

Connected Cars: New Challenges and Opportunities

30 September 2022



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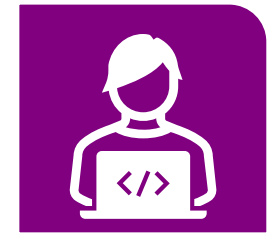
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Connected Cars: New Challenges and Opportunities



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UGOT | Chalmers | NTNU;
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Laurie Fitzgerald

Senior Vice President, Avanci



Steve Faraji

Head of Patents Vehicle/Production and
Chief IPR Policy Manager, AUDI AG



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Introduction to the Value of Automotive Connectivity

Connectivity at the core of the transformation from automotive to mobility



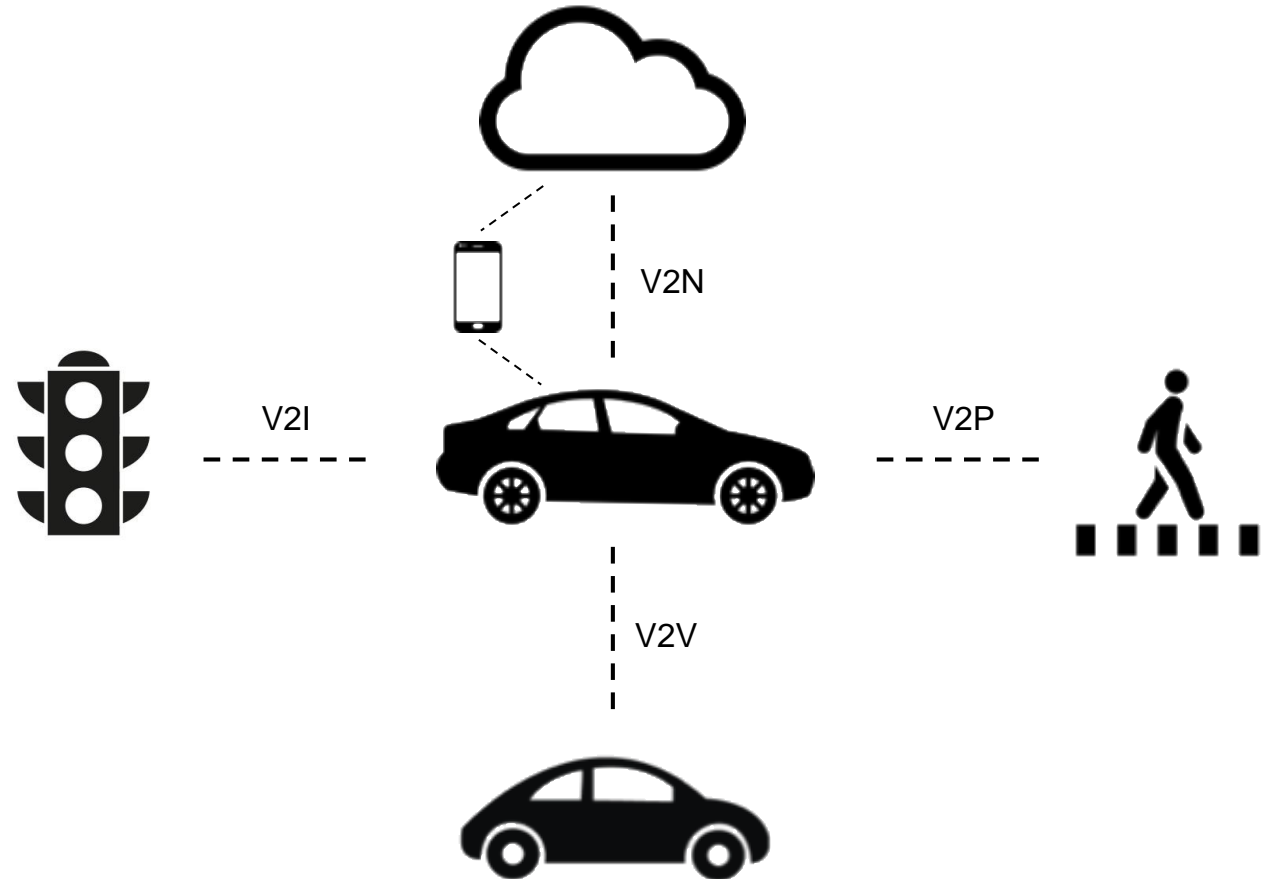
Herbert Diess
Chairman and CEO
VW Group

LETTER TO OUR SHAREHOLDERS

”Making our core product – the car – the most important internet device of the future is our big opportunity.”

