

# Lightweight Automotive SEATING MATERIALS & TECHNOLOGY SUMMIT 2020

STUTT GART, GERMANY - 9 SEPT



The European Automotive Seating Materials & Technology Congress 2020 is the foremost – interactive, technical knowledge-sharing platform, tasked to accelerate innovation, advance development and explore next-generation seating systems, structures, materials, multi-material manufacturing and innovative future technologies. September 9<sup>th</sup> Stuttgart, Germany, will address the most current design, engineering and material challenges; the balancing act between weight, cost, comfort, durability and technology; and specifically, “how to successfully innovate whilst meet the increasing customer expectations in a tough market where strict budgets and weight targets prohibit.”

The Automotive Seating Market is projected to grow exponentially by 2025 in line with rapidly advancing Battery Vehicle and Autonomous Vehicle Technologies. Autonomous vehicles are set to reshape automotive seating whilst the cockpits of the future have to address the growing need for personalisation and artificial intelligence.

As well as looking towards the future, our research within the OEM community has positioned this meeting to address their ‘current’ here and now challenges and unanimously the biggest predicted opportunities and challenges are in increasing usage of lightweight materials to reduce the weight of automotive seats. Following the success of Lightweight Automotive Seating Materials & Technology USA 2019 we are very excited to have partnered with European leading experts to deliver a fresh approach to tackling some of those key challenges and areas of interest.

Make sure that you join over 200 seating material, technology and manufacturing experts to analyse the future design and development opportunities alongside a content lead, technical agenda presented by the industries Chief Engineers and Supervisors for across the entire value chain.

## SPEAKERS FROM

**Fraunhofer****Mercedes-Benz****Volkswagen**

## EXHIBITOR CATEGORIES INCLUDE:

Material suppliers, aluminium magnesium steel composites, foam suppliers, trim suppliers, full seat system suppliers, simulation, interior designers, electronics, structure systems, mechanisms, joining forming technologies, assembly technologies

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## KEYNOTE TOPICS

- ✓ The Opportunities of Next-Generation, Safe, Connected, Lightweight, Intelligent Seating
- ✓ Material-Mix: The Future Of UHSS, Magnesium & Composites in Next-Gen Seat Structure
- ✓ Advancing Material Innovation, Design and Quality, Cost Efficiency
- ✓ Analysing the Major Factors – Industry Drivers Restraints, And Smart Technology Role Out
- ✓ Balancing Between Low Cost Production and Customer Perceived Value
- ✓ Just in Time (JIT) Technology
- ✓ Providing the Best Solutions Comfort, Quality, Durability at an Affordable Cost
- ✓ Simulation & Modelling
- ✓ Innovative Approaches to Complex Challenges – Combining precession and versatility
- ✓ Rethinking the Supplier Ecosystem: Business Disruption the Creates Value Through Innovation
- ✓ Regulations & Testing
- ✓ Autonomous Vehicle's
- ✓ Advanced Safety Systems
- ✓ Foam, Comfort and Trim

## WHY ATTEND

As technologies such as autonomous driving are disrupting the automotive industry, seating will become one of the most strategic systems inside the vehicle.

Today our seats need to keep us comfortable and safe, but tomorrow will be expecting them to do a lot more. This compact one-day technical conference sets out to position the technological and production challenges in the new frontier of smart, innovative automotive seating; but drills into the real 'current' 'today' challenges of mass vs comfort vs durability.

Whilst there are huge advancements in innovation, exiting materials, structures, fabrics and smart tech currently available, the real common denominator in the current market is innovating – while reducing costs, weight and meeting regulations and testing.

Join us for this one day interactive, knowledge sharing workshop and learn how future technologies and materials can fit today's 'prescriptions'!



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## WHO SHOULD ATTEND?

Technical Directors, General Managers,  
Department Managers, Senior Engineers,  
Senior Specialists, Technical Specialists,  
Senior Researchers from...

