ALTICE

Developing the next generation of multidimensional recommendations

Challenge Identifier: DPC1-2018

Domain: Personalised Entertainment

Proposed by

Altice Labs, S.A. an Altice Portugal Group company for innovation, developing new telecommunication solutions and technologies

Background

Television has evolved greatly in recent years. Each day more channels, more content, and more interactive services are available to clients. Without an easy and enjoyable way to make a choice of what to see and when to see it, this multitude of content becomes a disadvantage rather than an advantage. Easing the selection process and focusing on the personal interest of each user is a benefit to any TV provider.

This has been an on-going data science challenge to effectively target viewers for a decade. However, it now has added complexity due to the sheer volume of competing options and the variety of device through which television content can be consumed. So as IPTV services may also be provided through different devices, the content choice is also impacted by the specific consumption context – for example, the same person may have different consumption behaviour depending at the micro level on the device and environment/context constraints, such as whether they are outdoors, in a waiting room, with a companion or in a time-limited situation. On a larger scale viewing habits and preferences might depend on geographical location, or the availability of local content.

Description

The objective is to analyse IPTV consumption - linear and non linear TV, Video on Demand and streaming services such as Netflix - in order to adapt value added service propositions to the viewers' preferred convenience and schedule. This will involve regular IPTV viewing (set-top-box based, where a set-top-box is a device that turns different input sources into content that can be displayed on a TV or other display device), as well as mobile app based (MeoGo), which will require identifying viewing contexts, to best suit our offer both to the viewer's interests and for specific usage contexts. Viewer behaviour becomes particularly important given the increase in non-traditional consumption via the web or mobile. This requires that the online IPTV offering must become adaptive and sensitive to fine tuning.

Dataset(s)

Activity Logs: These logs include the large majority of activities that are performed by IPTV viewers, including both TV usage and viewing pattern information. Records of activity logs represent activities executed on each IPTV device (set top box or MeoGo mobile app) by one or more viewers.

Electronic Programme Guides (EPGs): This is a data stream comprising all the information about programmes and channels, such as scheduled date and time, description, duration, etc. To enable more agile information sharing, the EPG divides Programme and Channel into different input files.

Programmes catalogue: Contextual data providing additional insight on aired programs, compiling both external and internal knowledge, which complements the EPG – e.g. with programme genre, director and cast.

Commercial catalogue : Description of IPTV commercial offer, detailing the content of its different services - linear and non-linear TV packages, Video on Demand, Netflix and value added services, including associated costs and available bundling alternatives.

Expected outcomes

- Machine learning based models enabling detailed profiling of the IPTV client base, including information on the most relevant criteria associated to each profile;
- Profiling models derived from the above
- Evaluation of different profiling implementations and identification of the most adequate to the different business problems;
- Trainable models allowing recommendation of IPTV content – e.g. TV programmes – and services – e.g. bundles and value added services;
- Identification of viewing contexts, to adapt the IPTV content offer both to the client's interests and to its specific usage context
- Insights the customer service teams can use to refine existing bundles/price, adapting them to specific profiles.

Expected impacts

- Reduction (15%) of Customer Rejection - This KPI measures the rate of rejected recommendations provided to viewers. This is measured by the number of times each customer explicitly rejects a particular recommendation (content or service offer).
- Increase (15%) in Customer Engagement - This KPI measures the viewer engagement with recommendations. This is measured based on the uptake of recommendations (content or service offer) for each viewer.
- Increase (5%) in Average Revenue Per User – Based on viewer uptake of value added content, new service offers or migration to bundles with increased margin.

It is the aim that an additional impact, relevant given the multiplicity of business interests of the Altice Group (telecommunications, media, advertising, financial services), will be the ability to extend the profiling and recommendation processes across universe of services provided by the Group.

Cross-service profiling might allow tapping non-evident cross-selling opportunities and the subsequent impact on average revenue per user (ARPU) and retention figures.

Global Financial Services Provider

Automated answering of subjective questions on environmental and social governance

Challenge Identifier: DPC2-2018

Domain: Text Mining and Analytics

Proposed by

A global financial services provider which provides business and financial information, news, and insights to decision makers in business, finance, and government sectors.

Background

Environmental, Social and Governance (ESG) measures are a set of criteria via which analysts and investment managers can assess how a company is being run. These criteria typically include information about a company's impact on climate change and the pollution of the environment, anti-corruption policies and performance, policies and metrics concerning the diverse and inclusive nature of its workforce and management team, and contribution to human rights advocacy and protection.

There are several reasons this information is valuable to financial services organisations. Investors may believe that managers that take these measures into account are more likely to build stable money making companies and will use ESG data in their stock selection strategies. Funds may build investment products that target socially conscientious investors - individuals and companies who wish to see their money invested in companies who behave in a way they approve of.

We have a number of data products that specifically target the ESG investment market. A key issue working in this market is that definitions of 'good' ESG practices are often subjective. This means that good technology solutions in this area need to be flexible to changing preferences about what constitutes good governance.

Description

We have collected the majority of documents that companies publish about themselves. In most markets these include mandatory annual reports on company performance, and may include specific ESG reports. We are looking for ways to reduce the time it takes for analysts and investors to determine ESG ratings for companies. Typically this requires answering a set of questions and so this challenge could be cast as a question answering task for a natural language processing (NLP) system.

