# DEVELOPMENT SPRINT REVIEW
# CALENDAR WEEK 28.21

# GENERAL (1/3)

**HIGHLIGHTS:**

- FMEA job description finalized
- SBP focus
  - Understand current status
  - Alignment on countermeasures
- PO Commodity PM alignment
  - Lead times systems
- Cross-functional synchronisation points
  - Define governance process on timing
    - Result: organizational change: Process Owner Squad to be transferred into Program Management Squad

# GENERAL (2/3)

- Software release plan overview
  - Synchronized planning
  - Software Level definition
- WLTP measurement and NVH investigation
- Reliability workshop

**LOWLIGHTS:**

- APQP/Risk assessment Loop 1 Status
  - Next steps available
- PMCS Assessment
  - 100% S0 and 50% S1 assessed
- SVC3 built organization

# GENERAL (3/3)

**BLOCKER:**

- DVP
  - Amount of vehicles for development finalized
  - Amount of BIW for development finalized
- Part Quantity Strategy
  - Define strategy for hardware quantity requirements
  - Ordering of parts

# LOGISTICS

**HIGHLIGHTS:**

SOP: Logistics Manual:

- Purpose/scope - done
- List of abbreviations - done
- Contacts & delivery address - 80%
- Logistics requirements - 90%
- Transport & delivery - 90%
- Order handling - 50%
- Documentation - 90%

**LOWLIGHTS:** None

**BLOCKER:** None

# PRODUCTION (1/2)

## HIGHLIGHTS:

- Contracting
  - Analyze make or buy BOM for body structure - done
  - Mismatches between SM and NEVS BOM body structure are identified
  - Preparing FRQ for SVC3 manufacturing will be finished in the sprint.
  - Base for negotiation start-up contract by collection information BOM and paint shop - done
- ME
  - Based on the cost analyses, the decisions for paint shop can be done

# PRODUCTION (2/2)

**LOWLIGHTS:**

- ME
  - Concentrate on BOM show several questions in case of make or buy at NEVS
- Contracting
  - Risk of additional cost for Sealing, KTL and assembly level

**BLOCKER:** None

# BODY CLOSURE (1/2)

## HIGHLIGHTS:

- Sourcing decision hinges: imminent
- Charger Lid complete module > we edge closer to a supplier
- DVP/DV testing > 2x partners interested
- Next phase: new ESP/non-ESP proposals make progress
- E-latch: 2021 decision (brings us to benchmark vehicles > we maybe continue E-latch project in house)

## LOWLIGHTS:

BIW: H.1: wrong data/misaligned to communication models

# BODY CLOSURE (2/2)

**BLOCKER:**

- Vacation planning: Closures support available during August. Many other functions unavailable/on vacation
- PMCS:
  - Issues are raised without discussion/no binning process. From wk30: will be closed automatically if not discussed
  - Low priority issues not requiring engineering solutions have heavy focus. From wk30: we work on medium/high prio only

# EXTERIOR (1/2)

**HIGHLIGHTS:** SVC3/Series only

- Lightning
  - Update model from headlamp supplier into 3DX once received - black box data in the system and package now defined
- Non-PV panels
  - Evaluate impact on cantrail due to new hood surface in hinge area
- Glass:
  - Quote received and all side glass confirmed to be out of Sweden to cut transport cost

# EXTERIOR (2/2)

**LOWLIGHTS:**

- Non-PV panels
  - B-pillar assembly strategy discussion with all parties involved
- SVC3 only
  - Perform full front end alignment review

**BLOCKER:** None

# BODY STRUCTURE

**HIGHLIGHTS:** SVC3:

- Welding standard definition moved on
- Update SVC3 tool cost estimation (sheet metals) → Result: No cost/budget increase expected
- Supplier base market analysis for body structure → ongoing, but good progress

**LOWLIGHTS:** None

**BLOCKER:** None

# INTERIOR (1/2)

**HIGHLIGHTS:**

SVC3:

- Supplier sourcing (restraints, mirror, sunvisor)
  - To raise PO/nomination letter - done
  - To get technical/cost feedback for the sunvisors - wip
  - PO sent to the CCB supplier - done
  - Sourcing meeting for sunvisors took place on 21.06.2021 - done
- Regular meetings with ARRK Interior on I/P, doors, trunk, and console hard points - wip
  - To share remaining BIW related interior attachment points - wip

# INTERIOR (2/2)

**LOWLIGHTS:**

- PMCS
  - PMCS - pre S0 - deliverable - checked and judged - done

**BLOCKER:**

- SVC3:
  - Sunvisor suppliers are missing for the interior development
  - Luggage floor needs to be lowered and the parcel shelf needs to be raised to gain more volume.

# INFOTAINMENT (1/2)

**HIGHLIGHTS:**

SVC3:

- IMX-8 MEK development kit is up and running
- Technical process for antenna count and placement is complete
- Received updated quote from antenna supplier with reduced cost
- Locations for Head-unit, VCM and Ecall are complete
- Phone projection and Instrument Cluster development and certification will be handled by headunit supplier

# INFOTAINMENT (2/2)

**LOWLIGHTS:**

SVC3:

- The Dev kit required more rework than anticipated, we will discuss acceptable deliverables with supplier to make sure we are on the same page
- Suppliers summer vacation

**BLOCKER:**

SVC3: Final steering wheel clarification

# CHASSIS (1/3)

**HIGHLIGHTS:** SVC3:

- Steering
  - Tie rod model freeze w/ sweep zones - ok
  - Lower boot design - ok
  - Understand lane keeping requirements and how to integrate – 80%

- Brakes
  - Freeze brake pedal packaging and DVP – 80%
  - Decide on brake disc material – 90%
  - Software release plan – OK
  - Test SVC2 pedal feel - OK

# CHASSIS (2/3)

- Knuckle
  - Implement NVH requirements from brakes – OK
  - Get latest design from TRE after 1st round of FEA - OK
  - Update hard quotes for latest design – OK
  - Update 3D printed option – OK

- CAD / PDM
  - Setup fasteners to supplier catalogue – 80%
  - Start brake pipes design – OK
  - EVP + ESC packaging definition – EVP OK. ESC w/ service concerns
  - SF + Knuckle packaging for suppliers – OK

# CHASSIS (3/3)

- Suspensions
  - Send updated RFQ – OK
  - Create welding standard – 90%

**LOWLIGHTS:**

- PMCS being used as a communication tool
- European vacations

**BLOCKER:**

- Functional safety discussion on ESC
- Cybersecurity definition for steering will require more resources than initially thought

# E/E (1/2)

**HIGHLIGHTS:**

SVC2: Interior light fix in SVC2.1 before Tour

SVC3:

- Keyfob concept phase quote -> PO raised and signed
- ADAS official quote received -> PO signed from E/E
- High Voltage Training successfully finished (Level 2 and 3)
- CAD integration with ARRK → PO signed from E/E
- Clamp and power management strategy (LV) alignment internal & external
- Started the ECU List for diagnostics
- Telltales for instrument cluster defined for BCM, RCM
- 3 headcount contracts signed

# E/E (2/2)

**LOWLIGHTS:**

SVC3:

- DTs for some switches missing as the supplier not sourced yet
- Missing peripheral information attached to BCM

Missing peripheral information attached to RCM (Airbags / Pretentioners)

**BLOCKER:**

SVC3: Headcount (timing)

# DESS (1/2)

**HIGHLIGHTS:**

SVC2:

- OBC Testing was done last week with Casco on Pepper:
  - Charging with 10kW
  - V2L working

SVC3:

- HV training (DEKRA)
- 3 different Rubber Damper Supplier - progress with BOGE going well
- 2 Headcount contracts signed

# DESS (2/2)

**LOWLIGHTS:**

- SVC2: V2V not working
- SVC3:
  - Requirement tool still not implemented and working
  - OBC mechanical freeze not complete

**BLOCKER:**

SVC3:

- Engine Mount Dampers
  - 3 suppliers in the running for the dampers
    - This links to kicking off CES for crossbeam/engine mount design
- Headcount

# HV BATTERY

**HIGHLIGHTS:**

SVC3:

- Review information for connector and EE parts selection required to be sent - wip
- Onboarding: new team member joining the HV battery team as lead CAE engineer - wip
- Document structure and high level specifications in place for HV Battery Pack SSTS - wip

**LOWLIGHTS:**

SVC3:

