“How to Fulfill Customer Demand Through Digitalization“

2023 QCC Convention - Smart Suggestion System

Abiyunus A. (1021340)

Approved	Checked	Prepared
Daniel D	Rudi B	Abiyunus A

EXEXUTIVE SUMMARY

"How to Fulfill Customer Demand Through Digitalization"

QCC 2023 - SS Category

TMMIN-EMD
Abiyunus A.
1021340

I. BACKGROUND

Toyota models

- PH market preference: Compact SUV with rugged design
- Rush model plans to be discontinued by 2023
  → **Need to avoid customer shifting to other models**

Veloz needs to cover Rush customer outflow

EMD Goals (Customer Centric):
Develop Accessories to fulfil customer demand

TMP request:
Increase SUV-look by adding Over Fender for Veloz

"OE Look" design | Install in TMMIN | **SOP by Mar '22** | **Potential problem**

II. PROBLEM

2020		2021				2022	
Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2

Normal L/T: 19 months (Ref. previous project)

Styling | Engineering | Manufacturing

PH Request (Tokusetsu) ▼ **Requested L/T: 13 months** → **SOP**

Requested L/T: 13 months

GAP: **6 months**

With standard EMD L/T,
Cannot catch-up SOP timing (Mar '22)

Normal L/T: 19 months

4M Analysis

Man
Members available ✓

Machine
Equipment is ready ✓

Material
No waste ✓

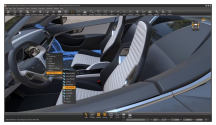
Method
- Past projects Dev. by OE method
- No Acc work standard ✗

III. COUNTERMEASURE

Styling design process (Total L/T: 6 Months)

	Area	Method	L/T	Impact	Priority	
①	Concept	Digital (Web based)	1 Month	Small	3	
②	Idea Sketch	Digital (Photoshop)	1 Month	Small	4	
③	~~Clay Model~~	~~Manual~~ (Hand work)	**3 Months**	**Big**	**1**	→ Digitalize
④	**3D CAD**	**Digital software**				
⑤	~~Prototype~~	~~Digital + Manual~~				→ Digitalize
⑥	~~Approval~~	~~Manual~~ (Face-to-face)	~~1 Month~~	~~Medium~~	~~2~~	→ Digitalize

Shorten styling design process by utilizing advanced software
Change Manual → Digital



Autodesk VRED
3D Software for real-time design visualization
+ Microsoft Teams

IV. RESULTS

Before

N	N+1	N+2	N+3	N+4	N+5

Sketch Approval
① Research → ② Sketch → ③ Clay Model → ⑥ Approval
④ 3D CAD → ⑤ Prototype

After

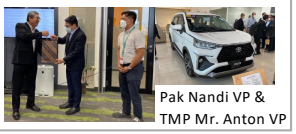
N	N+1	N+2	N+3

① Research → Sketch Approval
② Sketch → ④ 3D CAD → ⑥ Approval

Reduce Dev. L/T (2 Months)

Benefits + Learning Points

1. **Reduce Dev. cost (± IDR 310mio.)**
2. **Standardize C&A process (JKK & TPS)**
3. **Good relationship → Sustainable Acc business for TMMIN-TMP**



Pak Nandi VP & TMP Mr. Anton VP

EMPLOYEE PROFILE

Engineering Management Division

DH:
Daniel Dirgantara

Counterpart

Toyota Motor Philippines
as overseas distributor (Customer) of TMMIN products

Product Enhancement & Styling Department

DpH:
Rudi Budiman

Product Planning No.4 Section

- C&A Line Up Feasibility Study
- Pre-Condition assumption
- Line up development Mgmt.
- Design Concern Management
- Line Up Acceptance Monitoring

SH:
Samsul Ramadhan

Staff:
Abiyunus Anggyasa

Background
2010 : Joined TMMIN EMD
2010 – 2020 : Styling Designer
2020 – 2023 : C&A Product Planning

BACKGROUND

External Factors

Philippines market preference for Compact SUV with rugged design

Toyota Veloz

Veloz needs to cover Rush user's outflow

Xpander Cross | Suzuki XL7 | Honda BR-V

Toyota Rush

Rush have plans to discontinue in 2023

Need to avoid customer shifting to other models

BACKGROUND

Internal Factors

Before 2019	July 2019	2020	Feb 2021
EMD as **Product Centric** developer	EMD shifting to **Customer Centric**	Covid-19	PHI request to TMMIN **(1st Acc project)**

Acc tagline:

"Speedy, Flexible, and Cost Competitive!"

