicle Generation Must Link to Government Regulation**





## 1.2 MANAGEMENT POINT OF VIEW

TOYOTA



### Toyota Global Vision

Company Information, Vision & Philosophy

Toyota will lead the future mobility society, enriching lives around the world with the safest and most responsible ways of moving people.

Through our commitment to quality, ceaseless innovation, and **Respect for the Planet**, we strive to exceed expectations and be rewarded with a smile

We will meet challenging goals by engaging the talent and passion of people who believe there is always a better way.

TOYOTA  
INDONESIA  
PT. Toyota Motor Manufacturing Indonesia

### C. CY 2023 ASIA Hoshin related with manufacturing

①. **Maintain Asia as Toyota's 2<sup>nd</sup> home market** as major contribution for Global Toyota in sales & profit by regaining competitiveness through achieving short - mid term target

②. **Implement true multiple pathways toward CN & acceleration toward mobility company** through scale up Asia actions to realize beyond **HEV 30% / BEV 25%** mix target by 2030

### D. Manufacturing Top Management Way of Thinking

①. **Lead future transformation in auto industry by redefining our future in mid & long term (2025 - 2029)**

②. **Prioritize the development of our human resources**

③. **Think with "YOU VIEW" approach, sharpen our antennae & strengthen Crossfunction Collaboration**, while maintaining 3 promises value to realized business transformation with speed & agility

Toyota Support Indonesian Government for Electrification Era





1.3

## TMMIN COMPANY HOSHIN

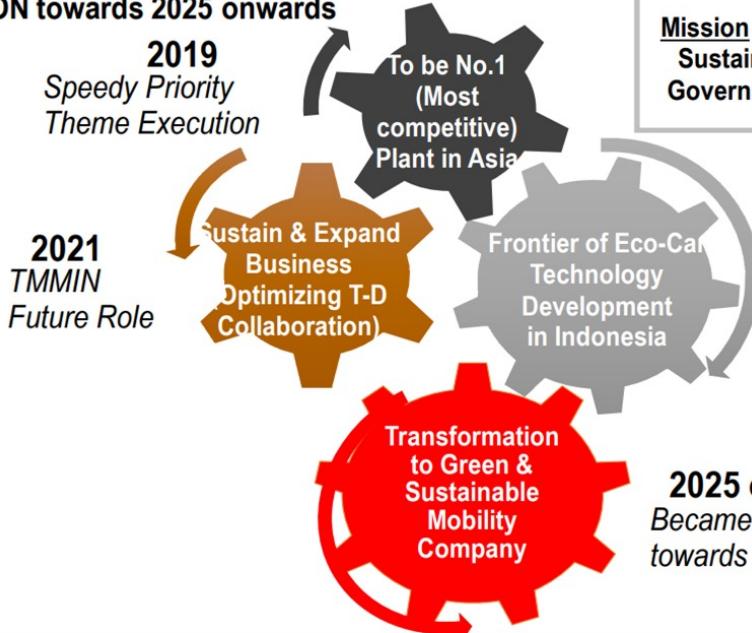
### 1) VISION & MISSION towards 2025 onwards



Warih Andang Tjahjono  
President Director



Nandi Julyanto  
Vice President Director



**Mission :** To Contribute More to the Nation & Toyota Global through Sustainable Local Manufacturing of Model that Meet Customer & Government Expectation, Boosting Export & People Development

2022

Maintain leadership in electrification through **xEV product & industry development**

2025 onward

Became ID lighthouse of Company towards CN target

### 2) MILESTONE

Achieve most competitiveness cost for HEV Model

DNGA & TNGA model competitiveness and BEV Local model production

Became lighthouse of Manufacturing in CN target

Meet Market & Support Government Intention  
Established New Profitability Mobility Business

**Development xEV Battery Product for Business Expansion**



1.4

## TMMIN PRESIDENT MESSAGE



**Warih Andang Tjahjono**  
President Director

<Mr. Warih A.T message>

**a. Lead future transformation in auto industry by defining our future in mid & long term (2025 - 2029) towards mobility and electrification era & strengthen our fundamental especially in safety and quality**

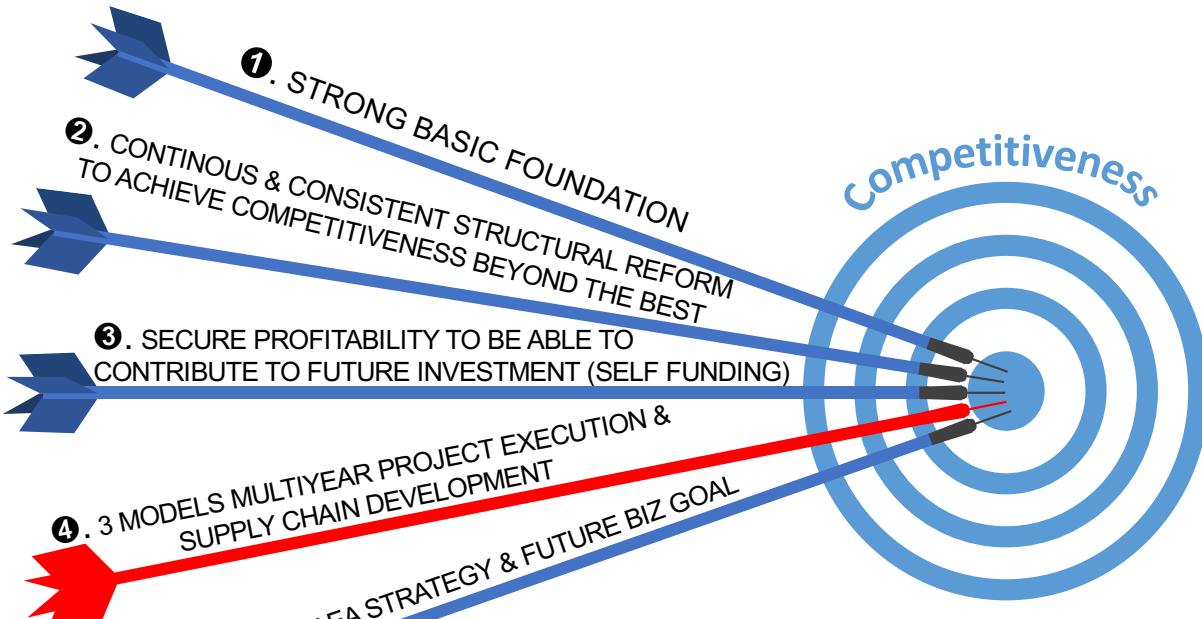
- 1) Structural Reform Step #2 Expansion & Monozukuri Reborn Activities
  - 2) Execution of 3 model multi-year project of DNGA-TNGA for B-SUV model in 2023
  - 3) Define TMMIN's role for future transformation in mobility & electrification era
  - 4) Execution of TMMIN New Business Expansion
  - 5) Define TMMIN policy & strategy towards Green & Sustainable Company towards CN target in 2035
- b. Prioritize the development of our human resources**
- 1) Transition to next generation by giving opportunities to explore new things & prepare organization capability
  - 2) Communication by good listening activity

**c. Think with 'YOU VIEW' Approach, sharpen our antennae, & strengthen crossfuction collaboration while maintaining 3 Promises xxx to realized business transformation with speed & agility**

**Key Point : 'YOU VIEW' with Cross Function Collaboration**



## 1.5 DIVISION STRATEGIC EXECUTION FY 2022



Priority Thema :

**3 MODELS MULTIYEAR PROJECT  
EXECUTION & SUPPLY CHAIN DEVELOPMENT**



**Hoshin EPSD**

APPROVED	APPROVED	PREPARED
Director	Executive Pj Leader	Division Head
I Nyoman W	I. Shibuta	Tagor J.D.