- Implement WLTP cycle --> Pedal position --> EDU requested torque --> EDU efficiency map in MATLAB - wip
- Implement vehicle dynamics for available information on vehicle - wip

**BLOCKER:** None

# SIMULATION (1/2)

**HIGHLIGHTS:**

- Complete Vehicle CFD
  - CAD review done
  - Modelling started
- Crash & Safety Sprint 1
  - CAD Review Release G.1, Blockers & Impediments worked out
  - CAE Cross Meeting - Crash&Safety done and overview of delivery status worked out
  - Blocker, impediments & main risks detected → Facilitation started
- Simulation Org
  - HC Planning alignment → Feedback open
  - Budget planning alignment → mid-term alignment done
- CAE Activity identification
  - First base line LCO created

# SIMULATION (2/2)



**LOWLIGHTS:**

- CAE Activity identification
  - Due to interface capacities less feedback than expected

**BLOCKER:** None

# PROCESS OWNER (1/3)

**HIGHLIGHTS:**

- BOM
  - BOM issues tracked individually and resolved
  - MBOM responsibility alignment (again)
- Issue Management
  - Binning meetings have a positive impact on open issues
  - PMCS System updated to 76 % (last sprint 70 %)
- Change Management
  - We are gradually registering more Changes at 3DX
  - Export function for changes already available (format improvements in work)
- Release Management
  - Release of 'valid from' attribute
  - Checklist of BOM release for RFQ

# PROCESS OWNER (2/3)

- Cost Management
  - Approve cost items regarding July and August
  - Functional safety is separated from exterior in budget file

**LOWLIGHTS:**

- BOM
  - BOM viewer issues
- Issue Management
  - Issue updates at 100% not achieved due capacity
- Change Management
  - Approval meeting and Pre-Evaluation meeting need to be set in order to save time collecting the information from Stakeholders

# PROCESS OWNER (3/3)

- Cost Management
  - Liquidity planning for Q3 will not be solved in 4 days. A lot of consolidations with the Product Owner regarding the payment terms of the significant purchase orders

**BLOCKER:**

- BOM: 3DX issues partly solved
- Issue Management
  - As last sprint: issue performance can’t be shown at 100%
  - Out of date issues without feedback from driver/solver
- Change Management
  - Different perspectives on when-to-start-CM still open
- Release Management
  - low feedback from Project Lead to “valid_from” attribute

# VIRTUAL VEHICLE (1/2)

**HIGHLIGHTS:**

- Recruiting ongoing, +1 in September
- Initial Data Exchange Bertrandt CFD (via 3DX)
- Issues resolved
  - Surge Tank and Washer Bottle Package
  - Steering Column vs. Chassis Subframe Integration
- Focus on Frontend
  - Trunk Volume optimization
  - Front Radar Bracket designed
  - 12V Battery Tray optimized (Manufacturing, Heater)
  - HV Wiring OBC, Socket Positioning alignment

# VIRTUAL VEHICLE (2/2)



- 3DX coaching new employees
- Model-based definition/drawing strategy defined, additional alignment with body structure
- New package meeting structure in 3DX (issue-driven)

**LOWLIGHTS:**

- Vacuum Pump and ESC not positioned, unclear if 12V Battery can be mounted with brake booster
- Headcount Competence Cluster
- Cell mapping issue rear hatch/tailgate upper

**BLOCKER:** None

# DESIGN (1/2)

**HIGHLIGHTS:** SVC3:

- Exterior:
  - Styling Loop 02 ongoing.
    - Styling Release V2 planned for mid next week.

- Interior:
  - Styling loop 02 ongoing. Estimate that about 35 % of styling loop 02 is done. Loop will pause end of July
    - IP and Center Console are progressing well
    - door (window switch area) solved. IP/door transition complicated
    - Greenhouse/headliner not yet touched

# DESIGN (2/2)

- Recruiting:
  - 3 interviews next week for position: Automotive Surface Designer

**LOWLIGHTS:**
SVC3: Interior component sourcing in general is not synchronized with hardware design and Infotainment/UX. This needs to be improved.

**BLOCKER:** None

# DEVELOPMENT SPRINT REVIEW
# CALENDAR WEEK 30.21

# GENERAL (1/2)

## HIGHLIGHTS:

- NVH investigation done
- SVC2 WLTP measurement done
- CAD review done, CAD release H.1 delivered
- Crash & safety sprint 1 accelerated
- SBP Focus
  - Status assessed
  - Constraints included in timing discussion
- Program status WS (SVC3 design release & SVC3 MRD)
  - Program status received
  - Program issues and risks identified
- Process Owner Squad transferred into Program Management Squad

# GENERAL (2/2)

**LOWLIGHTS:**

- *APQP/risk assessment loop 1 status*
  - *Next steps available*
- PMCS assessment
  - 60% S0 and 65% S1 unassessed
- Part quantity strategy
  - Define strategy for hardware quantity requirements
  - Ordering parts container
- CAD and CAE data quality and late delivery

**BLOCKER:** None

# LOGISTICS

**HIGHLIGHTS:**

- SOP: logistics manual
  - Done from a technical perspective. Next sprint will be sent for internal stakeholder review.

**LOWLIGHTS:** None

**BLOCKER:** None

# PRODUCTION

**HIGHLIGHTS:**

- Contracting
  - Supplier strategy for assembly of all parts BIW is done
  - Final decisions for RFQ SVC3 manufacturing will be finished in the sprint.
  - Corrosion protection: A decision log was done in interdisciplinary meetings with alignment over all involved disciplines

**LOWLIGHTS:** None

**BLOCKER:** None

# BODY CLOSURE

**HIGHLIGHTS:**

- Charger lid module:
  - Buy level changed
  - EE compatibility confirmed
  - NEVS desired assembly process
- Change/release process definition/input

**LOWLIGHTS:** None

**BLOCKER:** None

# EXTERIOR (1/3)

**HIGHLIGHTS:**

- Three new exterior engineers joined the team
- CAD maturity increased

SVC3 / Series only

- 2 Day workshop at RLE Cologne to agree work plan and expectation of data for DR. - complete
- Perform full front end alignment review - complete

# EXTERIOR (2/3)

- Non-PV panels
  - Evaluate impact on cantrail due to new hood surface in hinge area - done and 3DX updated
  - B-pillar assembly strategy discussion with all parties involved - complete with new brackets added
  - Cantrail new concept feasibility check - complete

- Under body panels
  - Front under body panel need to add two push pins against the bumper as third hand and review assy sequence with NEVS - Complete

## EXTERIOR (3/3)

- Glazing:
  - Update and 3D implementation needed of the fixed side windows with new guide pins positions.
  - Nominate supplier - complete

Wiper/wash systems:

- Redesign of the aquarium and leaf screen. - ongoing
- Update connection to the HVAC - ongoing

**LOWLIGHTS:** None

**BLOCKER:** None

# BODY STRUCTURE

**HIGHLIGHTS:** SVC3:

- Processing of PMCS issues is ongoing
- Battery package (dimension in x) as required can be realized incl. solution for front connection points
- Grommet for steering column received, concept for implementation in body structure is ongoing
- Space available for accelerator pedal bracket → bracket concept in development

**LOWLIGHTS:** None

**BLOCKER:** None

# INTERIOR (1/2)

**HIGHLIGHTS:** SVC3:

- Supplier Sourcing (sunvisor, headliner, soft trims, hard trims, seats, 1st aid kit, ESP)
  - To get technical/cost feedback from for the sunvisors / WIP
  - To get cost&timing feedback for the sunvisors / WIP
  - Finalized cost&timing feedback is awaited for the headliners / WIP
  - PO is in internal circulation to be approved for the hard trims / WIP
  - Supplier search for soft trims has been kicked-off due to response delays from the production-intend supplier / WIP
  - 1st aid kit supplier will confirm quote status that was agreed in 2018 after summer vacation/ WIP
  - Seat quotes for SVC3-4-5 are awaited. Current PO covers only the engineering development / WIP

# INTERIOR (2/2)

- Regular meetings with ARRK Interior on I/P, doors, trunk, and console hard points / WIP
  - To share remaining BIW related interior attachment points / WIP

**LOWLIGHTS:**

- PMCS
  - PMCS - Pre S0 - deliverable - checked and judged - done
  - PMCS - S0 deliverables checked and questions prepared for PM / planned till the next sprint

**BLOCKER:** SVC3: Restraints integration has just been kicked-off as of August

# INFOTAINMENT

**HIGHLIGHTS:** SVC3:

- All Infotainment commodities are placed in their correct location in 3Dx and CAD
- Development team received 12 samples of the MATE-AX header connectors from TE, 4 way connectors in one, which will reduce the amount of connectors on the headunit.