- Core Seat Engineers & Supervisors • Project Chiefs • Seat Complete • Trim
- Innovation • Seating Comfort • Ergonomics • Seating Cad • Product Engineering
- Seat Design • Seating System Specialists • Foams • Automotive Interior Design
- Seating Development • Safety & Regulation • Interior Technologies
- Strategic Automotive Initiatives • Research & Development • Technologies Officers
- Seat Development • Team Leaders • Industrial Design • Business Development
- Tier 1 & Tier 2 manufacturers • Interior Research & Performance
- Application Leads • Applications Engineers • Automotive Transport Design
- Cabin Seat Engineers • Customer Teams • Seat Department Design Engineers
- Directors of Advanced Engineering • Trim • Vice Presidents of Technology
- Directors of Product and Portfolio Management • Global Premium Interiors Core Buyers
- Product Design Research Interior • Styling Design Managers
- Sr. Manager of Seats • Portfolio Development • Seat Engineering Teams
- Seat Engineers • Seat Comfort • Seat Structures Engineer • Sr. Comfort Engineers
- Sr. Product Managers • Seat Comfort • Advanced Systems
- VPs of Product Development • VPs of Strategic Automotive Initiatives

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# MORNING AGENDA

## **7:15AM Morning Refreshments & Networking Introductions**

## **7:40AM Chairs Opening Remarks**

## **7:45AM Developing Future-Ready Seating Systems That Enable Added Functionality**

- Complexity Reduction Whilst Achieving 'Smart' Individualism: Key Trends & Market Dynamics In Next-Generation Advanced Automotive Seating
- Investigating customer preferences and understanding the changing customer functional and technology expectations: Identifying the parameters and technologies driving next-generation advanced automotive seating systems
- Where are the complexities that the customer really values?
- Defining the standards and requirements for future, safe, connected, versatile, predictive, intelligent seating systems

## **8:00AM Re-Thinking Seat Utility: Redesigning Seats & Interiors To Meet A New Set Of Customer Needs**

- Strategies for seating in a semi and fully autonomous future – is there more to it than just next-generation reconfiguration?
- Strategies to provide flexibility in seating systems for autonomous car users
- Seating system development concepts
- The challenges of different and changing seat positions

– rotating, reclining, folding, removable and retractable seats

- When and how occupants might take/relinquish control of a vehicle, be permitted to change position or be compelled to return to a straight ahead position

## **8:25AM The Cockpit Of The Future: New Intelligent Seating Ecosystems**

- Today a seat needs to keep you comfortable and safe, but tomorrow passengers will be expecting it to do much more
- 'Active Wellness Concepts' and 'Smart Seats' – what are they, and when will we see them in the mass market?
- Integrating contactless sensors, infrared cameras and blue tooth to collect data on drivers physical and mental condition; making automatic adjustments
- Analyzing physiological data and applying counter measures to mitigate sickness, stress, discomfort, drowsiness and readiness to operate controls.
- Translating driver condition into personalised automations – The Future of AI in Automotive Seating Systems
- Smart Human Machine Interfaces (HMI)

## **8:45AM Advanced Safety Solutions For Next-Generation & Autonomous Vehicles: Flexible Vehicle Interiors Centered Around Reconfigurability**

- Flexible seating and reconfigurability challenges traditional safety systems – "Dynamic Safety Repositioning"

and "Adaptive Safety" as a solution? Addressing the challenges of different, and changing seat positions and seat structures

- How to achieve safety in all seated positions – New safety systems solutions for seat belts/restraints and air bags
- Reviewing seat development and interior configuration concepts for autonomous vehicles
- Safety as a top priority: When and how occupants might relinquish control of the vehicle or be permitted – or prevented from changing position
- New challenges for seat track systems for moving seats
- Visualisation and Simulation: Best solutions in design, manufacturing, testing and simulation

## **9:05AM The Drive To Cut Weight: How To Achieve The Best Material Optimisation and Value Optimisation: Combining Optimization and Modern Product Development Methods To Achieve A Lightweight Design**

- Reviewing new materials, multi-material mix, and manufacturing processes for advanced next-generation lightweight seat structures
- Increasing usage of lightweight and Composite Materials such as Aluminum, Magnesium, High Strength Steel (HSS) and Carbon Fibre to reduce the overall weight of seating system
- Opportunities for metal replacement with multi-material systems
- Reducing the number



mechanisms – whilst increasing functionality

- Examples of how OEMs have recently taken advantage of material innovation
- How further multi-material design can unlock limitations of conventional design

### **9:25AM [Case Study] The iStream Lightweight Automotive Seat**

**Gordon Murray Design & Transcal**

- The iStream innovative unit boasts a significant 30% weight saving compared to a conventional modern seat – learn how this weight saving was achieved
- The IS-001 seat licensed by Transcal, is the worlds first implementation of the iStream lightweight seat
- Explore further automotive and non-automotive designs and applications for the seat
- The iStream lightweight automotive seat represents a seismic shift in this sector – its innovative construction helps to deliver both economic and environmental benefits

