# Interfacing with the Driver in an Increasingly Automated & Connected Operating Environment

The Future is More & Larger Screens
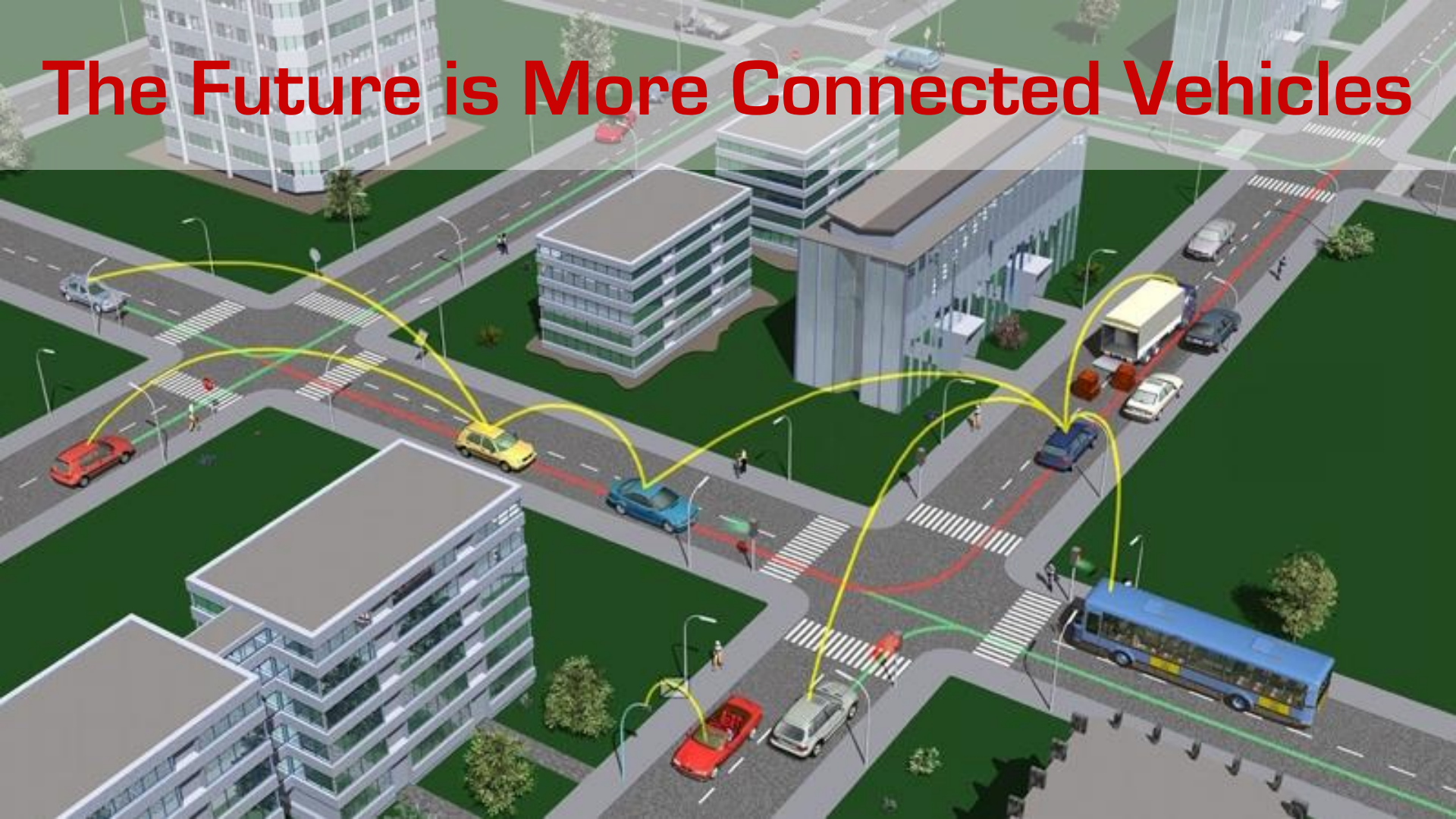
# The Future is More Devices

