Sample Deliverable

UK Connected Car Market - A Telecom Opportunity
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1. The connected car technology landscape

   I. Technology components and definition
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The connected car market is characterized by varied technologies, ranging from high to low cost alternatives...

- Vehicle connectivity solutions establish vehicle-to-vehicle, vehicle-to-device, and vehicle-to-infrastructure communication by using various systems/hardware, such as modem, SIM, intelligence/applications and user interface. The systems/hardware can be embedded or connected externally and varies with the connectivity model as below:
  - **Connected car**: In this model, the intelligence system and hardware is embedded in the car, while internet and SIM connectivity can be either built-in or brought-in.
  - **Non-connected car**: This model does not have an in-built intelligence or connectivity hardware, and depends on external devices and web-based apps to establish connectivity.

### Connectivity Model

<table>
<thead>
<tr>
<th>Connected Cars</th>
<th>Non-Connected Cars</th>
</tr>
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<tbody>
<tr>
<td><strong>Embedded</strong></td>
<td></td>
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<tr>
<td>- Embedded model is a system in which connectivity (modem and SIM) and intelligence hardware are fully embedded in the car.</td>
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<tr>
<td>- Applications run on the built-in software system and do not require the use of a smartphone.</td>
<td></td>
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<tr>
<td>- Examples of fully embedded solutions are BMW connected drive and GM Onstar.</td>
<td></td>
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<tr>
<td><strong>Hybrid/Tethered</strong></td>
<td></td>
</tr>
<tr>
<td>- This relies on the intelligence hardware embedded in the vehicle, but uses an external SIM to enable connectivity.</td>
<td></td>
</tr>
<tr>
<td>- There are two ways to enable tethering:</td>
<td></td>
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<tr>
<td>- Built-in modem (with a SIM card slot)</td>
<td></td>
</tr>
<tr>
<td>- External modem on the user’s mobile</td>
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</tr>
<tr>
<td>- Example: Mercedes Command, where apps run using the in-car computer and owner’s mobile is used for internet connectivity.</td>
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</tr>
<tr>
<td><strong>Aftermarket solutions</strong></td>
<td></td>
</tr>
<tr>
<td>- Aftermarket model offers solutions in the form of brought-in devices, which can be plugged in any traditional car’s on-board diagnostics (OBD) port or can be installed in the dashboard.</td>
<td></td>
</tr>
<tr>
<td>- The solutions include telematics, infotainment, navigation, car-smartphone integration products.</td>
<td></td>
</tr>
<tr>
<td>- These devices rely on user’s smartphone or a GSM module or Wi-Fi internet to establish connectivity.</td>
<td></td>
</tr>
<tr>
<td>- Example: Apple CarPlay (for smartphone integration), which gives a driver access to all iPhone functionalities through car’s display.</td>
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### Cost to Consumer:

<table>
<thead>
<tr>
<th>Connected Cars</th>
<th>Non-Connected Cars</th>
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<tbody>
<tr>
<td><strong>High</strong></td>
<td><strong>Low</strong></td>
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...that could either be built-in or brought-in based on the type of connectivity solutions

- The four main components of any connected system – Modem, SIM, Intelligence/Applications and User interface – can be built-in/brought-in as per the connectivity model. The connectivity solutions are not mutually exclusive and can be used simultaneously if required.
- Internet and SIM connectivity for each of these is provided by telecoms operators (either embedded or through smartphone network). In a bid to further develop new streams of revenue, telecom operators are also focusing on providing aftermarket OTT and hardware connectivity solutions.

<table>
<thead>
<tr>
<th>Connected Car Architecture</th>
<th>Connected Cars</th>
<th>Non-Connected Cars</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Embedded</td>
<td>Hybrid/Tethered</td>
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<tr>
<td></td>
<td>Embedded</td>
<td>Hybrid/Tethered</td>
</tr>
<tr>
<td>ConnectivityManager</td>
<td>Embedded</td>
<td>Modem - Embedded</td>
</tr>
<tr>
<td>Modem</td>
<td>Built-in</td>
<td>Built-in</td>
</tr>
<tr>
<td>SIM</td>
<td>Built-in</td>
<td>Brought-in</td>
</tr>
<tr>
<td>Intelligence/Applications</td>
<td>Built-in</td>
<td>Embedded</td>
</tr>
<tr>
<td>User Interface</td>
<td>Vehicle HMI</td>
<td>Vehicle HMI</td>
</tr>
<tr>
<td>Key players involved</td>
<td>OEMs are the key stakeholders. They may partner with telecom and digital companies for connectivity and SIM solutions</td>
<td>OEMs, telecom companies, software and digital companies are the key stakeholders. As few of the hardware are still embedded in the car, OEMs lead the value chain in this category</td>
</tr>
</tbody>
</table>
2. The UK connected and non-connected market overview

I. Connected car market overview and economic benefits
II. Non-Connected car (aftermarket solutions) perspective
By 2030 all new cars in the UK are expected to have some form of built-in connectivity...