### **9:45AM Networking Break & Morning Refreshments**

### **10:15AM Edison2: Future Seat Modular System** **Oliver Kuttner**, Founder & CEO, Edison2

### **10:35AM Seat Structures – Light Weighting And Cost Effectiveness of Advanced High Strength 3rd Gen Steels**

- Modern advanced high strength steels offer a wide range of steel grades and manufacturing process choices for the vehicle seating structural systems
- The evolution of lightweight seat structure designs and transitioning from Internal Combustion to Electric and autonomous seating configurations
- Cost of light weighting versus cost increase in technology and of battery for EV range increase
- The mass saving premium for the various light-weighting options for automotive seat structures
- The light weighting and cost effectiveness offered by Advanced High Strength 3rd Gen Steels applied to seat structures

### **10:55AM Mass Production of Thermoplastic Composite Seat Shells using One Step Hybrid Moulding Process**

**Pal Swaminathan**, Technical  
Marketing & Business Development  
TEPEX Automotive | Lanxess  
Corporation

- Organsheet with Ultra-thin wall thickness
- Lightweight design
- One step hybrid moulding process
- Cycle time less than 60 seconds

### **11:15AM The Future Of Magnesium In Lightweight Seating**

**International Magnesium  
Association**

- Where are the opportunities for replacing conventional material choices with Magnesium- [Case Study] success stories
- Features and advantages of magnesium alloys
- Broad prospects for development of lightweight structure materials

### **12:15AM Testing, Inspection And Certification: Seating And Interiors Validation Opportunities**

**Element Materials Technology**

- Gaps in testing standards
- Closing the gap between simulation and testing

### **12:35PM Composites: Replacing Metal**

**Dr. Fabio Bressan** Ph.D,  
Virtual Engineering Manager,  
Solvay

- Replacing metal parts with plastic parts for weight advantage
- Performance seats are exemplifying the technology where composite back shells are glued to metal structural components
- Performance seats now incorporate ultra-stiff, ultra-light rim composite technology: Case Study

### **1:00PM LUNCHEON IN THE NETWORKING EXHIBITION AREA**

# AFTERNOON AGENDA

## **1:45PM Gaining The Ergonomic Edge With Interface Pressure Technology**

- Integration with sensors, infra-red cameras, Bluetooth and associated technologies to collect and act on data about the driver, or passenger
- Analyzing physiological data and applying counter measures to mitigate instances for example, of motion sickness, stress, discomfort, drowsiness.
- Translating data into personalised action that include seat adjustment, ventilation, and cockpit environments such as lighting, temperature and audio.

## **2:05PM Innovative joining technologies enable future lightweight seats**

**Dr.-Ing. Markus Wagner,** Component Design / Business Unit Joining, Fraunhofer IWS Dresden, Germany

- Lightweight design approach for future automotive seat structures
- Multi-Material lightweight designs
- Steel-aluminum design
- Metal-composite design
- Lightweight designs with steel
- Laser welded patchwork structures
- Local Laser-Strengthening
- Conclusions

## **2:25PM Will The Entire Seat Of The Future be Glued Together (Adhesive Bonding)**

**Dr. Holger Fricke,** Head of Department for Adhesive Bonding Technology, DVS-EWF-European Adhesive Engineer (EAE), Auditor

according to DIN 6701, Fraunhofer-Institute for Manufacturing Technology and Advanced Materials IFAM – Adhesive Bonding Technology and Surfaces

- Abstract: Bonding is the trend-setting joining process of the 21st century. It enables the reliable bonding of the same as well as different materials with one adhesive and is therefore essential for the advancing multi-material lightweight construction. In addition to mechanics, adhesive joints integrate specific requirements: They can ensure flexibility, insulate electrically, seal or bridge tolerances.
- Professionally designed bonding processes integrate smoothly into series production. In contrast to welding, bonded joints do not weaken the mechanical properties of the parts to be joined. Adhesive joints can be assured of high quality through process design. For these reasons, bonding has established itself across all industries in recent decades.