The growing value of connectivity in vehicles

- **Present**
Primarily complementary value-added services
- **Future**
Mandatory system defining core vehicle functionality

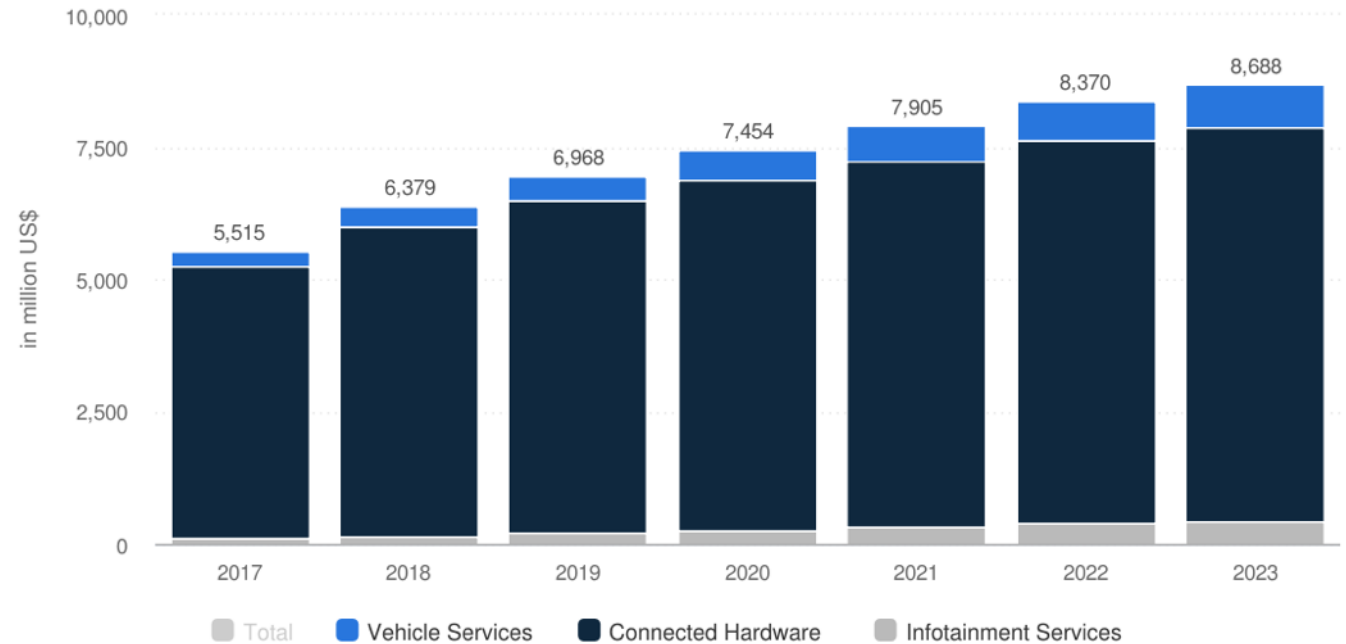


Present - Automotive connectivity as a complementary service(s)

- Embedded Car Revenue:
 - \$6.4B US (2018)
 - \$18.7B WW (2018)
- Connected Cars:
 - 10M/39M US (2018)
 - 32M/119M WW (2018)
- Revenue/Car:
 - \$670 US (2018)
 - \$593 WW (2018)

Revenue in the Connected Car market

in million US\$ (United States)



Source: Statista, March 2019

statista

Source: Statista (2019). Author's calculations

Future - The vehicle as a connectivity-enabled value proposition

- Implementation of V2X
- Autonomous Vehicles
- Increase in positive externalities
- Connectivity-enabled services forecast over \$250B by 2025 and over \$2T by 2030



Source: GSMA (2019), Bosch (2017), Machina Research (2017), McKinsey (2016).