**LOWLIGHTS:** SVC3:

- The rear camera will use ethernet protocol for image delivery. We were working so that like most rear cameras we'll use LVDS. Not a deal breaker it just means level 3 needs to add an ethernet hub to their schematic diagram.

**BLOCKER:** SVC3: Steering wheel controls confirmation

# CHASSIS (1/4)

**HIGHLIGHTS:** SVC3:

- General
  - Lead suspension engineer – 99%

- Steering
  - Prepare JD VD CAE – 100%
  - Include EPS on SW release plan - 100%
  - FuSa ASIL level alignment for EPS – 30%

- Knuckle
  - Publish new loadcases – 100%

# CHASSIS (2/4)

- Brakes
  - Integrate MeritRnD booster to vehicle CAD – 90%
  - Get hard quotes for steel disc – 50%
  - Freeze calipers and nominate supplier – Friday
  - SW integration plan w/ requirements for other squads (interdependency) – 90%

- CAD / PDM
  - Finalize EVP and ESC position – 80%
  - PDM attributes (weight / serviceability / valid from) – 66%
  - Datum system for rolling chassis GD&T – 50%

# CHASSIS (3/4)

- Suspensions
  - Deliver mesh for crash analysis - OK
  - Start FE loops - OK
  - Good offer received for aluminum subframe.

**LOWLIGHTS:**

- S0 / S1 assessment – 0%
- Tech alignment HL, JTEKT, TK – 20%
- PMCS being used as a communication tool.
- European vacations
- Knuckle DFM studies
- Bolt + torque definition for calipers fastening

# CHASSIS (4/4)

**BLOCKER:**

- Functional safety discussion on ESC and EPS
- Front attachment to CMS

# E/E (1/2)

**HIGHLIGHTS:** SVC3:

- 46/67~ tickets closed this sprint (covers both EE & powertrain)
- Kick-off ARRK CAD integration | BCM, GEM, VCU positioning started
- Keyfob concept phase started | first design will be presented in 4 weeks to the team
- Active cruise control planned for SOP
- Clamp and power management strategy started
- Progress on ECU list for diagnostics

# E/E (2/2)

**LOWLIGHTS:** SVC3:

- DTs for some switches missing as the supplier not sourced yet
- Missing peripheral information attached to BCM
- Missing peripheral information attached to RCM (airbags / pretentioners) → Improved Situation compared to last Sprint
- Suppliers need feedback on cyber security
- PMCS tool and Jira interface

**BLOCKER:** SVC3:

- DT response (final WK22) (5%/50%/45%)
- Headcount (timing)

# HV BATTERY

**HIGHLIGHTS:**

SVC3:

- Review information for connector and EE parts selection required to be sent: WIP
- On boarding lead CAE engineer: WIP
- Document structure and high level specifications in place for HV battery pack SSTS: WIP

**LOWLIGHTS:** None

**BLOCKER:** None

# SIMULATION (1/2)

**HIGHLIGHTS:** CAE Software Acquisition (pre/post-processor)
Expectation: Pre-processor and post-processor in-house available

- Licence Check available
- Quotes available
- Acquisition
  - Pre-processor: IT alignment open

CAE standardization
Expectation:Creating overview of current status and deriving work packages

- Content overview and strategy available
- Overview of current status available
- Work packages available

# SIMULATION (2/2)

Complete vehicle CFD

- Modelling in progress

**LOWLIGHTS:**

CAE activity identification --> LCO

- Due to overall capacity issues too little attention by POs

**BLOCKER:** JOB AD: no capacity

# HOMOGOLATION & RECYCLING

**HIGHLIGHTS:**

Homologation

- presentation of homologation basics at all staff meeting
- time schedule

Recycling

- meetings with potential imds service providers to get offers (material compliance)
- new battery regulation draft analysed and first draft of specs for HVB based on new battery regulation

**LOWLIGHTS:** None

**BLOCKER:** None

# THERMAL

**HIGHLIGHTS:**

- SVC3
  - Implementation of SQA targets into generic thermal SSTS (will be used for coolant and refrigerant lines and air ducts)

- SVC2
  - final software update on Salt and Pepper: HVAC unit (flaps, fan, heating, cooling) finally fully functional

**LOWLIGHTS:** None

**BLOCKER:** None

# VIRTUAL VEHICLE (1/2)

**HIGHLIGHTS:**

- CAD Reviews completed on 1 day, local export done
- Integration Report (still in work):
- Data Exchange Bertrandt CFD (via 3DX)
- 3DX User Groups created for every Squad and Cluster. Adding groups to approvals and user management simplified
- Concept section sign off process defined
- Cell mapping doors finished
- 3DX coaching new employees 04.08.2021
- New package meeting structure in 3DX (issue-driven) weekly report
- Tools and interfaces overview

# VIRTUAL VEHICLE (2/2)

- Issues resolved
  - Ground planes and roadlines Update
  - Hood Hinge Package
  - MSD
  - Trunk Volume (interior feedback for loading objects, NVH and ergonomics necessary)
- Focus on frontend
  - 12V battery tray optimized and uploaded
  - HV wiring OBC, socket positioning alignment

**LOWLIGHTS:**

- Vacuum pump positioning not optimal from NVH side, but no alternative available
- HV charging cables change to 95 mm² won't work with the current radiator Position

**BLOCKER:** None

# DESIGN (1/2)

**HIGHLIGHTS:** SVC3:

- Exterior:
  - Styling Loop 02 ongoing.
    - Styling pre-release V2 released last week. Release V2 planned beginning next week.
    - Overall CAD maturity is difficult to measure. about 80%.

- Interior:
  - Styling loop 02 ongoing. Estimate that about 39% of styling loop 02 is done.
    - IP and center console are progressing well. (85% loop 02 done)
    - Doors 60% loop 02 done
    - Greenhouse / headliner / trims 10% loop 02 done

# DESIGN (2/2)

**LOWLIGHTS:** Change requests from engineering

**BLOCKER:** None

# DEVELOPMENT SPRINT REVIEW
# CALENDAR WEEK 32.21

# GENERAL (1/2)

**HIGHLIGHTS:**

- PMCS Assessment
  - 60% S0 and 65% S1 unassessed
  - Review of deliverables for S0
- Part Quantity Strategy
  - SVC3 BOM for quantities created (basis for order list and SVC3 cost evaluation)

**LOWLIGHTS:** None

# GENERAL (2/2)

**BLOCKER:**

- BOM cost reduction investigations (cost per part)
  - OKR per module
- BOM Part Source attribute still with major empty fields
- Check-list for SVC3 DR defined by 20-AUG-21 (CAD/CAE/QUAL/EBOM/ME)
  → some feedback received, but not complete

# LOGISTICS

**HIGHLIGHTS:**

- SOP
  - Logistics manual - 1st review round done. Next step review by legal.

**LOWLIGHTS:** None

**BLOCKER:** None

# PRODUCTION

**HIGHLIGHTS:**

- Contracting
  - With a new SAP set up it is maybe possible to generate savings in the invest
  - BOM discussion with NEVS is started and MBOM discussion finalized (Task of NEVS ME)
- ME
  - Timing discussion with NEVS

**LOWLIGHTS:** None

**BLOCKER:** None

# BODY CLOSURE

**HIGHLIGHTS:**

- 2x LEs signed contract > hood & doors
- RLE workshop closures

**LOWLIGHTS:** None

**BLOCKER:** None

**HIGHLIGHTS:**

- Non-PV Panels:
  - Solve PMCS issue against rocker. Cut-out required for decking. Tire spat and WAL affected. - Done
- Wiper/Wash Systems:
  - Review new smaller motor for package and function - Done

**LOWLIGHTS:**

Non-PV panels:

- Implement new styling surface in rocker and reposition of fixings

**BLOCKER:** None

# BODY STRUCTURE

**HIGHLIGHTS:**

SVC3:

- Processing of PMCS issues is ongoing and and with satisfactory degree of processing
- Most of interface information are available → update body structure work in progress
- Body structure redesigned for integration of the grommet steering column → already in 3Dx available
- Proposal for accelerator pedal bracket in 3Dx available

