



THE GROWTH OF THE CONNECTED VEHICLE DATA MARKET – THE
IMPLICATIONS OF PERSONAL DATA AND EMERGING US LEGISLATION

Overview

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A decorative graphic at the bottom of the page consisting of several overlapping, wavy yellow lines that create a sense of movement and flow.

The Growth of the Connected Vehicle Data Market – the implications of Personal Data and Emerging US Legislation

EXECUTIVE SUMMARY

The potential for value generation in the Connected Vehicle Data (CVD) market is profound.

There will be over 67 million connected cars in the US in 2020, growing to more than 146 million by 2030 (source Statista). Major advances in on-board digital systems and connectivity not only mean that these systems and their content will soon exceed 50% of a vehicle's value, but they have created, in effect, one of the world's most powerful live data networks.

This platform offers significant social and economic potential. It is transforming the design and performance of mobility solutions, and has opened-up a rich market for digital services and data commerce.

The automotive industry currently uses CVD to drive efficiency in OEM supply chain operations and product development. Automotive digital services and data markets are now primed to expand dramatically.

A key enabler of this growth is the amalgamation of CVD with wider data sets from different aspects of people's lives, and other markets. These diverse data sets include Personally Identifiable Information (PII). Ensuring that this PII is used appropriately will be a key challenge for the sector.

The secure and trusted use of CVD and PII can bring greater depth, relevance and richness to digital services, stimulating entirely new forms of innovation in products and services, attuned to the needs and wants of consumers – and society at large.

The potential for value generation in the CVD market is enormous, and the opportunity is now. As observed by many participants in this research, if the automotive industry does not seize the strategic opportunity in data, the global data giants will. As seen in other markets, this would relegate industry players to enablers of others' transformational growth, whilst left carrying the operational cost.

SOCIETAL BENEFITS

The fast-growing connected vehicle data market offers enormous untapped potential for society, enabling improved safety, greater efficiency and the reduction of emissions **and new mobility solutions, including for less-advantaged people.**

Safety: Participants in the study said safety is the most significant overall benefit from connected cars. They can enable improvement in the safety of vehicles themselves, road safety, driving behaviour and emergency services response.

Efficiency, Emissions and Environment: Participants also stressed that CVD can bring significant improvements in the efficiency of transport and material environmental benefits.

Efficiency can be increased by improved design and management of road systems, creating time and cost savings for travellers, and improving productivity. CVD can also enable efficient carpooling solutions and more effective multi-modal transport integration

These efficiency improvements can reduce the impact of vehicle emissions by optimising engine performance, reducing journey times, and so improve air quality.

STAKEHOLDER BENEFITS

CVD-driven innovation will unlock significant consumer and economic value, delivering benefits to all participants and stakeholders in the market.

STAKEHOLDERS	BENEFITS
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Individuals / Consumers	<ul style="list-style-type: none"> • Greater convenience and value in car ownership • Increased journey efficiency • Lowered costs in car ownership and transport including predictive maintenance and remote diagnosis and fault-fixing • Major innovation in in-car digital services through the combining of data from broader aspects of people's lives e.g. in-car payments and eCommerce services, and integration of connected cars with smart home systems • Increased personalisation within the vehicle environment, including infotainment content, journey plans and driver controls
Public services	<ul style="list-style-type: none"> • Plan journeys and manage transport infrastructure • Supporting emergency services and law enforcement
Automotive Manufacturers (OEMs)	<ul style="list-style-type: none"> • Advance OEMs' design and manufacturing efficiency through advanced data technologies, such as AI and machine learning • Transform after-sales product support costs and defect correction processes • Create new and deeper consumer relationships, bolster brand loyalty • Realise new revenue streams through consumer digital services and the broader commercial use of CVD in data markets and the automotive ecosystem
Automotive Service Providers	<ul style="list-style-type: none"> • Enable improved and expanded service offerings based on access to connected car data for a range of service providers in the ecosystem including vehicle servicing; dealerships, fuel and EV providers; roadside assistance
Financial Service Providers	<ul style="list-style-type: none"> • Insurers: Enhanced underwriting, usage-based insurance and enhanced claims analysis • Banks, lenders and lease providers: Improved asset valuation
Other Stakeholders	<ul style="list-style-type: none"> • Vehicle fleet management: Improved operations and reduced costs • Telecommunications: A dramatic increase in wireless network traffic and new services to connected vehicle ecosystem players e.g. data acquisition and storage, analytics • Parking providers: More efficient use of resources and better planning of future capacity • Retailers, restaurants, hotels and other geo-centric businesses: Better targeting of marketing messages and planning of the locations for new facilities

In the medium term, connected vehicle data exchanges will be able to manage huge volumes of lidar, radar and camera data to support high definition mapping required to support Autonomous Vehicle operations and other data intensive offerings such as ride sharing fleet optimisation.

