Opus Suite Conference | FUSARO

14 May 2025

Modelling Marine Structures in Opus Suite

Emma Olsson

by Systecon opus suite

Systecon

Background

Support case from FMV

FMV - Background

- FMV – Swedish Defense Material Administration
- Responsible for the supply of defense material for the Swedish defense
- Working on creating an OPUS10 model of a boat

Systecon

Background

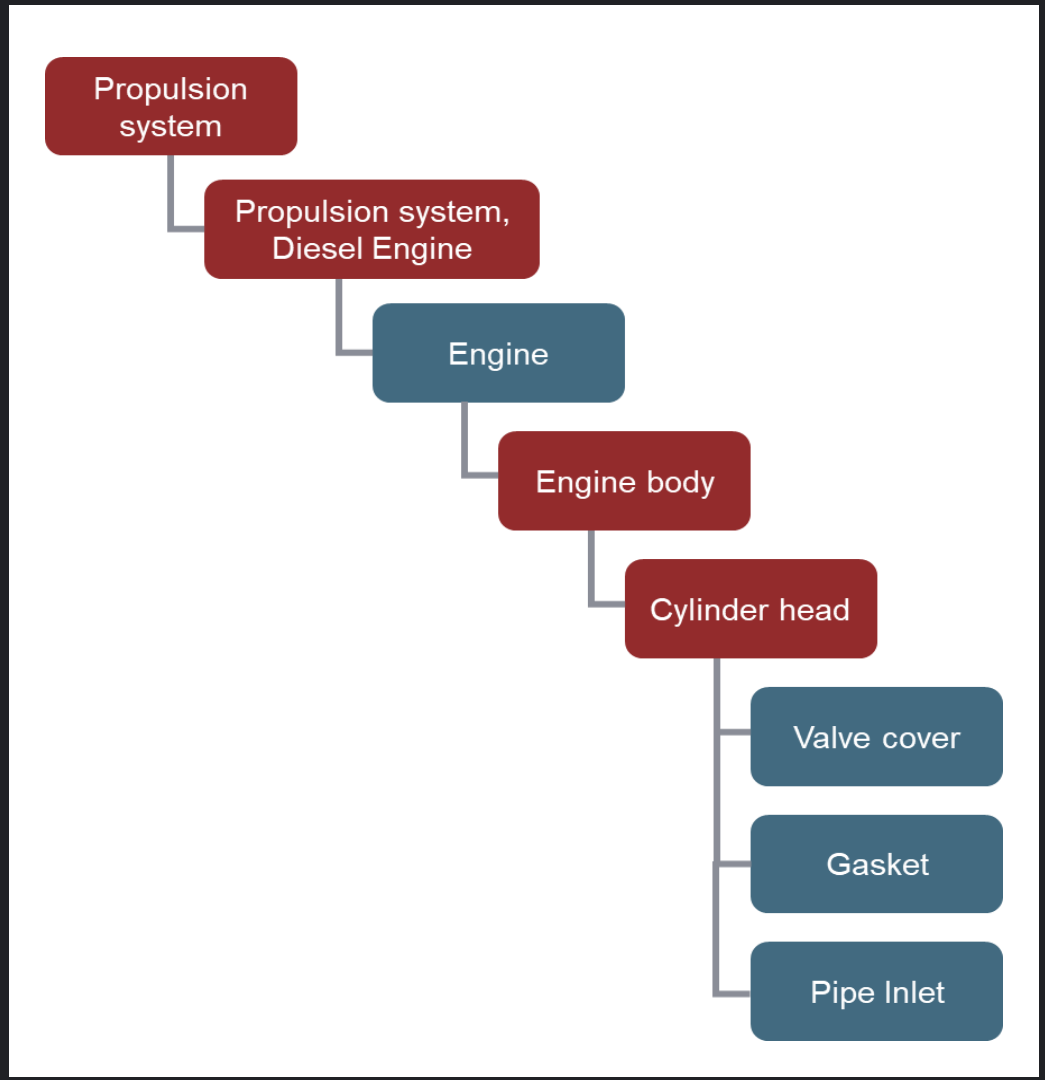
Support case from FMV

Support question

- In their documentation they are using a MIMI structure – “Marine Installation and Material Structure”.
- MIMI structures contain a lot of groupings, or sub positions.

“Can you model this structure?”

Example of a product breakdown



Red – Positions
Blue – Hardware

Systecon

Opus Suite Conference | FUSARO

Can we model this structure in Opus Suite?

