

Unsettled Issues in Drive- by-Wire and Automated Driving System Availability

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As Chief Technical Officer for Schaeffler in the Americas, **Jeff Hemphill** is responsible for research and new product development for automotive eMobility, transmissions, engines, chassis, as well as industrial components and systems.

Hemphill started his career at Schaeffler as a machinist and co-op student while earning a BSME from the University of Akron. He also holds an Executive Certificate in Strategy and Innovation from the Massachusetts Institute of Technology. Hemphill has over 30 years of experience in automotive and industrial product development, including manufacturing, product design, testing, and vehicle development.

To date, Hemphill has 79 patents filed or issued to his name. He served as President of SAE International in 2021.

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contents

About the Editor

| | |
|--|-----------------|
| Unsettled Issues in Drive-by-Wire and Automated Driving System Availability | <u>3</u> |
| Introduction | <u>4</u> |
| <i>State of the Industry</i> | <u>4</u> |
| <i>Unsettled Issues in Drive-by-Wire and Automated Driving System Availability</i> | <u>5</u> |
| Uncertainty over Driver Controls. | <u>6</u> |
| <i>Recommendations</i> | <u>7</u> |
| Low-volume Trials and Production | <u>8</u> |
| <i>Recommendations</i> | <u>9</u> |
| Talent Sourcing | <u>10</u> |
| <i>Recommendations</i> | <u>10</u> |
| Challenges of Software-defined Vehicle and System Design | <u>11</u> |
| <i>Recommendations</i> | <u>12</u> |
| Lagging Regulations and Standards. | <u>13</u> |
| <i>Recommendations</i> | <u>13</u> |

| | |
|--|------------------|
| Undeveloped Regulatory Landscape and Consumer Uncertainty | <u>13</u> |
| <i>Recommendations</i> | <u>14</u> |
| Lack of Safety and Availability Standardization at the System Architecture Level | <u>14</u> |
| <i>Steering Feel and Communication after First Fault</i> | <u>16</u> |
| <i>How Many and What Kind of Redundancies Are Needed?</i> | <u>16</u> |
| <i>Recommendations</i> | <u>16</u> |
| Summary | <u>17</u> |
| SAE EDGE Research Reports | <u>17</u> |
| Next Steps for Unsettled Issues in Drive-by-Wire and Automated Driving System Availability | <u>17</u> |
| <i>Recommendations</i> | <u>18</u> |
| Definitions | <u>18</u> |
| Acknowledgments | <u>18</u> |
| References | <u>19</u> |
| Contact Information | <u>19</u> |



Unsettled Issues in Drive-by-Wire and Automated Driving System Availability

Abstract

While many observers think that autonomy is right around the corner, there are many unsettled issues. One such issue is availability, or how the vehicle behaves in the event of a failure of one of its systems such as those seen in the latest “by-wire” technologies. Handling of failures at a technical automation level could involve many aspects, including time of operation after first fault, function/performance after first fault, and exposure after first fault. All of these and other issues are affected by software and electronic and mechanical failures. Thus, a systems approach is necessary, as—in every system—changes to one component affects the functionality of others. Establishing an industry path forward for these topics will simplify system development and provide a framework for consistent regulation and liability, which is a necessary enabler for the launch of autonomous vehicles.

NOTE: SAE EDGE Research Reports are intended to identify and illuminate key issues in emerging, but still unsettled, technologies of interest to the mobility industry. The goal of SAE EDGE Research Reports is to stimulate discussion and work in the hope of promoting and speeding resolution of identified issues. These reports are not intended to solve the challenges they identify or close any topic to further scrutiny.

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