Types of 5G value for automotive stakeholders

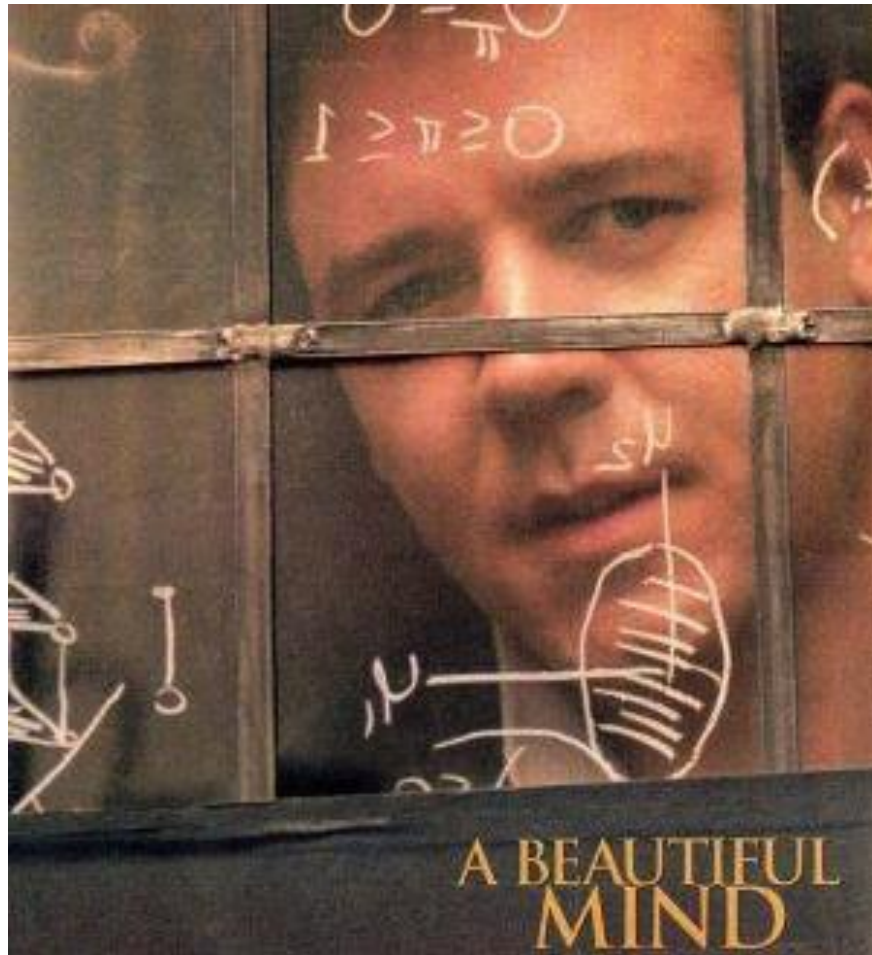
Stakeholder	Annual Value	Lifetime Value	Value Type
Car Maker	\$500 / car	\$7,500	Warranty cost avoidance
Consumer	\$400 / car	\$6,000	Lease, loan, and insurance savings
Dealer	\$300 / car	\$5,000	Higher sale price, higher residual value

Source: Strategy Analytics (2021)

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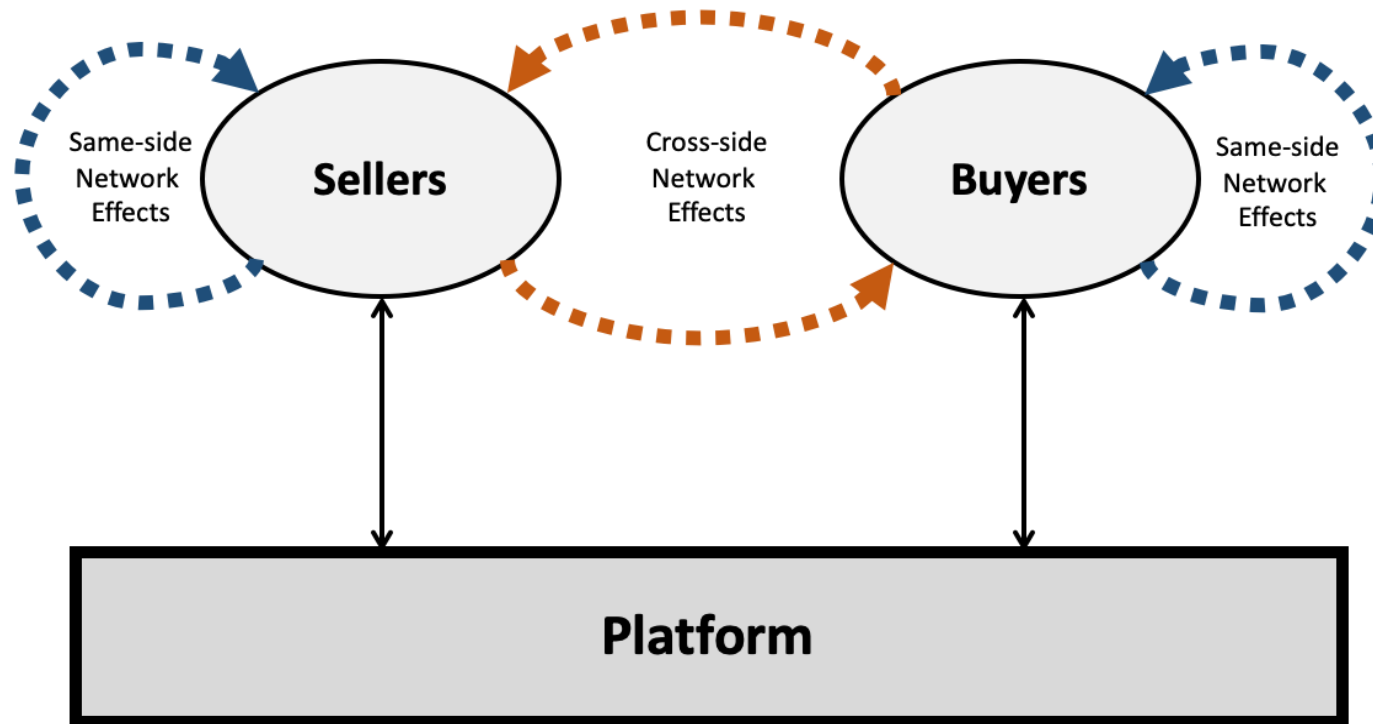
Overcoming the Prisoner's Dilemma in SEP Licensing