**LOWLIGHTS:** None

**BLOCKER:** None

# INTERIOR (1/2)

**HIGHLIGHTS:** SVC3:

- Supplier sourcing (sun visor, headliner, soft trims, hard trims, seats, 1st aid kit, ESP)
  - To get technical/cost feedback from supplier for the sun visors / WIP
  - To get cost & timing feedback from supplier for the sun visors / WIP
  - Finalized cost & timing feedback is awaited from supplier for the headliners / WIP
  - PO is in internal circulation to be approved for the hard trims / WIP
  - 1st Aid Kit supplier will confirm quote status that was agreed in 2018 after summer vacation/ WIP
  - Seat quotes for SVC3-4-5 are expected from supplier. Current PO covers only the engineering development / WIP
- Regular meetings with supplier on I/P, doors, trunk, and console hard points / WIP
  - To share remaining BIW related interior attachment points / WIP

# INTERIOR (2/2)

**LOWLIGHTS:**

- PMCS
  - PMCS - Pre S0 - Deliverable - checked and judged - done
  - PMCS - S0 deliverables checked and questions prepared for PM / planned till the next sprint

**BLOCKER:** None

# INFOTAINMENT (1/2)

**HIGHLIGHTS:**

SVC3:

- All Infotainment commodities are placed in their correct location in 3Dx and CAD
- All PMCS derivable
- HRS and SRS requirements are being consolidated on our confluence pages
- We received high level phone projection (AA and CP) and Instrument cluster proposals from Level 3 Systems, more refinement and details are needed before submission.
- Level 3 uploaded to the Sono GitHub the Android Automotive 11 software image (Digital team will use with the IMX8 to develop the UI/UX/HMI for the headunit)
- L7 Up loaded the 1st draft schematic layout for the VCM.
- Level 3 delivered the final version System Software Architecture.

# INFOTAINMENT (2/2)

**LOWLIGHTS:**

SVC3:

- Program delay nomination of speakers, e-call, antenna, USB
- L7 cannot reduce the sleep current for the VCM the unit will use 22 mA in sleep mode, we need request the EE team to increase our overall system current allocation to 30 mA to cover the (VCM, e-call and audio headunit)

**BLOCKER:**

SVC3:

- No update on steering wheel controls from suppliers
- ADAS team needs to define the output specs for the rear camera (broad reach ethernet, LVDS or coaxial) we need this to finish the IHU schematic

# THERMAL

**HIGHLIGHTS:**

SVC2:

- Final software update on Salt and Pepper: HVAC unit (flaps, fan, heating, cooling) finally fully functional

SVC3:

- Implementation of SQA targets into generic thermal SSTS (will be used for coolant and refrigerant lines and air ducts)

**LOWLIGHTS:** None

**BLOCKER:** None

# CHASSIS (1/4)

## HIGHLIGHTS:

- Brakes:
  - Booster connection to brake pedal brakes – 90%
  - Booster reservoir compatibility w/ foundations brakes – 50%
  - Freeze fastener design – 80%
  - Finish FuSa system definition – 90%
  - ESC timeplan completion - OK

- PM
  - PMCS S0/S1 assessment – 50%
  - Budget review - OK

# CHASSIS (2/4)

- Knuckle/Spindle
  - Freeze fastener definition – 80%
  - Prepare rear spindle RFQ - OK
  - Send rear spindle for quote – OK
  - Kick-off tire repair kit sourcing - OK

- Suspensions
  - SF front extension attachment – 90%
  - FUp rear damper attachment CAE runs – 90%
  - Finish welding standard - tomorrow

# CHASSIS (3/4)

- CAD / PDM
  - Finalize EVP position – Next CAD meeting
  - PDM attributes: Serviceability / Sourcing – 50%
  - Move w/ rolling chassis GD&T – 95%
  - Finish brake piping design – 100%
  - EVP / ESC / TMC interface documents – 60%
  - Finalize TMC positioning w/ front package - OK

- Steering:
  - FuSa system definition – 50%
  - Gd&T for body interface – 30%
  - Analysis of ass’y access – 40%

# CHASSIS (4/4)

**LOWLIGHTS:**

- Knuckle DFM / D2C stalled due vacations
- CAE runs for RTB and SF too slow
- Suppliers on vacation

**BLOCKER:**

- Knuckle DFM / D2C stalled due vacations

# E/E (1/2)

**HIGHLIGHTS:**

SVC3:

- 38/107~ tickets closed this sprint (Covers both EE & Powertrain)
- ARRK CAD integration | brackets for under-hood fusebox, 12V battery and pre-fusebox underway
- All weights up to date in 3DX to current status
- eBOM updated to current status
- 1 headcount contract signed (E/E integration)

# E/E (2/2)

**LOWLIGHTS:**

SVC3:

- Part sourcing attribute took a backseat to other more important topics this sprint, will be scheduled for the next sprint

**BLOCKER:**

SVC3:

- Headcount (timing)

# HV BATTERY

**HIGHLIGHTS:**

SVC3:

- Update HV Battery dimensions, mounting concept and BIW cutout, communicate changes to supplier
- Confluence page on positioning of MSD, HV battery pack in BIW and its virtual validation
- Simulation plan for
- According ECE R100 r2, UN 38.3, LV124, vehicle crash pulse.
- Internal planned simulations
- BIW and complete vehicle related
- Define requirements and cost (machine, license, maintenance costs etc.) of performing the simulations.
- Screws BIW-HVB dimension preliminary calculation on static loads

# HV BATTERY

- Implement error calculation for reference and obtained speeds from simulation. Tune PID to meet error specs of ISO 8714.
- Testing the electric motor and battery model , its integration and do some improvements to the model.
- Communicate BMS / battery pack warnings icon for infotainment team (Refer to UN ECE R121)
- Confluence page for simulations why, what, how and work till now
- Release version 1.0 of HV SSTS
- Finalize HV cable size, connector and LV interfaces for battery pack.
- Align battery BoM cost, budget for planned DVP and other development activities
- Finalize the length at 1680 mm

# HV BATTERY

## LOWLIGHTS:

SVC3:

- Finalize BMS diagnostic list (along with )
- Get quote of complete DVP or part of tests in battery pack DVP
- Release PO for cell storage and testing jig on hold

## BLOCKER:

SVC3:

- Internal / external support for defining BMS hardware / Software functionalities.

# SIMULATION (1/4)

**HIGHLIGHTS:**

CAE software acquisition (pre/post-processor)

Expectation:

- Pre-processor and post-processor in-house available

Actual achieved

- Licence check available
- Quotes available
  - Pre-processor: yes
  - Post-processor: WIP by supplier

# SIMULATION (2/4)

CAE Standardization

Expectation:

- Overview of current status created and start work packages

Actual achieved:

- Content overview and strategy available
- Overview of current status available

# SIMULATION (3/4)

CAE DR Checklist

Expectation:

- Creation of a result oriented check-list (part and vehicle level) from all stakeholders for SVC3 design release

Actual achieved:

- Checklist done

# SIMULATION (4/4)

**LOWLIGHTS:**
Crash & Safety Sprint 1

Expectation:

- Full model assembly done in cw 31/32
- Structural crash: results available in cw 32/33

Actual achieved

- Finalization full model assembly in cw34

**BLOCKER:** None

# HOMOGOLATION & RECYCLING

**HIGHLIGHTS:**

Homologation

- Presentation of homologation basics at all staff meeting
- First rough time schedule

Recycling

- Discussion on new process requirements due to new battery draft with IMS squad
- Master's thesis on recycling process for solar body panels

**LOWLIGHTS:** None

**BLOCKER:** None

# VIRTUAL VEHICLE (1/2)

**HIGHLIGHTS:**

- Integration report concept sections and data quality issues added
- Final Data Exchange Bertrandt CFD (via 3DX)
- Concept Section sign off: change actions created
- Issues resolved
  - H points BIW - EDU mount
  - Fusebox package
  - Tire envelopes collision front fender
  - Surge tank positioning
  - Washer bottle package check
  - 2nd row seat collision with BIW

# VIRTUAL VEHICLE (2/2)

- Concept for sub-frame Integration, Brake Booster and frunk in work, no showstoppers anymore
- Focus on front end
  - 12V Battery tray optimized (new battery position) and uploaded
  - HV wiring OBC, socket positioning alignment
  - Vacuum pump and ESC positioning and bracket in work

**LOWLIGHTS:**

- New data quality issues since last release (hhost links..)