We are interested in NLP technologies that can be trained to answer the sort of subjective questions an ESG analyst may have. For example, an analyst that chooses to rate a company highly for

pursuing strong diversity and inclusion policies would need to be able to quickly ascertain which companies in a set rank highest on these criteria.

Dataset(s)

Company filings and ESG reports with relevant metadata

Expected outcomes

- Prototype question answering system
- New approaches to assessing compliance to a set of subjective criteria

Expected impacts

- Ability to answer a set of ESG questions as well as a human being could
- Development of new sets of financial products
- Greater incentives for socially positive investment behaviours

GREINER

Harnessing IoT data for tomorrow's smart factories

Challenge Identifier: DPC3-2018

Domain: Smart manufacturing

Proposed by

Greiner Packaging International GmbH (GPI). GPI manufacture and markets plastic packaging solutions for food and nonfood industries.

Background

Sensor data and other Internet of Things (IoT) technologies used in industrial processes (known as the Industrial Internet of Things (IIoT)) are providing manufacturers with increased opportunities to optimise their operations and business processes, as well as engaging with their customers.
The smart factory not only represents a step forward from traditional automation, but also rests on a fully connected and flexible system—one that can use a constant stream of data to learn and adapt to new demands.
Manufacturers who are able to access such insights are able to optimise business and manufacturing processes better than ever before. The market for big data manufacturing software is estimated to be one of the largest opportunities in any industrial category.

Description

GPI has recently invested in extensive sensors across 3 manufacturing plants. We are now looking for ways to utilise this data, along with our existing data, to best support and enhance our business. We are looking to develop applications which span across traditional boundaries of manufacturing, logistics and supply chain (perhaps even sales), providing data-informed solutions to better coordinate these processes, make them more efficient, and platforms supporting these new processes.

We are particularly interested in solutions that:
- Define new relationships between data to provide new insights and understanding;
- Discover new business opportunities and improve production efficiency;
- Help ensure the integrity of interactions within supply chains;
- Integrate data of different modalities (sensors, acoustic data, historical records, thermal maps) to produce useful products and services;
- Use data to predict maintenance needs and create more efficient servicing and repair services; and
- Predict and help optimise consumption and stock level, including in multi-country operational scenarios
- Capture and interpret data to produce answers to commonly asked questions and reduce human intervention;
- Are able to integrate poor, inconsistent or fuzzy data or information and provide interfaces that communicate key findings and effectively engage users.

Dataset(s)

Examples of data include but are not limited to:
- Production orders
- Logistics (order process)
- Sensor data in production (machine, energy consumption, cooling water)
- Environmental data (shop floor temperature/humidity)
- Quality data (product properties, scrap rate)
- Failure cases of machines
- Maintenance and usage history

Expected outcomes

Examples of outcomes include but are not limited to:
- Prediction algorithms that help decrease total stock holdings and lost sales.
- Supply chain optimisation algorithms
- Algorithms and applications that integrate different sources of data in interesting, novel ways
- Insights across business functions such as marketing, operations, product and development, sales, etc.
- Repeatable analytic processes that accelerate the adoption of analytics
- Ability to gain a better understand of what data is currently not collected;
- Ability to develop benchmarks that over time contribute to the optimization of future decisions.
- waste and lead to better carbon footprints.
- Reporting, analytics and visualization tools that help to:
  - Absorb information in new and more constructive ways
  - Visualize relationships and patterns between operational and business activities.
  - Manipulate and interact directly with data
  - Allow other stakeholders to engage with the data

Expected impacts

- Ability to make better informed decisions e.g. strategies, recommendations
- Ability to discover hidden insights e.g. anomalies forensics, patterns, trends
- Facility for automating business processes e.g. complex events, translation
- Performance payoffs
- New business processes
- Improved decision making

GROW

Creating farm-to-market linkages for bottom up innovation

Challenge Identifier: DPC4-2018

Domain: Sustainable food supply chain

Proposed by

GROW Observatory, a European Commission Horizon 2020 project led by the University of Dundee, engaging individuals and communities focused on organic and sustainable growing practices across Europe.

Background

Soil moisture levels are key for successful agriculture. It is currently measured through satellite imagery with a very small number of ground measurements. GROW Observatory is the first of its kind to collect data on soil moisture from thousands of participants across Europe, via GROW's sensors. The collection of ground truth data enables the calibration of remote-sensing data and supports the interpretation and analysis of what is being recorded. These measurements will have significant impacts on scientific understanding of the role of soil moisture on several key variables such as soil erosion, flood risk, or fire risk.

Description

The challenge is to use GROW soil moisture data to develop a data-driven service for sustainable and/or locally sourced organic food, creating farm-to-market linkages for micro-sized growers (individuals or community farms) engaged in sustainable practices in food production in one or more European countries.

Dataset(s)

- Citizen-generated high-resolution time series soil moisture data across Europe
- Sentinel-1 backscatter composite imaging (closed dataset)
- Survey data on land cover, land use and soil condition

ASCAT soil moisture time series and active/passive soil moisture data are both available as open data from Copernicus.

