The Value of Connectivity in Automotive
Past, Present, and Future

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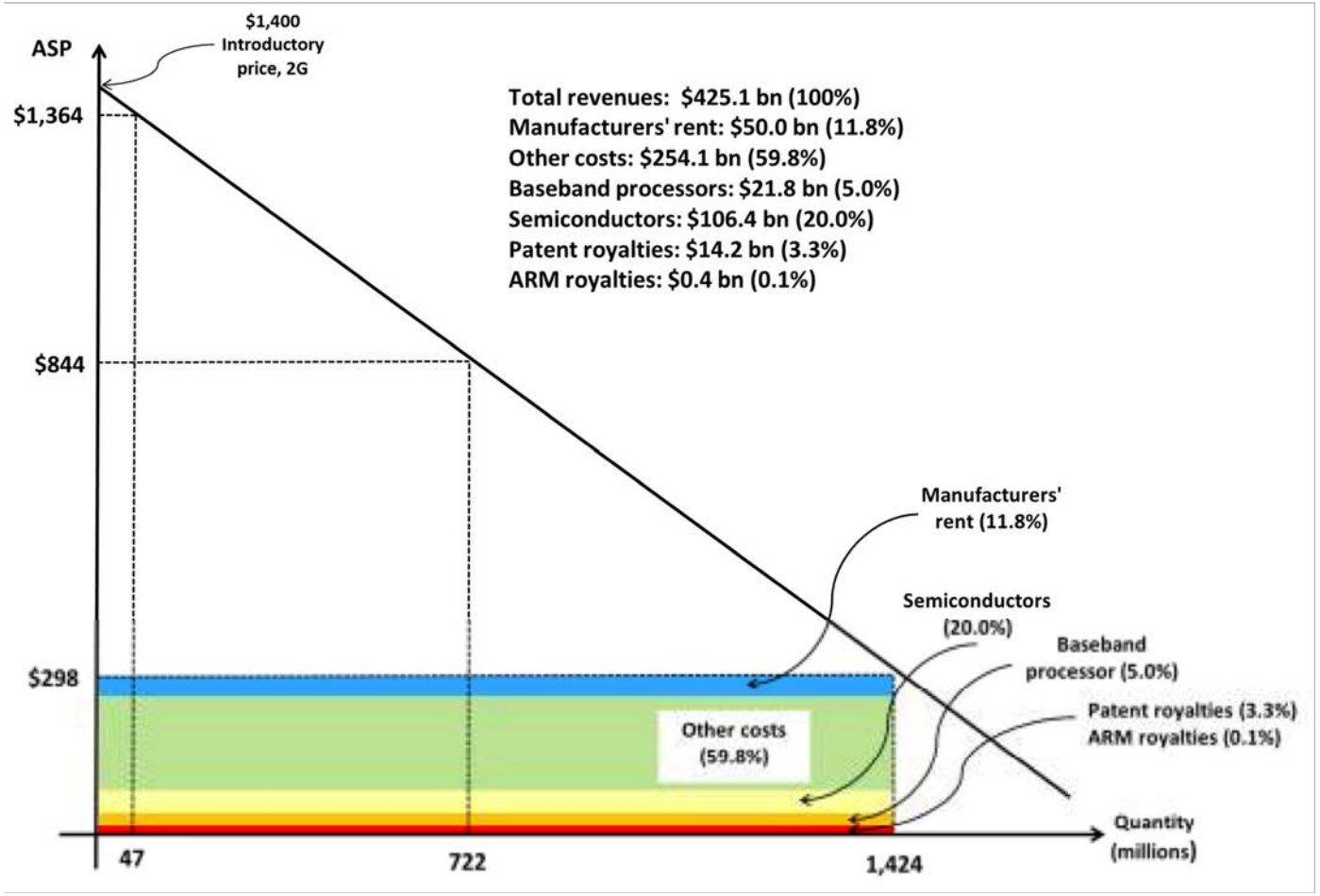
Past – the battle of two market failures in mobile telephony