THE IMPORTANCE OF CONSUMER TRUST AND DATA REGULATION TO THE CVD MARKET

Maintaining consumer trust and complying with appropriate data privacy regulations, are increasingly important factors in the development of the market.

Consumer Trust: Consumers are largely unaware of connected vehicle data use. Many consider it inevitable that the CVD market, and the use of PII within it, will soon become much more prominent. The risk is that it does so for negative reasons, as it has in other markets, such as social media. This could seriously compromise consumer trust, potentially leading to data access being constrained and further demand for privacy-related legislation.

There is an urgent need to stimulate consumer and regulator confidence by encouraging transparency and raising proactively the profile of the CVD market and the benefits it conveys.

Data Protection Regulation: The operation of the CVD market is affected by issues and concerns raised by failures of data use in on-line data platforms, notably social networking sites, and the regulatory response to failings in those markets.

If legislation fails to balance the need to protect privacy and ensure data security with the need to foster innovation and economic growth, then there is the risk of unintended consequences causing significant market opportunities and societal benefits could be constrained.

Furthermore, data protection legislation that is influenced heavily by screen-based, internet and data platform models generally does not fit well with the ways in which users interact with in-car systems or the ways in which connected vehicle data is collected and used. If not addressed, these differences, could complicate the compliance challenge for automotive products manufacturers and potentially create an unintended advantage in the CVD market for the major data platform providers.

To mitigate these risks, OEMs and other market participants must secure consumer trust and the effective regulation of data usage in the market they should:

- Stimulate consumer and regulatory confidence by raising the profile of the CVD market and proselytising the benefits of CVD
- Build consumer and regulatory trust through the advocacy and development of self-regulation
- Lead the market by engendering a culture of openness, transparency, informed choice, and consent
- Positively influence the development of legislation to support the beneficial use of CVD for all stakeholders, while also ensuring the necessary data protections

US Data Protection Legislation & Regulation

In the US there has been a shift toward more broad-based legislation, largely as a response to major data breaches and high-profile scandals in the personal data market. Legislative action is being led by individual States, as Federal legislation appears unlikely ahead of this year's Presidential and Congressional elections.

State-Led Activity: A third of US states have enacted or are considering data legislation. California has been the prime mover in state-led legislation. The California Consumer Privacy Act (CCPA) has a broad definition of PII and of what constitutes the sale of data. CCPA enforcement will start in June 2020. California may also develop more stringent regulation with the CPREA (California Privacy Rights and Enforcement Act), on the ballot for November 2020.

There is a risk that State-by-State legislation, and potential variances between States, will add complexity to the compliance challenge.

Federal Activity: Multiple privacy bills have been introduced at the Federal level in the US Congress. There is also the potential for intervention by the Federal Trade Commission.

It is expected that ultimately Federal data privacy legislation will be enforced to set a 'level playing field. This could provide positive stimulus for interoperability, innovation and growth in the market.

Industry Self-Regulation: Consensus-oriented dialogue with industry, and government has been shown to be effective in developing practical governance solutions.

MARKET DEVELOPMENT CHALLENGES

Even with the vast potential of the CVD market, several factors could limit its development.

OEM Under-Investment: The costs associated with CVD are significant and systems need to adjust to increasing data volumes and complexity. Competing demands for OEMs investment in a challenging automotive market could restrict growth and open the door to competitors undermining the potential for manufacturers to capture the value of their data.

"OEMs are treading a careful path – they potentially have much bigger issues to address in the core operations at present... but they must avoid missing out on any new services, business models, and revenue from cc data OR being displaced in new relationships with the owner/driver resulting from these services... and not just left 'running the pipes'"

John Verdi, Future of Privacy Forum

The Battle of the Dashboard: Automotive manufacturers' opportunity to obtain brand and wider economic value from the Infotainment platform is challenged in two ways.

First, devices brought into the car (notably smartphones) could come to dominate consumers' in-car digital experience if connected vehicle data is not actively developed by OEMs to deliver innovative services. However, dominance by bring your own (BYO) devices is seen as unlikely in the medium term because the value of core vehicle data and the use cases it enables, will continue to drive significant growth.

Second, the major cost of building and maintaining the embedded infotainment systems, and the difficulty of achieving critical mass for app development, means that many OEMs are looking to buy this capability from big developers, or allow drivers to mirror the software from a smartphone. OEMs need to consider carefully the degree of integration of such systems to avoid losing value opportunity from core CVD, and so strengthening the platform provider's competitive position in the market.

Advertising Revenue Models: Vehicles have multiple data collection points that can be used to target or plan successful advertising ventures. Still, a person's car is regarded as a very personal place: many of the experts we interviewed suggested that consumers may resist targeted advertising in this environment.