## **2:45PM Lightweight Foam Advancement: Weight, Durability, Sustainability**

- The future lightweighting opportunities of foam: The future of foam in next-generation automotive seating
- The Right Blend Of Comfort, Safety And Sustainability
- Where will we see Innovation in Foam Solutions
- Break through innovations in Foam Comfort
- Environmental performance:

- Foam that eliminates harmful emissions from foam production
- Recyclability: New geometries of materials that do not require the same traditional foams – foam alternatives
  - Low profile foam and advanced materials

## **3:05PM Lightening Up Through Topology Optimisation**

**Richard Yen,** Senior vice president, Strategic Solutions Team and Global Automotive Business, Altair

**Anthony Norton,** Vice president, Americas, Technical Operations, Altair

- Tools for structural design and optimisation to help with topology optimisation
- Innovative design, materials, engineering, and manufacturing approaches
- How topology optimisation works with additive manufacturing how topology optimisation works with additive manufacturing

## **3:30PM The Future Vehicle Layout – Second And Third Row Seats**

## **3:55PM Standardising vs Innovating Metal Structures And Mechanisms**

- How to better leverage existing structures and mechanisms for the Future?
- Transferring Advanced Materials into Mass Production
- Metals, Forming and Joining
- How do you reinvent rather than



carry over design: exploring new innovation in seat structure design

- Exploring the opportunity of replacing two mechanisms with one mechanism
- Casting innovation for seat frames: Magnesium High pressure die-casting
- Two Mechanisms- replaced with one mechanism
- Front-Row Architecture: Block height of the Hpoint
- Rear Seat systems and Architecture

#### **4:20PM Implementation Of Industry 4.0 Protocol For Automotive Seat Manufacturing**

- While the fundamentals of comfort requirements and ergonomics haven't changed, how do you translate that into an engineered product that can be capably manufactured in an Industry 4.0 environment?
- How manufacturing technology can enable design that was previously not achievable!
- Big Data analysis and feeding it back into design, engineering and production
- Automation of operations, predictability and reduced scrap rates
- Derive the most value for the opportunities that Industry 4.0 Manufacturing Promises
- Incorporating digitalisation into your manufacturing roadmap
- Widespread digitalisation provides the opportunity for the value chain players to enter new territories
- From concept to finished product, digitalisation offers the direct path to fulfilling complex

customer expectations

- Collect end consumer data and flow it back to one piece of equipment or equipment in combination with a given material
- Automation of operations and the predictability of operations
- Reducing scrap rates, tied to a certain link of equipment, material, supplier, time period
- How to achieve greater flexibility to react quickly to new developments and changing requirements

#### **4:45PM AFTERNOON NETWORKING SESSION & REFRESHMENTS**

#### **5:10PM Trim and Fabrics: A "Zero Wrinkle Initiative" Reducing Thickness Whilst Maintaining Quality And Durability**

- Trim covers aren't lasting: Exploring material solutions for cost vs quality vs weight vs thickness including thickness of inserts
- How to increase durability and comfort without increasing cost: VO's & Cost Savings
- How to better towards preventing mid project Value Optimisations
- Removable trim covers – a feature that could become more common: especially with predictive increase in ride-sharing
- How to match the proper lightweight frame, leather finish, pattern and grain with a vehicle segment and platform
- Just-in-Time (JIT) assembly for automotive seat Manufacturing
- Luxury vs seat system performance Aligned lamination,

surface material, and innovation strategies to ensure best practices in product quality

#### **5:35PM Providing The Best Solutions Comfort, Quality, Durability At An Affordable Cost**

- Comfort, Compact Form Factor, Safety, Digital Convenience & Aesthetics: The Primary Criteria for Innovation

#### **6:00PM Increasing Movement Whilst Reducing The Number Of Mechanisms**

#### **6:25PM Stringent Safety Regulations: Developing Next-Generation Safe and Reliable Automotive Seats**

- Standards And Requirements Of Future, Safe, Connected, Intelligent Seating Systems

#### **6:45PM Overcoming Challenges In Second- And Third-Row Seats To Enable Modern Lifestyles And The Future next-gen and autonomous Vehicle Layout Capabilities**

#### **6:45PM Chairs Closing Remarks**

#### **6:50PM All Attendee Networking Drinks Reception**

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# TICKETS

***Ticket prices include:*** Access to all conference content, networking activities, food and beverages plus membership to European Automotive Seating Alliance.

## OEM RATES

**SUPER EARLY BIRD €400**

**EARLY BIRD €600**

**STANDARD €799**

## SUPPLIER\* RATE

**SUPER EARLY BIRD €695**

**EARLY BIRD €895**

**STANDARD €1100**

\*Supplier rates apply to any organisation other than OEM

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