EMD as Customer centric developer:

Goal is to develop Accessories and fulfil customer demand

BRIEF SOLUTION

"Interior roomy & luxurious"

"Not enough toughness"

"Low ground clearance"

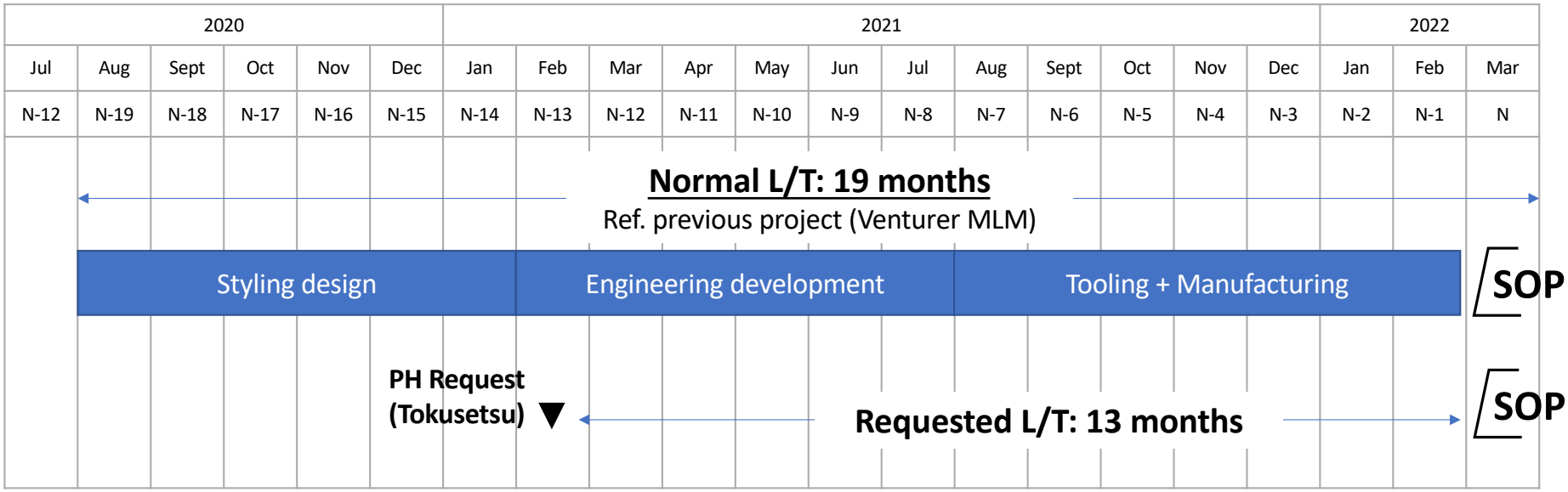
TMP request:

Increase SUV-look by adding Over Fender for Veloz

Customer requirements

"OE Look" design	Install in TMMIN	**SOP by Mar '22**

DEFINE PROBLEM



Normal L/T: 19 months

Requested L/T: 13 months

GAP:
6 months

With standard EMD development L/T,

Cannot catch-up
SOP timing (Mar '22)

4M ANALYSIS

With standard EMD development L/T,

Cannot catch-up SOP timing (Mar '22)

