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qLegal Legal Update
Thinking Smart – the law and the smart cities

INTRODUCTION:

According to the findings of the United Nation the urban areas are the ones to accommodate all of the expected population growth in the world between 2014 and 2050. This constitutes an increase of 2.5 billion in the number of the urban dwellers, from the starting figure of 3.9 billion in 2014 up to 6.3 billion by 2050. Undisputedly, this immense leap in the number of population of cities arises massive challenges. The aim is to provide liveable circumstances and also to improve lifestyle in cities and to increase effectiveness regarding in handling environmental issues and creating developed services for the sake of the members of both the private and public sector, as well as to encourage further economic growth.

The concept of a "Smart City" is a constantly improving idea, an ever-broadening vision, therefore, providing an exhaustive definition is not possible. However, the term can be interpreted, in a narrow sense, as an objective which aims to assist and improve city life, and solve its rising challenges by implementing innovations of Information and Communication Technologies (ICT). In the broader sense, a "Smart City" addresses a new approach in urban governance and the relationship between the city and its citizens and investors, by encouraging an interactive and cooperative relationship between them. The notion thrives on the development of the five main public service utilities: intelligent transport systems; assisted or independent living; water management; smart grids or energy networks and waste management.

Examples of Smart City technology in the United Kingdom

The approach to smart cities in the UK is underpinned by the ambition to place technological advancements at the service of British cities. Throughout the last decade British citizens have witnessed an exponential increase in smart city technology at every level of their daily life. From the conspicuous security cameras, automatic toll booths and reactive lighting to the less noticeable modernized waste management facilities and living technologies such as telehealth and telecare. Considering all these developments, the United Kingdom Department for Business Innovation and Skills published a report in 2013 entitled "The Smart City Market: Opportunities for the UK" and despite its optimistic tone, the report also mentioned several "gaps" and "barriers" these technologies still face in the domestic market.

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To assist with the introduction of Smart City technology all across the UK, the UK Department for Business Innovation and Skills assigned the British Standards Institution (hereinafter BSI) to develop a strategy for UK Smart Cities. The BSI has published a variety of different reports that cover much more than a general strategy; the reports also attempt to identify the challenges facing the implementation of technology as well as the risks and the future implications of Smart Cities. For present purposes, the main challenge identified in the BSI reports, and one, which was highlighted by the research made, was the difficulty of integrating the different technologies.

For the Smart City project to thrive, heterogeneous implementation of technology is not sufficient. The different technologies have to be commonly integrated into a "whole-city approach". This requires a functional and permanent interoperation between the different technologies. For instance, smart metering has to be complemented and connected with external temperature monitoring on the building in order to significantly reduce energy consumption. This requires the interoperation between technologies and stakeholders, only then will the project succeed.

Energy

The most popular illustration of smart city technologies applied to the UK energy sector is the deployment of smart metres across the market. Smart metres provide real time energy use data, detect power outage and allow the consumer to change supplier. It is estimated that smart metres could save European households 10% of their energy consumption. By the second quarter of 2015 the number of domestic meters for gas and electricity operated by the larger energy suppliers was 45,927,165. Of these 1,327,354 were smart metres. In the second quarter of 2015 272,598 smart metres were installed, in comparison with only 3,241 installed in the forth quarter of 2012. These numbers show that the number of installed smart metres has grown significantly, but it still not sufficient. This might be connected with a shortcoming identified by the 2013 Report, which highlighted the fact that smart metres were not manufactured in the UK.

Transport

Applying smart city technology to the transport industry is the corollary of increased urbanisation. Congestion, in particular, is deemed to cost the UK economy 24.5 Bn euros a year in lost production. As gas emissions and congestion increase, smart city technologies enable the mitigation of both of these problems. The Central London Congestion Charging, for instance, introduced in 2003, was responsible for reducing the number of vehicles around London's central business district by 70,000. This successful initiative eventually encouraged Stockholm and Milan to do the same. Another example is smart ticketing. Amongst other places, this technology was introduced in the rail network in the West Midlands, which corresponded to an investment of 620,000 GBP. This technology allows passengers to travel with a smartcard, thus eliminating

queues in ticket purchasing, granting users increased security as tickets are registered meaning if lost or stolen they are easily replaceable.

LEGAL ASPECTS

Big Data

Big data refers to the term for data so large and complex that traditional data processing applications are not equipped for dealing with it. The information and communication technologies (ICT) are a vital part of the smart cities notion, and so Big Data is an essential part of the technological process, as it is expected to facilitate their effective management. However, Big Data may present great challenges to privacy and data protection, which should be considered when talking about the realms of smart cities pros and legal limitations.

One of the biggest challenges to Big Data is that the regulatory regime is perpetually changing. Regulating technologies, which change daily, is challenging and there is a struggle between satisfying competing demands for privacy protection and commercial freedom. This in practice means that the subject's consent will not be required when data is processed in an anonymous way, i.e. when data cannot be tracked to an individual/company. However, there are doubts if such a process of making personal data anonymous exists (The Spanish Data Protection Agency ruled on the matter and concluded that it is very difficult to create a fully anonymous dataset). This issue also intertwines with the fact that every country has its own sets of law and regulations concerning privacy and data – keeping up with them all in a time of globalization is nearly impossible.