- The UK automobile sector is well positioned in terms of regulatory framework and government support needed for the connected car segment to grow in the country. The UK government has started reviewing its existing laws to allow the autonomous vehicles on roads. The government has also announced funding of £200 million in the 2015 budget for R&D activities to develop intelligent mobility solutions.

- In 2014, the UK automobile sector produced about 1.5 million cars, distributed almost evenly between connected and non-connected cars.

- By 2020, the number of connected cars is projected to capture xx% of the market to reach 1.5 million - nearly the same number as the total number of cars expected to be produced in 2015.

- Based on current level of innovations, the connected car space is expected to grow and completely displace non-connected cars by 2026.

- The costs associated with fully embedded and autonomous car solutions are expected to come down significantly over the period, further driving the growth of connected cars.

- As more OEMs are focusing on producing built-in/embedded connectivity or fully autonomous solutions, the aftermarket industry for non-connected cars is expected to witness a decline.

- Telecom industry is expected to benefit from the increased data traffic from connected cars, and is expected to grow xx% annually through 2030.
...leading to economic benefits amounting up to GBP 51.0 billion for consumers, producers and other stakeholders

- By 2030, the annual economic and social benefit of connected and autonomous vehicles in the UK is expected to be about GBP 51 billion, primarily driven by consumer benefits in the form of fewer accidents, improved productivity, reduced insurance and running costs.
- Other benefits are expected to come in the form of increased autonomous and connected car sales; increased direct and indirect expenses; safety; and wider impact such as reduced travel and freight cost, telecom data traffic growth, revenue growth of digital retailers, services industries, advertising and media industries.
- With the expected increase in the benefits, expenses on infrastructure investment and road maintenance are also expected to go up to reach GBP 11 billion by 2030.

*Approximate share after excluding expenditure on infrastructure investment and road maintenance
Cars built in the UK after 2001 are well positioned to join the connected car revolution through aftermarket solutions

• The UK car market is characterized by demand for connectivity solutions. However, existing vehicle owners refrain from switching to a new vehicle with embedded features primarily due to high technology and switching cost. This has opened up the marketplace for low-cost aftermarket connectivity devices and apps, which are easy to install in the existing vehicles.

• The aftermarket connectivity solutions offer various “connected car” alternatives, ranging from telematics black boxes to infotainment products. These features could be installed through the on-board diagnostic port (present in all cars built after 2001) or could be installed in the dashboard of non-connected car.

• As of 2014, there were ~30.5 million registered cars in the UK, including an estimated ~2.4* million newly registered (~0.7 million) and old (~1.7 million) cars, with some form of internet connectivity (embedded and aftermarket). This suggests the existence of an untapped market of ~28.1 million non-connected cars, which could be equipped with aftermarket connectivity solutions.

• Telecom companies are also making advancements in the non-connected space by offering aftermarket connectivity solutions. For instance, Verizon’s Vehicle system offers telematics services and consists of a module that connects to a car’s OBD port, a Bluetooth speaker and smartphone app.

* Extrapolated from global internet connectivity penetration and new connected car growth. To be further verified for the UK through primary research/expert interviews.
3. Trends, drivers and challenges

I. Trends
II. Drivers and challenges
III. Customer pain points, attitude and priorities
The dynamic nature of the connected car market is forcing the players to reposition themselves through acquisitions and collaborations.

**Increasing level of autonomy**
- Advanced assisted driving system (traffic and parking assist) is one of the new features automakers are working on and plan to roll-out in coming years.
- Volvo’s Intellisafe system is one such example. BMW’s upcoming smartwatch would also allow fully automated car parking.