**Mr. Tagor J.D (DH)  
Message :**

Let's Execute Our Action Plans by ENJOY Your Job & Customer First to Secure Current Model (TR E/G) & Execute Future Model (TNGA E/G including HEV))

**Hoshin TMC**

**Message :**

"Let's change the future of cars"

Mr. Koji Sato

**Hoshin TDEM**

**Message :**

Realize beyond HEV 30%/ BEV 25% mix target by 2030

Mr. Yoshiki KONISHI



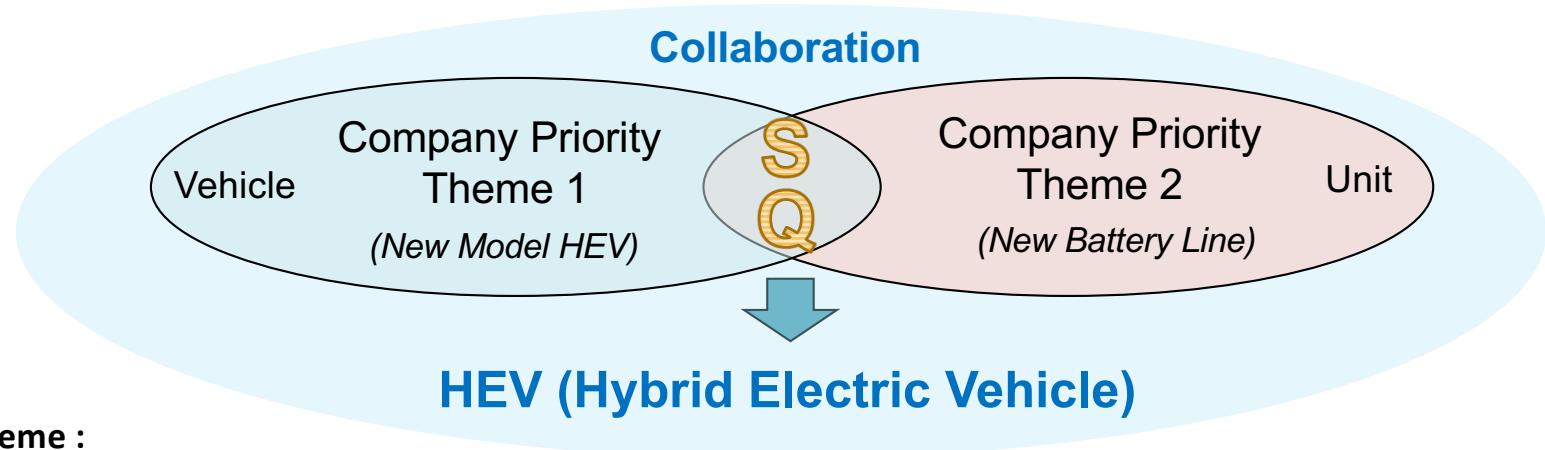
## 1.6 3 MODELS MULTIYEAR PROJECT EXECUTION & SUPPLY CHAIN DEVELOPMENT

Thinking Way : New Model Intro As **Market Leader In Indonesia** & TD Model in Global

①. Enjoyable HEV Battery Pack Assy 1<sup>st</sup> Mixed Line in AP (Ni & Li) → **Smooth Preparation HEV**

**1<sup>st</sup> Priority**

②. TMMIN TNGA Localization by Mixed Line with TR (Utilize Existing Equipment) → **Study TNGA (Feasibility)**



Specific Theme :

**The 1<sup>st</sup> xEV Battery Line Collaboration Unit & Vehicle for Safety & Quality**





## 2.1 PROJECT TEAM

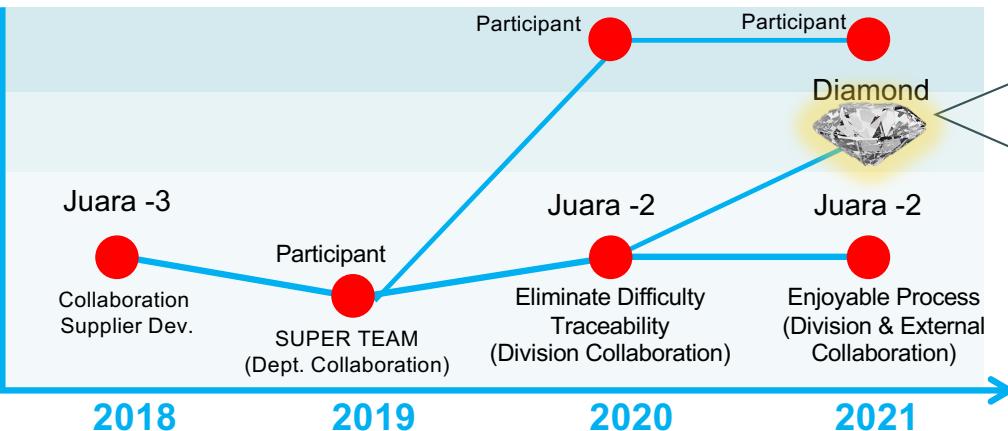


## 2.2 MILESTONE TEAM SMART (EPSD)

### INNOVASI ASTRA

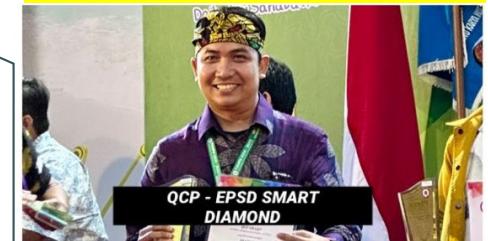
**TKMPN**  
(Temu Karya Mutu & Produktivitas Nasional)

### TAM / TMMIN



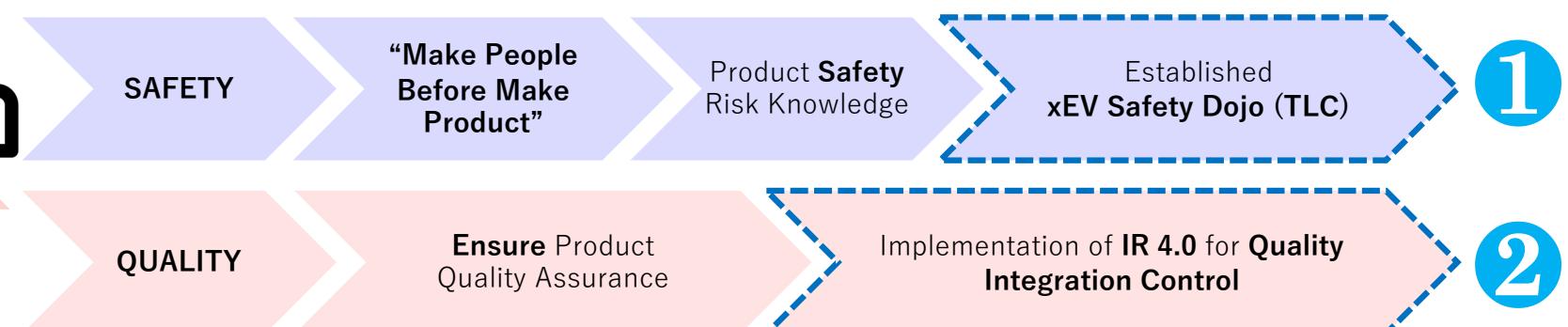
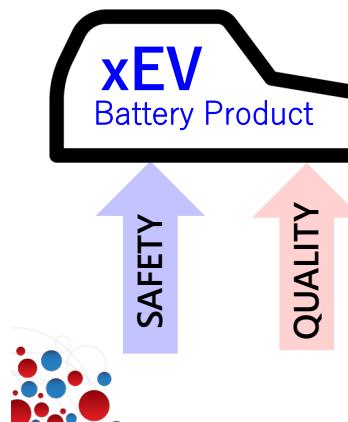
### Pencapaian TMMIN Diamond