Expected Outcomes

- A minimum viable product of a digital application that enables the discovery of locally produced food using sustainable and responsible production practices
- Tools for hyper-localised buyers who are seeking such supplies for daily consumption

Expected Impacts

- Enabling of new revenue streams and buyer discovery for micro farms engaged in organic sustainable farming
- Creation of new choices for local buyers to source food from local communities
- Service uptake by at least 250 micro-sized farms/individuals within 2 years of availability

KONICA

Creating adaptive ways to anticipate customer requirements

Challenge Identifier: DPC5-2018

Domain: Customer Needs Prediction

Proposed by

Konica Minolta enables its clients to champion the digital era: as a provider of comprehensive IT services, Konica Minolta delivers consultancy and services to optimise business processes with workflow automation and implements solutions in the field of IT infrastructure and IT security as well as cloud environments. Being a strong partner for the production and industrial printing market, it offers business consulting, state-of-the-art technology and software. Konica Minolta also drives digitalisation of clinical workflows and offers a broad range of next-level diagnostic solutions in the healthcare sector.

The organisation is making anonymised client data available to startups in order to anticipate client needs and provide them with a better service and solutions tailored to their businesses.

Background

Answering the needs of customers is the ultimate challenge of every company. In the business to business (B2B) sector, answering these needs with tailored solutions that answer the specific expectations of a client can be a real challenge: between the decision taker, the buyer and the user, needs, expectations and outcomes can vary drastically.

Large companies are multifaceted entities and data are often collected multiple times and for different purposes across the many activities characterizing the company business. While it is now clear from many years of managing data that companies benefit from breaching the these data siloes, this is rarely fully implemented and, even when data are combined, it is a non-trivial task to analyse such data to extract further business value. Such business value can be derived in numerous ways, but it is particularly interesting to cross-check customers data with the aim of anticipating future needs. Anticipation means that technological and operational transitions can be much smoother, minimizing associated disruption while still maintaining or gaining competitive advantage such as the ability to compile narrowly targeted commercial offers.

Description

Konica Minolta operates in a B2B scenario, offering, among others, ICT services to other companies. By analysing data describing companies and their customers, they wish to create a flexible toolset that can anticipate customers' needs.

The technological challenge is manyfold. It includes and it is not limited to:
- Identifying and isolating significant behaviour patterns across customers;
- Classifying existing services offered by the company;

- Associating such patterns with a need for something more or new in terms of required services;
- Defining a list of possible new types of services satisfying the identified needs.

The quickly evolving ICT market together with the desired goal of anticipation means business information derived from historical data must be superseded by data science. Successful and durable solutions should be highly configurable and designed to evolve. The solution should also be portable across new and existing customers belonging to different verticals (business sectors).

Dataset(s)

Anonymized client data in the following categories :
- Size, sector, region
- Konica Minolta sales (products, solutions, amount)
- Interest score : interactions with Konica Minolta (pre-sales appointments, web interactions)
- IT/Digital maturity index

Expected outcomes

- The expected outcome is a flexible toolset that can anticipate customers' needs, guiding the sales force and the research and development departments to figure out what clients need and want both now and in the future, and suggesting the best way to approach a prospect in order to make a relevant offer.

Expected impacts

- Better relationship with clients as we can better anticipate their challenges
- Better sales and marketing decisions
- Better brand recognition by positioning Konica Minolta as the best all-round partner and solutions provider in the Information Technology Services field

JOSE DE MELLO SAUDE

Creating outcome-based healthcare offerings

Challenge Identifier: DPC6-2018

Domain: Healthcare

Proposed by

José de Mello Saúde, a private company with 70 years experience in the provision of healthcare in Portugal. It operates through Private Healthcare Services, Public Healthcare Services and Infrastructures.

Background

To this day, most healthcare providers still structure their clinical offer based on cost and activity performance. The Value-based Healthcare model, designed by Michael Porter, Harvard Business School, paved the way for a change in the way medical services are paid for, impacting how providers bundle their offer and manage their operations. However, patients and healthcare funders are increasingly seeking an offer based on outcomes rather than activity alone.

The mapping of clinical pathways and complete customer journeys is a vital necessity to allow healthcare providers to accommodate this shift; they must establish correlations between patients' medical information and clinical episodes, and have a better understanding of patient needs. Providers will then be able to progressively align their products and services with positive patient outcomes and reduced cost, in a clear attempt to shift from volume to value. This change will also enhance the perspective of looking into the comprehensive journey of a patient with a given pathology, rather than single clinical episodes.

Description

Using clinical and customer data, identify and analyse patterns in patients' clinical pathways, allowing healthcare organizations to design patient journeys that provide the best patient care experience possible.

Dataset(s)

Clinical episodes from 2014 to 2017 for all José de Mello Saúde's Hospitals[1] which includes:
- Customer information: Age, gender, postal code, year of first episode
- Activity information: types of clinical interaction (admittance, surgery, consultation, emergency, multidisciplinary team, etc), types of specialities, billing items available if necessary

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[1] Excludes 2 hospitals in public-private partnership.

- Clinical information: diagnosis, acquired intrahospital complications, procedures, length of stay, discharge destination, birth weight (for newborns), etc.[2]

All data are properly anonymised.

