Examining Gram Strategies, Best Practice Experiences And Approaches To Tackle The Challenges Of Reducing The Cost Of Sourcing, Integrating & Manufacturing Light Weight Materials To Deliver Improved Fuel Economy

Commerciably Viable Routes For Mass Market Scalability

Expert Insights From World Leading Vehicle OEMs Including:

Dr. Markus Pfestorf
Manager Material Concepts For Body-In-White Construction
BMW

Dr. Christoph Haberling
Environmental Product & Materials Technology
Audi

Mark White
Chief Technical Specialist - Light Weight Vehicle Structures
Jaguar Land Rover

Cliff Aitken
Group Chief Engineer - Body Engineering
TATA Motors

Dr. Hamid Kia
Lab Group Manager Polymer Composites
General Motors

Simon Black
Senior Manager Body Structures
Jaguar Land Rover

Dr. Benedikt Schell
CO2 Technology Innovation Planning Sustainability Product Planning
Ford

Richard Hewitt
Manufacturing Technical Manager - Body Assembly
Bentley

Plus, Global Material Suppliers, Including:

Dr. Jiro Sadanobu
General Manager
Teijin

Daniel Jubera
Director Sales & Marketing
Novelis Europe

Alex Markin
Managing Director
International Magnesium Group

To Register:
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www.global-automotive-lightweight-materials.com


Comprehensive Per Material Analysis Examining How To Achieve Sufficient Scalability Of Advanced Lightweight Materials Through Technically And Economically Viable Solutions

- **OEM BEST PRACTICE CASE STUDIES:** In-Depth Focus Benchmarking Progress Of Single And Multi-Material Solutions For Cost Effective Lightweighting
- **BODY-IN-WHITE WEIGHT SAVINGS:** Scrutinising Approaches To Balancing Weight Gains From The Body Structure With The Impact On Performance
- **MATERIALS SUPPLY:** Aluminium, Magnesium, Carbon & Alternative Composite Suppliers’ Views On Enabling Widespread Adoption And Steps To Forging A Harmonised Global Supply Chain
- **SCALABILITY:** Introducing Strategic Visions And Technical Solutions For Scaling Up And Implementing High Volume Multi-Material Lightweight Solutions
- **FORMING, TOOLING & JOINING:** Comprehensive Per Material Analysis On Carbon Fibre, Aluminium And Hybrid Materials Analysis To Systematically Improve Forming, Tooling And Joining Techniques For Lightweight Vehicles
- **AUTOMATION:** Extensive Per Material Analysis Of Meeting The Remaining Challenges Of Automating Parts Processing For Sufficient Volume And Mass Market Scalability
- **TECHNOLOGICAL INNOVATION:** Identifying Solutions, Cultivating Collaboration and Capitalising On R&D breakthroughs To Support Reduced Cost Of Manufacturing Lightweight Materials Without Compromising Performance

"The several Q&A sessions, as well as the breaks in the exhibition area offered a good chance for discussions and to come or stay in contact with experts and decision makers" Daimler

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Session Sponsors:
Dear Colleague,

Would you like to understand how to cost-effectively source, integrate and manufacture lightweight metallic and composite materials into vehicle systems?

If so, we invite you to join us at Global Automotive Lightweight Materials 2012 where BMW, Audi, McLaren, Jaguar Land Rover, Tata Motors, Bugatti, Fiat Auto, Ford and many more will provide you with best practice experiences and their approach to tackling the challenges of sourcing, integrating and manufacturing lightweight materials to deliver improved fuel economy.

Clearly lightweight materials will be a significant factor in meeting increasingly stringent carbon emission regulations, providing customers with improved MPG fuel economy and boosting vehicle OEM gram strategies.

With joint ventures formed by BMW & SGL, Audi & Voith and Daimler & Toray, arguably the world leaders in vehicle lightweighting, it seems adoption of advanced metallic and composite materials is set to dramatically increase. Of course though, it is widely recognised that key challenges of both cost and performance must be tackled to achieve the levels of scalability required for mass market application.

Day One of Global Automotive Lightweight Materials 2012, through a comprehensive case study analysis, will benchmark current approaches and identify remaining barriers through a per material cost benefit analysis managing the trade offs between cost, performance and weight before welcoming Material Suppliers to examine the central concern of enabling a harmonised global supply chain, supporting you in finding pragmatic, cost-justified solutions to achieving scalability.