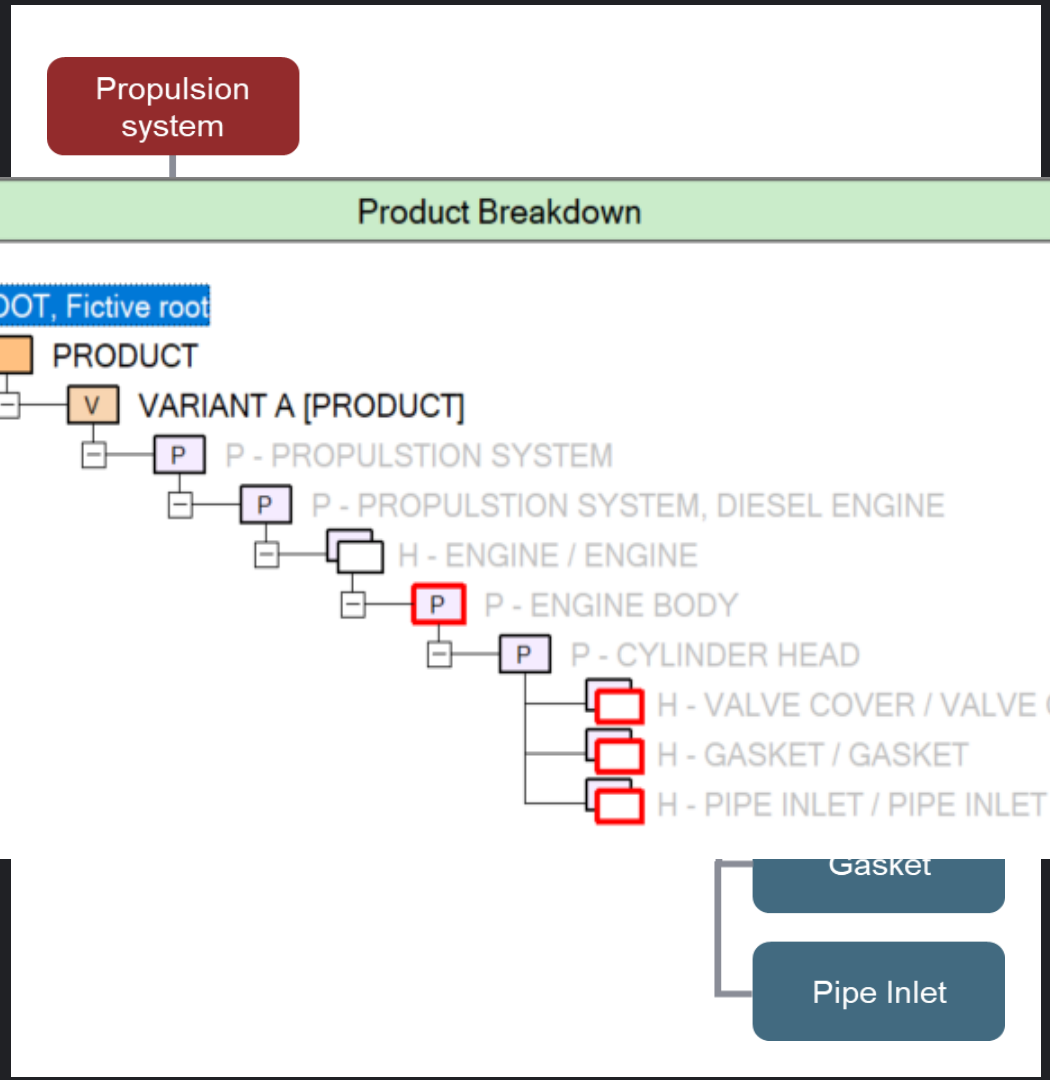
Specifying the question

Support case from FMV

“Can you model this structure?”

- Part of a product breakdown structure
- There are a lot of **positions** (breakdown elements with no physical hardware realized)
- There are **positions under hardware**.

“Can you model breakdown structures with positions under hardware?”



Red – Positions
Blue – Hardware

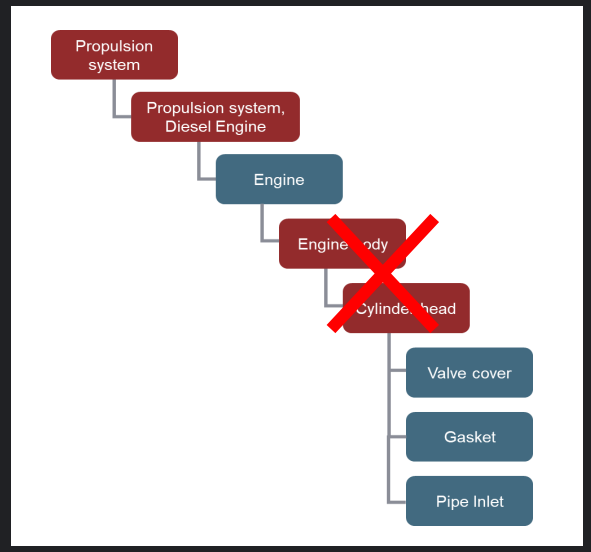
Systecon

Is it possible to model **positions under hardware**?