Pertama kali di TKMPN



TKMPN - Lombok

## 2.1 TARGET TEAM SMART (EPSD)



## 2.3 GENERAL SCHEDULE

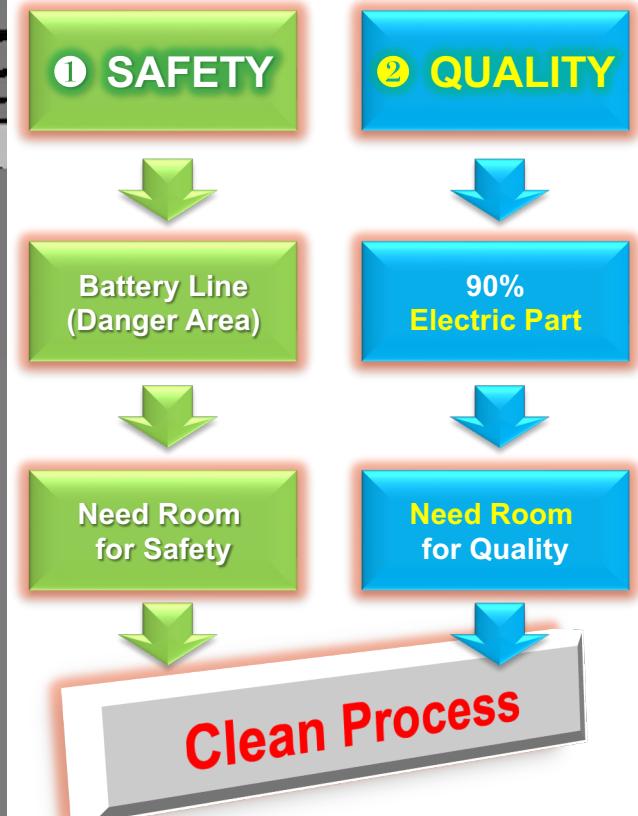
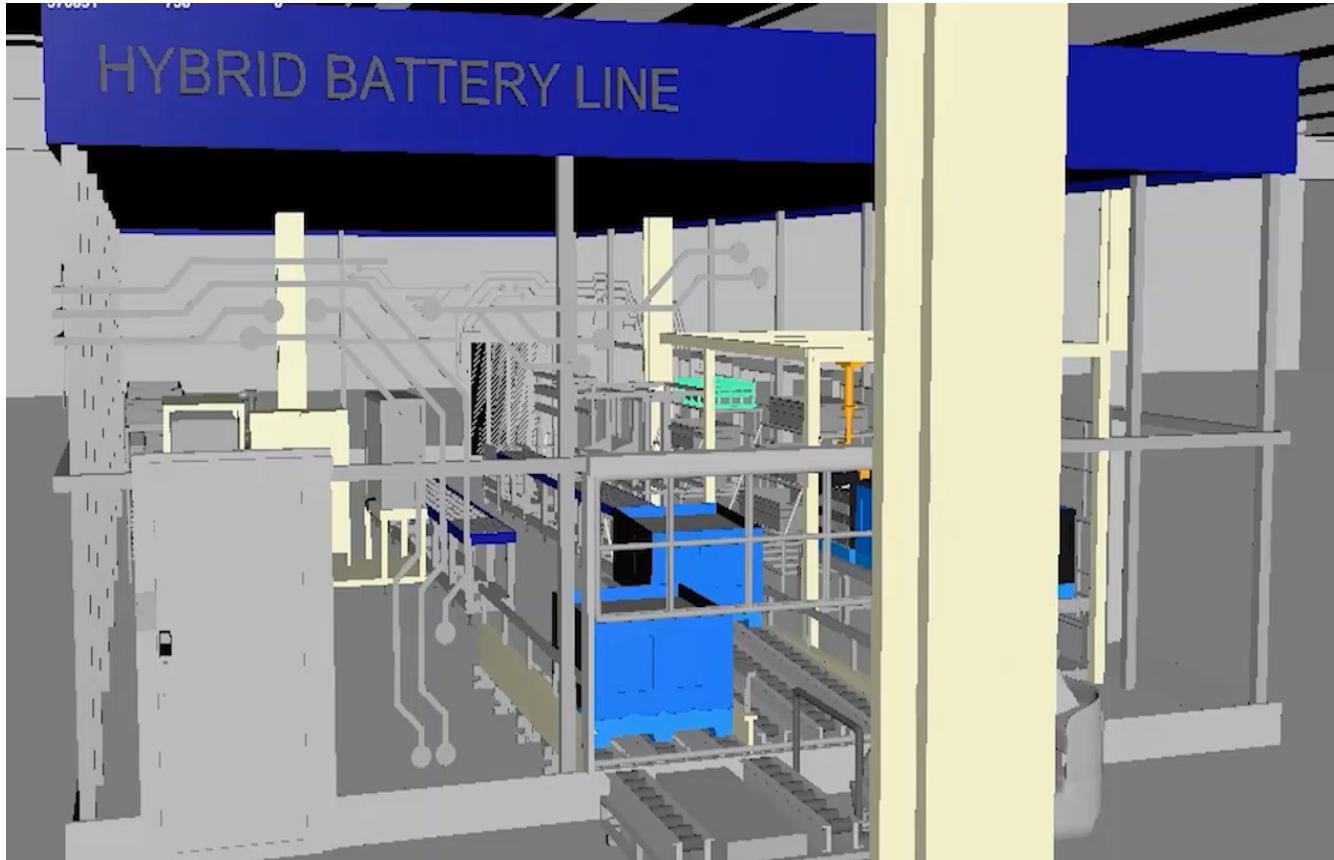


QCP Detail Activity			Purpose / Objective	Incharge	2022								2023							
					Mei	Jun	Jul	Agu	Set	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Mei	Jun	Jul	
P	1	Planning Activity	Team Project	Davin,																
	2	Focus Thema	Clarify & Setting Target	Davin,																
D	3	Plan Improvement	Concept Activity	QCP SMART																
	4	Safety Improvement	Training and Facility	QCP SMART																
C	5	Quality Improvement	VTO, Installation, ITO, TTO, PDCA Activity	QCP SMART																
	6	PDCA Activity	Continue Improvement	QCP SMART																
A	7	Evaluation	Calculate Contribute QCP	Davin,																
		Standarization & Next Activity	QCP New Thema	Andi, Davin																

: Plan  
: Actual

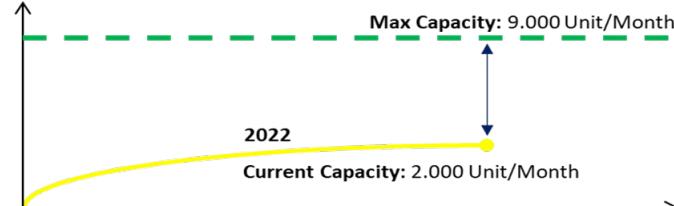


## 2.4 INFORMATION PROCESS LINE BATTERY



## ②.1 Plan Improvement

Concept Activity :



# ENJOY



**Ergonomic**  
Simple movement & Reduce workload

Total Machine 7

6	
1	

**New Idea & Eco-Friendly**  
Newest improvement & Eco-technology

Total Machine 7

6	
1	

**Joy to use**  
Enjoy working (simple & easy)

Total Machine 7

6	
1	

**Origin Indonesia**  
Utilize Local Maker with ID creativity

Total Machine 7

6	
1	

**Youthful & Modern**  
Fresh looking & high tech but keep flexibility

Total Machine 7

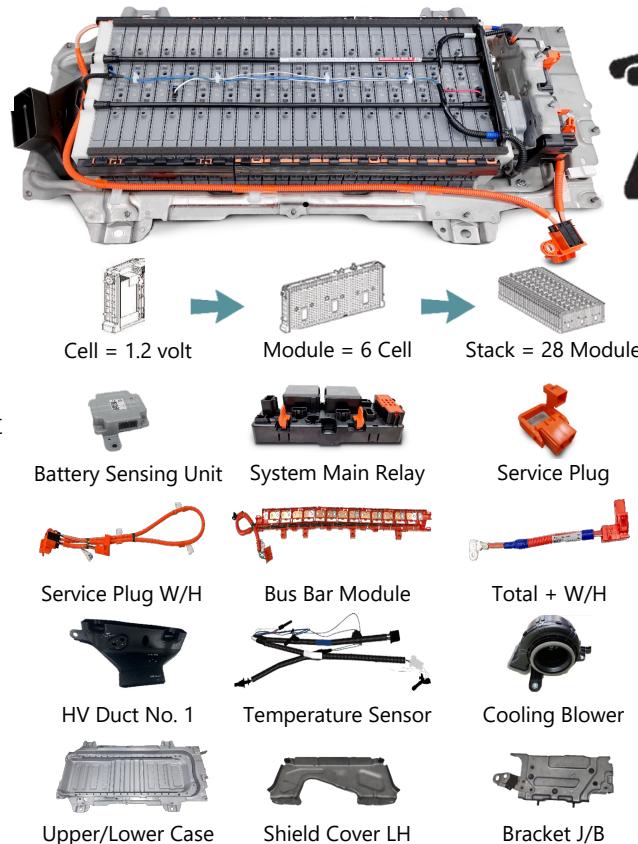
6	
1	



2.5

## THEMA EXPLANATION

### ❖ HEV Battery Structure



### PROBLEM

**Operator contacts live components directly while using not sufficient tools and equipment.**

### POSSIBILITY



#### 1. SAFETY REASON :

**Risks:** High electrical currents, electric arcs and exploding batteries can cause heavy injuries or death



#### 2. QUALITY REASON :

**Risks:** Miss Assy potency Quality Battery Not Good and problem while charging (Burning Car)



# 1 SAFETY DEVELOPMENT



Considerations

→ Safety Issue of the Battery Production



How to...?

**“ Make People before Make Product ”**

**1. Skill from TMC** [知識習得 Knowledge]

Mr. Koike (Trainer from TMC)

APD (Alat Pelindung Diri)

Sequence Assy Battery for Safety Reason

**2. TMMIN Safety Dojo**

写真：安全道場(TMMIN)  
xEV Safety Dojo

<災害・火災に対する準備 Preparation for the incident or fire>

対応（火災） Preparation(Fire)      対応（漏液） Preparation (for Electrolyte leakage)

- (1) 水消火器（初期消火用） Fire Extinguisher (Water based & No Residue)
- (2) スプリンクラー Sprinkler
  - ・温度／煙検知
  - ・エリア分割 & 作動範囲

写真：保護具&対応  
PPE & Collecting method



Collaboration with

EPSD

PED

PAD

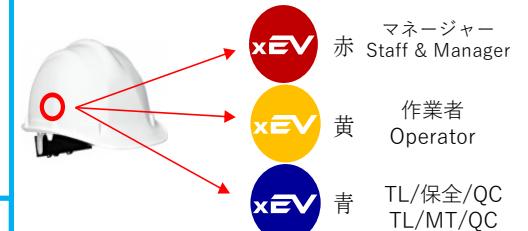
TMC

## Result

&lt;作業許可と必要資格の明確化

**Working permission and visualization**

対象者 Target



必要修得要件 Requirements

(Passed xEV Safety Dojo)

(Certified skill for Battery Assembly)

(passed Low Voltage Training)

## ② QUALITY DEVELOPMENT



Considerations

→ Timing Link to Production SoP Plant #1 and Plant #2



Collaboration with

EPSD	PED	PAD	TMC
APPD	ISTD	QAD	TDEM

全体概要 & ラインコンセプト  
Project outline & battery line concept

How to...?