Expected outcomes

Development of tools, software and algorithms that support the reporting of:
- Types of customer analysis
- Mapping of patient internal referral circuits
- Clinical pathways per pathology

Expected impacts

- Improved data analysis for healthcare providers;
- More adequate bundling and pricing of correlated medical services;
- Improved catering of medical services to patient needs.

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[2] Corresponds to José de Mello Saúde's database of hospital morbidity clustered into DRG (Diagnosis Related Group) following ICD-10 (International Statistical Classification of Diseases and Related Health Problems 10th Revision) - surgical and inpatient episodes

MASAI

Seamless travel services across Europe

Challenge Identifier: DPC7-2018

Domain: Multimodal transport

Proposed by

MASAI is an open community offering specifications and tools that enable simpler, seamless, more personalised travel experiences. Rather than having to access solutions separately, MASAI enables a personal concierge in everyone's pocket, through the stabilisation and standardisation of modelling, publishing and discovery of services for travel and tourism.

Background

The European Commission has called 2018 the year of multimodal transport. Multimodality takes advantage of the strengths of the different modes, such as convenience, speed, cost, reliability, predictability, etc, and in combination, can offer more efficient transport solutions for people which will help ease the pressure on congested roads, and make the whole sector more environmentally friendly, safer, and cost efficient. Building on existing entities such as OpenTravel (http://opentravel.org/), Full Services Model (https://tsga.eu/fsm) and Public Transport standards such as NeTEx, the MASAI Community offers standardized set of APIs and technology mechanisms to facilitate the setup of digital and intelligent concierges, enabling seamless aggregation of services via adequate publishing and discovery methods, improving travellers' and tourists' life in accessing city services.

Description

This challenge seeks for the best possible usage of MASAI technology, towards building solutions that seamlessly integrate travel services across Europe, for instance including the linking of long distance bus services with first/last mile such as local and regional buses, taxis and transfers, car-sharing or tours, and enrich the datasets/services covered by MASAI technology.

Dataset(s)

- Taxis and Transfers
- Long Distance Bus
- Local Buses
- Car-sharing

Expected outcomes

- Intelligent customer support operations that aggregate the above services, offering the end-user a seamless process to meet their preferred choice and innovate on new service combinations that provide a lesser carbon footprint;
- Innovative new service combinations;
- Production of additional data-sets or API feeds, that enrich the intelligent engine itself, and complement municipality data for estimating modal split;
- Use of chat-bot interaction, or analytic and AI technologies, in a way that benefits from the MASAI and OpenTravel Alliance modelling tools;
- Alignment with Public Transport ITS standards, especially NeTEx, to feed the dynamic set by the EC with the Priority Action for National Access Points.

Expected impacts

- Seamless travel experience enabled by MASAI/Open Travel Alliance tools combining different technologies;
- New products and services fostered by the availability of new feeds of data;
- Increase the number of multimodal trips taken by citizens/tourists
- Improvements of MASAI existing vertical models, which can be directly be pushed to the MASAI and OpenTravel communities and in the future shared with "linked communities", such as https://www.hftp.org/, http://www.htng.org/, http://ndc.developer.iata.org

MET OFFICE

Harnessing weather data to support communities and businesses in tackling climate change

Challenge Identifier: DPC8-2018

Domain - Weather and Climate Change

Proposed by

The Met Office is a recognised global leader in weather and climate science, technology and services whose purpose is to work at the forefront of weather and climate science for protection, prosperity and well-being.

Background

Weather and climate change impact is one of the biggest global challenges and therefore one of the biggest opportunities to create social and economic value. From the hyper-local, such as air pollution in street canyons, to the local, such as business loss due to flooding, to the national, such as crop failure due to adverse weather conditions to global warming, our well-being and sustainability are affected in multiple ways.

The potentials for data-driven innovations for climate change range from developing more accurate pattern recognition techniques to model our current reality, creating better predictive models to map future weather events and generating products and services that enable healthier individual and business habits to minimise the impact on people and improve well-being.

Description

The Met Office helps the government, the public and industry customers achieve their goals of enabling protection of lives, infrastructure and the natural world, improving well-being now and in the future; and increasing prosperity supporting UK economic growth and international competitiveness. We are looking for solutions that enable any of these aims, particularly those that look at weather impacts, pollution in cities, government collaboration or flooding.

Dataset(s)

- Forecast data - produced via numerical weather prediction modelling, local data, multiple parameters for around 10,000 UK sites, including air quality
- Observations - data and images which comprises of satellite, radar, surface network of in situ instrumentation and air quality data
- Pollen data - The 5-day pollen forecast is created by us using the pollen count data from the previous day, layered with the weather forecast for the day in question.

Expected outcomes

- Data sets that offer answers and support to a variety of uses in assisting opportunities working with SMEs and startups and where weather can play a role.
- Solutions and opportunities in using weather data to drive innovative techniques and support communities, for example in retail (supporting the value chain) or advisory services e.g. When is a good time to cycle based on a route planner?
- Demonstrate how weather data contributes to better decision making or improved results

Expected impacts

- Evidence of successful achievement of Met Office purpose through the creation of new projects
- Increased awareness of Met Office data and how it can be used to support and deliver new products and services.
- Ability to reach new business communities using weather data to support their business objectives.