# The Future is More Information

The Future is More Connected Vehicles

# The Future Has More Older Drivers

# and Expanding Automation

# The Future May Be One of More Novice Interface Users & "Novice" Drivers

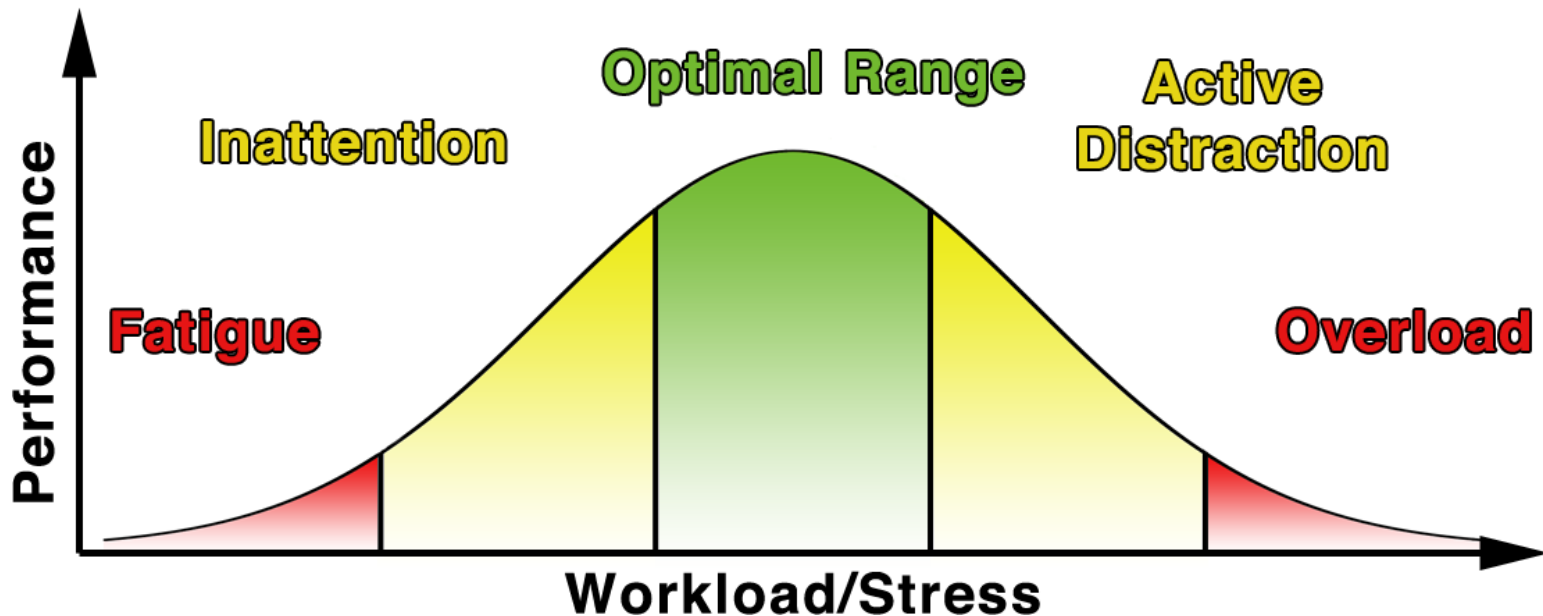Vehicle Miles Traveled (VMT)