TMMIN  
Karawang Plant no.2



Learn from TMC – Tahara and  
TMT – Gateway to achieve  
TMMIN Kodawari  
**(Not Just Copy)**



I NYOMAN  
Director

HEV Battery  
Nickel  
(Ni-MH)

Towing



SOP Timing  
November 2022

Estimated Volume Prod  
35,000 unit/year

CMPV – Innova Zenix

Battery Stack Layout  
Horizontal 1 Stack

HEV Battery  
Lithium  
(Li-ION)

Direct  
(bridge)

BSUV – Yaris Cross



BMPV – HEV



SOP Timing

June 2023 (BSUV)  
Sept 2024 (BMPV)

Estimated Volume Prod

30,500 unit/year  
15,000 unit/year

Battery Stack Layout

Horizontal  
2 Stack





## ②.2 HV Battery Equipment & Line Benchmarking



Considerations

→ Study Cost Reduction for Investment

Comparison	Item/Process	Benchmarking		TMMIN [Mix Ni & Li] (5k/month)
		TMT GW (3k/month)		
A. Room spec.	- Size - Panel Feature	- 22 m x 30 m x 4 m - Iso wall ▪ High speed shutter door ▪ Fire extinguisher sprinkler system		- 23 m x 9.3 m x 3.2 m - Iso wall ▪ High speed shutter door ▪ Fire extinguisher sprinkler system
B. MC & Equip. spec	2.1 Nut runner - Structure - Nut runner set	Struc : THAI NR : JPN Price :		Struc : INA NR : JPN Price :
	2.2 Charger & check M/C	3 M/C JPN		1 M/C for Ni & Li Utilize EX TMT/ STAES (Ni DCIR sampling check) Modify prog. by JPN maker
	2.3 Pallet design	Simple tray (can't rotate) THAI		Simple tray (can't rotate) INA Common For Ni & Li
	2.4 Conveyor - Structure	Struc : THAI		Struc : INA
	2.5 Traceability sys.	JPN		Expand current local sys.
	2.6 QC Equipment - Inspection equip - Total equipment sourcing	BTH comm. (Ni) 95 % JPN 5% THAI		CAN monitor 1 M/C 80 % JPN (common Ni & Li) 20% INA
	2.7 SOC Cond. - Receiving - Charging	60% 5-10%		60% 2-5% (will be confirm)

Operation Area  
(ref. TMT)



## B. MC & Equipment Specification



→ Follow up Stepping Process for All Equipment

Concept

Basic Spec.

Fabrication Process

VTO

Install

ITO

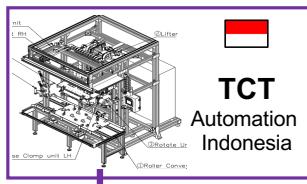
TTO



Atlas Copco



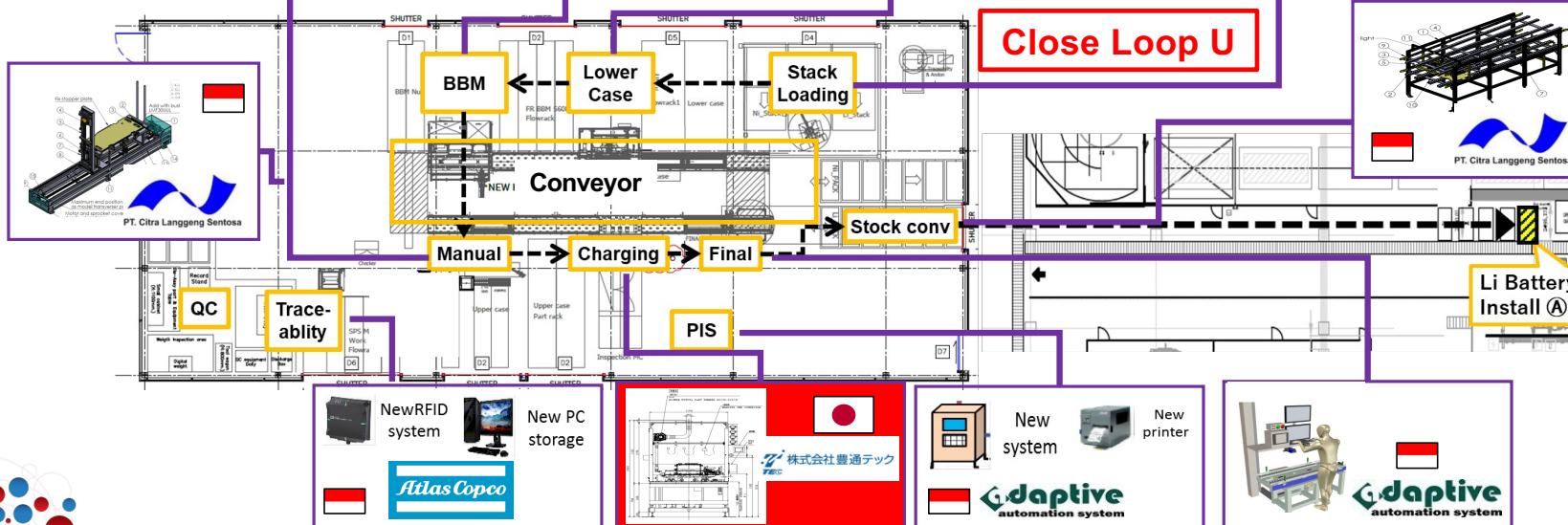
Tokoton  
Meiwa  
Indonesia



TCT  
Automation  
Indonesia



Raku – Raku Handling  
PT.SEKAWAN  
the partner you can trust



Collaboration with

EPSD

PED

ISTD

TMC

APPD

PAD

VENDOR

TDEM

90% Indonesian Creativity

Simplifice Process



3 Machine  
for Charging

1. Inspection
2. Charging
3. Back Up



1 Machine

1. Inspection + Charging

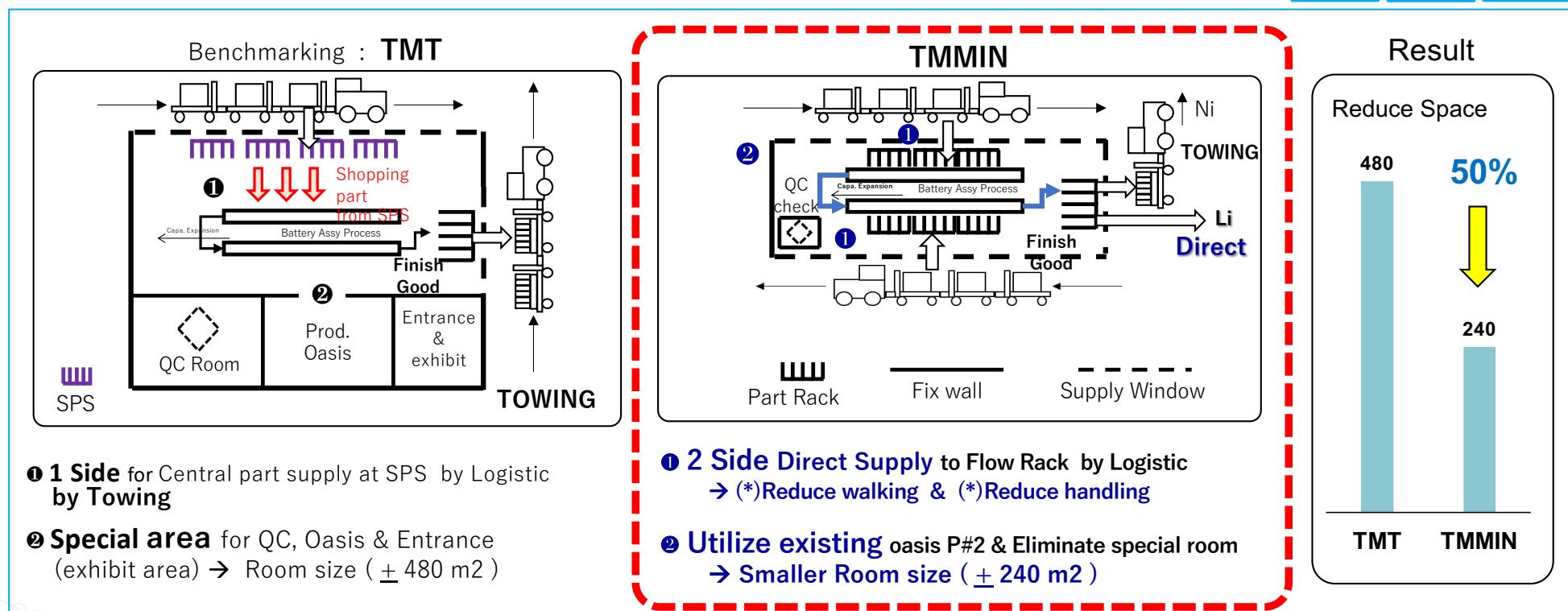


## A. Room Specification (Direct & Simple Supply Parts)



Considerations

→ Optimize Line Layout & Room facility  
by separate oasis, reduce QC area, easy supply parts



