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hybrid event

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**KEYNOTE
SPEAKER**

Christopher Davey

Ford Motor Company



Ford's Connected-Agile, Model Based Systems Engineering and Simulation Journey....so far.

Biography. Christopher Davey is currently Global R&A Senior Global Manager for Systems Engineering, System Safety, Modelling & Simulation and Senior Technical Leader in Software & Control Systems Engineering. He has a bachelors in Controls Systems Engineering and Masters' degrees in Advanced Systems Engineering and Engineering Management. Christopher has over 30 years of automotive experience working across global regions in diverse engineering teams such as Research, Electrical Systems, Powertrain Systems and Vehicle Program Launch. Christopher has a passion for applying advanced systems engineering and simulation methods to all aspects of innovation, design, implementation, and validation. He currently leads the application of SE, Safety and Simulation to advanced ADAS, AV and EV systems using an Integrated AI/ML based SE-Modelling & Simulation Framework. He led the team that successfully applied these agile MBSE capabilities to develop the real-time control systems for the F150 Lightning and Mustang Mach-E Electric prototypes. Previously, Mr. Davey developed and deployed Ford's Model Based Design (MBD) and Autocode process and Ford's global In-Vehicle Software (IVS) Releasing & Updates solution. The IVS solution was launched across all global assembly plants and dealerships, delivering in a warranty avoidance of over \$2Billion. He also led the development and deployment of an industry first, Global Vehicle Systems & Software Engineering Management solution (VSEM). This enterprise wide, systems engineering solution provided a functional architecture driven, fully traceability EE and SW management capability, enabling re-use and impact analysis. Mr. Davey was also a US expert in the development of the ISO26262 functional safety standard and has led Ford's roll-out of both ISO26262 & Safety of the Intended Function (SoTIF) standards. Mr. Davey is a member of INCOSE and IET, a regular contributor to NAFEMS and a Professional-Chartered Engineer with 30+ US Patents.

Abstract. Ford Motor Company is committed to helping build a better world, where every person is free to move and pursue their dreams. This will be advanced through the delivery of outstanding Electric Vehicles (EVs) with compelling connected vehicle services, Advanced Driver Assistance Systems (ADAS) and mobility solutions including self-driving Autonomous Vehicle (AV) technologies. These System-of-System (SoS) solutions will require that we leverage a diverse, global, agile Systems Engineering team that can extract actionable information from, and respond to, real-time connected customer experience data. This presentation will describe the Ford Model Based Systems Engineering (MBSE) journey. It will describe how our MBSE solutions have evolved and adapted to different system, software and technology complexity challenges, resulting in a Connected and Integrated, Agile, Model Based Systems Engineering & Simulation solution. The presentation will provide examples of how this Systems Engineering approach has been successfully applied to EV, ADAS and AV systems analysis and design. It will discuss some lessons learned on the trade-offs encountered when balancing "just enough" formalism (ontologies and standards) with scaled agility and risk. It will conclude by discussing the power of a harmonized systems engineering-enterprise-wide, AI/ML powered, digital-twin/digital thread solution. It is a fantastic time to be a system engineer. It is also an important time for us all to contribute where-ever and how-ever we can to help solve the many significant societal challenges.