Vehicle Miles Driven (VMD)
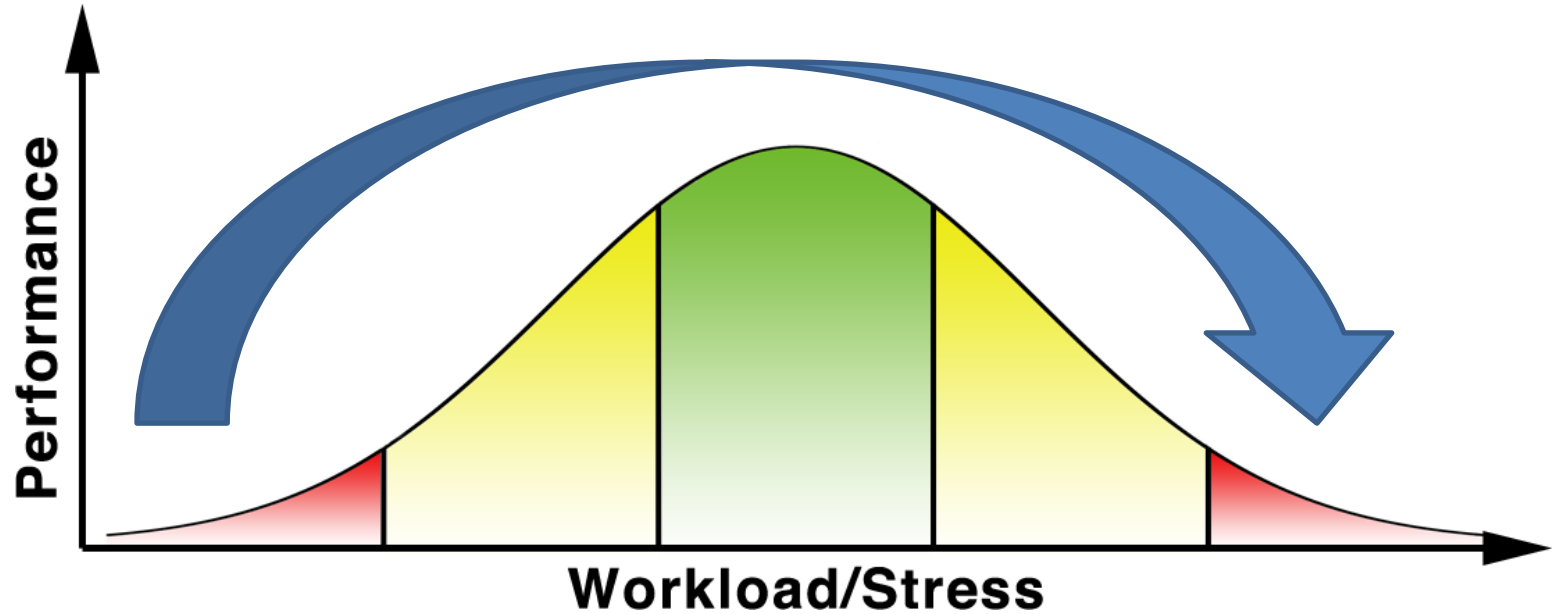
## Today
## VMT = VMD

## Tomorrow?
## VMT ≠ VMD

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# Workload & Performance
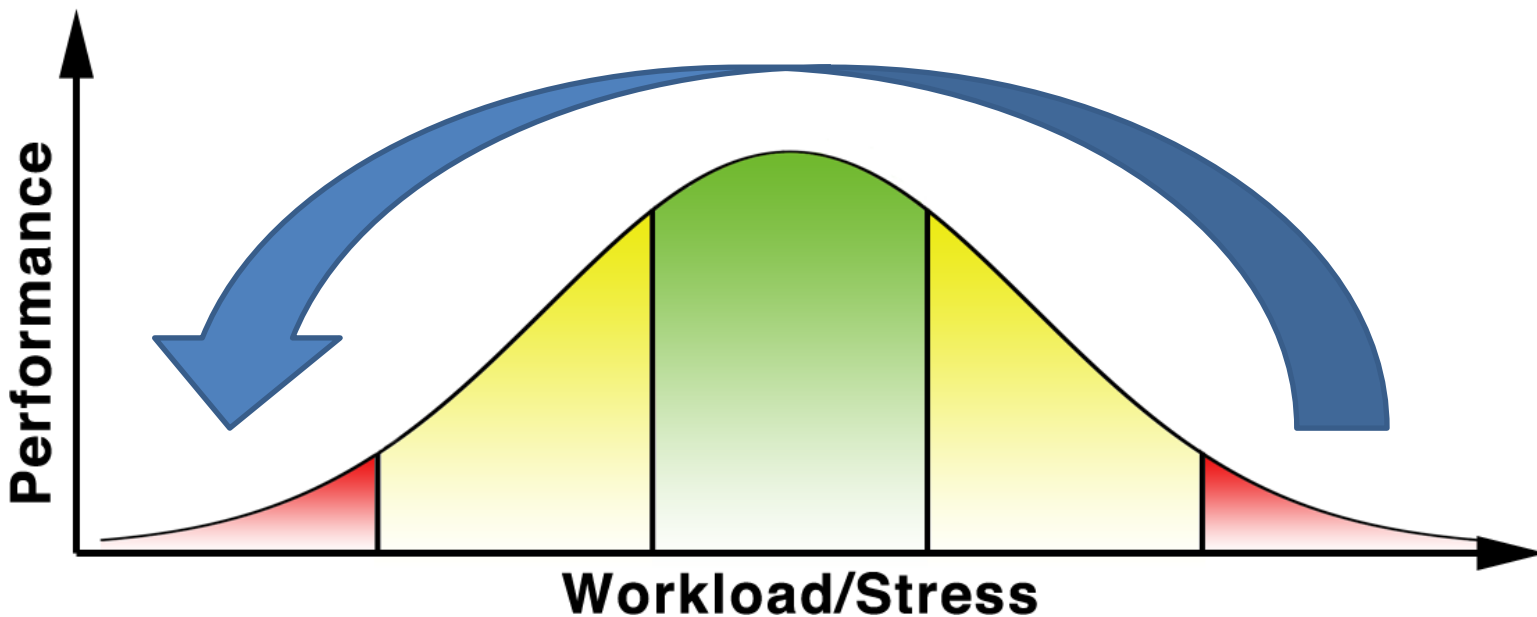## Yerkes-Dodson Law