- Upstream – R&D
- Downstream – Products/Services

Past – the empirical evidence from the smartphone market

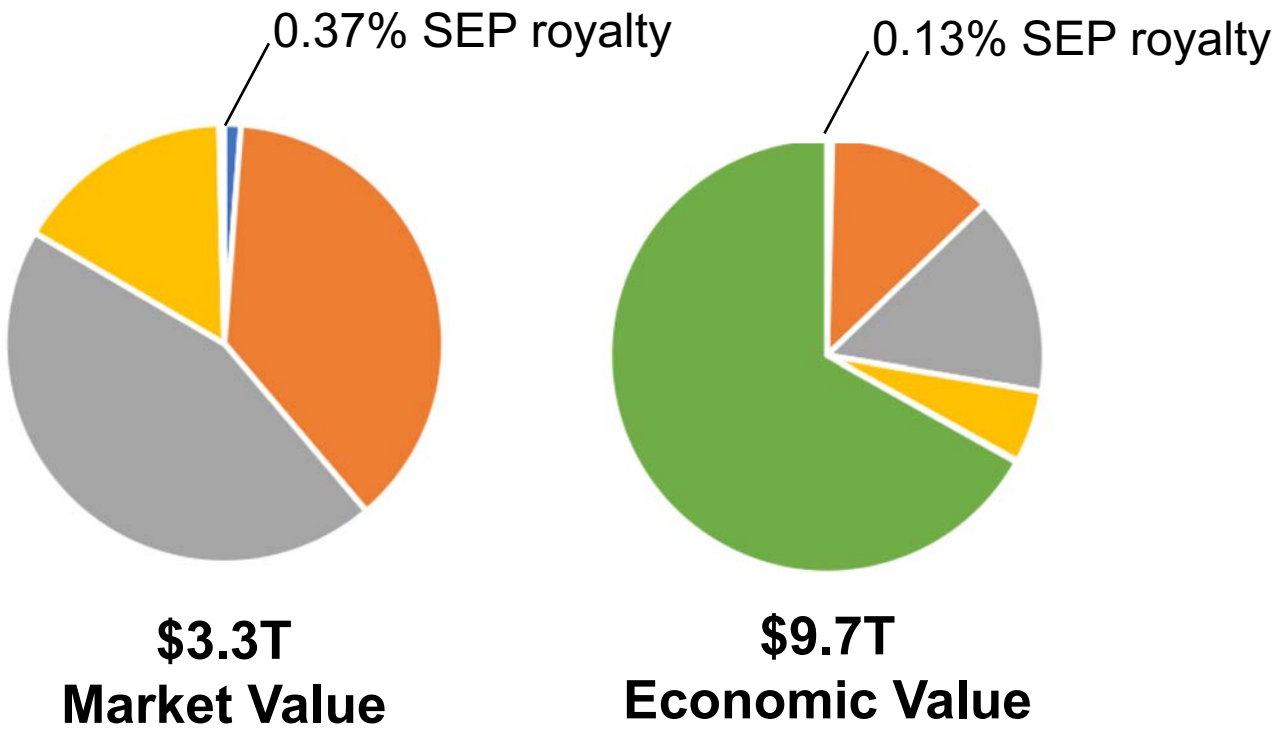
- Total Revenue: $425B (2016)
- Consumer Surplus: $784B (2016)
- SEP Royalties: $12.4B (2016)
- SEP Royalty Rate:
  - 2.9% (revenue)
  - 1.0% (economic)



Source: Galetovic, Haber, and Zaretzki (2018)