Day two will showcase the latest developments from research & development institutions to aid stakeholder collaboration and following that, you will witness key vehicle OEMs analysing manufacturing infrastructure concerns, the labour intensive forming and tooling processes and joining of dissimilar materials before closing discussions with the crucial topic of examining how to decrease energy usage and minimise material wastage across the manufacturing cycle.

Designed by your industry peers, Global Automotive Lightweight Materials 2012 this idea generation platform will deliver the latest solutions for a technical and commercially viable lightweight strategy. Browse through the enclosed agenda and visit www.global-automotive-lightweight-materials.com for the fastest way to register.

I look forward to meeting you in April.

Ben Jeffrey
Conference Director, Automotive Innovation

Top 7 Reasons To Attend

- Benchmark your gram strategy and benefit from a 360° analysis of how OEMs are approaching lightweighting challenges to meet emissions targets and deliver improved fuel economy to the customer
- Hear directly from Material Suppliers on their approach to establishing a consolidated global supply chain, allowing a commercially acceptable source of advanced lightweight materials across the automotive industry
- Discover the most innovative Body-In-White weight reduction strategies: Assessing the trade-offs between weight, cost and performance for different multi-material solutions
- Share in comprehensive per material analysis to decipher how to achieve sufficient scalability of lightweight materials: Assessing realistic solutions to both technically and commercially enable automation
- Deliver reduced CO₂ emissions across the vehicle life cycle: Examine how to make efficiencies and reduce wastage across composite material manufacture
- Engage in collaborative discussions and cultivate relationships across the supply chain including leading R&D institutions, OEMs and Material Suppliers
- Evaluate the latest technological innovations for joining, tooling and forming to assess how they can support your gram strategy allowing cost-effective high volume manufacturing of lightweight materials without compromising technical performance

Sponsorship And Exhibition Opportunities At Global Automotive Lightweight Materials 2012

Need to generate new sales leads, engage key decision makers, build new future business relationships in key markets, or simply educate the industry about a new product? Then you need to sponsor or exhibit at Global Automotive Lightweight Materials 2012. Our busy exhibit area is an integral part of the Summit and is of genuine practical value to delegates, who are looking for new solutions and technologies. Becoming a Conference Sponsor will help you position yourself as a market leader and centre of excellence to the key decision makers in the automotive industry.

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CASE STUDY 2: SINGLE MATERIAL COMPOSITE VIEW FOR BODY STRUCTURES

11.30 Analysing Optimal Fibre Orientation And Laminate Thickness For High Energy Absorption: Harnessing Desired Performance From Low Volume To High Volume Application
- Understanding composites material characteristics for accurate assessment of how they can be best utilised for what you want them to do
- Estimating how to increase the fibre volume fraction and the most optimal fibre alignment strategy to improve part performance
- Developing and validating simulation tools to optimise composite structures for minimum weight
- Highlighting composite materials responses to crash situations to define the required energy absorption characteristics
Paul Bristo, Senior Analysis Engineer, McLaren Automotive

12.00 Question & Answer Session

CASE STUDY 3: MIXED MATERIAL SOLUTIONS FOR BODY STRUCTURES

12.10 Current Application Of Mixed-Material Solutions For Cost Effective Weight Savings Of The Body-In-White: The Material Concept Of The BMW 6 Series
- What mixed-material solutions have shown feasibility for cost effective light weighting of the body-in-white to deliver improved fuel economy to the customer?
- Evaluating high strength steel for structural components and carbon fibre for non-structural components to deliver promising crash impact resistance results
- How can we enable accurate prediction of crash modelling and crash behaviour of composites to ensure structural performance?
- To what extent are current simulation models applicable to composites?
- Understanding the complex joining, tooling and corrosion demands of a mixed-material body-in-white structures
- Identifying a solution to the issues of joining metallic to composites examining thermal responses and impact on choice of composites
- Benchmarking progress towards mass market application and assessing pragmatic solutions to meet the remaining challenges enabling advantageous weight benefits within a commercially viable cost
Dr. Markus Pfeilstorf, Manager Material Concepts For Body-In-White Construction, BMW