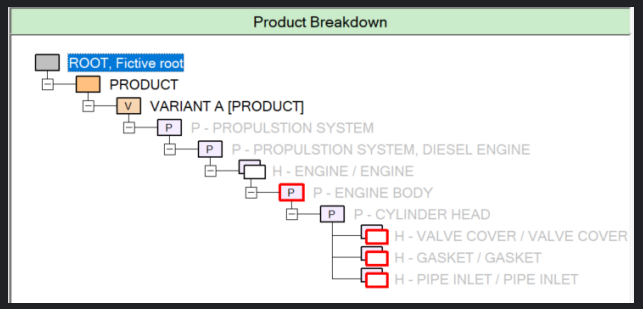
No.

Then what can we do?

Simply **remove** the subpositions



Opus Suite does not allow us to model breakdown elements of type “position” under hardware

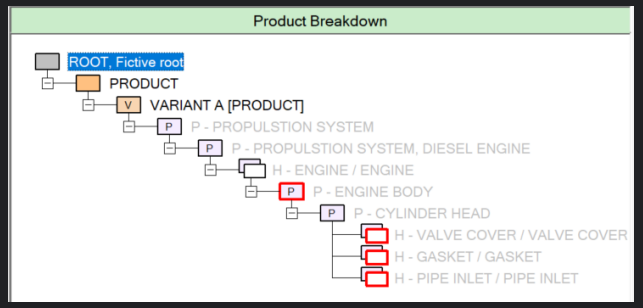


Systecon

Is it possible to model **positions under hardware**?

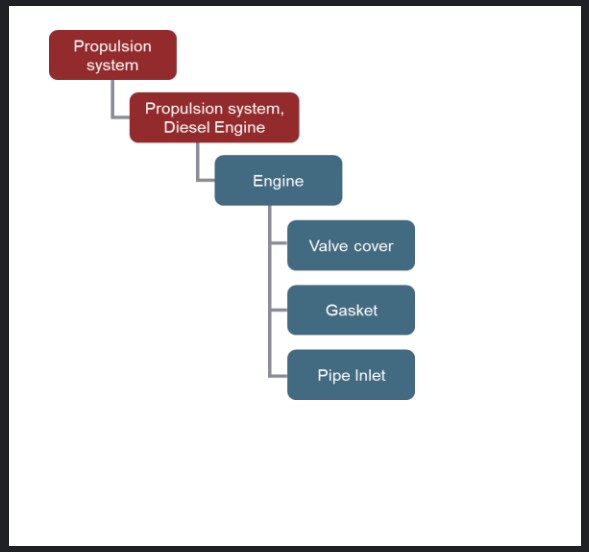
No.

Opus Suite does not allow us to model breakdown elements of type “position” under hardware

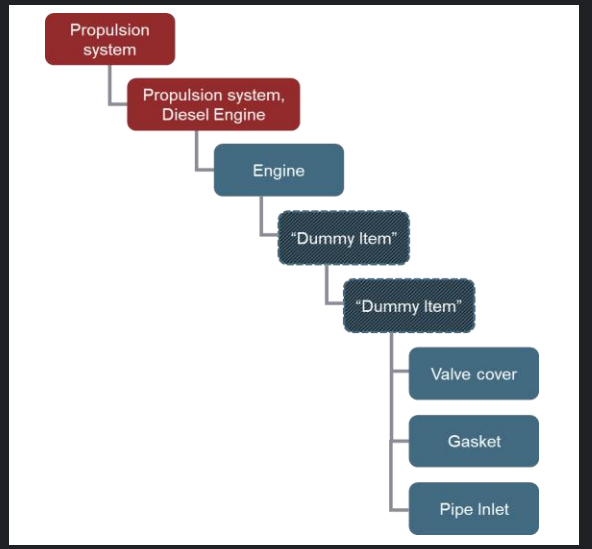


Then what can we do?

Simply **remove** the subpositions

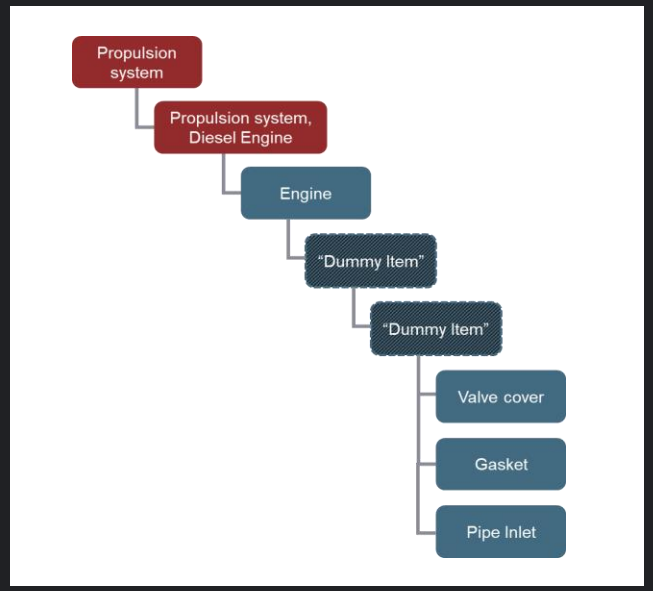


Keep the subpositions but model them as “**dummy items**”



Systecon

Keep the subpositions but model them as "**dummy items**"



How do we model this?