PHARMACEUTICALS

Developing innovative approaches and processes across the pharmaceutical industry

Challenge Identifier: SC1-2018

Background

While traditional strategies in the pharmaceutical industry worked well in the past, output across the sector has remained at a stable level for the past 10 years and new methods of discovery and innovation are required to create growth. However, big data has heralded a fourth paradigm of scientific investigation. This is particularly pertinent in an area such as the pharmaceutical industry where underpinning scientific research and innovation has driven growth for decades.

According to PWC the global pharmaceutical market is estimated to be worth $1.6 trillion dollars by 2020.[3] The importance of data analytics will continue to grow and support all aspects of the pharmaceutical industry from new drug development to marketing. All of these data and analysis developments will have an impact on the quality of patient care - which is crucial, as healthcare provider expectations regarding cost, efficacy and evidence-bases are rising.

As well as existing data sources from clinical trials and drug development there are growing data sources from genetics, wearables and healthcare systems, as well as from non-healthcare sources (e.g. social media, retail) which could be used to improve pharmaceutical processes and potentially in the development of new drugs and treatments. Data analysis techniques such as predictive modelling could also help support issues such as chronic disease management and new drug discovery.

Description:

We are particularly interested in solutions that leverage closed and shared data in the following areas:

- Personalisation of treatments - in particular supported by genomics and cheaper genetic sequencing. This lends itself to a model of outside organisations / startups providing analytical and consultancy services to established pharmaceutical businesses, providing more innovative approaches and easier access to talent.

- Supporting meta studies / big data analytics - opportunities to integrate a wide variety of datasets to support the development of new drugs, treatment approaches and simulation of drug effects.

- Internet of things / wearables - data from patient wearables can supplement data already held by companies to support business processes and regimen compliance.

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[3] See https://www.pwc.com/gx/en/industries/pharmaceuticals-life-sciences/publications/pharma-2020.html

- Marketing optimisation - both internal datasets and those from allied sources can be used to support the development of pharmaceutical industry marketing approaches and techniques.

Data

Examples of data include but are not limited to:
- Data from clinical trials
- Data from fitness and activity trackers
- Public or private data from healthcare providers base in the EU

Expected Outcomes

Examples of outcomes include but are not limited to:
- New apps and services
- New prediction algorithms
- New intermediary technologies to integrate data sources
- New tools and business processes to help decision making, including those making algorithms more transparent and accountable
- Registries and distributed ledger applications
- New forms of hardware
- **Applications must include details on how these outcomes will be tested and evaluated during the six-months acceleration programme.**

Expected Impacts

Participants will need to demonstrate how their solution:
- Provides insights and transparency new related research across the pharma industry
- Supports regulatory controls in new drug developments
- Improves patient access to and awareness of new treatments

AUTOMOTIVE

Maximising the positive impact of autonomous connected, electrified and shared vehicles

Challenge Identifier: SC2-2018

Background

The automotive industry is facing large scale changes as it develops and delivers the autonomous, connected, electric and shared (ACES) vehicles expected by its customers. These changes impact all areas of the industry, including design, engineering and manufacturing technologies, the many support services such as HR, logistics and fleet management, through to the products themselves. There will be a wide range of business models used in the management and control of these disciplines, each generating or requiring large amounts of data, needing faster, more advanced and accurate analysis capabilities than ever before.

The longer term impacts of ACES vehicles are becoming clearer: not only environmental ones, but those concerning national and international infrastructure shortcomings, raw material availability and pricing, vehicle ownership trends and product end-of-life implications. Again, each of these areas will have an effect on the design, robustness and integrity of the business models to be used. The markets potentially available are massive, with connected and autonomous vehicles alone estimated to be worth €70bn by 2035[4].

Description

We are particularly interested in the development and provision of data and analytical solutions capable of analysing, interrogating and managing both closed and shared datasets within the following key areas:

- Manufacturing and maintenance – Identification and delivery of efficiency and cost saving opportunities within both current and new value-flow chains. Supporting the development of optimised, enhanced or new manufacturing, maintenance, distribution and ownership Models

- Flow management - Supporting government, city councils and other public sector organisations to accurately predict and effectively manage the movement, servicing, emergency planning and safety and protection of vehicles, their drivers and the public

- Fleet management – Providing valuable insight to public and private sector organisations such as infrastructure, rural and urban planners, public transport, utility service providers, environmental / waste management specialists and insurance providers

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[4] See
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/642813/15780_TSC_Market_Forecast_for_CAV_Report_FINAL.pdf

- Safety – Provision of sanitised, objective data and analytical solutions to enable vehicle original equipment manufacturers, system and component suppliers, as well as the growing number of innovative technology companies to design, develop and manufacture safe and reliable products that need to gain and keep the trust of consumers.