**OEMs using the hybrid approach**
- Carmakers are adopting hybrid connectivity approach, and have launched integration solutions through smartphones to provide access to internet radio, music streaming and social networking. This trend is likely to continue due to the computing power and personalization capabilities of smartphones.
- In addition, OEMs are also trying to keep intelligence and applications embedded in the car.
- Hyundai became the first car company to provide ‘Android Auto’ integrated in its production vehicles, starting with the 2015 Sonata.

**MNOs equally active in aftermarket area**
- Mobile network operators are following inorganic approach to enter aftermarket segments such as telematics; thus shifting focus beyond traditional solutions such as connectivity.
- Vodafone acquired Cobra Automotive, a company engaged in developing “black boxes” for cars that collects diagnostic, tracking information and provides software for remote control functions.

**Changing connected car industry landscape**
- Companies are repositioning themselves to fit the connected value chain. The connected car landscape is not only limited to car manufacturers but feature a diverse mix of traditional and non-traditional players offering in-car embedded, tethered and aftermarket solutions, data and software services.

**Cross industry collaborations**
- To enhance user’s experience companies across the value chain are engaging in collaborations, including automotive OEMs, mobile network operators and digital companies, to provide seamless internet connectivity and applications inside a car.
Government regulations and consumers’ safety and security concerns are primarily driving the growth of connected cars

**Drivers**

- **Government regulations and mandates:** Strict regulations and mandates related to telematics, pollution control, driving assistance, stolen vehicle tracking, etc., are expected to drive the development of the connected car.

- **Rise in demand for safety features:** Safety technologies are particularly expected to remain the strongest driving force behind connected car solutions as consumers highly value safety features in their cars.

- **Technology and infrastructure advancements:** Increasing wireless and mobile penetration, availability of advanced telecom and road infrastructure are few of the key growth drivers for this segment.

- **Growing customer expectation:** There has been a shift in customer expectation towards greater connectivity, giving rise to new business models and opportunities for the connected car market.

- **Attractive pricing model by telecom players:** With an increase in the number of connected devices per customer, the telecom industry is expected to witness revolutionary pricing models. Solutions such as shared data plans, split billing and reprogrammable SIMs could lead to more attractive pricing models for connectivity solutions.

**Challenges**

- **Customer privacy and data concerns:** Consumers and manufacturers admit the potential threat of vehicle and data hacking from the wireless devices, and demand end-to-end architecture for complete protection against cyber crimes.

- **Concerns regarding the recurring cost:** There are concerns regarding the subscription model for the connected car services. Consumers are used to a one-off payment when purchasing a car. However, with an embedded connection there is an additional recurring cost in the form of subscription charges.

- **Average lifespan of cars:** The life cycle of cars is very different from mobile phones. Mobiles are usually replaced in a year or two. However, the average lifespan of a car is more than eight years. There are concerns about technology obsolescence among customers using mobile-based hardware in the car.

- **Autonomous driving dilemmas:** There are ethical concerns regarding autonomous driving that would require the software to weigh all the different outcomes and reach a solution on its own.

- **Lack of clarity regarding standards:** Absence of standardization in key areas such as vehicle development, testing, liability and connectivity across borders raises concerns among manufacturers and customers, and needs to be addressed by the government.
Customer Pain Points, Attitude and Priorities

Cost of fuel and servicing, aggressive driving behaviour and expensive insurance are few of the biggest concerns for the UK drivers

Driving Related Pain Points

• According to GfK, UK has the lowest percentage of happy drivers as compared to countries such as Germany, Brazil, Russia, China and the US.
• Key pain points include cost of fuel, repair and maintenance, dangerous driving behaviour and high insurance expenses.
• However, for early adopters and influential customers car security and damage are larger concern.

Attitude Towards Cars

• According to GfK, British drivers typically have a more functional relationship with their car as compared to the drivers in other countries.
• British drivers are significantly less concerned with lifestyle issues and do not expect a car to enhance their well-being or provide pleasure over other things.

Key Priorities

• Although consumers welcome connectivity features, their overall response is a bit low towards connected cars as safety/security and freedom remain prime concerns for them.
• However, early adopters and influential customers prioritise connectivity over features such as engine power and fuel efficiency.

