ALM Trends and Drivers: Where do we go from here?
Stephen Crescenti – ALM Solutions Consultant, Siemens
THE SOFTWARE ENGINEERING EVOLUTION

70% Of enterprises are expecting regulations to increase and impact requirements
- Cost of Compliance Survey, Thomson Reuters 2015

85% Increase in Test Automation in the last two-years across all industries
- State of Quality 2016, Wipro

40% Of SQA and testing executives cite difficulty to re-use and repeat tests as a major challenge faced with testing in an Agile development process
- World Quality Report, Capgemini & HPE 2016

$1.89B Is the projected market size for Agile ALM by 2020
- IDC

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- State of Quality 2016, Wipro
The next trillion dollars will be earned with data – for our customers and for our industries.

Michael Dell, founder of Dell Inc.

Digital is the main reason just over half of the companies on the Fortune 500 have disappeared since the year 2000.

Pierre Nanterme, CEO Accenture

Automotive Data Monetization to Reach $33 Billion for OEMs by 2025

Frost & Sullivan
Nowhere is that more apparent then the Automotive Industry.

10 fold increase in the number of lines of in-vehicle software in 5 years

21 million by 2035 annual sales of autonomous vehicles

6 billion by 2030 forecasted ride share passenger miles – at 1/3 the cost

Source: McKinsey

Source: IHS

Source: ReThinkX

Companies need to innovate more then ever creating new business models and services throughout the eco system.
The Vehicle continues to evolve from a hardware driven machine to a software-driven services platform.

**Connectivity**
- Integration of 3rd-party services
- Updates over the air to deploy new features faster
- Operation of future cars partly in the cloud

**Autonomous driving**
- Rise of built-in sensors and actuators
- Higher demand for computing power and communication
- Unlimited need for reliability

**Electrification**
- Introduction of new electronics
- Reduction of energy consumption through advanced software algorithms

**Diverse mobility**
- Shared-mobility services and robo-taxis via app
- Customized driver experience

**Source:** Automotive Electronics Initiative; HAWK; IEEE, “This car runs on code”; McKinsey analysis

*McKinsey&Company*
The question is…
What does the industry need to focus on to become successful and stay relevant?

- Traceability
  - Not Ambiguity

- Reuse
  - Not Rework

- Compliance
  - Not Breach of Regulations

- Agility
  - Rigidity is Death

- Security
  - Loss of Data is Costly

- Siemens
  - Ingenuity for Life
TO OBTAIN A COMPETITIVE ADVANTAGE TODAY A UNIFIED ALM PROCESS IS VITAL

WHAT DOES UNIFIED MEAN?

- Secure Collaboration
- Reuse Artifacts
- Deep Granular End-to-End Traceability
- Increased Interoperability
- Automate Compliance
## Industry Strategy Drivers
### Address the Software Delivery Business Transformation

<table>
<thead>
<tr>
<th>CURRENT STATE</th>
<th>DESIRED &amp; FUTURE STATE</th>
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</thead>
<tbody>
<tr>
<td>• Descriptive system decomposition and structure models</td>
<td>• Simulate behavior system models to predict a large number of complex scenarios to handle</td>
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<tr>
<td>• Embedded SW architecture, limited scalability</td>
<td>• Multiple sensors, multiple functions complex architecture, also providing redundancy</td>
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<tr>
<td>• Mostly predefined system behaviors</td>
<td>• Adaptive &amp; predictive system behaviors</td>
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<tr>
<td>• Design, development, manufacturing in silos</td>
<td>• Industrialize with DEVOPS and Agile practices</td>
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What is the missing piece?

“…Don’t concentrate on the finger or you will miss all that heavenly glory…”

Bruce Lee, Enter the Dragon
ALM is Evolving to Accommodate the True Digital Age

How are you going to power your ALM?
Thank You!
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