Data

Examples of data type includes but not limited to:

- Roadload, driver performance and vehicle use / condition data
- Data from Radar and LIDAR (Light Detection and Ranging) sensors or similar
- Smart City data (including ANPR, Smart Energy / Architecture / Transport / Health) technologies

Expected Outcomes

Example outcomes include,but not limited to:

- New apps and connected services
- New prediction algorithms
- New intermediary / interface technologies that will facilitate the integration of data sources and tools
- New decision making tools and business processes - including 'transparent' algorithms that promote accountability, registration and distributed ledger technology applications
- Advanced hardware solutions
- **Applications must include details on how these outcomes will be tested and evaluated during the six-months acceleration programme.**

Expected Impacts

Participants will need to demonstrate how their solution:

- Improves the efficiency of connected, autonomous, electrified or shared vehicles and/or
- Supports the development of new manufacturing and maintenance models
- Supports decision making in transport planning in smart cities

ENERGY

Increasing efficient energy creation and use

Challenge Identifier: SC3-2018

Background

There are several challenges for the EU energy market as competition becomes increasingly intense at the global level. Pressures arise from traditional resources growing scarce and the need for greater environmental protection combined with an ever growing demand for energy, set to increase by a third by 2040.[5] Technological developments however have meant that our ability to produce new types of energy is fast improving, and is currently leading to the most diversified fuel mix ever seen - with unconventional oil and gas, or renewables such as wind or solar energy.[6] This diversified market presents challenges but also a host of opportunities demanding more holistic and comprehensive approaches to encourage efficient energy use and the continued move towards lower carbon energy sources.

At the same time a large number of data sources are becoming available across the energy sector. The smart home market for example is estimated to be worth approximately $10bn per year globally and is expected to grow rapidly.[7] The massive increase in data availability will enable energy suppliers to improve efficiency up and down the customer value chain from acquisition to service, retention and supply balancing[8]. This means that opportunities exist for cutting edge and innovative data-driven approaches across the range of challenges facing the energy sector.

Description

Energy efficiency is an issue for both renewable and fossil fuel energy. We are particularly interested in solutions that leverage closed and shared data in the following areas:

- Renewable energy generation and alternative fuels - Wind farms and solar energy facilities will require prediction capabilities to ensure efficiency and predictive maintenance.

- Support the development of the 'Smart Grid' - technology gives the opportunity to react to changing energy needs at a more local level.

- Network maintenance and optimisation - Artificial intelligence and machine learning could also increase the efficiency of current fossil-fuel based energy systems.

- Consumer understanding and energy efficiency - in many European countries there has been the roll out of Smart Meter technology to domestic energy customers. On the basis of the data

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[5] See https://www.bp.com/content/dam/bp/en/corporate/pdf/energy-economics/energy-outlook/bp-energy-outlook-2018.pdf
[6] Ibid.
[7] See https://iot-analytics.com/wp/wp-content/uploads/2017/12/StateofSmartHomeMarket2017-vf.pdf
[8] See https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2018/01/a-turning-point-for-uk-retail-energy.pdf

produced customers will need support to reduce their energy consumption and help energy providers.

Data

Examples of data include but are not limited to:
- Energy supply data, network performance data
- Energy use data both domestic and commercial uses
- Geographic and environmental data - mapping data, meteorological data etc.

Expected Outcomes

Examples of outcomes include but are not limited to:
- New apps and services
- New prediction algorithms
- New intermediary technologies to integrate data sources
- New tools and business processes to help decision making, including those making algorithms more transparent and accountable, registries and distributed ledger applications
- New forms of hardware
- Applications must include details on how these outcomes will be tested and evaluated during the six-months acceleration programme.

Expected Impacts

Participants will need to demonstrate how their solution:
- Increases energy efficiency and sustainability throughout the value chain;
- Combats climate change;
- Support decision makers by providing improved evidence bases

FINANCE

Overcoming the data challenges in the financial sector

Challenge Identifier: SC4-2018

Background

Finance has been slower than others in embracing the opportunities for change presented by technological advances. However according to Capgemini it is now catching up:[9] business including banks are getting better at adopting open models through shared data; blockchain technology is maturing; Virtual Reality (VR) is offering the promise of delivering branch-free banking for example. New challenger financial services businesses, fintechs and banks are being launched, and consumers are being empowered by greater access and control to their own financial data. At the same time there are new risks for financial and insurance services through increased possibilities for fraud and cyberattacks.

Data analytics is being used to optimise trading and investment decisions. New regulations and reporting requirements such as the GDPR and MiFID ii will also mean that there is a renewed emphasis on privacy and better use of data.

Description:
We are particularly interested in solutions that leverage closed and shared data in the following areas:

- New banking and insurance products - Open banking data in the UK, for example, is beginning to power the development of new products and services for consumers and institutions. These include competing banking products but also apps and services which use data to provide insight into budgets for individuals and provide data driven wealth management and investment products and services for high-net worth and institutions.

- Blending insurance and financial services - Banks are now also selling insurance services to their customers and similarly insurance operators are starting to offer banking services. The operators can have advantages when the study of typical patterns in one domain gives insights on the other.

- Detecting and combating fraud - Fraud identification and prevention is sought by all the financial institutions but there are barriers to adoption of new solutions in the form of tight regulation and organisational intransigence. This creates an opportunity for new data driven approaches for detecting and combating fraud including the use of location information and periodic notification when an anomaly occurs in the data.