SEPs and the Prisoner's Dilemma



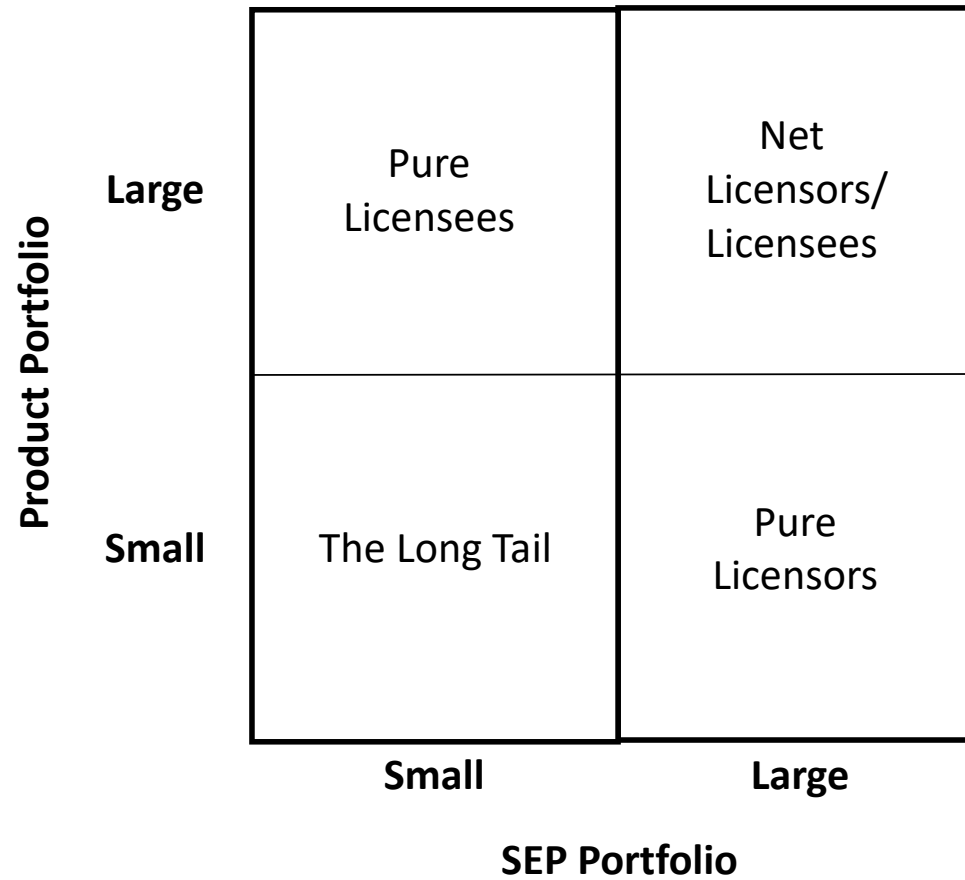
- **Hansen:** Recall the lessons of Adam Smith, the father of modern economics. "In competition ..."
- **Everybody:** "... individual ambition serves the common good."
- **John:** Incomplete. Incomplete, okay? Because the best result will come from everyone in the group doing what's best for himself ... and the group.
- **John:** Governing dynamics, gentlemen. Governing dynamics. Adam Smith...he was wrong.