Past – the share of SEP value in comparison with total economic value

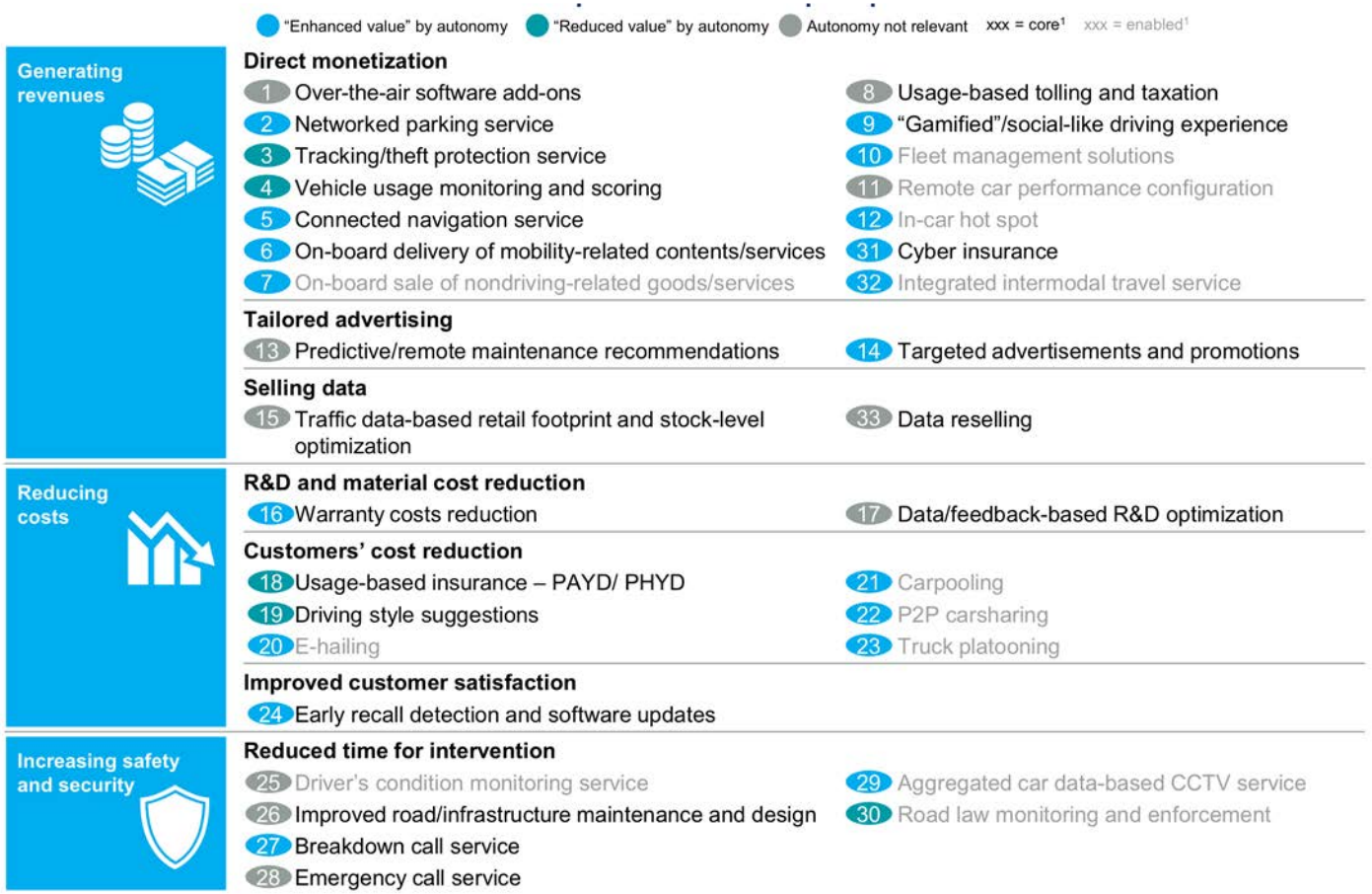
- Total Mobile Revenue: $3.3T (2014)
- Consumer Surplus: $6.4T (2014)
- SEP Royalties: $12.4B (2016)
- SEP Royalty Rate:
  - 0.37% (revenue)
  - 0.13% (economic)



Source: BCG (2014). The Mobile Revolution: How Mobile Technologies Drive a Trillion-Dollar Impact. Author's calculations.