1) **Add** the dummy items to the model

2) Then how will the Valve Cover, Gasket & Pipe inlet be replaced?

Define the dummy items:

"Dummy item"

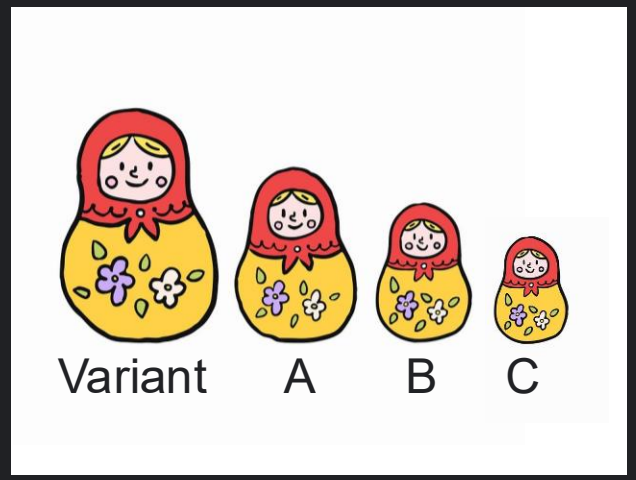
- Breakdown element of type hardware
- No failure mode
- **Non replaceable**
- (No price)

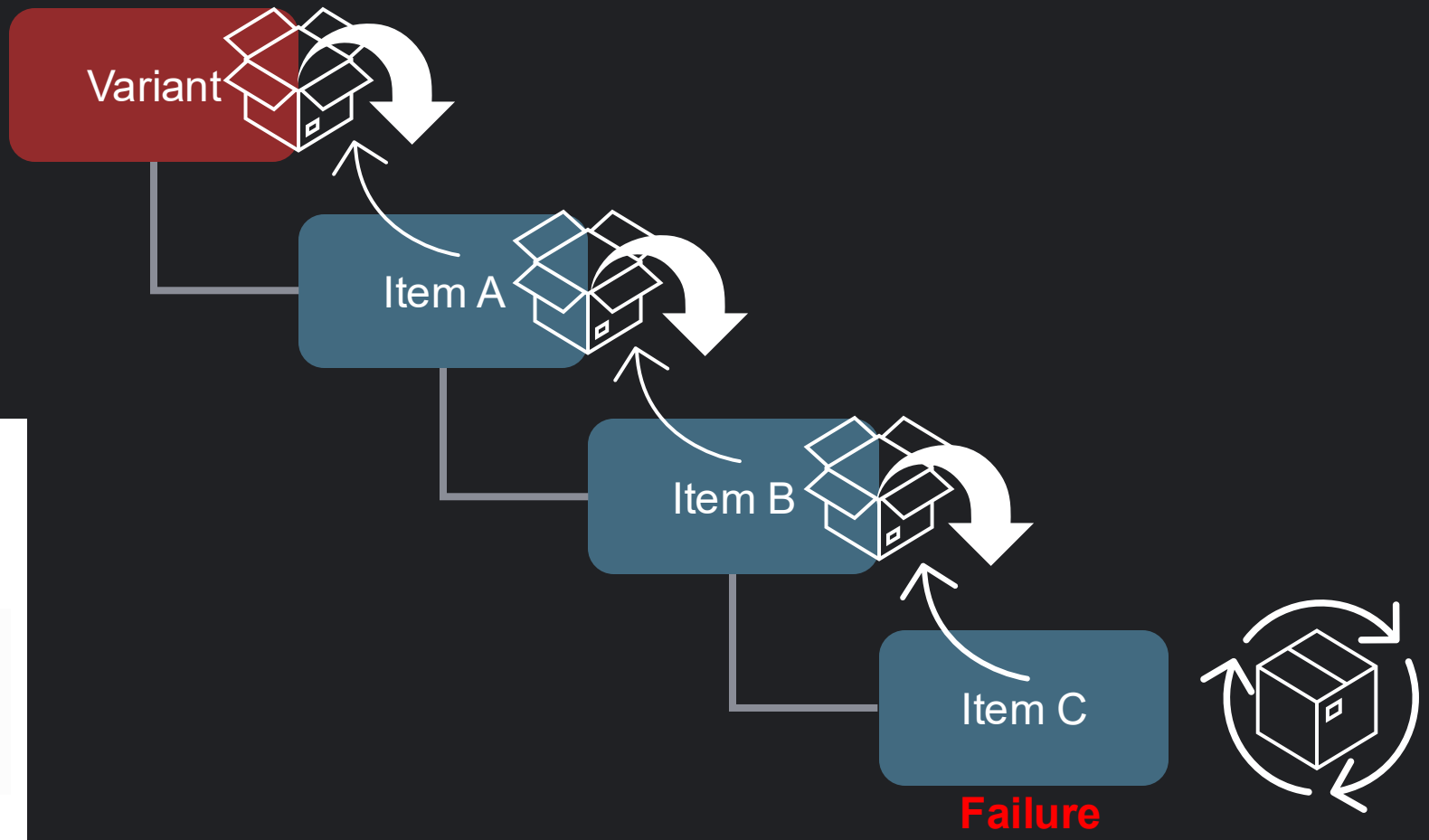
Subitems are usually replaced on the mother items.