• Connected cars could address few of the drivers’ pain points, directly or indirectly, through features such as blind spot warning, vehicle health diagnostics, adaptive cruise control and telematics, which could enhance safety and driving experience and bring down running and maintenance cost through early diagnostics. However, British drivers have a more reserved reaction towards connected cars as compared to other countries.
4. Government initiatives and regulatory developments

I. Developments in the UK
   - Government Initiatives
   - Government Investment

II. Developments in the EU
Recent government initiatives are focused to ensure that the UK maintains its leading position in connected car technology

• The UK is considered to be one of the best countries for car manufacturers and other companies to develop and test connected and autonomous vehicles technologies, primarily due to liberal regulations, booming automotive sector and excellent research base and innovation infrastructure.

Developments in the UK

Government Initiatives
• In 2015, the UK government released ‘Code of practice for testing automated vehicle technologies’, a guidance document on organising tests for automated vehicle technologies on public roads and in public places. The code provides detailed recommendations for maintaining safety and minimising potential risks.
• The government also established a new joint policy unit, the Centre for Connected and Autonomous Vehicles (CCAV), to help develop connected and autonomous vehicles in the UK, and strengthen country’s leadership in this sector. The government, through ‘Innovate UK’, plans to deliver a programme worth GBP 200 million for research, development, demonstration, and deployment activities in the sector.

Government Investments
• The Department for Business, Innovation and Skills (BIS) announced an investment of up to GBP 20 million in FY 2015-16, for collaborative R&D projects and feasibility studies to promote developments in autonomous vehicles and connected transport systems.
• In 2014, the government invested GBP 19 million for real-world trials of driverless cars, and allocated GBP 100 million in the budget for research of autonomous vehicles in 2015.

Developments in the EU

• In 2015, European Commission voted for a region-wide emergency alert system called ‘eCall’, which mandates all new cars to be equipped with the technology by March 2018. This could prove to be a driver for the demand of connected car technology in the region. However, the UK government has opposed the plan as it is not expected to be cost effective for them.
• In 2014, European standards organisations, ETSI and CEN, issued the basic set of standards for ‘Cooperative Intelligence Transport Systems’ (C-ITS), which would enable vehicles made by different manufacturers to communicate with each other and with the road infrastructure systems.
5. Connected car ecosystem

I. Connected Car Ecosystem
II. Participants’ Landscape
OEMs and car manufacturers are the major stakeholders in connected car market and are focused on expanding their operations in the space

- The connected car ecosystem features diverse mix of traditional and non traditional players offering in-car embedded solutions, aftermarket hardware, data and software services.
- The industry is not only witnessing investments from large vehicle manufacturers and incumbent OEMs, but also from various other sectors such as telecom, insurance, software and tech companies. Each are trying to define, defend, and expand their competitive position by offering connectivity solutions varying from limited to fully autonomous connectivity.

**Connected Car Ecosystem**

- **OEMs / Car Manufacturers**
  - These are the biggest stakeholders in the entire value chain. They focus on providing embedded and tethered solutions.

- **Component, Chip Manufacturers**
  - These players traditionally provide semiconductors for computers and phones and are now entering the market for automotive chips.

- **Telecom Operators**
  - Telecom players provide connectivity solutions in vehicles through embedded SIMs or smartphone integration.

- **Automotive Players**
  - Automotive suppliers include players providing various hardware and technology solutions for traditional, hybrid and connected vehicles to OEMs.

- **Insurance Providers**
  - These include insurance companies providing limited connectivity solutions in the form of aftermarket telematics black boxes to capture driving data.

- **Digital Players**
  - These companies aim to expand their ecosystems to integrate their infotainment OS and software platforms into the car systems.
Except OEMs, other companies are primarily focusing on both embedded and aftermarket solutions

- Aftermarket solutions market, which initially included automotive and telematics players, is now witnessing new entrants in the form of digital and telecom players. These players are trying to expand beyond their core business areas through partnerships and generate new revenue streams within the connected space.