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# Workload & Performance
## More Information Tends to Increase Workload

# Workload & Performance
## Automation Tends to Lower Workload

Performance

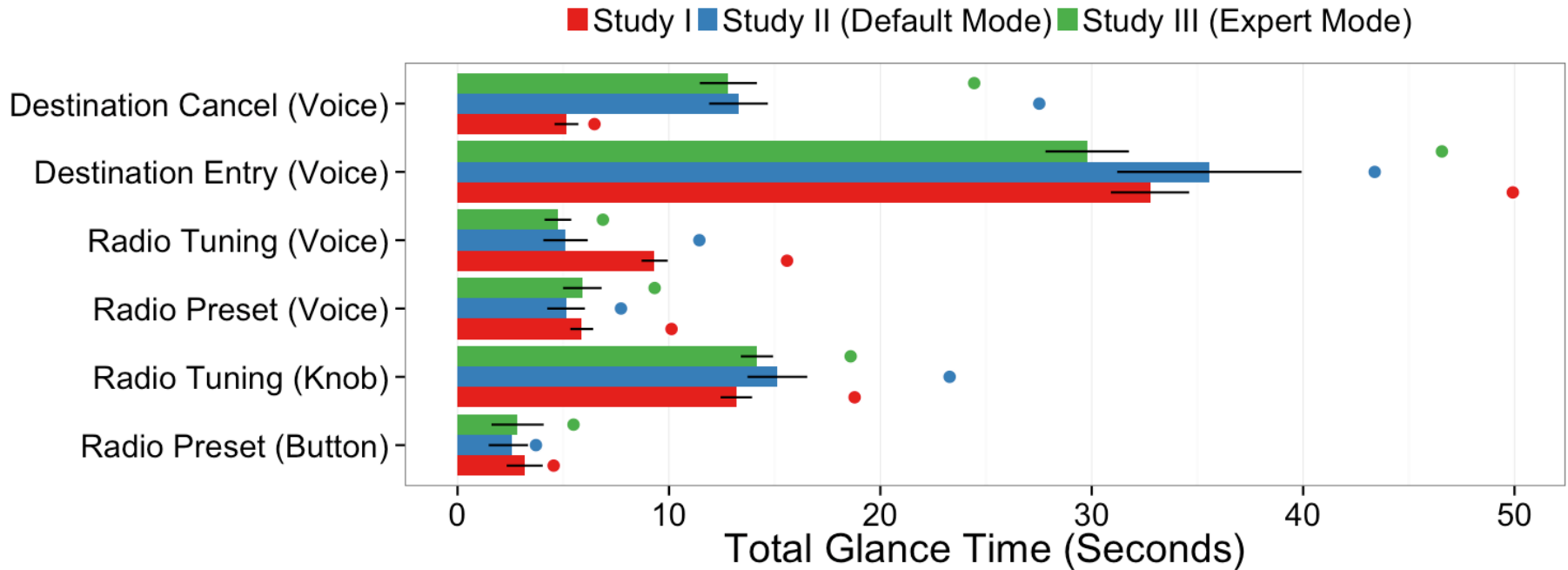Workload/Stress

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# Cognitively Oriented Interfaces.....