Systecon

Replacement logic in Opus Suite

Default strategy

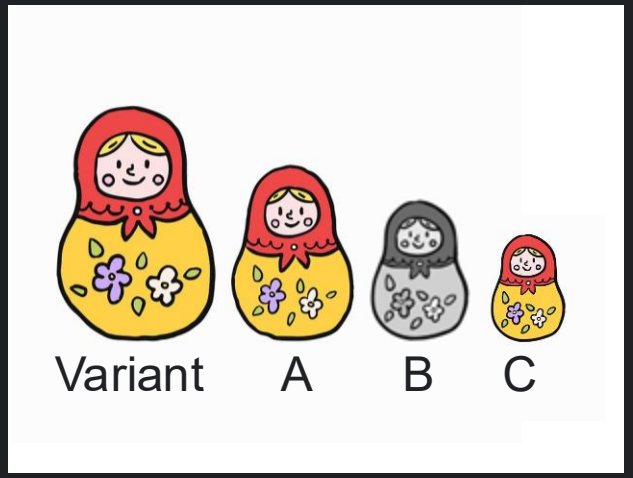


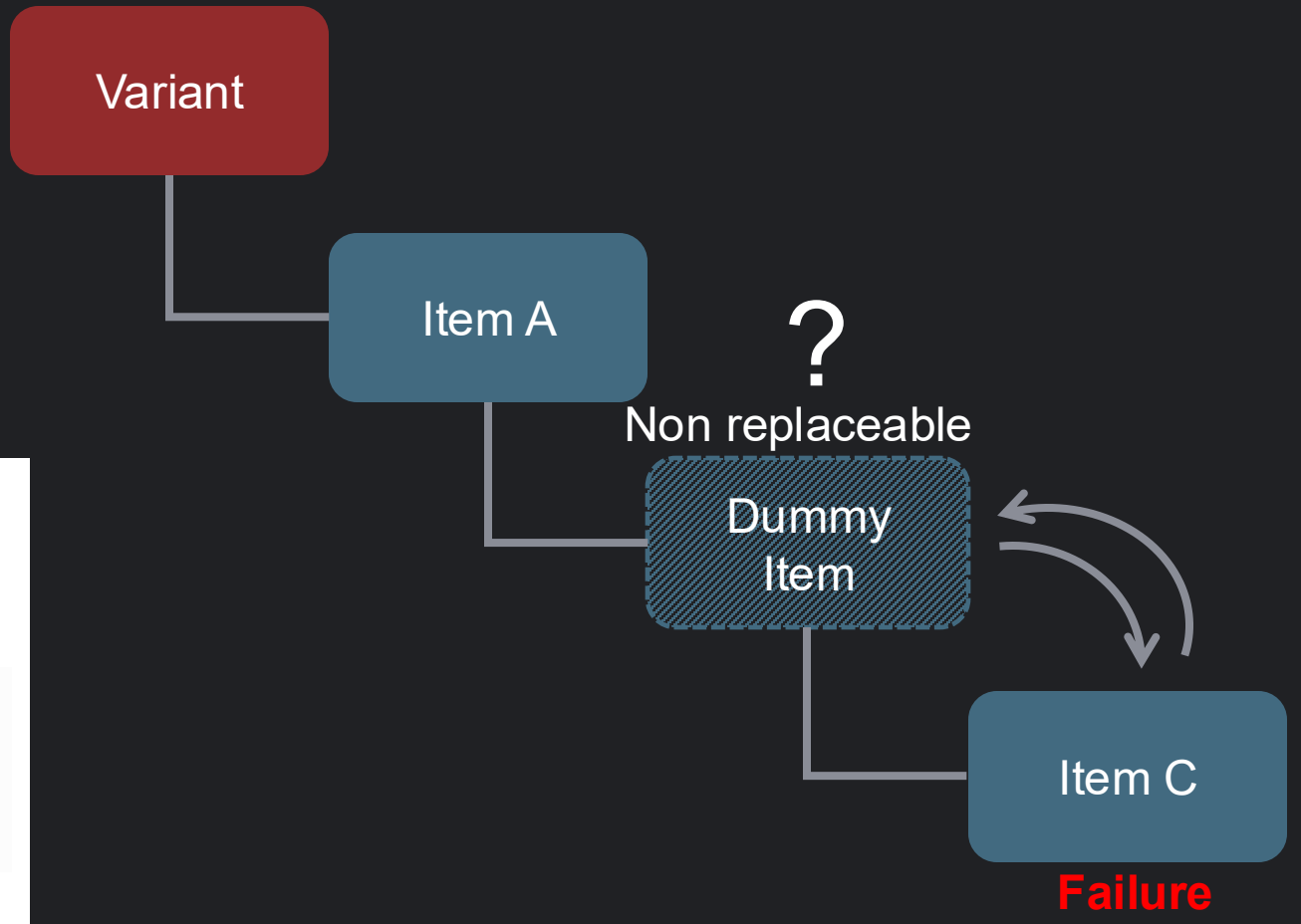


Systecon

Replacement logic in Opus Suite

What if we introduce a dummy item?

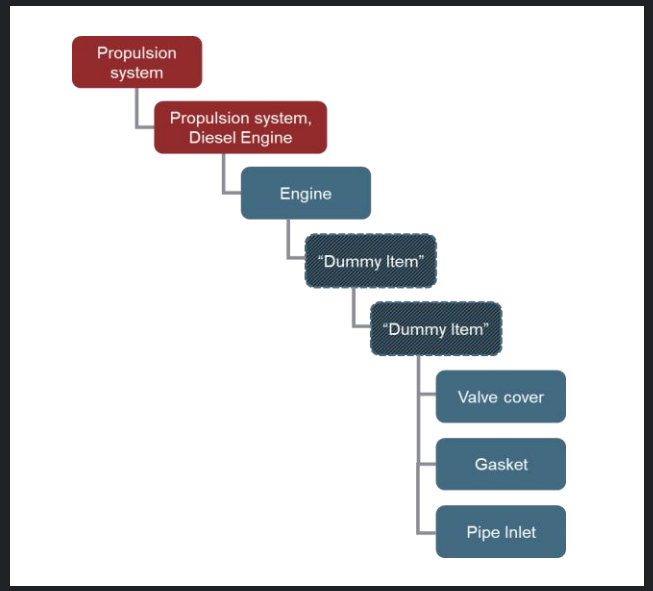




Systecon

Keep the subpositions but model them as "**dummy items**"

How do we model this?