**BLOCKER:**

- Scope of release I.1 unclear

# DESIGN (1/3)

**HIGHLIGHTS:**

SVC3:

- Exterior:
  - Styling loop 02 ongoing. overall around 85% done until end of design release.
    - Styling release V3 (G1 in 3DX) released (every 2 weeks roughly we plan to release a complete updated exterior styling)
    - Change requests now come more from closures / exterior, less from solar. Which means detailed work in gap / flange areas. Changes are still above 1 mm.

# DESIGN (2/3)

- Interior:
  - Styling loop 02 ongoing. Overall about 60 % done until end of design release.
    - IP 80%
    - Doors 70% (door handles are being overworked, overall concept is working and fixed and confirmed)
    - Greenhouse / headliner / trims 20% done. A pillar: 80%, lower trim: 30 % , upper trim: 15%

- Wallbox
  - 3 designs chosen and confirmed by founders, branding and “technik”

# DESIGN (3/3)



**LOWLIGHTS:**

- Many change requests from engineering

**BLOCKER:** None

# DEVELOPMENT SPRINT REVIEW
# CALENDAR WEEK 34.21

# GENERAL (1/2)



**HIGHLIGHTS:**

- Program Timing investigation
  - New naming convention introduced
- Program Timing investigation
  - Supplier communication created for new time plan
  - SVC3/SVC4 Volumes and Purpose

PMCS Assessment

- 60% S0 and 65% S1 unassessed
- Review of deliverables for S0

BOM

- Extension EBOM flowchart created

# GENERAL (2/2)

BOM

- Nightletter introduction
- Cost BOM created
- SVC3 BOM created
- Logistic BOM created

BOM Part Source attribute improvement

**LOWLIGHTS:** None

**BLOCKER:**

- BOM cost reduction investigations (cost per part)
- Check-list for SVC3 DR defined until 20-AUG-21 (CAD/CAE/QUAL/EBOM/ME)
- BOM Error Report 02-SEP-21

# BODY CLOSURE

## HIGHLIGHTS:

- Vacation

## LOWLIGHTS:

- Supplier/SM vacation periods affect communication

## BLOCKER:

- Updated timing summary not available > risk no coordinated communication

# EXTERIOR (1/5)

**HIGHLIGHTS:**

SVC3/Series only:

- Bring UBP and WAL's supplier onboard - Done

PV & Non-PV Panels:

- After checking the styling H.1, some issues need to be addressed / solved for rocker and cantrail
- Check implications for tailgate and spoiler if the roof needs to be moved up by 2-3 mm so that there is enough space for the glue bead - Done
- Check solution in rear area of the rocker to have the required clearance for decking - Done

# EXTERIOR (2/5)

Bumpers:

- FR bumper-fender connection w/o head lamp fixation (DONE till Friday)

Lighting:

- Finalise fixing strategy for Headlamp (Done)

Wiper/Wash Systems:

- Integrate new parts from DOGA in CAD (filler, motor, fixation points) (DONE)
- Finalize Motor position for front wiper incl. alignment with other squads (body) (DONE)
- Check device transmittal proposals with DOGA - Done

# EXTERIOR (3/5)

Bumpers:

- FR bumper-fender connection w/o head lamp fixation (DONE till Friday)

Lighting:

- Finalise fixing strategy for Headlamp (Done)

Wiper/Wash Systems:

- Integrate new parts from DOGA in CAD (filler, motor, fixation points) (DONE)
- Finalize Motor position for front wiper incl. alignment with other squads (body) (DONE)
- Check device transmittal proposals with DOGA (Done)

# EXTERIOR (4/5)

**LOWLIGHTS:**

PV & Non-PV panels:

- Pillar trims design optimizations on parts, brackets, foams, fixing strategy,
- water management, door harness and grommet locations
- Clarify clash of A pillar/cantrail /fender (WIP - feedback cantrail necessary)
- Check to reduce the number of fixings for the rocker

Bumpers

- Check new Body / CMS design and the impact on the FR bumper (WIP - feedback thermal necessary)

# EXTERIOR (5/5)

Lighting:

- Look at solving interference between headlamp and hood (Not complete, supplier optics team still investigating possible solutions)
- Implement Z support for fascia front from headlamp into CAD (Not complete, WIP to implement into CAD)

**BLOCKER:** None

# BODY STRUCTURE (1/2)

## HIGHLIGHTS:

- Processing of PMCS issues is ongoing and and with satisfactory degree of processing.
- Most of interface information are available → current status **85%.**
- 2nd load path -> concept is finalized. Body Structure is updated and 3D data in 3Dx available.
- Optimization of body structure for crash requirements (seat cross member) done.
- Roof cross member front redesigned, but not with final status in 3Dx.
- Preparation mounting concept for tie down hooks and loading floor done. Brackets designed, available in 3Dx in week 35.

# BODY STRUCTURE (2/2)

**LOWLIGHTS:**

- Fixing concept sun visor and roof module → currently only a proposal with principal section available (no 3D data) → redesign of the cross member roof front started, but finalization not possible yet.
- Concept front end (cross member body structure, several brackets) not finally defined and designed yet.

**BLOCKER:** None

# INTERIOR (1/2)

## HIGHLIGHTS:

- SVC3
  - Supplier Sourcing (Sunvisor, Headliner, Soft Trims, Hard Trims, Seats, 1st Aid Kit, ESP)
    - To Get technical/cost feedback for the Sunvisors / done
    - To Get cost&timing feedback for the Sunvisors / WIP
    - Finalized cost&timing feedback is awaited for the headliners / done
    - PO is in internal circulation to be approved for the Hard Trims / WIP
- Regular meetings with ARRK Interior on I/P, Doors, Trunk, and Console hard points / WIP
- Share remaning BIW related Interior attachment points / WIP

# INTERIOR (2/2)

**LOWLIGHTS:** None

**BLOCKER:**

- SVC3
  - Steering Package (steering column, steering column module and steering wheel)

# INFOTAINMENT (1/2)

**HIGHLIGHTS:**

SVC3:

- All Infotainment commodities are placed in their correct location in 3Dx and CAD
- All PMCS deliverable for S0 and S1 at 100%
- Android Automotive 11 software image is released to Sono-Digital team for development.
- Supplier L7 found a way to reduce the VCM current when the module is in sleep mode 10ma vs 20ma
- Sibros and L7 Up loaded the VCM Hardware and Software architecture documentation, schematic layout and the DMFA for the VCM
- Supplier Level 3 delivered the final version of the System block diagram

# INFOTAINMENT (2/2)

- Infotainment components are released in 3DX for Version I.1:
- Speakers, Microphones, BT/WiFi/GNSS Antenna, FM/DAB Antenna, ECall Module, USB modules, Displays and VCM Module

**LOWLIGHTS:**

SVC3

- L7 sleep mode current reduction
- ECall button in discussion

**BLOCKER:**

- No update on steering wheel controls

# THERMAL

**HIGHLIGHTS:**

- Vacation

**LOWLIGHTS:** None

**BLOCKER:** None

# CHASSIS (1/4)

## HIGHLIGHTS:

- Brakes:
  - Finish booster connection to brake pedal -90%
  - Nominate brake disc supplier- ok
  - Nominate calipers supplier - ok
  - Freeze fastener design -75%
  - Finish FuSa system definition -ok
  - HARA - 50%(WIP)
  - Get flex hoses design from TRE -ok
  - RFQ for brake piping - WIP

# CHASSIS (2/4)

- Knuckle/Spindle
  - Nominate knuckle supplier -ok
  - Move w/ knuckle DFM improvements -ok
  - Freeze fastener definition -75%
  - 3D model for tire repair kit

- Steering
  - Finish FuSa system definition - ok
  - Gd&T for body interface - ok
  - Analysis of ass’y access - ok
  - Approach Cikautxo for ED&T quote alignment -ok

# CHASSIS (3/4)

- CAD / PDM
  - Finalize EVP position - 75%
  - PDM attributes: Serviceability - 70%
  - Finish rolling chassis GD&T - OK
  - Create package protection for Repair Kit - OK
  - PDM update + BOM review - OK

- Suspensions
  - CAE results for SF and RTB - OK
  - Align quotes
  - Implement SF front extension attachment - OK
  - RFQ for springs

# CHASSIS (4/4)

- PM
  - Start VD CAE interviews - OK
  - Attribute on EBOM of sourcing - OK

**LOWLIGHTS:**

- PMCS S1 assessment - 25%
- RFQ for rear damper attachment - 0%
- RFQ for rubber accessories - 0%
- Summarize final TRE results for steering -0%
- EVP / ESC / TMC / Brakes lines interface documents on Confluence - 0%