Present - Automotive connectivity as a complementary service(s)

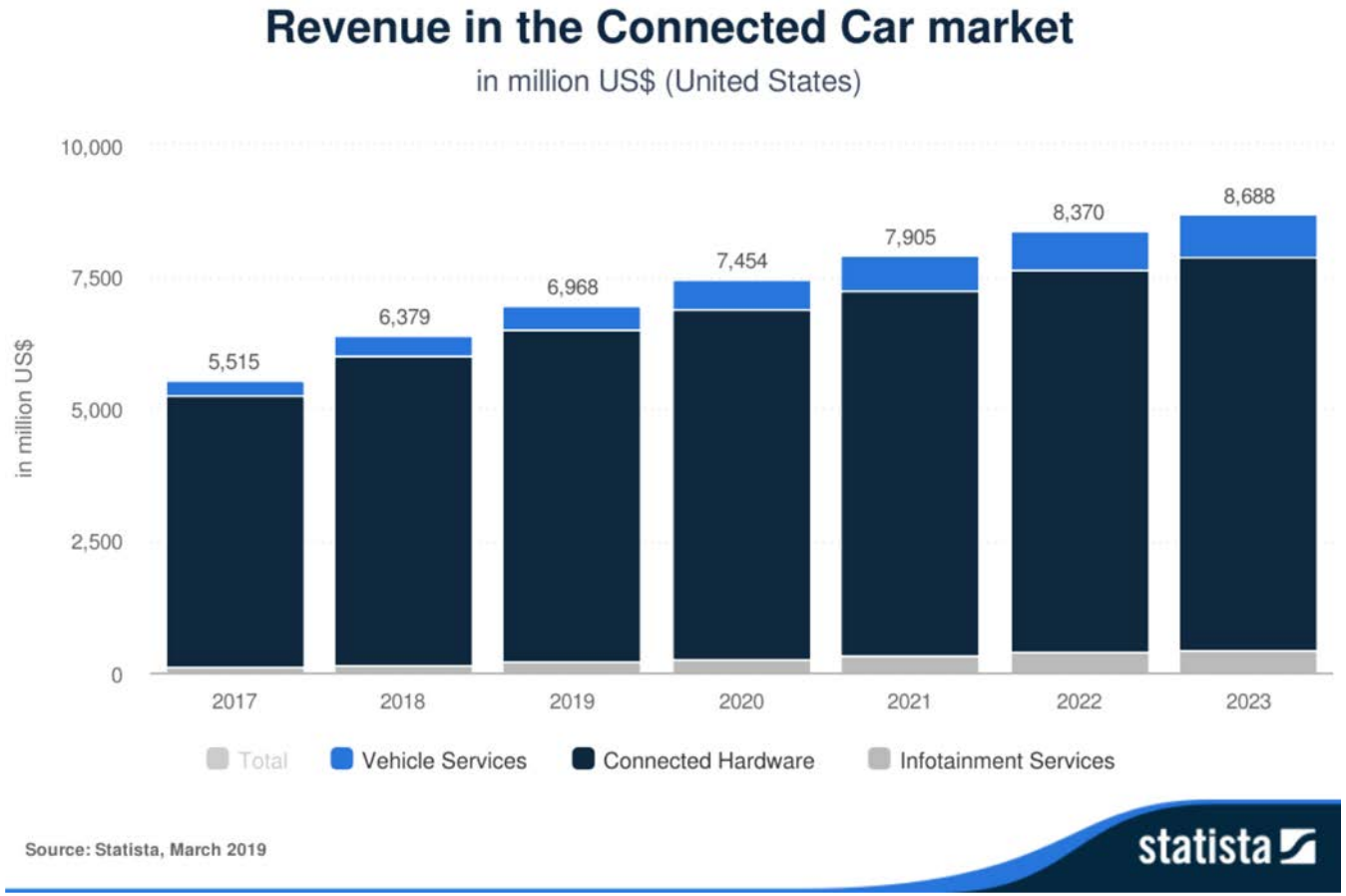
- Valuation:
  1. Increase in vehicle revenue at sale
  2. Service revenue over the life of the vehicle
- Revenue vs. Cost
- Car vs. Smartphone



Source: McKinsey Center for Future Mobility (2018). From buzz to bucks – automotive players on the highway to car data monetization.