**Players**

<table>
<thead>
<tr>
<th>Telecom Operators</th>
<th>Global Landscape</th>
<th>UK Landscape</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Globally, telecom players offer both aftermarket and embedded solutions. <strong>Aftermarket solutions</strong></td>
<td>In the UK, the scenario is no different with telecom operators offering both solutions</td>
</tr>
<tr>
<td></td>
<td>• Companies such as Verizon, Telefonica, Mojo offer in-car telematics through external devices such as an OBD reader, Bluetooth speaker, with or without smartphone integration. <strong>Embedded solutions</strong></td>
<td><strong>Aftermarket solutions</strong></td>
</tr>
<tr>
<td></td>
<td>• Vodafone and Verizon provide usage-based insurance services.</td>
<td>• EE offers 4G Wi-Fi hotspot services for passenger vehicles. <strong>Embedded solutions</strong></td>
</tr>
<tr>
<td></td>
<td>• Telecom players such as AT&amp;T, Vodafone, Verizon, Telefonica have partnered with OEMs to provide embedded cellular connection in cars through a global SIM.</td>
<td>• Vodafone has partnered with several OEMs such as Audi, Honda, Nissan, Toyota, Volkswagen to provide embedded SIM solutions, complete in-car telematics, vehicle relationship management, fleet management, usage-based insurance, remote diagnostics and maintenance services</td>
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<tr>
<td></td>
<td>• AT&amp;T and Verizon provide a modular connected car platform, that allows automakers to pick and choose capabilities such as billing, data analytics, infotainment, firmware, over-the-air updates, usage-based insurance.</td>
<td>• BT has launched “BT Assure Ethical Hacking for Vehicles”, a security service developed to test the exposure of connected vehicles to cyber-attacks and help market players develop security solutions</td>
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</table>

**OEMs / Car Manufacturers**

<table>
<thead>
<tr>
<th>OEMs have adopted hybrid connectivity approach by offering solutions through both embedded as well as integrated technologies. <strong>Embedded and Tethered</strong></th>
</tr>
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<tbody>
<tr>
<td>• BMW, Mercedes-Benz, Tesla, Renault offer fully embedded solutions with permanently built in SIM.</td>
</tr>
<tr>
<td>• Players such as Audi, BMW, Mercedes, Ford, Nissan also provide connectivity through tethered systems using a smartphone.</td>
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<tr>
<td>Premium car manufacturers are also investing in software services e.g. Mercedes’ me online platform and BMW’s connected drive.</td>
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</tbody>
</table>
Autoimmune suppliers are trying to reduce their dependency on OEMs by establishing direct relationships with end customers

- Automotive players in the UK are focusing not only on aftermarket solutions but also on self driving and autonomous solutions.
- In insurance space, players continue to roll out telematics insurance packages, with a focus especially on the under 25 years of age segment.

<table>
<thead>
<tr>
<th>Players</th>
<th>Global Landscape</th>
<th>UK Landscape</th>
</tr>
</thead>
</table>
| **Automotive Players** | Automotive suppliers are trying to establish direct relationships with end customers and offering both aftermarket and embedded solutions **Aftermarket**  
  - Delphi and Bosch offer smartphone connectivity through OBD reader.  
  - Denso offers Wi-Fi router connectivity solutions.  
  - Magna offers cyber security solution for automobiles and aftermarket connectivity platforms.  
  **Embedded:** This area has witnessed cross-industry collaborations:  
  - Bosch and Hella have partner with OEMs to provide equipment such as sensors, to collect diagnostic data for driver assistance systems.  
  - Continental partnered with Cisco and IBM to develop fully-connected mobile vehicle solutions for car manufacturers. It also collaborated with Vinli to launch ‘Car Port’, an in-car dashboard interface, that enables users to interact with IoE (Internet of Everything) devices. | In the UK, automotive players are primarily trying to target connected car market through **aftermarket** approach. Delphi has made several strategic investments and acquisitions in 2015, to strengthen its position in connected car space through aftermarket product.  
  - Acquired Ottomatika, a company that makes software that controls automated driving systems  
  - Invested in Quanergy Systems, a manufacturer of low-cost, solid-state laser imaging systems that are an integral component in self-driving cars  
  - Acquired British cable equipment manufacturer HellermannTyton Group for about $1.7 billion to boost its presence in the connected car market. |
| **Insurance Providers** | Insurance providers offer limited connectivity primarily in the form of aftermarket telematics black boxes to gather driving related data, which has lead to reduced insurance premiums for some drivers. **Aftermarket**  
  - Insurance providers such as Allstate, Progressive, State Farm have either come up with their own black box packages, or have partnered with car manufacturers for providing telematics devices or OBD readers to record driving related data. | In the UK, telematics based insurance is quite well covered by automotive insurers.  
  - Direct Line Group (which holds policies for 20% of the UK registered vehicles) has launched a series of telematics products to observe driver behaviour, and offers discounts to end users.  
  - Other players offering similar products in UK include Admiral, AA Drivesafe, Auto saint (Halfords), Bell (part of the Admiral group), Drive Smart, Insure the box, Hastings direct, Tesco, ingenie etc. |
6. Aftermarket approach – Telecom players
Key aftermarket solutions currently offered by telecom companies include in-car telematics, usage-based insurance and Wi-Fi connectivity