- Transparency of algorithmic investment - Decisions in banking are both sophisticated and obscure. There is no real means to measure how effective they are. Independent verification of investment and trading algorithms by third parties could be beneficial for regulation authorities, but also for financial institutions that want to change their operating paradigm to provide the

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[9] See https://www.capgemini.com/gb-en/2018/01/2018-predictions-financial-services/

end-users with more transparency on their operations.

Data

Examples of data include but are not limited to:
- Financial market information
- Consumer and commercial transaction data
- Social media data
- Location data

Expected Outcomes

Examples of outcomes include but are not limited to:
- New apps and services
- New prediction algorithms
- New intermediary technologies to integrate data sources
- New tools and business processes to help decision making, including those making algorithms more transparent and accountable, registries and distributed ledger applications
- New forms of hardware
- Applications must include details on how these outcomes will be tested and evaluated during the six-months acceleration programme.

Expected Impacts

Participants will need to demonstrate how their solution:

- Improves fraud detection;
- Improves financial/insurance products
- Increases financial transparency

TELECOMS

Supporting 5G readiness and deliver tomorrow's telecoms industry

Challenge Identifier: SC5-2018

Background

Telecoms continues to underpin much of today's existing and new businesses and systems and as such growth continues to be strong, with mobile data traffic due to increase sevenfold between 2016 and 2021 according to Cisco[10]. The UN has called access to high speed broadband a fundamental human right,[11] and technologies such as IoT are largely dependent on reliable data connections.

One of the next big steps for the industry is the provision of 5G technology - enabling much faster data transfer and a new generation of consumer benefits such as enhanced media streaming and ultrafast connections. Telecoms providers therefore need to meet the challenge of providing this new technology, which will also yield greater data richness through the use of mobile services using these technologies. Therefore telecoms providers also need to maximise the insight from this data.

Description

We are particularly interested in solutions that leverage closed and shared data in the following areas:

- Delivery of 5G - the roll out of 5G promises faster and greater number of connections. However, logistically this is not a simple undertaking and will require new hardware and approaches. There is an opportunity for startups to provide data analytical approaches to network providers to help them plan and rollout 5G efficiently.

- Enabling of efficiencies and insight along all elements of the value chain, from network efficiency to customer experience.

- Responsible use of customer data by telecoms providers, enabling compliance with regulatory controls such as the GDPR, and ensuring customer confidence in their data use.

Data
Examples of data include but are not limited to:
- Data from mobile devices and networks
- Broadband usage and network data
- Customer data including insight and segmentation data

Expected Outcomes

Examples of outcomes include but are not limited to:
- New apps and services
- New prediction algorithms
- New intermediary technologies to integrate data sources

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[10] See https://www.zdnet.com/article/mobile-data-traffic-will-increase-7-fold-from-2016-to-2021-cisco-says/
[11] See https://www.lifewire.com/united-nations-broadband-access-is-a-basic-human-right-436784

- New tools and business processes to help decision making, including those making algorithms more transparent and accountable, registries and distributed ledger applications
- New forms of hardware
- GDPR compliance tools (internal and customer-facing)
- **Applications must include details on how these outcomes will be tested and evaluated during the six-months acceleration programme.**

Expected Impacts

Participants will need to demonstrate how their solution:
- Supports roll out of 5G technology;
- Increases connectivity and/or services for citizens and businesses
- Increases compliance with privacy regulations
- Increases customer confidence in data protection

PRIVACY & CONSENT CONTROL

Creating products and services to ensure individual privacy and control

Challenge Identifier: SC6-2018

Domain: Privacy and Consent Control

Background

Privacy and control of personal data is increasingly becoming a business concern in the light of recent high profile cases and the implementation of the European General Data Protection Regulation (GDPR). For the first time, the principle of data protection by design and by default has become a data protection requirement of its own. Additionally, the GDPR introduces a principle of accountability: data controllers from all sectors, who are responsible for the processing of personal data, need to be able to demonstrate compliance.

For many organisations, from corporations to governments, this is both a technical obstacle but also a legal problem and potentially a disruption to their ongoing operations, from focused marketing to providing smart city solutions. This means there are opportunities to build products and services which enable greater control over personal data for individuals whilst at the same time enabling new business models and markets.

Description

We are particularly interested in solutions that leverage closed and shared data in the following areas:

- Enabling new rights and consent management - GDPR will empower data subjects to exercise their rights of access, portability, information, explanation and deletion. These rights have the opportunity to create business value for those businesses providing consultancy support and products and services which help organisations fulfil these rights. In addition, GDPR has created a market for consent management technology - which may be designed to integrate with existing systems or act as a consent management layer.

- GDPR compliant business data analytics - Businesses will need to demonstrate that they are able to handle personal data efficiently whilst also analysing it for business value. This will mean opportunities to provide products and services to support businesses to undertake activities such as: effective anonymisation, pseudonymisation; control and monitoring of data sharing practices; discrimination between or restriction to different types of data usage or use of provenance trails for data flows.

- Privacy and smart cities - As more and more industries start to use technologies such as IoT and wearables, they will inevitably also begin to collect data which is personally identifiable. There is an opportunity to explore products and services which support tech providers and the users of their products and services to assist individuals in exercising their rights.