Network effects in multi-sided platforms



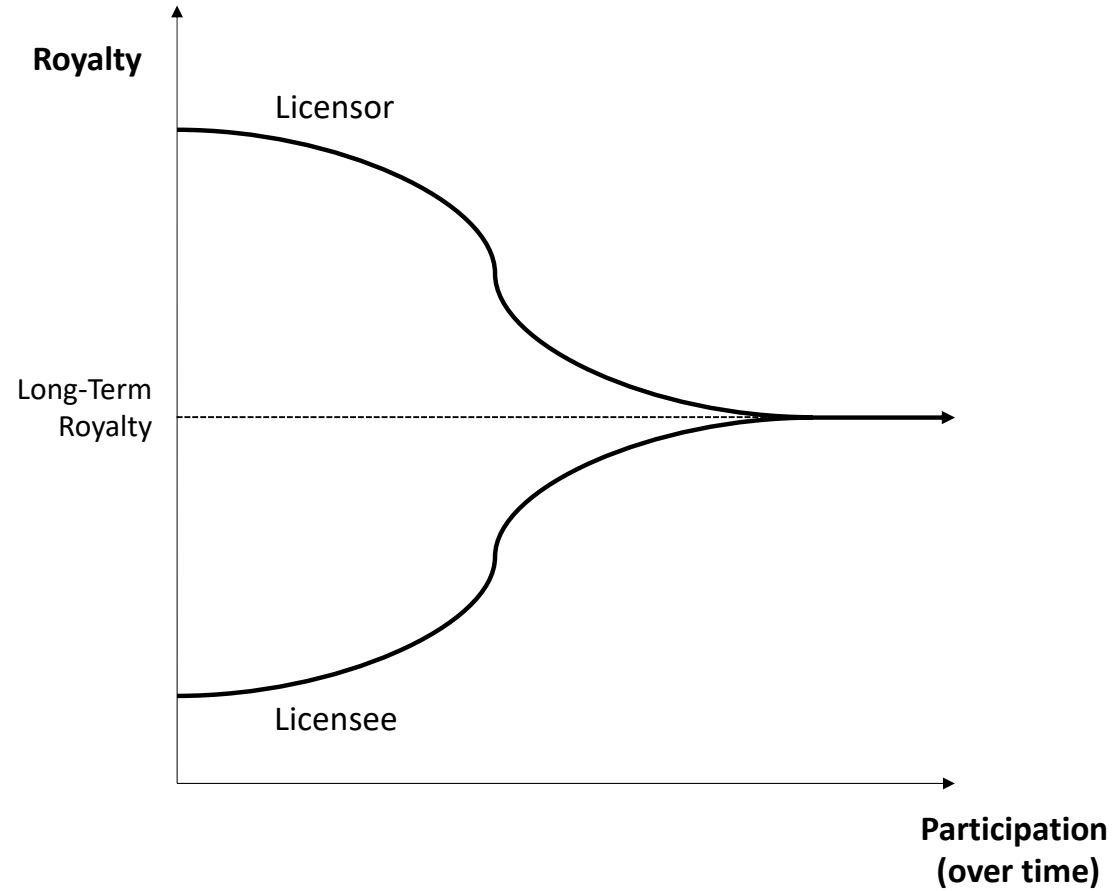
Source: Brismark and Heiden (2022)

The heterogeneity challenge



Source: Brismark and Heiden (2022)

The collective action problem



Source: Brismark and Heiden (2022)

Thank You!

Q&A

Forthcoming Webinars:

Date	Title	Summary
27 October, 16h (CET)	IP Waiver in pandemic times	On March 2022 the EU, South Africa, India and the U.S. reached a compromise on a waiver on IPR for coronavirus products (known as the TRIPS waiver). This webinar will provide an overview of the challenges faced during the pandemic, and the impact of the TRIPS waiver to innovation, global public health, global collaboration, the patent system etc, as well as analyze which are the right tools to prepare for the next pandemic.

Confirmed Panelists:

- Prof. Christoph Ann, TUM
- Melissa Brand, Radius Health, Inc.
- Prof. Adam Mossoff, George Mason University
- Paola Dabbicco, KPMG

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