Man

- Members are available & allocated to join project

- Members have capability to do the job

Machine

- PC (equipment) for each members are available

- 3D workstation is functioning normally without any problems

Material

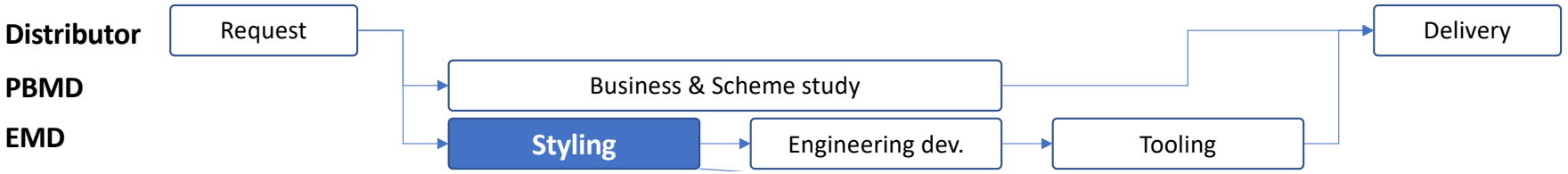
- There are no waste materials during this project

Method

- Past projects are using OE method to develop parts
(take long L/T)

- There are no Acc work standard

PROCESS IDENTIFICATION



IMPROVEMENT PLAN

P D C A

Shorten styling design process by utilizing advanced software

Change method **Manual** → **Digital**

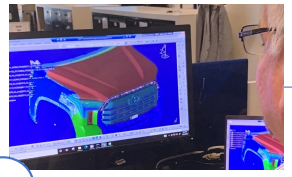
In order to fulfil….

Ultimate Goal

Develop parts that fulfil customer needs & deliver in timely condition

- Design that suit customer preference
- Quality that meet Toyota standard
- SOP In time as requested

3 Clay Modelling



4 3D CAD Modelling

Digital visualization

5 Prototyping

Autodesk VRED

3D Software for real-time design & color visualization

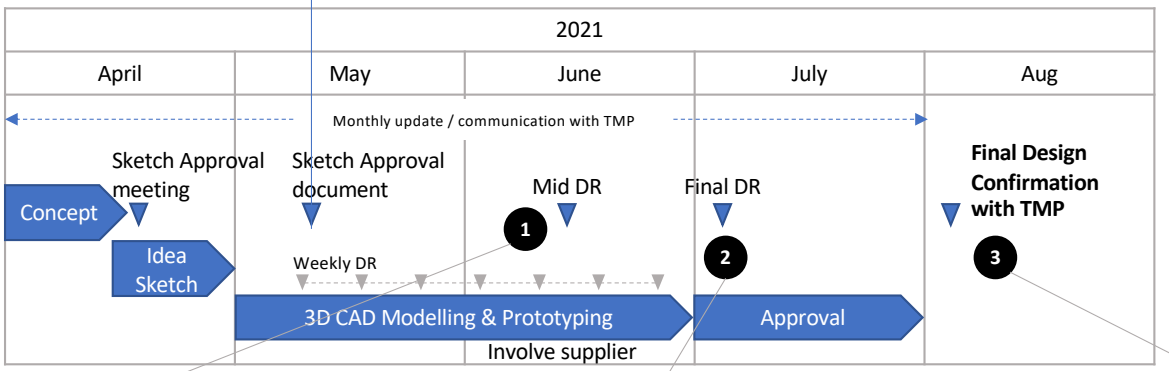
Efficient Design review

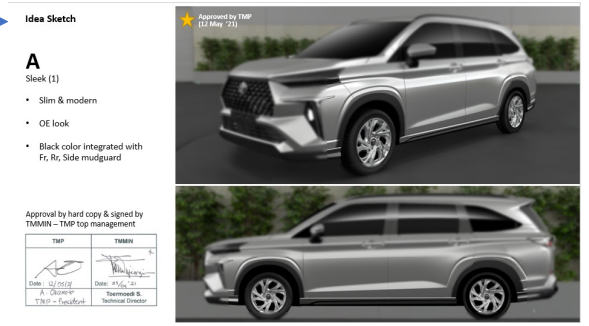
6 Face-to-face Approval (cannot visit ID due to Covid-19)