1) **Add** the dummy items to the model

2) Then how will the Valve Cover, Gasket & Pipe inlet be replaced?

Define the dummy items:

"Dummy item"

- Breakdown element of type hardware
- No failure mode
- **Non replaceable**
- (No price)

Subitems are usually replaced on the mother items.

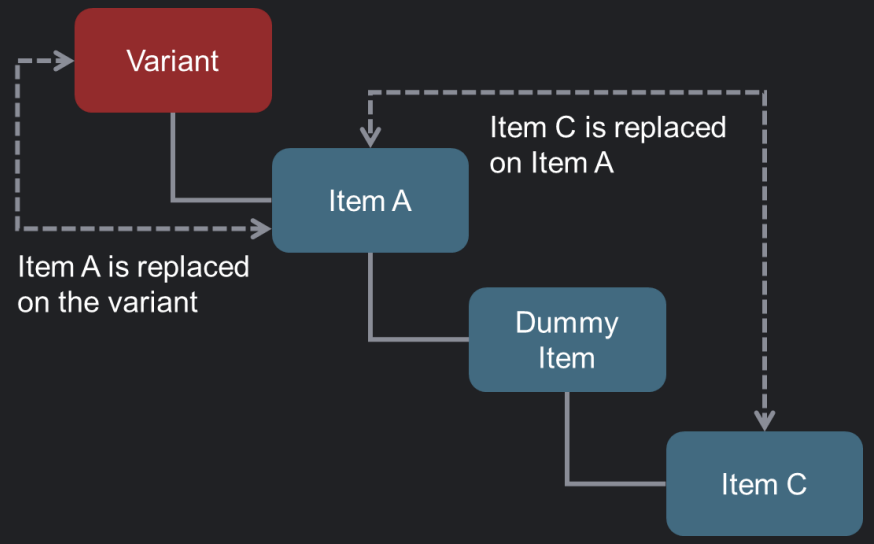
Model replacements using **ItemReplacementStructure**