12.40 Question & Answer Session

12.50 Networking Lunch Break in Exhibition Area

CASE STUDY 4: STEEL AND ALUMINIUM FURTHER WEIGHT SAVINGS

1.50 Considering The Future Of Steel And Aluminium in Terms Of Vehicle Body Weighting – How Realistic Is Further Weight Savings?
- Highlighting recent advances in steel technology that could provide cost effective weight savings within existing framework – will this rival the weight aluminium body structures?
- Determining future technology developments as a catalyst for extracting further mass from the vehicle – what are the expected timeframes of introduction and costs associated with new and innovative technology?
- Examining the opportunities for a multi-material steel & aluminium body-in-white to display cost & weight results
- Introducing software optimisation as a tool for extracting further weight from future steel body-in-white structures
Simon Black, Senior Manager Body Structures, Jaguar Land Rover

CASE STUDY 5: UHSS STEELS AND ALUMINIUM

2.10 Fiat's Perspective On Automotive Application To Drive Cost Competitive High Volume Adoption Of UHSS Steels And Aluminium
- Examining various application of UHSS steels or aluminium to increase understanding for automotive functions and usage
- Introducing smart material experience and knowledge to offer insights into front crash-box system developments
- Analysing recent smart material advances such as press hardened steel parts to capitalise on new material technology for weight reduction
Rosanna Serra, Group Materials Lab Director, Fiat

2.30 Shared Question & Answer Session

CASE STUDY SUMMARY

2.40 Examining Technologies For Composite Hybrids – A Multi-Material Approach To Eliminate Joining and Assembly Barriers Impacting Performance
- Intricately hybridising and impact on automotive lightweighting
- Improving the performance of dissimilar materials – where do they key issues remain?
- Investigating joining and assembly challenges of composite hybrid materials
- Assessing technologies capable of providing a large-scale production facility to support OEMs in achieving scalability
Prof. Frank Herning, Deputy Director & Head Of Polymer Engineering, Fraunhofer Institute For Chemical Technology

3.10 Question & Answer Session

3.20 Afternoon Refreshment Break In Exhibition Area

MATERIAL SUPPLIERS’ PANEL

4.30 Showcasing Suppliers’ Views On The Most Commercially Viable Routes To Market Per Material To Eliminate The Supply Issue Preventing Integration Of Lightweight Materials For High Volume
- Suppliers views on cost projections and capability for large series production
- When realistically can each material be available in quantity?
- What is being done to secure supply?
- What is currently being done to eliminate the lack of materials and competing demands of the aerospace industry?
- How can key bottlenecks be pragmatically solved in a commercially viable way for all stakeholders?
Dr. Jiro Sadaikuro, General Manager, Teijin Daniel Juberia, Director Automotive Sales & Marketing, Novelsis Europe Alex Markin, Managing Director, International Magnesium Group

5.15 Conclusions, Comparisons And Key Take-Aways To Drive Forward A Harmonised Supply Chain

FACILITATING HIGH VOLUME, LOW COST MANUFACTURING OF LIGHTWEIGHT MATERIALS FOR AUTOMOTIVE OEMS

BIG PICTURE VISION

5.30 Developing An Automotive Cluster In The State Of Qatar To Facilitate High Volume And Low Cost Manufacturing Of Lightweight Materials For The Automotive Sector
Ahmed Souwri, CEO, Qatar Automotive Gateway

5.50 Question & Answer Discussion

6.00 Chair’s Closing Remarks
Dr. Markus Pfeilstorf, Manager Material Concepts For Body-In-White Construction, BMW

6.10 – 7.10 Evening Networking Cocktail Reception
Day Two
Thursday 26 April, 2012

08.25 Chair’s Opening Remarks
Jens Schlimbach, CEO, Quickstep GmbH, Global Head Of R&D, Quickstep

KEYNOTE PANEL: INCREASING STAKEHOLDER COLLABORATION

08.30 Capitalising On The Expertise Of R&D Institutions And Advancing Collaboration With Government And Suppliers To Increase Speed Of Upshift At A Reasonable Cost