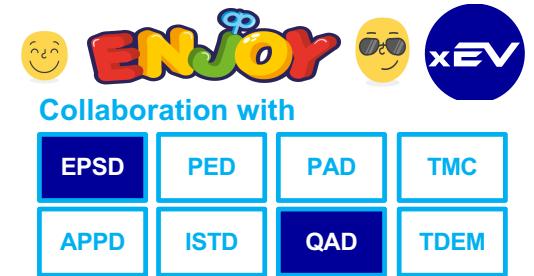
## Follow up & Evaluation



Considerations

→ Follow Up KPI Project (Safety, Quality, Productivity)

Item	Target	Result	Judge
Safety	- Zero accident - Follow Std (TMC advice)	- No work accident - Follow Std (Equip & PPE)	●
Quality	- QAN Level 4 (Class 1)	- QAN Level 2 (Class 3)	▲
Productivity	- OEE >= 95% - Linked PIS Battery & ALC P#1 - Real time Traceability	- OEE = 96% - Realtime Tracking from ALC P#1 (K-0 station) - Record 100% Data	●
MP Prep	- T/T = 1,110 sec	- T/T = 1,065 sec - MP do prod same as 3-slip	●



### ①. Safety Zero Accident

②. We Need to **Level Up Quality**  
Process to Make Customer Smile ☺

TAGOR JD  
Division

Apply **Technology**  
to Assist Operator Job  
And Level Up QAN



## PDCA 1 – LEVEL UP QUALITY



Considerations



Benchmark to TMC Tahara & TMC Honsha



→ Innovation Idea for Level up Quality Process  
→ by Technology Information System

Thinking Way :  
**“YOU VIEW” Approach & Sharpen Our Antennae**

### ① Picking Sensor

Purpose : Eliminate problem  
Wrong Part type and Missing Part



### ② Sound Checker

Purpose : Eliminate problem Miss Judgment manual sound by operator



### ③ Camera Judgement with AI

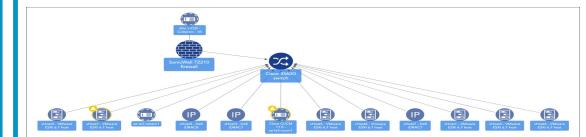
Purpose : Eliminate problem Miss Judgment for Manual Check

Artificial Intelligent (AI)



### ④ Integrated System

Purpose : Confirmation Quality Before Process and make sure Quality process OK (BIQ)



Concept : Toyota BIQ utilize Technology



## PDCA 1 – LEVEL UP QUALITY

Why QAN Still Weak Level 2 (Class 3)

Process Still Manual  
(Possibility Outflow)



Improve Pokayoke Picking Sensor  
Utilize Newest Technology



Collaboration with

EPSD	PED	PAD	TMC
APPD	ISTD	QAD	TDEM

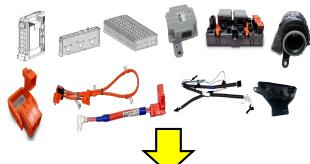
1.1

Problem : No Pokayoke Process Manual for Assy Battery

Improve : Pokayoke Manual by **Picking Sensor**

PDCA 1.1 – Technology Improvement

Before



WEAKNESS :

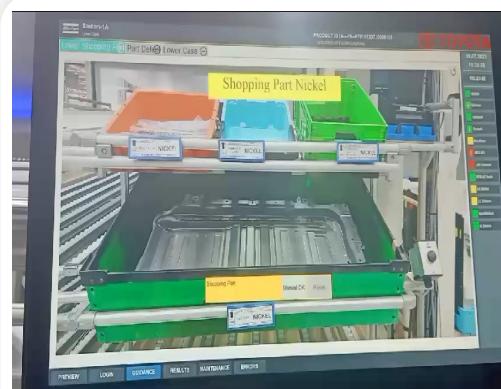
Possibility Wrong Type & Missing part

Manual Assy &  
No Pokayoke



QAN Level 2 (Class 3)

After



1. Detect part Type
2. Detect Missing Part

Eliminate :  
Wrong Type &  
Missing Part

QAN Level 3  
(Class 2)

Impact to QAN



Kadai : Operator Still have **Manual checking by Sound (Klik)**



## PDCA 1 – LEVEL UP QUALITY

Why QAN Still Weak Level 2 (Class 3)

Process Still Manual  
(Possibility Outflow)



Improve Pokayoke Sound Checker  
Utilize Newest Technology



Collaboration with

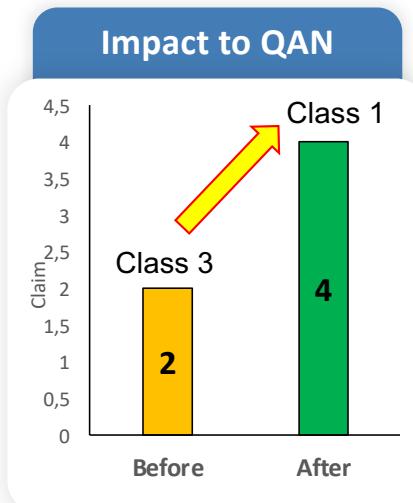
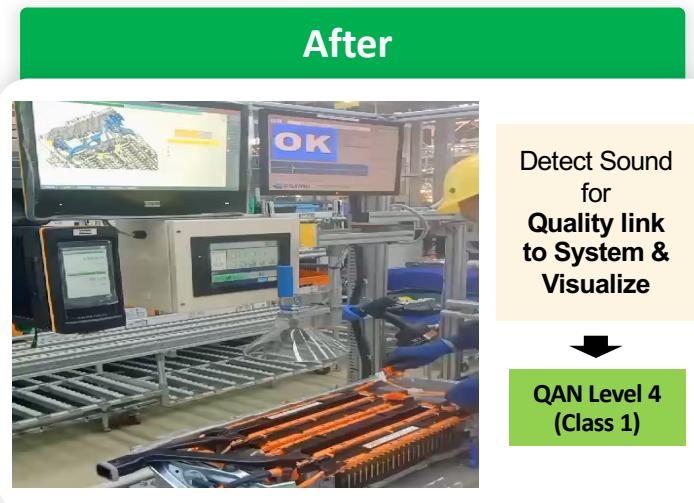
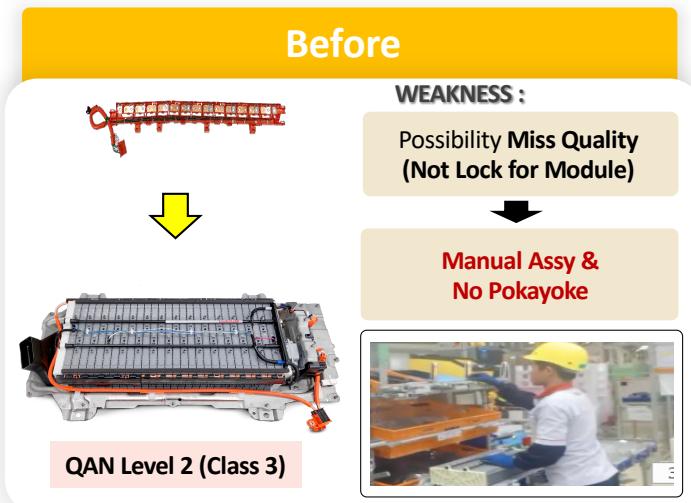
EPSD	PED	PAD	TMC
APPD	ISTD	QAD	TDEM

1.2

Problem : Operator still have Manual Checking by Sound (klik)

Improve : Pokayoke Sound by Sound Checker

PDCA 1.2 – Technology Improvement



Kadai : Need Level Safety Regulation for Sticker at Battery Pack



## PDCA 1 – LEVEL UP QUALITY

Regulation for Sticker Battery

Process Still Manual Check  
(Possibility Outflow)

Improve Check by AI  
(Artificial Intelligence)

1.3

**Problem : Need Level up Safety Regulation for Sticker**

**Improve : Pokayoke Check by Artificial Intelligence (AI)**



Collaboration with

EPSD	PED	PAD	TMC
APPD	ISTD	QAD	TDEM

### PDCA 1.3 – Technology Improvement

#### Before

Manual Check Label Battery



Possibility Problem :

Visual check for hourly or in critical hours

Eyestrain / less focus

Inconsistent

Proses Penting  
Regulasi Pemerintah

QAN Level 2 (Class 3)

#### After

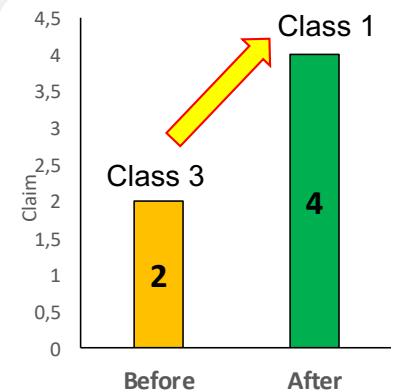


Utilize technology for check (Artificial Intelligent)