**BLOCKER:** None

# E/E (1/2)

**HIGHLIGHTS:**

SVC3:

- (Nearly) all Part source attribute updated (Large BOM update 02.09 on TCY839 will have to be re-done)
- (Nearly) all enterprise numbers updated (Large BOM update 02.09 on TCY839 will have to be re-done)

# E/E (2/2)

**LOWLIGHTS:**

SVC3:

- Missing peripheral information attached to BCM

**BLOCKER:**

SVC3:

- Headcount (timing)

# DES (1/2)

**HIGHLIGHTS:**

- SVC3
  - Workshop being organised for mid september
  - ARRK are now looking at some of the mechanical issues we have with the OBC/MCU
  - feedback on socket positions

# DES (2/2)

**LOWLIGHTS:**

- OBC Mechanical Freeze
- OBC PLC discussion promising
- Holidays

**BLOCKER:** None

# HV BATTERY (1/2)

**HIGHLIGHTS:**

SVC3:

- Implement error calculation for reference and obtained speeds from simulation. Tune PID to meet error specs of ISO 8714.
- Update the confluence page of simulation with test results
- Finalize A sample, and get PO
- Finalize key design parameters for B sample
- Sign off BMS diagnostics list and functionalities for B samples
- Get quote of complete DVP or part of tests in battery pack DVP
- Design and DVP review for B sample

# HV BATTERY (2/2)

**LOWLIGHTS:**

- Study regenerative braking and implement in system model (this has strong influence on overall energy consumption)
- Communicate BMS / Battery pack warnings icon for infotainment team (Refer to UN ECE R121)
- Implementing coast down curve testcase in the model.
- Validating the simulation model with the real data.
- Item definition for FuSA
- Release version 1.0 of HV SSTS

**BLOCKER:**

- Validating the simulation model with the real data.

# LOGISTICS

**HIGHLIGHTS:**

- SOP
  - Logistics Service Agreement currently under review.
  - Verified the standards from CM and compared with descriptions on the LM & LSA. All documents are aligned on the way to proceed.
  - New file construction is underway.

**LOWLIGHTS:** None

**BLOCKER:** None

# PURCHASING

**HIGHLIGHTS:**

- Introduction of Commodity Managers to sprint planning within squads.
- provided data for potential SCCM. (Steering Column Control Module date being reviewed - E/E).

**LOWLIGHTS:**

- Guidance on the HOW of integration into Squads not provided due to How Master time constraints. (Ie: No Time).

**BLOCKER:**

- Updated timing presentation from Group Sion Project Management to share with suppliers. (Project Management).
- No information on assembly assumptions impacts sourcing of assembly suppliers (Manufacturing).

# QUALITY (1/2)

**HIGHLIGHTS:**

SVC3/SOP

- *SQA:*
  - Communication with suppliers on SVC3-Quality (APQP/MLV) requirements initiated
  - Meeting to be arranged with BM Plastics through the solar super squad (kick-off SQA cooperation)
- *IMS/PQE*
  - Training for Parts identification & traceability (09.09.21)
  - Preparation of the shortened APQP / MLA training (German and English)

# QUALITY (2/2)

**LOWLIGHTS:**

SVC3/SOP

- SQE → 2 positions open

**BLOCKER:** None

# PRODUCTION (1/2)

**HIGHLIGHTS:**

- Contracting
  - Negotiation about the sealing and KTL is done
  - Various tasks with NEVS are done. Preparation for RFQ SVC3 is started with 2 workshops and preparation of the Annexes of the Start up contract has also started. Preparation with Legal will start next week
  - .Information for the calculation of the Invest for the Nomination Letter are now available.
  - Adapting the timeline of the contracts will be done today
- Organization and Process
  - Cooperation with NEVS turn to NEVS get the driver in different topics

# PRODUCTION (2/2)

- ME
  - Information to the result out of the NEVS visit was given to different parties
  - Timing Meeting for week 37 is arranged

**LOWLIGHTS:**

- Contracting
  - Negotiation for BOM level will take place next week
- ME
  - BOM canalize for contracting is actual not possible

**BLOCKER:** None

# SIMULATION (1/9)

**HIGHLIGHTS:**

Crash & Safety Sprint 1

Expectation

- Assembly finalized & model run-able

Actual achieved

- Model run-able until end of week 35
  - Model still contains minor simulation/cae related issues and a chassis-lowering-effect --> Impact on structural crash results are not expected by ARRK
  - Running model will help solving these issues

# SIMULATION (2/9)

Complete Vehicle CFD

Expectation

- Very first results expected

Actual achieved

- First test simulation done
- - results not valid -
  - Next steps: Refinement simulation environment
    - rotating wheels
    - rotating fan
    - porosity cooling module
- Outlook
  - Analyse and report available on 22. Sept. 2021
  - Meeting invite already sent

# SIMULATION (3/9)

LCO Improvements

Expectation:

- Load cases/Deliverables with Product Owner aligned
- Current result overview updated
- Delivery dates updated

Actual achieved:

- LCO is growing
- LCO is restructured
- still ongoing process

# SIMULATION (4/9)

CAE Standardizations

Expectation

- Load case descriptions:
  - Closures & Exterior started
- NVH Modelling Guideline
  - Started

Actual achieved

- Load case descriptions:
  - Closures & Exterior - in work
  - Expected date of delivery: 15th September
- NVH Modelling Guideline
  - Blocked - Competences not available

# SIMULATION (5/9)

**LOWLIGHTS:**

Crash & Safety Sprint 1

Expectation

- Product Owner’s response mandatory:
- (Request of cw32/33)
  - CAD Releases for CAE model build
  - Part/system masses

Actual achieved

E/E and PWT CAD: no feedback

- → Traceability issue

# SIMULATION (6/9)

Complete Vehicle CFD
Expectation:

- Very first results expected

Actual achieved:

- Unexpected modelling efforts lead to Worst-case-timing
  - Modelling issues solved
  - (Example: Body Structure-2-Wheel House)
  - Setup simulation environment delayed

# SIMULATION (7/9)

**BLOCKER:**
Crash & Safety Sprint 1

Expectation
- Assembly finalized & model run-able

Actual achieved
- CAE Structural Crash loop will be not performed without Chassis-Front-Subframe-Update

# SIMULATION (8/9)

CAE Software Acquisition (Pre/Post-Processor)
Expectation

- Pre-Processor and Post-Processor in-house available

Actual achieved

- Licence Check available
- Quotes available
  - Pre-Processor: yes
  - Post-Processor: yes
- Acquisition
  - Pre-Processor: PO pending
  - Post-Processor: Testing licence available already

# SIMULATION (9/9)

CAE Standardization

- Modelling Guidelines: NVH
  - NEVS needs software licences
  - no CAE-NVH capacities at NEVS

# PERFORMANCE REQUIREMENTS (1/2)

**HIGHLIGHTS:**

NVH

- Conti and Vitesco Documents reviewed
- Engine Mounts system evaluation - Deeper Issue confirmed
- NVH test campaign - Feasible, Budget ok, RFQ in progress

Weight

- Update Input Quality Monitoring Dashboard V5 Complete Vehicle Weight Benchmark
- Crossfunction Topic with CAE - Mass list: Details in Jira Story
- Crossfunction Meeting with Interior Squad: Details in Jira Story

# PERFORMANCE REQUIREMENTS (2/2)

**LOWLIGHTS:**

NVH

- Follow CAD issues on various modules,
- Assist all PO and modules for NVH topic

Weight

- Input source: still missing a lot of Part_Source and weight information in BOM/EBOM, Details in BOM error Report & Input Quality Monitoring Overview Charts

- **BLOCKER:**
- Weight
  - Input source

# HOMOGOLATION & RECYCLING (1/2)

**HIGHLIGHTS:**

Homologation

- General enquiry KBA regarding type approval started by technical service

Recycling

- meetings with potential imds service providers
- Presentation concerning European Green Deal and impact on resource and recycling laws and how Sono is affected
- uptake recycled content in plastic parts
- put down homologation and recycling requirements in Jira
- internship and Master Thesis on Recycling Process for Solar Body Panels First outline of Research on legal requirements and Market analysis concerning OEM with integrated solar roof / suppliers of free available solar panels

# HOMOGOLATION & RECYCLING (2/2)

**LOWLIGHTS:** None

**BLOCKER:** None

# PROGRAM MANAGEMENT (1/3)

**HIGHLIGHTS:**

Issue Management

- Kick-off for PMCS Platform transition in CW35 (1 month time estimated)

Change Management Process

- Using Change Actions for DR SVC3 as sign off tool (Agreed with 90% of the Squads - Agreement with missing Squads will be done till end of the week).
- Release VTS via 3DX - Trials works - Process 80% defined.