Mandated Data Sharing: Interested organisations are lobbying for the extension of US Right to Repair legislation to include CVD. Sharing CVD data for improved vehicle safety could create new organisational costs for OEMs without significant corresponding direct return except for its obvious social benefits.

Enhanced digital capabilities: As OEMs seek to access the new opportunities in connected vehicles, they will require enhanced OEM digital and customer-centric capabilities. These key areas include:

- **Data centrality:** to improve the efficiency of R&D and manufacturing operations with advanced digital capabilities in areas such as machine learning/AI and analytics.
- **Digital centrality:** the car will become a "living product" with continuous upgrades in lifecycles of months, if not weeks. To deliver this, OEMs will need to apply digital, business and technology skills throughout the development, production and support phases.
- **Consumer Centricity:** delivering consumer data-enabled services opens up a new direct and ongoing engagement between OEMs and consumers. Maximising this opportunity will require the development of new forms of consumer engagement and management capabilities.

FACTORS ADVANCING THE CVD MARKET

Enablers which can strategically advance the connected vehicle market were identified as:

Data marketplaces: have an important part to play in stimulating market growth. They can facilitate the 'data liquidity' required to ensure an efficient overall market for connected car data, supporting interoperability and standardisation.

There are multiple use cases for CVD data. Companies such as Wejo connect OEMs with marketplaces by establishing relationships with partners in fields including Mapping & Navigation; GIS & Location Data Services; Government Authorities; Transport & Infrastructure; Entertainment & Retail; Emergency Services; Insurance; Finance & Leasing; Fleet and Urban Planning. The marketplace operator can offer consent and privacy management to the OEM and data buyer, providing access to a broad range of data sources. Some marketplaces, such as Wejo's, can also enrich the data so that it provides end-users with insights, products and solutions instead of just access to data.

Communications: continued improvements in cellular communications technology offer higher transmission speeds, broader and more reliable coverage, and higher costs efficiencies. This will be vital in enabling expanding data volumes, driven by the growth in connected vehicle numbers greater variety and frequency of data. Developments in Vehicle-to-Vehicle and Vehicle-to-Infrastructure will offer new innovation opportunities in car safety, transport efficiency and the development of smart cities.

OVERVIEW OF THE STUDY

Wejo commissioned Ctrl-Shift to study the CVD market and the implications of the use of CVD and PII and emerging US data protection legislation in the market's growth and governance. The purpose of the study is to provide analysis and perspectives to stimulate informed debate across all key stakeholder groups in this emerging market. The views expressed within this study do not necessarily reflect Wejo's position or its business models or data practices. The research is based on interviews and round-table discussions with experts in connected vehicle data; personal data and privacy, and data regulation, and upon Ctrl-Shift's knowledge base on the strategic use of personal data in business innovation.

This study has examined the development of the connected car data market, the use of PII within it, and the potential implications of emerging US data protection legislation for the market's growth and governance. The purpose of the work is to provide informed analysis and perspectives on the key themes and issues that will materially influence the market's development. The objective is to stimulate debate across all stakeholder groups to help realise its enormous economic and societal potential of the connected car data market.

The study was carried out by business innovation consultancy Ctrl-Shift, commissioned by leading connected vehicle and mobility data company Wejo.

The report will be serialised and published on Wejo.com.

Approach

The research engaged a select group of more than 50 experts in connected car data, including leading figures in: OEMs; trade bodies; academia; specialists in data privacy and security; automotive industry lobbyists; strategic advisors and commentators, and international economic organisations.

The study has also drawn heavily on Ctrl-Shift's knowledge base on the strategic use of personal data in business innovation, and on Wejo insights into connected car data marketplaces.

Participants were engaged through in-depth interviews and round-table discussion. The interviews were framed around key aspects of connected car data and implications of the use of PII, including the potential benefits and risks created for all stakeholders in the connected car ecosystem. Round table discussion provided the opportunity to examine and debate, in detail, important issues that will impact market development.

We are very grateful to all who took part in the research and would like to thank them for their invaluable input.

About Wejo and Ctrl-Shift

CtrlShift

Ctrl-Shift is an innovation consultancy specialising in the strategic value of personal data in the digital economy. Since 2009, Ctrl-Shift has been helping organisations realise the growth opportunity in trusted personal data by creating strategies that enable the delivery of new value in people's lives. Ctrl-Shift works extensively with governments to influence the policy debate on personal data.

wejo

Wejo works with automotive manufacturers and like-minded, ethical partners to organise the streams of authentic, connected car data, unlocking its value for all to revolutionise the way we live, work and travel. Wejo processes, normalises and enhances CVD to make it more accessible, benefiting drivers and passengers; public and private sector organisations; automotive manufacturers and their partners.