- Drawing on the contribution of research institutions to reduce OEM risk and cost
- Leveraging the ‘try and tested’ from R&D institutions to guide future commercial strategy for integration of lightweight materials and realisation of a more fuel-efficient vehicle
- Examining the opportunity for industry-wide relationships building to meet supply and demand of predicted future material volumes
- Increasing collaboration and synergy between vehicle OEM and service providers to distribute responsibility and cost for research into manufacturing methods
- Identifying new and improved sources in collaboration with government: Capitalising on transferable lessons from aerospace for the integration and application of composites

Prof. Andreas Buter, Head Of Lightweight Structures Department, Fraunhofer Institute for Structural Durability And System
Dr. Geraint Williams, Project Manager HVM Catapult, WMG, University of Warwick

09.10 Question & Answer Session

COST EFFECTIVE LIGHTWEIGHTING OF THE UNDERBODY

09.20 Cost Effective Lightweight Of Underbody Structures Using A Modular Platform Strategy

- Summarising TATA Motors’ approach for existing body structures
- Identifying new approaches for optimised steel solution structures to meet domestic, European and Asian market requirements
- Assessing areas where the most gain can be made for underbody to capitalise on new technology development
- Evaluating the case for adopting a modular platform strategy to highlight cost advantages

CJF Atkins, Group Chief Engineer – Body Engineering, TATA Motors

09.40 Question & Answer Session

MANUFACTURING INFRASTRUCTURE: EXPLORE THE FEASIBILITY OF LEVERAGING EXISTING INFRASTRUCTURE AND IMPLEMENTING A COST EFFECTIVE APPROACH TO SETTING UP NEW PLANTS TO ENABLE VOLUME PRODUCTION OF ADVANCED LIGHTWEIGHT MATERIALS

09.50 Deciphering The Most Cost-Effective Route To Scalable Infrastructure: Calculating How To Streamline Existing Infrastructure And Establish New Plants Suitable For Future Manufacturing Requirements

- Assessing manufacturing processing requirements of lightweight metallics and composite materials to outline the best strategies for infrastructure deployment
- Uncovering the global cost challenges of building new plants in a commercially viable timeframe and assessing specific topology challenges with: i. Aluminium ii. Magnesium
- Pragmatic considerations for setting up a new plant - forecasting the investment levels required to accommodate predicted high volume composite manufacturing
- Assessing what materials can realistically be integrated into the current steel infrastructure? Is it feasible to integrate build lines?
- Analysing the transferability of current manufacturing plants to streamline future adoption of forming, tooling & joining technologies
- Introducing new manufacturing technologies into existing plants to produce new component parts at increased rates

Mark Ellis, Manager Materials Design & Test, Nissan

10.10 Question & Answer Session

10.20 Morning Refreshment Breaks In Exhibition Area

WIDESPREAD ADOPTION OF MAGNESIUM

10.50 Making Magnesium A More Cost & Environmentally Competitive Lightweighting Option

- Introducing new technological developments to produce a commercially & environmentally viable solution for widespread use of magnesium in automotive
- Establishing primary & secondary weight savings opportunities when replacing steel & aluminium with magnesium

- Confirming magnesium’s enabling manufacturing technologies needed for successful part production scaling
- Introducing new primary magnesium production technology that provides a cost competitive strategy for widespread adoption of magnesium
- Highlighting how magnesium’s production costs can rival that of aluminium’s production costs to offer a cost-effective lightweight rival to aluminium
- Utilising new process technology to provide a more attractive environmental Life Cycle Assessment than is currently available for magnesium

Douglas Zuijilans, Technical Adviser, Gossan Resources

11.20 Question & Answer Session

MANUFACTURING PROCESSING: EVALUATING THE MANUFACTURING AND ASSEMBLY COSTS ASSOCIATED WITH ALUMINIUM, MAGNESIUM, CARBON FIBRE AND ALTERNATIVE COMPOSITES TO OFFSET REMAINING CHALLENGES AND GENERATE A REALISTIC FUTURE STRATEGY FOR HIGH VOLUME PRODUCTION

- What are the key bottlenecks preventing automotive carbon fibre parts processing? Can these be pragmatically be countered in a commercially viable timeframe?
- What type of technology would be necessary to allow the efficient processing of carbon fibre for high volume?
- How feasible are the cost reductions to enable automation of manufacturing processes suitable for carbon fibre processing?
- Assessing realistic solutions to both technically enable automation, and strategically in terms of cost effectiveness
- How could mass-market volume manufacturing impact on carbon fibre composite part quality?