More Stable

QAN Level 4 (Class 1)

#### Impact to QAN



**Kadai : Not Connected between System & Improvement**



## PDCA 1 – LEVEL UP QUALITY

Not Connected between System

Integration data & System

Improve BIQ with Technology  
by Integration system

1.4

**Problem : Not Connected between System & Improvement**

**Improve : BIQ by Technology Integration System**



Collaboration with

EPSD	PED	PAD	TMC
APPD	ISTD	QAD	TDEM

PDCA 1.4 – Technology Improvement

**Before**



Possibility Problem :

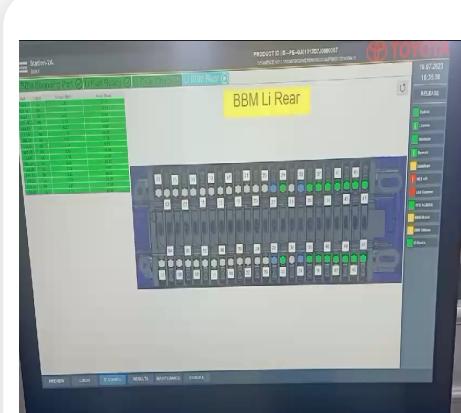
Manual Torque

No Integration System

BIQ still by Manual

QAN Level 3 (Class 2)

**After**

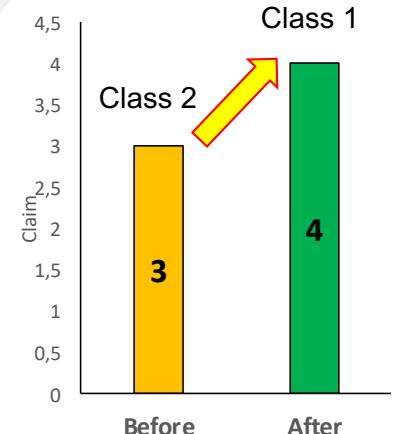


5 Axis Torque &  
Integration  
System for  
Build In Quality  
(BIQ)

More Stable

QAN Level 4  
(Class 1)

**Impact to QAN**





## Total Evaluation

Item	Target	Result	Judge
Safety	- Zero accident - Follow Std (TMC advice)	- No work accident - Follow Std (Equip & PPE)	Green
Quality	- QAN Level 4	- QAN Level 4	Green
Productivity	- OEE >= 95% - Linked PIS Battery & ALC P#1 - Real time Traceability	- OEE = 96% - Realtime Tracking from ALC P#1 (K-0 station) - Record 100% Data	Green
MP Prep	- T/T = 1,110 sec	- T/T = 1,065 sec - MP do prod same as 3-slip	Green

Advance SQCM Vehicle - Check List Readiness		Status	Eva
Item	Target		
1. Equipment (M/C & QC)	C/measure MPT kadai	100% countermeasure kadai	Blue
2. Parts check & Fill-in	100% (31 items) arrived	One-voice Vehicle Qty & Schedule	Blue
3. Process Training	6 MP done training	Finished study prod w/ 2MP , Finalize SWC	Blue

ALL KPI : Safety, Quality, Productivity Achieved Target



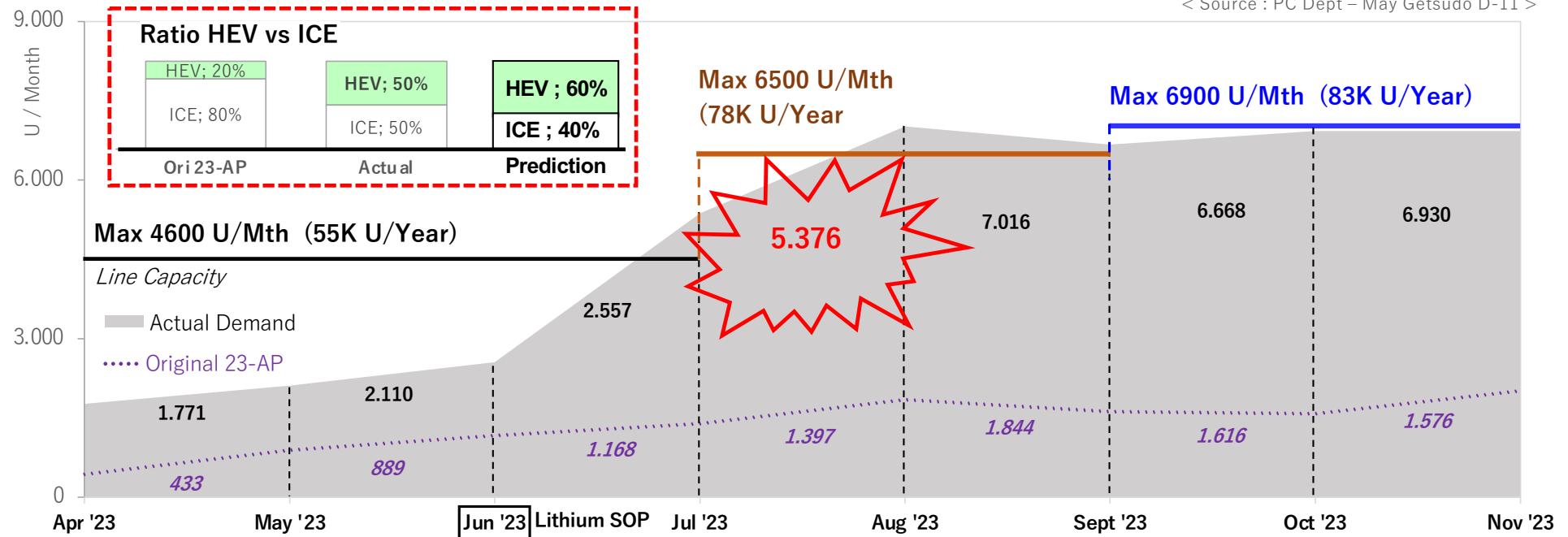
## Total Evaluation (customer point of view)

### Projection Volume of Battery (Ni and Li)

\*Ratio Ni : Li = 55 : 45 until end '23

Assumption Overtime = Daily 2,2H + Holiday 4 Shift

< Source : PC Dept – May Getsudo D-11 >



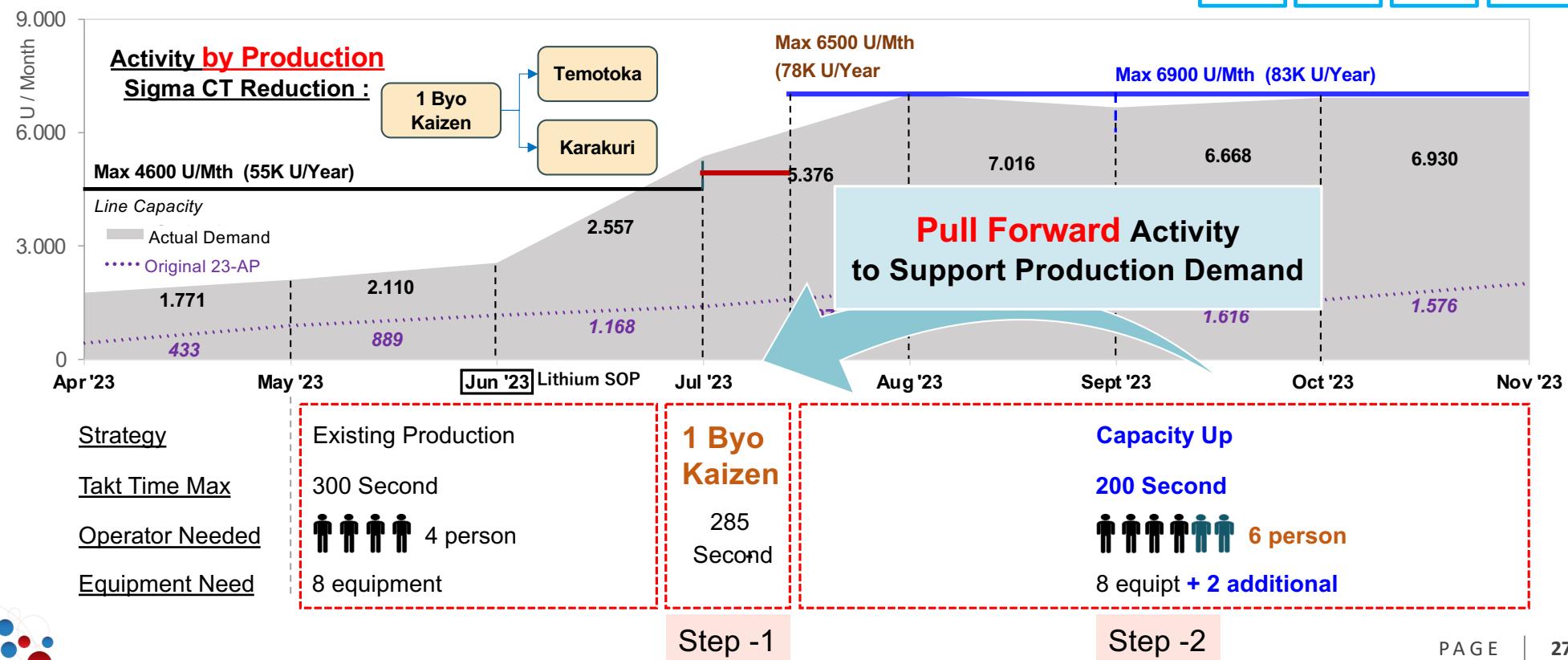
Base on Demand Production → Over Capacity for Line Battery



