



# Approaching Complex Software Development Projects in the Adaptive Era

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## Tremend at a glance

One of the **fastest growing** software engineering player in Central and Eastern Europe headquartered in Bucharest

Culture of **technical excellence** with relentless focus on **quality and operational efficiency**



15

years  
of software  
engineering



800+

projects delivered



Clients in

20

countries on 4  
continents



500+

engineers,  
7 disciplines,  
2 development  
center



## Tremend at a glance

Trusted partner to **Global 500 customers** for their most complex and important projects

- 5 car manufacturers
- 5 tier 1 suppliers.
- 3 automotive semiconductor companies
- 3 aftermarket equipment manufacturers.

WINDRVR



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## Automotive from many tech angles



Semiconductor  
design

AUTOSAR MCAL  
development

Tools and libraries



Infotainment  
systems

Verification and  
validation

Safety, security  
and process



Cloud  
applications and  
data lakes

Fintech and  
payment systems

AI and machine  
learning



- Off the shelf tech - Ethernet, Linux
- AI is pervasive
- Connectivity + cybersecurity
- OTA updates
- Agile software development
- Distributed containerized cloud applications



- RTOS on many ECUs
- No outside connectivity
- Software installed once at production time
- Monolithic data center applications on private infrastructure

# Industry Changes



Connected  
car

+



Cloud

+



Mobile



- **Safety** is critical for adoption of autonomous vehicles
- Consumers expect **reliability** across vehicle lifetime
- Software is expected to be **stable** at SOP

...yet some  
things  
stay the same



- Extremely **broad set of skills**

*ECU, Linux, AI, Cloud, Mobile, Devops,  
Cybersecurity*

- **Mixed methodology** for full stack development

*AUTOSAR ECU ⇒ infotainment  
⇒ cloud ⇒ mobile*

- Culture clash - **agility** vs **rigor** in methodologies

# Challenges

## Culture Clash!



- **Specialized** departments
- **Multidisciplinary** project teams
- **Agile** across the organization, flexible to choose V-Model where appropriate
- Automotive architects and project managers - part of the **architecture board and PMO**
- **Exchange** methodologies, practices and information
- Company-wide **inspect & adapt** methodology to share best practices in both automotive and cloud

How to cope  
with  
development  
**complexity?**

tremend

**Thank you!**



# Phone, email, Skype. Or just stop by.

We're always happy to talk.

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