Dan Houston, Senior Principal Scientist, Dr. Umesh Gandhi, Professor Polymer Composites, Ford

12.25 Question & Answer Discussion: Assessing Which Areas Offer The Most Viability For Commercial Success

12.35 Networking Lunch Served In Exhibition Showcase Area

ASSESSING THE SPECIFIC BENEFITS AND LIMITATIONS EXPERIENCED IN THE FORMING, JOINING & JOINING OF DIFFERENT LIGHTWEIGHT MATERIALS TO DELIVER VOLUME PRODUCTION FOR ECONOMIES OF SCALE

FORMING, JOINING & TOOLING

13.35 Metallic: Evaluating Recent Developments In Aluminium Forming, Joining And Tooling Capabilities Are Delivering Quality, Efficiency And Reduce Costs

- Assessing how to utilise existing processes and technologies to maximise formability, joining and tooling capabilities efficiency
- Evaluating how to drive efficiencies of pin performance of welding, riveting and adhesive bonding whilst maintaining part quality
- Analysing optimised proportions of extrusions, castings and stampings for cost-effective body-in-white lightweight

Richard Hewitt, Manufacturing Technical Manager - Body in White, Bentley

12.15 Question & Answer Session

2.25 Composites: Analysing The Latest Carbon Fibre Forming, Joining And Tooling To Deliver Part Quality, Increase Efficiency And Reduce Costs

- Identifying the feasibility of a stamp-forming process to deliver part quality and reduce time and cost per part manufacturing processes
- Comparing self-pierce riveting and hot or cold curing adhesives to maximise joint performance Comparing self-pierce riveting and hot or cold curing adhesives to maximise joint performance
- Examining how to develop composite tooling materials that can facilitate complex composite parts efficiently and cost effectively

Dr. Harim KXa, Lab Group Manager For Polymer Composites, General Motors

2.45 Automated Production Of Carbon Composites To Functional Specifications

- Outlining the benefits of using traditional composites elements to achieve order of magnitude gains in cycle time, precision, energy efficiency and quality for thermoset and thermoplastic composites
- Identifying methodologies for using fully integrated productions solutions to achieve 95% reductions in cycle time and 50%-95% reductions in energy consumption
- Including secondary benefits where highly integrated composites structures with varying section thickness can be processed optimally using local thermal control
- Exploring temporary measures for in-mould residual stress correction, reductions in ply counts, increased feedstock tolerance, optimisation of part surface finish
- Examining the benefits of 100%-in process Quality Assurance from a production and market perspective

Ben Halifax, CEO, Surface Generation

3.05 Shared Question & Answer Session

3.15 Afternoon Refreshment Break In Exhibition Area

DESIGN CONSIDERATIONS

3.45 Cost-Effective Design Considerations For Lightweight Automobiles With Fibre Reinforced Polymers

- Understanding the importance of fibre reinforced polymers when designing lightweight automobiles
- Highlighting key challenges in designing automobiles with the fibre reinforced polymers
- Reviewing a current status of characterisation of fibre reinforced polymers
- Evaluating how to model the fibre reinforced polymer by using predictive tools in design

Dr. Umesh Gandhi, Senior Principal Scientist, Toyota

4.05 Developing Reliable Predictive Models For Composites CAE: Evaluating Software Capabilities To Support The Design Of Light Weight Body Structures

- Assessing the most effective CAE/CAE software packages for optimising the design process for composites
- Evaluating software design software to introduce specific steps for an holistically designed body structure
- Effectively utilising software packages to help predict the behaviour of composites – how reliable are current tools in their analysis and results?
- Investigating the remaining challenges with software packages matures for alternative materials as they become more cost effective

Pawan Aggarwal, Associate Team Lead, VE Commercial Vehicles A Volvo Group & Eicher Motors Joint Venture (via video-link)

4.20 Question & Answer Session

REDUCING OVERALL CO2 EMISSIONS BY DECREASING ENERGY USAGE & EVALUATING HOW TO COMPLY WITH THE END OF LIFE VEHICLE DIRECTIVE THROUGH MINIMISED MATERIAL WASTAGE