## Action and Countermeasure for Customer Smile ☺



- Realized Business Transformation with Speed & Agility
- No Need Additional Cost (Use Existing Equipment)





## Action and Countermeasure for Absorb Demand

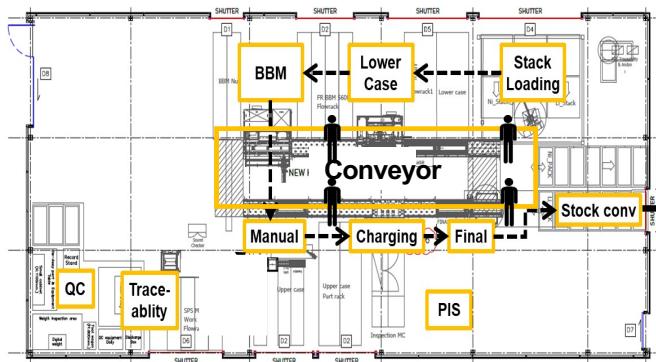
**Problem : Demand Over Capacity**

**Activity : Additional 2 MP & 2 Equipment**

**PDCA 2 – Absorb Demand**

**BEFORE**

**Tack Time : 300 Second**

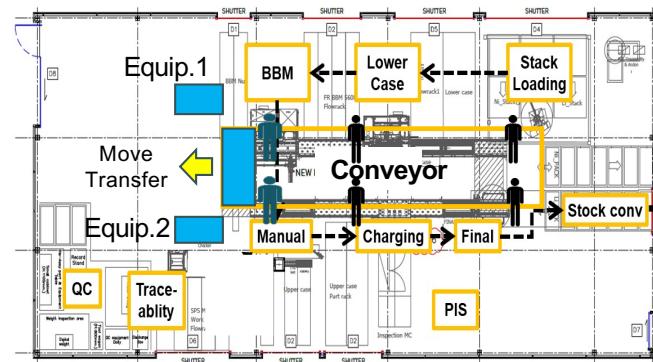


Man : 4 person

Machine : 8 equipment

**AFTER**

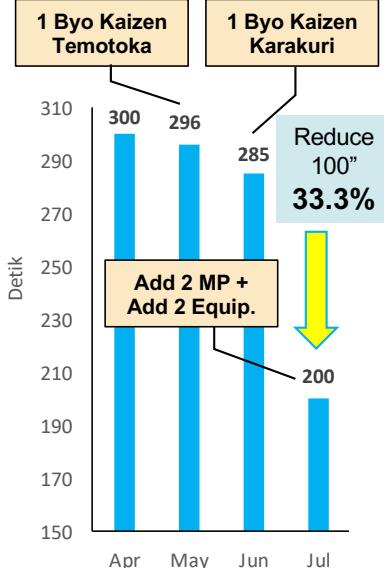
**Tack Time : 200 Second**



Man : 6 person

Machine : 8 equipment + 2 additional  
[Using Stock Back up]

**Impact to Tack Time**





## BENEFIT ACTIVITY

### ①. Impact for SQCP HR (Tangible)

[A] Safety



Establish xEV Safety Dojo

[B] Quality

Item	Target	Result	Eva
QAN	Level 4	Level 4	●
Tightening	Within Std at TIS	Sampling by Prod : OK All Unit by QC : OK	●
Outflow Defect	Zero	Zero Outflow	●
Repair	Zero	Zero	●

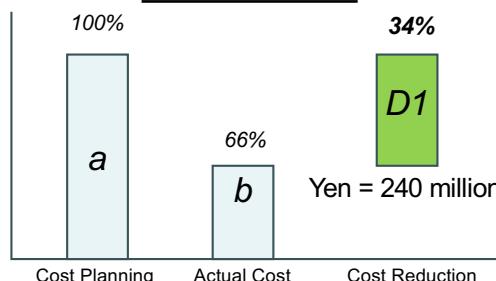
[C] Productivity &amp; HRD

Item	Target	Result	Eva
Machine	- OEE = 95% - Connected PIS Battery – ALC	- OEE = 96% - Realtime Tracking	●
Material	- On time - Within Std - No shortage	- No Delay part - No Wrong part - Same Qty order	●
Method	Same as 3-Slip	Same as 3-Slip	●
Man	Cycle Time 200"	Cycle Time 200"	●

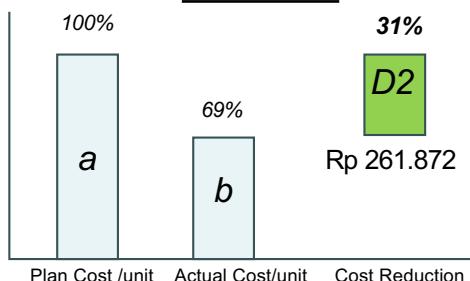
Assembly Battery Pack Safely & Follow Quality Standard. Ready for Mass Production

[D] COST

D1. Investment Cost



D2. Cost / Unit



D1. Invesment CR = Rp 30.000.000.000

Rate :  
Rp125 / 1 Yen

D2. Cost / Unit = Rp 261.872

Prod. Vol. = 5.376

Pull Forward Activity absorb demand      Before = 5.376  
After = 5.376 + 7.016

Total / Month : Rp 3.245.117.824

Total Benefit : Rp 33.245.117.824

## BENEFIT ACTIVITY

### 2. Impact for SQCP HR (In- Tangible)

1. Kepercayaan TMC terhadap Market dan System produksi di TMMIN meningkat

#### Consumer Preference and Experience

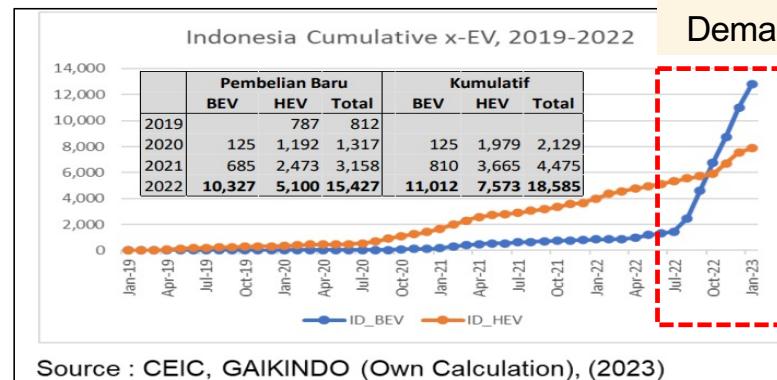


2. Semangat dari member TMMIN untuk bisa ber**Transformasi** dan mendapatkan Product baru dan Technology baru

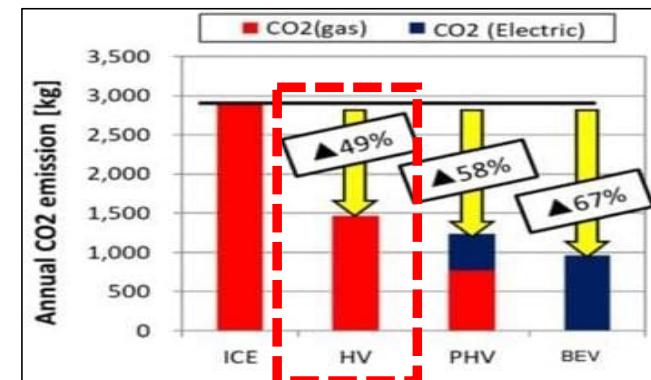
3. TMMIN menjadi **yang pertama memproduksi Battery di Indonesia** dan bisa menjadi basis produksi di AP

4. Customer smile ☺ dengan capacity up line Battery bisa mengurangi waktu **Indent innova zenix** dari **9 bulan menjadi 6 bulan**

### 3. Impact for Environment



Increasing Trend  
Demand of HEV



HEV Battery  
Reduce  
**49% CO2**  
(Gas)



Save The  
Planet

## Documentation

May 2022   Jun 2022   Jul 2022   Aug 2022   Sept 2022   Oct 2022   Nov 2022   Dec 2022   Jan 2023   Feb 2023   Mar 2023   Apr 2023   May 2023   Jun 2023   Jul 2023



Launching Battery Assy oleh Menteri Koordinator Bidang Perekonomian  
Bapak Airlangga Hartarto