Release Management

- Release for RFQ work process is created and aligned with Purchasing

# PROGRAM MANAGEMENT (2/3)

**LOWLIGHTS:**

Issue Management

- Feedback from drivers and solvers are time consuming
- There is no automatic warning system implemented yet

Release Management

- EBOM work process draft is created, but downstream information flow and requirements for implementation need to be defined.

# PROGRAM MANAGEMENT (3/3)

**BLOCKER:**

Timing

- Deliverable Risk
  - Risk assessment not possible w/o S0 and S1 input

VTS

- Low feedback on VTS change requests (driver + stakeholder approval)

Issue Management

- Massive expired issues have not been updated until the end of sprint.

Release Management

- Decision to be made: shall we use Change Action for minor releases.

# VIRTUAL VEHICLE (1/2)

**HIGHLIGHTS:**

- Issues resolved
  - Trunk Volume (Parcel Shelf)
  - Chassis Integration Rear End
  - Curtain Airbag Integration
  - Fusebox Package
  - Tire Envelopes Collision Rear
  - Fender Package (BIW collision)
- Release Data for I&C and Body Structure

# VIRTUAL VEHICLE (2/2)

**LOWLIGHTS:**

- Vacuum Pump positioning still not fixed

**BLOCKER:**

- Scope of Release I.1 unclear
- 3DX Update over the Weekend could lead to delays

**HIGHLIGHTS:**

- Vacation

**LOWLIGHTS:** None

**BLOCKER:** None

# FUNCTIONAL SAFTEY (1/2)

**HIGHLIGHTS:**

- SVC3
  - FuSa Timing
    - FuSa internal timeline > adjusted to change strategy based on pending feedback by dev squads
    - DR checklist > first draft done
  - FuSa Requirements
    - Connecting FuSa Jira Board to VTS requirements in Jira > started

# FUNCTIONAL SAFTEY (2/2)

**LOWLIGHTS:**

- SVC3
  - Item Definition
    - Missing functional architecture/state diagrams
  - Resource planning
    - Finding resource for FuSa challenging > new round of active sourcing starting

**BLOCKER:**

- SVC3
  - Item Definitions
    - 32 Item Definitions in review by Sono

# CYBER SECURITY

## HIGHLIGHTS:

SVC3

- Checking min required requirements (in progress)

## LOWLIGHTS:

- SVC3
  - Group Coordination Meeting
  - There is no presentation from our side for ESP

## BLOCKER:

SVC3

- Time availability in Squads for this topic

# REQUIREMENTS

**HIGHLIGHTS:** SVC3

- VTS with links to Jira tickets
- Roadmap
- Battery SYS.1 requirements

**LOWLIGHTS:** SVC3

- Group Coordination Meeting
- Requirements Management Tool is not approved.

**BLOCKER:** SVC3

- Time availability in Squads for this topic

# DEVELOPMENT SPRINT REVIEW
# CALENDAR WEEK 36.21

# GENERAL (1/2)

**HIGHLIGHTS:**

Program Timing new naming convention introduced

Program Timing

- SVC3/SVC4 Volumes and Purpose

PMCS Assessment

- 60% S0 and 65% S1 unassessed
  - Review of deliverables for S0

BOM

- Extension EBOM flowchart created

# GENERAL (2/2)

BOM

- Nightletter introduction
- Cost BOM created
- SVC3 BOM created
- Logistic BOM created

BOM Part_Source attribute improvement → Registration summary: number of blank parts from 2127 to 1590

**LOWLIGHTS:** None

**BLOCKER:**

- BOM cost reduction investigations (cost per part)
- Check-list for SVC3 DR defined until 20-AUG-21 (CAD/CAE/QUAL/EBOM/ME)

# INTERIOR (1/3)

## HIGHLIGHTS:

- SVC3
  - Supplier Sourcing (Sunvisor, Headliner, Soft Trims, Hard Trims, Seats, 1st Aid Kit, ESP)
    - Get technical/cost feedback for the Sunvisors / done
    - Get cost&timing feedbackfor the Sunvisors / WIP
    - Finalized cost&timing feedback is awaited for the headliners / done
    - PO is in internal circulation to be approved for the Hard Trims / WIP
    - 1st Aid Kit supplier will confirm quote status that was agreed in 2018 after summer vacation/ WIP
    - Seat quotes for SVC3-4-5 are awaited / done
    - Cross functional data status for the completion of Interior Development

# INTERIOR (2/3)

- To share remaning BIW related Interior attachment points / WIP
  - Some Seats and Restraints attachments are still open /WIP
  - Sunvisor, Front Upper Light Unit attachments are open /WIP

- PMCS
  - PMCS - Pre S0 - Deliverable - checked and judged - Done
  - PMCS - S0 deliverables checked and questions prepared for PM / Done

# INTERIOR (3/3)

**LOWLIGHTS:** None

**BLOCKER:**

- SVC3
  - Steering Package (steering column, steering column module and steering wheel) to be refined as explained in the last sprint
  - Sunvisor supplier and production feasibility suppliers are missing for the Interior Development

# INFOTAINMENT (1/2)

**HIGHLIGHTS:** SVC3:

- Infotainment commodities are placed in their correct location in 3Dx, the only remaining item is the Ecall button
- All PMCS deliverables for S0 and S1 at 100%
- IHU OS software image is released to Sono-Digital team for APP development.
- VCM software, Speakers, Displays, Antennas, Microphones, Cluster design, Phone Projection and USB’s
- Supplier Level 3 will deliver final data on 20.09.21
- Infotainment components are released in 3DX for Version H.1:
- We are working with EE (Arber) to increase the power for the VCM (to allow the BT to stay on longer for better response during vehicle wake up)

# INFOTAINMENT (2/2)

**LOWLIGHTS:**

SVC3

- VCM component change (to improve wake up speed)
- Still investigating Ecall button suppliers
- Supplier Level 3 needs to get instrument cluster wire frames to start development

**BLOCKER:**

SVC3

- No update on steering wheel controls from suppliers

# THERMAL

**HIGHLIGHTS:**

SVC3

- Chassis subframe vs CRFM issue solved

**LOWLIGHTS:** None

**BLOCKER:** None

# CHASSIS (1/3)

**HIGHLIGHTS:**

- Brakes:
  - Freeze fasteners definition-100%
  - FUSA Item Definition – 100%
  - DT For ESC & other Sub systems – 100%
  - Tech file for Foundation Brake – 100%
  - Serviceability attribute – 70%

- CAD / PDM
  - Finalize EVP position - 95%
  - PDM attributes: Serviceability - 100%

# CHASSIS (2/3)

- Knuckle/Spindle/Chassis Accessories
  - Freeze fastener definition – 100
  - Confluence Page update – 100%

- Steering
  - Finish DFMEA failure modes – 100%
  - Summarize final TRE results for steering – 100%
  - HARA Discussion – 90%
  - Steering handover - 100%

# CHASSIS (3/3)

**LOWLIGHTS:**

- RFQ for brake piping – Not Started
- Nomination for Knuckle
- Get quotes for tire repair kit
- Handover rear shock mounting plate – still on CAE
- Brake lines update & interface – 50%
- LCA price increased

**BLOCKER:**

- LKA, AEB, ACC inputs
- Cybersecurity definitions from Sono
- Ass'y sequence for brake piping: No OH station before marriage. Possible issue for E/E as well.