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)



Source: Statista (2019). Author's calculations

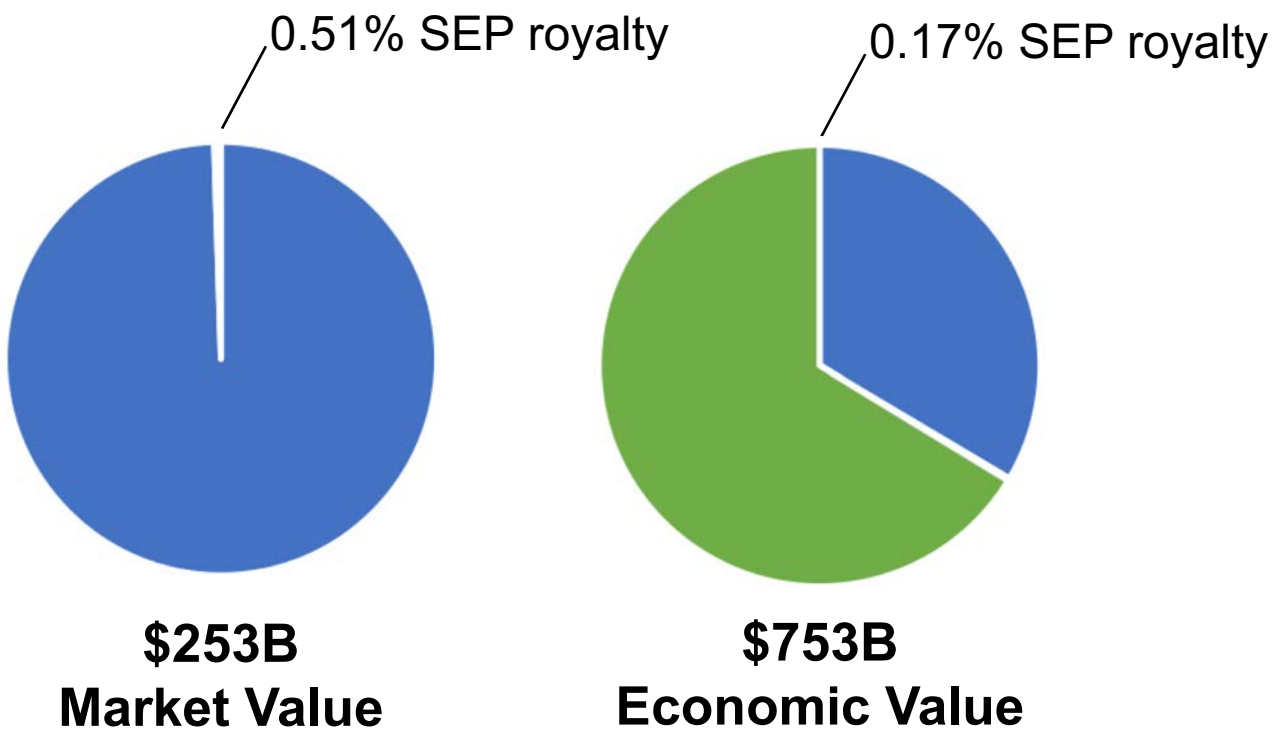
Future - The vehicle as a connectivity-enabled value proposition

- 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).

Future - The vehicle as a connectivity-enabled value proposition

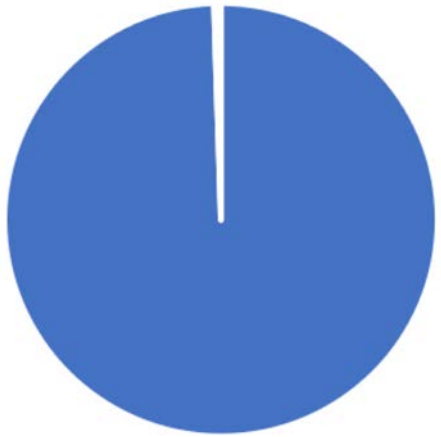
- Total CV Revenue: $253B est. (2025)
- Consumer Surplus: $500B est. (2025)
- SEP Royalties: $1.3B est. (2025)
- SEP Royalty Rate:
  - 0.51% (revenue)
  - 0.17% (economic)



Source: Machina Research (2017). Author's calculations.

For discussion with cocktails…

- Good news – connectivity is creating value for everyone
- Implementers need to prioritize the other 99.5%



- SEP holders need to focus on norms and timing

Questions or Comments?

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