Data

Examples of data include but are not limited to:
- Personal data provided by individuals, including consent
- Data from wearables
- IoT / Sensor data - including wifi tracking and bluetooth sniffing
- Website tracking data

Expected Outcomes

Examples of outcomes include but are not limited to:
- New apps and services
- New prediction algorithms
- New intermediary technologies to integrate data sources
- New tools and business processes to help decision making, including those making algorithms more transparent and accountable, registries and distributed ledger applications
- New forms of hardware
- Applications must include details on how these outcomes will be tested and evaluated during the six-months acceleration programme.

Expected Impacts

Participants will need to demonstrate how their solution:
- Provides greater privacy for individuals
- Reduces the compliance burden for cities and other organisations
- Enables cities to enact smart solutions without surveillance

SMART TRANSPORT

Leveraging traffic data to enable a sustainable future for Europe

Challenge Identifier: SC7-2018

Domain: Smart Transport

Proposed by

QROWD is a Horizon2020 innovation action that aims to provide a platform that leverages the human factor along Smart Cities' data value chain, helping cities collect, integrate, analyse and publish data for its use by citizens and service providers.

Background

3 out of 4 Europeans live in urban areas. Traffic congestion costs us €100 Billion yearly, while road transport generates 40% of CO2 emissions. To guarantee a sustainable future for Europe, There is a need for solutions to reduce the carbon footprint of transportation around and within urban areas. More affordable and efficient public transport also creates opportunities through social inclusion.

Description

We are looking for solutions that are genuinely innovative and that can be easily adapted to multiple cities. In particular, we are looking for solutions that can leverage data from municipalities to provide a range of mobility services, e.g., provide true Mobility as a Service; create flexible pricing opportunities; enhance data from transport with data from citizens and engage with novel technologies such as payment by wearables.

Datasets

Candidates are expected to have access to shared or private data, like
- Location of mobility infrastructure (bike racks, parkings, etc)
- Public transport timetables
- Paid parking zones
- Weather forecasts
- Street maps
- Data from mobility operators
- Data contributed by citizens from smartphones, wearables or GPS devices
- Sensor data from mobile phones or connected cars
- Data feeds including parking availability and traffic delays

Expected outcomes

- Apps and services that analyse customer needs and improve the mobility experience across different dimensions, from costs to efficiencies to environment with key focus on Mobility as a Service;
- Machine learning models that help with detection of transportation mode from smartphone/wearable/GPS data.
- Apps and services that capture qualitative insight from the customer journey which can be combined with existing datasets to provide a better experience and or inform User models for managing citizen engagement towards changing behaviour more sustainable mobility patterns, and/or to collect feedback that could be used by municipalities to improve their mobility network.
- Tools to enable flexible pricing;
- Tools that engage users with transport provision;

Expected impacts

- Solutions that are commercially sustainable and scalable, creating improvements to customer experience and quality of mobility provision
- Better business models for city transport providers
- Demonstrable reduction in carbon emissions

OPEN CHALLENGE

Harnessing the full power of data-driven innovation

Challenge identifier: OC1-2018

Background

Data Pitch believes in an open approach to data-driven innovation. While most of our challenges are focusing on a particular sector, business problem or dataset, this one is meant to offer a platform for groundbreaking, impactful ideas which do not fit elsewhere in the 2018 call.

Description

Data, in particular when available in very large quantities, makes things possible that were not possible before: spot customer trends, prevent diseases, combat crime, save costs, or become more accountable for one's actions. This phenomenon is often referred to as 'Big Data'. The original idea in the IT industry was that the volume of data had grown so much that analysing it exceeded the capabilities of common data processing software; this has led to a whole new range of data-crunching technologies, including Hadoop, NoSQL databases, and predictive analytics. With Big Data has come 'Big Value'; unlike more traditional assets, data creates new forms of value chains and almost unlimited opportunities, as these include not just its current, internal use, but, more importantly, all its potential, unknown uses in a global network of business partners and customers. This feature of data is, however, not yet well understood and explored. Sometimes, what data is worth is most evident to the ones who control it, and perhaps to their competitors and collaborators. In most cases, however, as the technical limitations of data collection, storage and access disappear, organisations are yet to unleash its real potential. What is clear, however, is what it takes to do so: enabling reuse and integration with other data assets to build so-called Big Data value chains, in which open, shared, and closed data are used in combination.

Dataset(s)

While applicants can use any combination of datasets, their idea must be fundamentally enabled by the integral utilisation of at least one closed third party dataset, which will be used during the six-months accelerator. The core of the idea submitted to address the challenge must be built around the availability of this critical data asset to the applicant. The data must be available to the SME at the time of submission and applicants will be asked to provide proof of access.

Expected Outcomes

Any data-driven innovation outcomes, including software, hardware, wearables, data exchange formats, registries and ledgers etc. Applications must include details on how these outcomes will be tested and evaluated during the six-months acceleration programme.

Expected Impacts

This is not a challenge for incremental ideas. Instead, it provides an opportunity for SMEs that are working on something truly transformative; that can be applied over a wide range of industries; and has the potential to totally reinvent a process or find a solution for a previously unsolvable problem. This means that we will consider only those applications that are real game changers, with high impact, that clearly unlock unrealised value in data and can articulate that value in a meaningful way.