CO2 OUTPUT AND END OF LIFE VEHICLE DIRECTIVE

4.30 Factors Influencing CO2 Emissions In Future Cars, The End Of Life Vehicle Directive & The Resulting Requirements For Lightweight Materials

- Summarising the mixed-materials used in today’s cars
- Dealing with increased CO2 output across the whole process chain of lightweight materials
- Understanding the Life Cycle Assessment of cars and the impact of lightweight materials in meeting the End of Life Vehicle Directive
- Influences of the energy mix used for conventional and electric drives
- Conclusions for future lightweight materials

Dr. Christoph Haberling, Environmental Product & Material Technology, Audi
Dr. Benedikt Schell, CO2 Technology Innovation Planning Sustainability Product Planning, Ford

5.00 Question & Answer Session

5.40 Keynote Panel: Increasing Stakeholder Collaboration

- Reducing the overall CO2 emissions by decreasing energy usage & evaluating how to comply with the end of life vehicle directive through minimised material waste
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ACHIEVING YOUR BUSINESS OBJECTIVES AT THE EVENT

DEMONSTRATE THOUGHT LEADERSHIP
Advanced Lightweight Materials for the automotive sector is a growing area of technological development. You may be pioneering these advances, but do your customers know what differentiates you from your competitors? Use targeted, editorially reviewed keynotes and case studies to demonstrate thought leadership to your target audience.

RAISE BRAND AWARENESS AND INCREASE YOUR PROFILE
Any solutions selected by Vehicle OEMs must be subjected to careful comparative cost-benefit analysis. Of course automakers take into account, profile, credibility and market leadership when selecting suppliers to support, their lightweighting strategies. Your organisation must be at the forefront when these decisions are made. Cement your leadership position with targeted branding and profiling campaigns directed at the leading Vehicle OEMs.

MEET AND NETWORK WITH DECISION MAKERS
Thought leadership, branding and profiling are converted into contracts through extensive face-to-face relationship building. As a dedicated event to Lightweight Materials, this intimate forum enables you to meet specific job titles in one place at one time, giving you the best possible chance of influencing key decision makers.

WHO WILL YOU MEET?

Attendees By Organisation Type:
- 55% Vehicle OEMs
- 15% Material Suppliers
- 25% Material Manufacturer Suppliers
- 5% R&D Institutions

Attendee Job Titles:
- 20% Heads of Lightweighting Strategy
- 16% Chief Engineers
- 12% Heads of Exterior
- 24% Senior Managers of Body Structures
- 10% Material Directors
- 18% Engineers (BIW, Design, Composites)

SPEAKER LIST

Dr Markus Pfestorf, Manager Material Concepts For Body-In-White Construction, BMW
Dr. Christoph Haberling, Materials Technology Development, Audi
Claudio Santoni, Function Group Manager – Body Structures, McLaren Automotive
Mark White, Chief Technical Specialist – Lightweight Structures, Jaguar Land Rover
Dr. Benedikt Schell, CO2 Technology Innovation Planning Sustainability Product Planning, Ford of Europe
Cliff Aitken, Group Chief Engineer – Body Engineering, TATA Motors
Rosanna Serra, Group Materials Laboratory Director, Fiat Group
Dr. Hamid Kia, Lab Group Manager for Polymer Composites, General Motors
Simon Black, Senior Manager Body Structures, Jaguar Land Rover
Dr. Umesh Gandhi, Senior Principal Scientist, Toyota
Daniel Houston, Technical Specialist in Polymeric Composite Materials, Ford
Dr. Oliver Schauerte, General Manager, Bugatti
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Daniel Jubera, Director Sales & Marketing, Novelis Europe
Prof. Frank Henning, Lightweight Construction, Fraunhofer Institute
Prof. Andreas Bützer, Structural Durability And System Reliability, Fraunhofer Institute
Prof. Ignace Verpoest, Project Leader, HIVOCOMP
Dr. Geraint Williams, Project Manager, Low Carbon Vehicle Technology Project, Warwick Manufacturing Group
Richard Hewitt, Manufacturing Technical Manager - Body-In-White, Bentley
Dr. Paul Biskham, Senior Lecturer in Advanced Joining, Engineering Management, Coventry University
Pawan Aggarwal, Associate Team Lead, VE Commercial Vehicles (A Volvo Group & Eicher Motors JV)

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