Microsoft Teams

IMPLEMENTATION

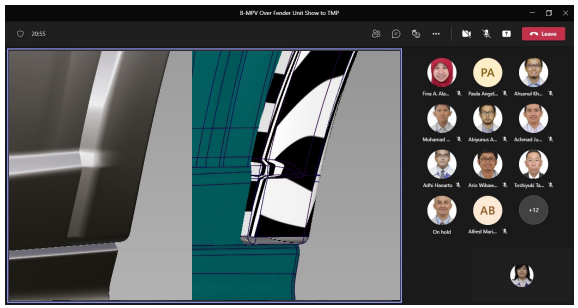
P D C A





Sketch approval document signed by TMP President

1 1st DR with TMP after sketch



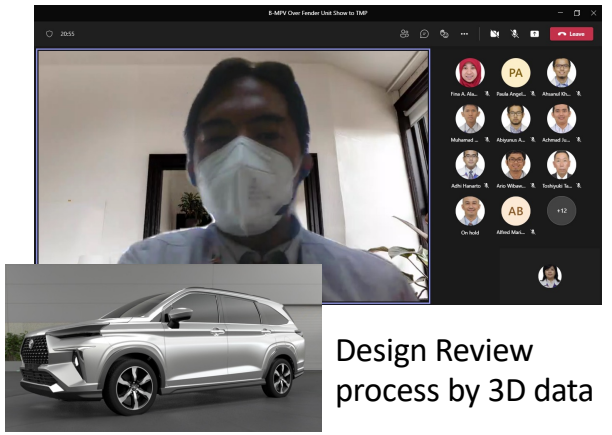
TMP Feedback:
Image is too detailed & technical, difficult to understand…

2 Final DR tuning based on TMP feedback

Change view & showing method (movie)

TMP Feedback:
Easy to understand like actual Point-of-View

3 Final approval & appreciation by TMP top mgmt.

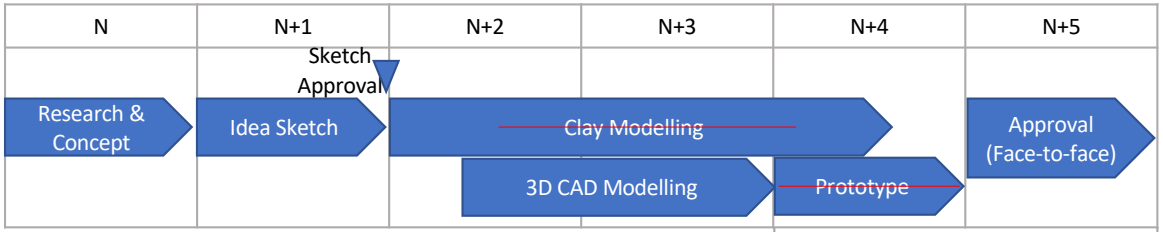


Design Review process by 3D data

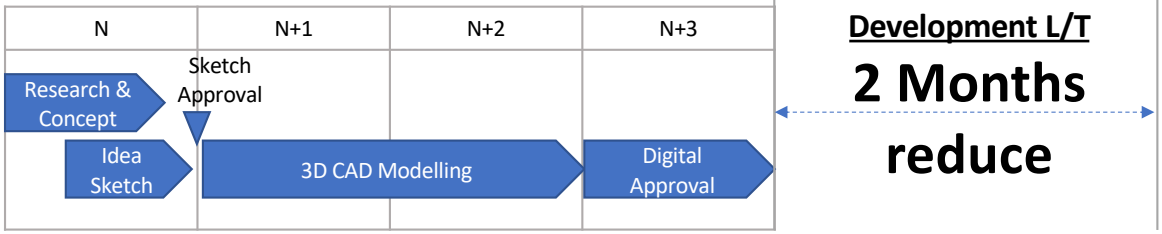
P D C A

RESULTS

BEFORE



AFTER



Thank you

ATTACHMENT

Simulation of Design Review using Autodesk VRED

Design & color visualization

Detailed area presentation

Quickly view
Before & After