Model replacements using **ProductReplacementBreakdown**

Systecon

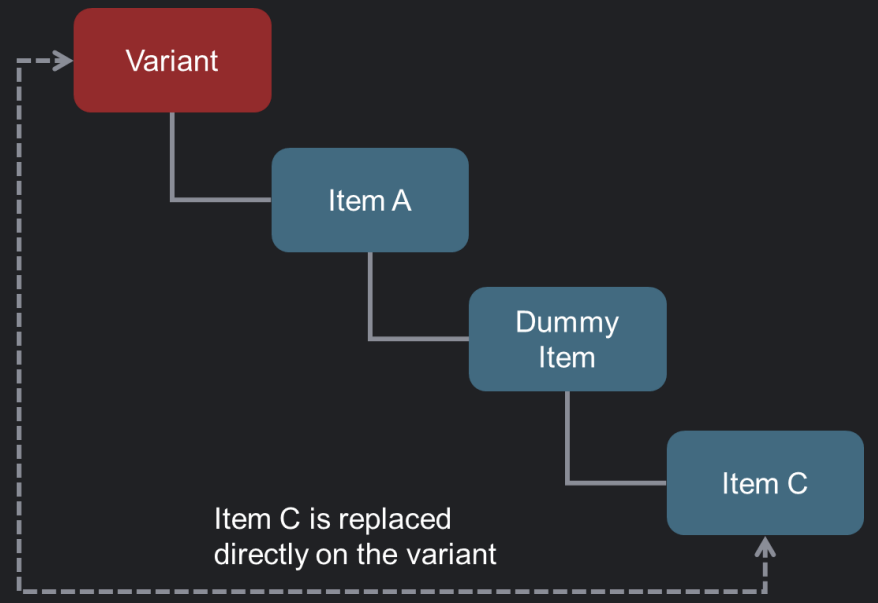
Model replacements using **ItemReplacementStructure**

Strategy for modelling items that are replaced on their “grandparent”



Model replacements using **ProductReplacementBreakdown**

Strategy for modelling sub-items that are replaced directly on the variant



Systecon

Navigation: OPUS10 Help > Reference > Errors, Warnings and Notes > Errors >

Error #2096

Description:	An item that has been defined as accessible in table ItemReplacementStucture cannot be used to realize a breakdown element
Message:	Invalid product realization:
Remedy:	Change the accessibility of the item or avoid using the item as a realization.

"What is wrong?"

Can you please provide a **declassified** model?

Found two important things:

1) They were using both ItemReplacementStructure & ProductReplacementBreakdown

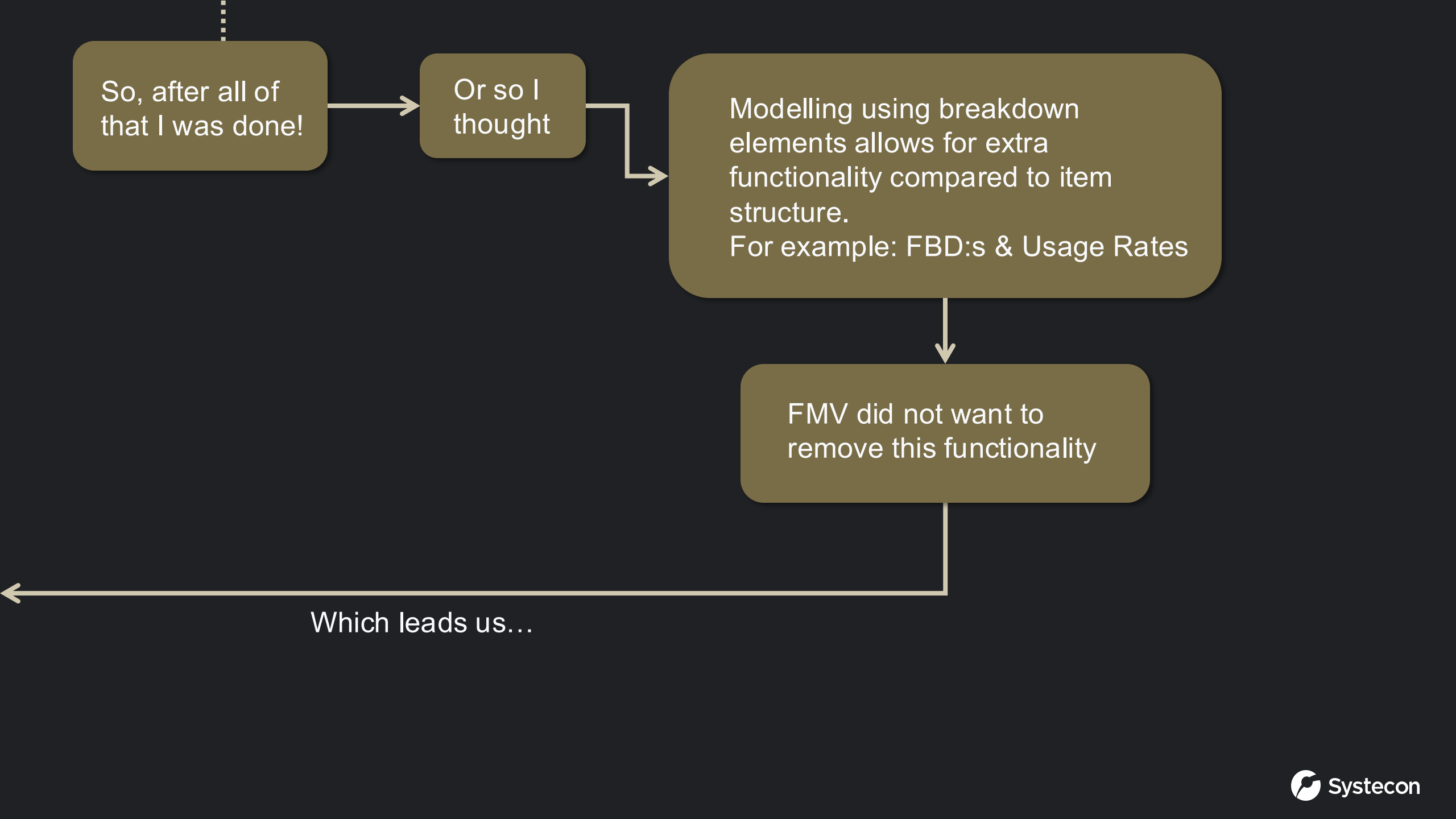
2) When disabling IRS → PRB works

Looked into the error message in SIMLOX

Found the error

Cleaned up the model using table IRS & sent it back to FMV

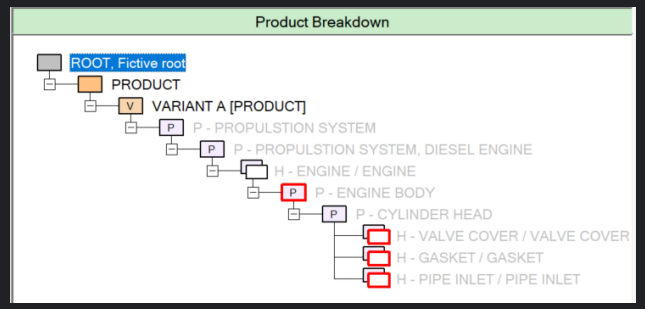
Systecon


So, after all of that I was done!
Or so I thought
Modelling using breakdown elements allows for extra functionality compared to item structure.
For example: FBD:s & Usage Rates
FMV did not want to remove this functionality
Which leads us…

Is it possible to model **positions under hardware**?

No.

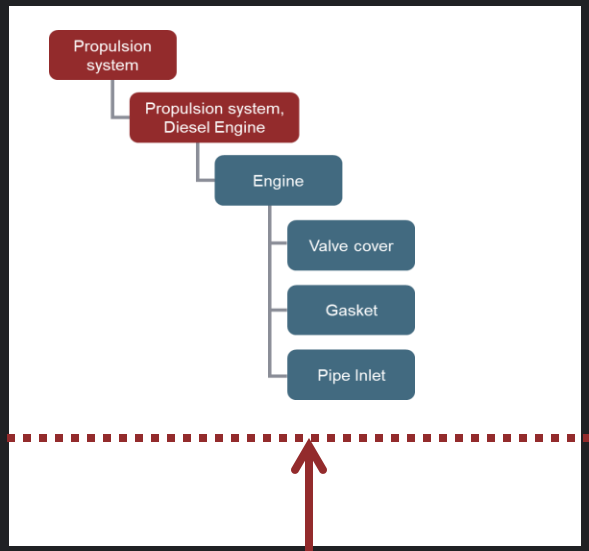
Opus Suite does not allow us to model breakdown elements of type “position” under hardware



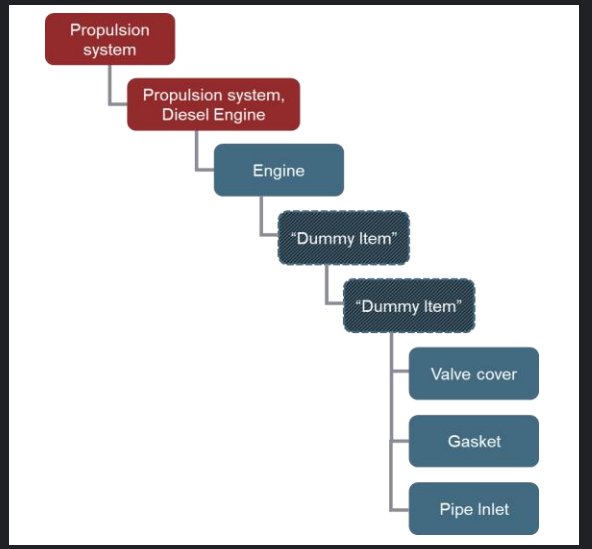
Then what can we do?

All the way back to the beginning

Simply **remove** the subpositions



Keep the subpositions but model them as “**dummy items**”



Systecon

Opus Suite Conference | FUSARO

Conclusions

Opus Suite Conference | FUSARO

Thank you.