- Telecom companies are very important part of the connected value chain as they equip the vehicles with connectivity solutions. However, telecom players are not limiting themselves to providing the network solutions only. Some of the aftermarket solutions offered by telecom players include:

<table>
<thead>
<tr>
<th>In-car Telematics</th>
<th>Usage-based Insurance</th>
<th>Wi-Fi Connectivity</th>
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</thead>
<tbody>
<tr>
<td><strong>Solution:</strong> In-car telematics through external devices such as an OBD reader and Bluetooth speaker.</td>
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</tr>
<tr>
<td><strong>Players:</strong> Verizon, Deutsche Telekom funded Mojio</td>
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<tr>
<td>- Verizon's HUM: It includes an OBD2 reader and a speaker. The reader pulls diagnostic information from the vehicle's Controller Area Network, and the speaker sends that information to the cloud through a wireless modem. It also enables access to concierge mechanics and emergency services. It does not need a smartphone for connectivity.</td>
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<tr>
<td><strong>Solution:</strong> Usage-based insurance services</td>
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<tr>
<td><strong>Players:</strong> Vodafone, Verizon</td>
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<tr>
<td>- Vodafone, through its collaboration with Tower Watson, launched usage based insurance services. The package includes a telematics device installed in the car to record driving data. Vodafone offers these services to insurance companies so that they could analyse the driving data and charge the customers according to their driving style.</td>
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<tr>
<td><strong>Solution:</strong> Wi-Fi routers for in-car connectivity</td>
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<td></td>
</tr>
<tr>
<td><strong>Players:</strong> EE</td>
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<tr>
<td>- EE offers a 4G Wi-Fi dongle “Buzzard” for passenger vehicles. The device plugs into the a car's dashboard and supports up to 10 Wi-Fi connections. The device can also serve as a USB charger and is priced at GBP 79.99, but comes down to GBP 19.99 when purchased with a GBP 10 monthly plan, which includes 1GB of data</td>
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7. RocSearch overview
RocSearch’s Telecom Capabilities

RocSearch can help solve business problems across multiple areas in a cost effective manner.

Benefits

- **Better insights** to support your strategic, investment and operational decision
- Ability to **evaluate growth strategies** in an increasingly competitive environment
- Generation of **new revenue streams** through new product development and roll-out of customised service offerings
- **Reduced costs** because of labour arbitrage associated with outsourcing

Market Intelligence

- New opportunity assessment
- Market situation analysis (Industry, Operators, Forecasts, Regulatory Environment, Market Developments, Ecosystem analysis, etc.)
- Insights on new & disruptive technologies
- Impact of new technologies on the telecom value chain
- Competitive assessment
- Periodic updates and analysis of economic data and news
- Demand analysis across the value chain

Strategic Research Support

- M&A – partner identification, short listing, matching, corporate diligence
- Market entry support
- Partnership / Joint venture opportunity assessment
- Results update (Quarterly updates for Telecom Operators and other players in the value chain)
  - Creating thematic reports for the leadership
  - Operational and financial health check database and updates

Pricing & Positioning

- Product pricing & positioning updates on voice, data & product bundles
- Support for new product and service launches
- Insights into new offerings – M2M, B2B, OTT, etc.
- Segmenting strategies and services offering – pre paid and post paid
- Pricing strategies for specific markets
- Syndicated reports on innovating price plans globally

Telecom Analytics

- Analysis of customer churn rate, customer segmentation, loyalty reward programs, etc.
- Predictive analytics to support campaign management, marketing activities, etc.
  - Dashboard development – KPI dashboards, KPI measurement dashboards, usage dashboards etc.
  - Development and maintenance of global telecom operators database

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Our team consists of MBAs in Strategy, Finance, Marketing & Systems; Consultants, Specialist Research Analysts, Chartered Accountants, Chartered Financial Analysts and Economists, Engineers, Mathematicians and Statisticians.

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- Investment Research
- Roc360 Competitive Intelligence Suite
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- Data Extraction & Preparation
- Data Analysis
- Applied Statistics & Decision Sciences
- Data Visualisation
- PowerPoint Production Support
- Finance & Accounting BPO Services
- Talent Acquisition Solutions
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