## GOOD POINT ACTIVITY

### Good Point :

1. The **1<sup>st</sup> Quality Integrated System for Build In Quality Process** utilize New Technology in TMMIN
2. Operator **Enjoy Working → No Safety Issue & No Ergonomic Issue**
3. Success story aktivitas ini menjadi tantangan Vendor untuk membuat secara in house terkait New Technology
4. Bukan hanya business process yg kita improve tapi beban kerja dengan concept **“YOU VIEW” membuat suasana kerja lebih comfort**
5. **Collaboration dengan Divisi lain dan Support dari TMC serta TDEM** membuat komunikasi lebih baik dan Fast Response membuat pekerjaan menjadi lebih cepat selesai
6. **Kepercayaan diri member dan local vendor meningkat** dengan keberhasilan project battery
7. Competitiveness TMMIN membuat kita siap mendapatkan project – project baru dari TMC

### Yokoten Point :

1. Keberhasilan dari implementation system BIQ utilize Technology membuat ide baru untuk expand activity to machining & area lain yang memungkinkan untuk Yokoten
2. Yokoten to **TR Centralize Project for Build In Quality utilize Technology**





## NEXT ACTIVITY TEAM

Machine Condition Already **20 years**

Demand from **TMC Kamigo**

**Kadai TR : Quality dan Productivity Issue at Cylinder Block Line**

- 1 Director  
Direction for Future Challenge



- 2 Base On Hoshin Division Priority Theme

<b>1.</b> Plant Efficiency & Sustainable Activity	<b>2.</b> Sustain K3 by 3CT Reduction	<b>3.</b> Smooth TR Centralize Project
<b>1.1.</b> Base On Hoshin Division Priority Theme	<b>2.1.</b> Productivity : (PEFF : 3.2) SLIM - Beyond Compromises	<b>3.1.</b> Cylinder Head Line

### Message

1. Mapping All Process & Equipment make sure for **Quality Standard**
2. **Level Up Quality**

### Thema

Smooth **TR Centralize Project**

1. **Cylinder Head Line**
2. **Crankshaft Line**



# Thank You

**TOYOTA**

Toyota Motor Corporation

**TOYOTA**  
INDONESIA

PT Toyota Motor Manufacturing Indonesia

**TOYOTA**

TOYOTA DAIHATSU  
ENGINEERING & MANUFACTURING CO., LTD.



PT. TOKTON MEIWA INDONESIA

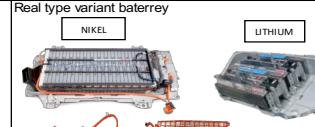
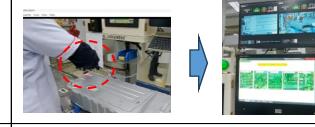
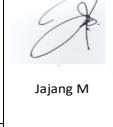
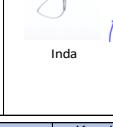


TCT  
Automation Indonesia



DIRECTORY LAMPIRAN PERHITUNGAN NET QUALITY INCOME	
KATEROGI: <b>QUALITY CONTROL PROJECT</b>	
NAMA: <b>SMART</b>	
NO.	JUDUL: <b>TMMIN xEV Battery Preparation for Safety&amp;Quality(First Experience)</b>
DESCRIPTION	NILAI
1.0.0 TANGIBLE BENEFIT (KEUNTUNGAN YANG TERLIHAT)	
1.1.0 Penurunan biaya produksi	Rp 1.407.823.872
1.1.1 Penurunan rework/scrub	Rp
1.1.2 Penurunan biaya overtime (jika tidak ada capacity up)	Rp 954.398.700
1.1.3 Penghematan konsumsi material	Rp
1.1.4 Penurunan biaya garansi/claim	Rp 102.000.000
1.1.5 Penurunan biaya depresiasi	Rp
1.1.6 Penurunan biaya operasi(utilisasi:air, listrik, dll)	Rp
1.1.7 Lain lain,penurunan biaya MH(kaizen MP)	Rp
1.2.0 Peningkatan pendapatan	Rp
1.2.1 Peningkatan kapasitas terkait dengan perbaikan produk/layanan dan perbaikan	Rp 765.640.000
1.2.2 Peningkatan pendapatan terkait dengan peningkatan produk/layanan	Rp 546.533.400
1.2.3 Peningkatan pendapatan karena kenaikan harga	Rp
1.2.4 Penurunan tingkat resiko kecelakaan	Rp 375.749.443
1.3.0 Pendapatan Bunga	Rp
1.3.1 Pendapatan bunga atas investasi yang dilakukan	Rp
1.3.2 Penurunan pembayaran atas bunga pinjaman	Rp
1.3.3 Lainnya, sebutkan...	Rp
1.4.0 Aliran Kas	Rp
1.4.1 Pengurangan penggunaan fasilitas	Rp
1.4.2 Penurunan AIR (tagihan)	Rp
1.4.3 Penurunan A/R (term. Of payment)	Rp
1.4.4 Penurunan tingkat inventory	Rp
1.4.5 Cost Reduction Biaya Investment (localisasi equipment)	Rp 30.000.000.000
<b>#TOTAL BENEFIT</b>	<b>Rp 34.152.145.415</b>
2.0.0 COST IMPLEMENTATION (incremental cost)	
Biaya hanya di hitung untuk biaya baru(investasi)	
2.1.0 Project Development (PDCA)	Rp 124.674.650
2.1.1 Man-Hour	Rp
2.1.2 Biaya pencetakan dan material lainnya	Rp
2.1.3 Lainnya,AI (Artificial Intelligence)	Rp
2.2.0 Project Implementation (PDCA)	Rp 782.352.941
2.2.1 Pelatihan	Rp
2.2.2 Sosialisasi (Before&After Activity)	Rp
2.2.3 Peralatan	Rp
2.2.4 Lainnya	Rp
<b>#TOTAL COST OF IMPLEMENTATION</b>	<b>Rp 907.027.591</b>
<b>NET QUALITY INCOME (BENEFIT-COST)</b>	<b>Rp 33.245.117.824</b>
<b>BENEFIT/COST (HIGHER BETTER)</b>	<b>37,65</b>
<b>*Detail perhitungan net Quality Income untuk masing masing proyek terlampir</b>	
Dengan ini kami menyatakan bahwa Quality Income (Tangible&Intangible) yang dilihat adalah benar dan akuntabilitasnya dapat di pertanggungjawabkan.	
Bila di kemudian hari di ketahui adanya ketidaksesuaian dengan pernyataan ini, maka panitia berhak mengambil tindakan yang di perlukan.	
Disiapkan oleh	Jakarta, 20 July 2023
	Diperiksa dan disetujui oleh
Davin A Engineering Service EPSD QCP Leader	 Daru Herbirowo Dept. Head Engineering Service EPSD

## Standarisasi Improvement

NO	CONTROL ITEM	STANDARD	KEYPOINT	ILUSTRASI	SOSIALISASI&PELATIHAN																
1	Fungsi Picking sensor	Berfungsi dengan baik	Picking sensor dapat mendeteksi abnormality jika operator salah ambil part/tidak sesuai variant.	 <p>Salah ambil part, Interlock mendeteksi</p> 	 <p>Akbar R  Andi.R </p>																
2	Fungsi Sound checker	Berfungsi dengan baik	Sound checker dapat mendeteksi abnormality proses (Wire harness tidak nge lock sempurna)		 <p>Tirta </p>																
3	Fungsi Camera Judgement	Berfungsi dengan baik	Camera QR code dapat membaca label baterrey dan merecord data.		 <p>Jajang M </p>																
4	Tightening torque Integrated system	Berfungsi dengan baik	Hasil nilai tightening terintegrasi ke system		 <p>Indra </p>																
<table border="1"> <tr> <th>Div.Head EPSD</th><th>Dept. Head Maintenance</th><th>Dept. Head Quality</th><th>Dept. Head Engineering</th><th>Dept. Head Produksi</th><th>PT. Adaptive Vendor</th><th>Atlas Copco Vendor</th><th>Kepala Project EPSD</th></tr> <tr> <td>Tagor JD</td><td>Sulasdi</td><td>Roedy M</td><td>Daru H</td><td>Novie M</td><td>Sandy</td><td>Ferdinand</td><td>Davin A</td></tr> </table>						Div.Head EPSD	Dept. Head Maintenance	Dept. Head Quality	Dept. Head Engineering	Dept. Head Produksi	PT. Adaptive Vendor	Atlas Copco Vendor	Kepala Project EPSD	Tagor JD	Sulasdi	Roedy M	Daru H	Novie M	Sandy	Ferdinand	Davin A
Div.Head EPSD	Dept. Head Maintenance	Dept. Head Quality	Dept. Head Engineering	Dept. Head Produksi	PT. Adaptive Vendor	Atlas Copco Vendor	Kepala Project EPSD														
Tagor JD	Sulasdi	Roedy M	Daru H	Novie M	Sandy	Ferdinand	Davin A														

Benefit Activity QCP SMART  
**Rp 33.245.117.824**