# E/E (1/2)

**HIGHLIGHTS:**

SVC3

- (Nearly) all Part source attribute updated (Large BOM update 02.09 on TCY839 will have to be re-done)
- (Nearly) all enterprise numbers updated (Large BOM update 02.09 on TCY839 will have to be re-done)

# E/E (2/2)

**LOWLIGHTS:**

SVC3:

- E/E BOM and PM BOM not matching although eBOM is up to date
- Sourcing
  - DTs for some switches missing
  - Missing peripheral information attached to BCM

**BLOCKER:**

SVC3:

- DT Status
- Headcount (Timing)

# HV BATTERY (1/2)

**HIGHLIGHTS:**

- Study regenerative braking and implement in system model (this has strong influence on overall energy consumption)
- Finalize A sample, and get PO
- Sign off BMS diagnostics list and functionalities for B samples
- Set HVB clearances in x and z directions to BIW
- Define a coolant block connection concept for front of the case (outside/inside)

# HV BATTERY (2/2)

**LOWLIGHTS:**

- Communicate BMS / Battery pack warnings icon for infotainment team (Refer to UN ECE R121)
- Implementing coast down curve testcase in the model.
- Screws BIW-HVB dimension preliminary calculation on static loads
- Define requirements and cost (machine, license, maintenance costs etc.) of performing the simulations.

**BLOCKER:**

- Get quote of complete DVP or part of tests in battery pack DVP

# LOGISTICS

**HIGHLIGHTS:**

- SOP
  - Logistics Manual - 1rst intermediate Version in english confirmed and provided
  - Customs services cost estimation

**LOWLIGHTS:**

- VAT concept for customs clearance

**BLOCKER:** None

# PURCHASING

**HIGHLIGHTS:** None

**LOWLIGHTS:**

- Still valid: Guidance on the HOW of integration into squads not provided due to HOW Master's time constraints. (Ie: No time)

**BLOCKER:** None

# QUALITY (1/2)

**HIGHLIGHTS:**

SVC3/SOP

- *SQA:*
  - *Participation in chassis, BIW, thermal, solar, interior sprints, E/E, HV Battery, infotainment sprints to identify and kick-off SQA tasks (waiting for powertrain)*
  - *Supplier Valoe – planned PMCS training for Valoe as pilot is to be arranged.*

- *IMS/PQE*
  - Training on Parts identification & traceability (09.09.21) - done
  - Preparation of the shortened APQP / MLA training (German and English) - 75% done
  - Content for LCA2 presentation defined

# QUALITY (2/2)

**LOWLIGHTS:** None

**BLOCKER:** None

# PRODUCTION (1/2)

**HIGHLIGHTS:**

- Contracting
  - Negotiation for BOM level is done

- Organization and Process
  - Beneficial cooperation with NEVS

# PRODUCTION (2/2)

- ME
  - Visit NEVS and discuss SVC3 criteria and process is done
  - Timing Meeting for week 37 is done

**LOWLIGHTS:**

- ME
  - BOM finalizing for contracting is actual not possible because analyze of BOM is missing

**BLOCKER:** None

# PERFORMANCE REQUIREMENTS (1/2)

**HIGHLIGHTS:**

NVH

- NVH Test organisation in progress vehicle prep Week 38-39, test CW40 or 41 TBD
- Testing scope written
- Engine Mounts Issue - Package checked ( minor issues) progressing to impact on driveline dynamic envelope
- Supplier met and design alignment on going (taking into account EVP integration and clashing issue with pipe)
- AVAS system integration Launched - Sound Package on going

# PERFORMANCE REQUIREMENTS (1/3)

Weight

- Update Input Quality Monitoring Dashboard
- Release Sion Weight Status Report September
  - Estimated Weight
  - Approved Weight
  - ChangeLog between August and September (complete vehicle and each module)
  - Benchmark complete vehicle/system level: Curb Weight vs. Battery Capacity/Range/Length/Cargo Volume etc.
  - Interior/Crash Safety supplier Report reviewed → Research in Process

# PERFORMANCE REQUIREMENTS (2/3)

**LOWLIGHTS:**

NVH

- Follow CAD issues on various modules
- CAE results analysis, LCO updates
- Jira integration of requirements (training on friday 10-09)
- Assist all PO and modules for NVH topic

Weight

- Input source: still missing some Part_Source and weight information in BOM/EBOM, Details in BOM error Report & Input Quality Monitoring Overview Charts

# PERFORMANCE REQUIREMENTS (3/3)

**BLOCKER:**

- NVH
  - Jira integration of requirements - need help with my decision how to articulate it for NVH at this stage

- Weight
  - Input source

# HOMOGOLATION & RECYCLING (1/2)

**HIGHLIGHTS:**

Homologation

- General enquiry KBA

Recycling

- Meetings with potential imds service providers
- Presentation concerning European Green Deal and impact on resource and recycling laws and how Sono is affected
- Uptake recycled content in plastic parts internship and Master Thesis on Recycling Process for Solar Body Panels First outline of Research on legal requirements and Market analysis concerning OEM with integrated solar roof / suppliers of free available solar panels

# HOMOGOLATION & RECYCLING (2/2)

**LOWLIGHTS:** None

**BLOCKER:** None

# PROGRAM MANAGEMENT (1/3)

**HIGHLIGHTS:**

Issue Management

- Kick-off for PMCS Platform transition in CW35 (1 month time estimated)

Change Management Process

- Using Change Actions for DR SVC3 as sign off tool (Agreed with 90% of the Squads - Agreement with missing Squads will be done till end of the week)

Release Management

- Release for RFQ work process is created and aligned with Purchasing

Cost Management

- Draft structure for new Budget File

# PROGRAM MANAGEMENT (2/3)

**LOWLIGHTS:**

Issue Management

- Feedback from drivers and solvers are time consuming
- There is no automatic warning system implemented yet

Release Management

- EBOM work process draft is created, but downstream information flow and requirements for implementation need to be defined

# PROGRAM MANAGEMENT (3/3)

**BLOCKER:**

VTS

- Low feedback on VTS change requests (driver + stakeholder approval)

Issue Management

- Expired issues have not been updated until the end of sprint

Release Management

- Decision to be made: shall we use Change Action for minor releases

# VIRTUAL VEHICLE (1/2)

**HIGHLIGHTS:**

12 issues resolved

- CW36
  - PFX - SM000545 - Subframe package
  - PFX - SM000621 - Brake Booster Integration
  - PFZ - SM000596 - Frunk Package Completed
  - PIY - SM000823 - Tire Envelopes interfere with CD-Pillar and Wheel Arch Liner
  - PFY - SM000xxx - 12V Battery Positioning and Bracket
  - PFX - SM000566 - Fender Package
  - PIY - SMxxxxxx - BCM_PASE

# VIRTUAL VEHICLE (2/2)

- CW37:
  - PFX - SM000565 - Headlamp Integration
  - PFX - SM000616 - Radar Sensor Integration
  - PFX - SMxxxxxx - ELECTRIC_COOLANT_PUMPS_ASSY
  - PFZ - SM000564 - Vehicle Control Unit interference
  - PIX - SM000708 - HV battery Integration
- Standard Parts Structure created and Responsibility defined in CAD-Guidelines

**LOWLIGHTS:**

- Integration Report moved to next Sprint
- 3DX Issues after Update

**BLOCKER:** No alignment on VIN/Tire Pressure Label Responsibility

# DESIGN (1/2)

**HIGHLIGHTS:** SVC3

- Exterior
  - Styling Loop 03 ongoing. approximately 87% done
    - detailed work on gap / flanges / over / underflush conditions. part releases of updated overflush condition in hood and a pillar + corrected charging lid gap

- *Interior*
  - Styling loop 03 ongoing. Overall about 70 % done
    - IP 85%
    - doors 95%
    - Center console: 90%
    - Greenhouse / Headliner / trims 25% done. A pillar: 80%, lower trim: 30 % , upper trim: 20%

# DESIGN (2/2)

- *Wallbox*
  - community chose design “3”

**LOWLIGHTS:** None

**BLOCKER:** None

# FUNCTIONAL SAFTEY

**HIGHLIGHTS:**

SVC3

- FuSa Process
  - Alignment on Checklist with RLE
  - Alignment on further HARA deliverables with RLE
- FuSa Requirements
  - Connecting FuSa Jira Board to VTS requirements in Jira > done
- Supplier Management
- Resource planning

**LOWLIGHTS:** None

**BLOCKER:** None

# CRASH & SAFETY

**HIGHLIGHTS:**

- preSVC3 PedPro status overview is outstanding /WIP
- SVC3Prog PedPro is planned in 3 weeks / WIP
- SVC3Prog Structural Crash status to be reviewed on 21-Sep with Body Structures, Chassis, CTO /WIP
- preSVC3 Occupant Safety vehicle model is ready with generic restraints / Done
- SVC3Prog Occupant Safety vehicle model is ready with updated interior and available restraints / WIP

**LOWLIGHTS:** Recruitment is ongoing /WIP

**BLOCKER:** None