Voice and hands-free technologies offer the promise of reducing the time a driver's eyes are drawn away from the roadway, however....
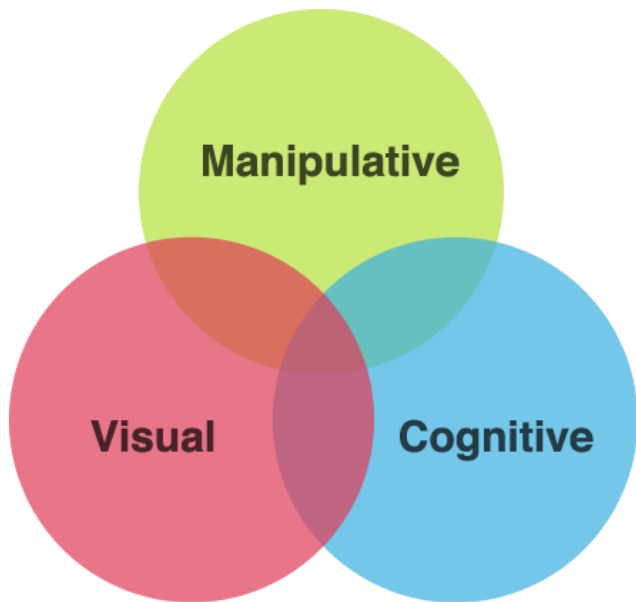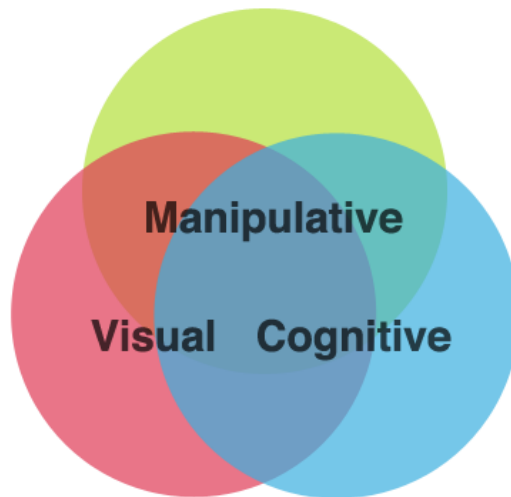
# "Significant" Visual Demands Still Appear



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# Multi-Modal HMI's

## Classical Thought

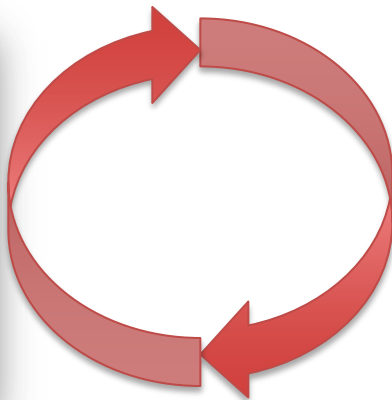

## Modern Reality



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# A Shift to Driver Focus

## Context relevant technological support

# Leaving the Consumer Behind

## Updates can be detrimental to driver attention

Overnight
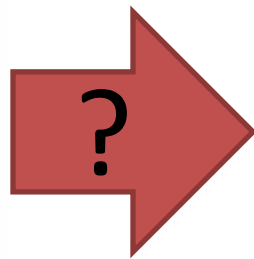Upgrades

Temporary
Confusion
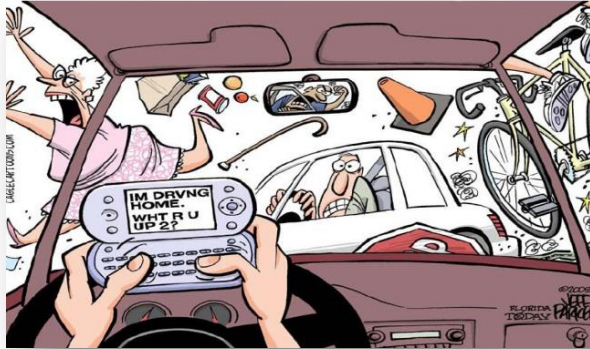
# A Need for Seamless Connectivity
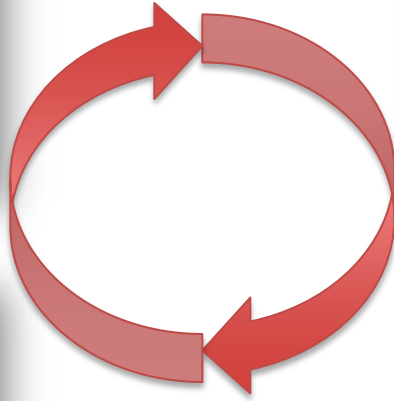
# A New Look at Technology Learning

## Where the rubber meets the road!



?

- DVD's & the web?
- Sales staff?
- Friends?
- Trial and error?
- "The Genius Bar"?

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# The Challenge in a Connected World



How to develop safe interfaces that provide drivers with enjoyable easy to access information while using automation and other safety technologies to help maximize driver focus on the road?

Achieving this goal will require a better understanding of how different forms of task load impact driver focus under different operating contexts