Going back to privacy and the individual – for example, if data is collected directly from 'the subject', channels should be in place to inform them about the processing and collection of their personal data, how this data is going to be used and for what purpose, if a third party is going to have access to the information, etc. Smart cities projects usually tend to ask for consent from personal data subjects for statistical or analytical purposes and then overstep the actions allowed and use them for hidden services e.g. provision of services or sale of product.

Privacy

Considering the fact that smart city applications may implement thousands of smart devices in private spaces where they are left unattended for years of operation, the possible attacks that are able to break the privacy regulations are countless. Smart city applications have the possibility of implementing numerous devices in private spaces, which would sometimes be left there for years, and thus creating vulnerability to privacy in the system. Some of the aspects which pose most privacy concerns are: real-time surveillance, which tracks the subject's behaviour in real time; smart meters which might be seen as private space invasion; habits identification, which shows for example when a person is home, and if he is, if he is cooking, watching TV, takes a shower, etc.; and details collection, which means that every time a consumer

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is participating in e-commerce or other routine transactions, a small piece of information is stored and through this, a more vivid and complete picture of the individual is formed.

'Bristol is Open' and its legal implications

It can be easily stated that the city of Bristol qualifies to be considered as the leading smart city in the

United Kingdom, and also earned a prominent place in the global platform of smart cities. The 'Bristol is

Open' project fosters the cooperation of the educational sphere and the local government (University of Bristol and the Council of Bristol) in order to further research the potential of smart cities and deliver development on the Internet of Things notion. According to this initiative, Bristol has introduced a compelling project of collecting and serving information of public interest and building services on it, with the cooperation of individuals. According to this, a network system is being installed, which consists of sensor boxes to which data will arrive from the electronic devices of participating citizens. The data will be collected from smart phones and GPS devices about different aspects of life, such as air quality, energy and traffic information. The data will be anonymised and will be made available to everyone via the 'open data portal'. This idea, on one hand will increase information accessibility and on the other hand it will incentivise the creation of new applications. With a fruitful ground for creative software applications, the data flow will be bidirectional for the benefit of the citizens. Projecting 3D images to the sky or holding music concert multiple places at the same time are desired aims of the project.

There is a caveat, though. This idea of the flow of creative contents needs to be examined from a legal point of view. The usage of copyrighted material (such as pictures or music) in any form can only be done in a lawful way with authorisation from the right holder or right holders. For example, showing a music concert by electronic transmission constitutes as a communication to the public, which means that copyright is not only exist on the musical material that are being shown and on the performance of the performer, but copyright could be erected on the broadcasting as well. Terms of the use of these materials will be complicated to negotiate and will need to be done with extra caution. Furthermore, warning of the public also will be necessary about the actions prohibited regarding the usage of copyrighted materials, for instance making copies by any means of the copyrighted material, without authorisation or statutory exemption, is forbidden and constitutes an actionable misuse. The extent and method to which software application developers can use data from the database is also considerable from a legal standpoint, since a database can qualify as an intellectual property, and as such can attract copyright protection in addition to the existing sui generis right protection that provides certain rights to the author of the database.

The developed software application also can be awarded by copyright protection, and as for the graphic user interface, designs rights additionally. Having that said, the creation of legal framework to

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effectively manage this issue is crucial. This can be achieved by individual negotiations, or more practically, by use of terms and conditions that allows to handle issues on a mass scale (all developers sign this legal document before developing the application so no individual negotiations are needed) or even with introducing local regulations regarding the rights of the participating citizens, businesses and the rights of the city. As one of the main ideas of the smart city is the collaboration of individuals, entrepreneurs, small and larger companies and local governments in developing new solutions, intellectual property issues arise again. The problem of authorship in this case is one key matter to cope with. The means of licensing or acquiring intellectual property rights need to be decided and carefully worked out.

Mentioning only a few legal issues that requires serious consideration, highlights the complexity of the legal questions arising regarding smart city solutions and the further improving challenges of the digital age.

Overview of the future of the smart cities

It is estimated that the global market for smart city solutions and the additional services are to be $408 billion by 2020 and that the UK can contribute for up to 25% of the total smart cities market. In its 2015 Budget the UK Government earmarked to spend £40 million for so called demonstrator programmes in order to incentivise and support the research and development of new technologies regarding, among other subjects, "Smart Cities". Besides that, a number of governmental initiatives were launched to create an interactive and multi-player (cities - educational institutions - businesses) networking environment on the mutual interest of transforming cities into smart cities (e.g. HyperCatCity, Future Cities Catapult).

Moreover, international corporations, such as IBM, Microsoft, Siemens, Phillips and so forth, are constantly presenting brand new ideas and cutting-edge technologies to the idea of "Smart City". However, it is essential to understand that the innate nature of this concept is that its boarders are open and the space for improvement is almost limitless, and so every new proposal coming from any kind of entity (start-up companies, entrepreneurs, innovators, etc.) is encouraged and welcomed. This means that the future of smart cities is to be defined by the brainpower of those who interested in taking part in its creation and development.

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