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ABSTRACT: "The Internet of Things (IoT), one of the hottest trends in technology, is transforming our future by interconnecting everything; humans, vehicles, appliances, utilities, infrastructures, street lights, etc., through intelligent connections. For deploying the realization of IoT by 2020, Fifth Generation (5G) wireless communication networks are considered as an essential unifying fabric that will connect billions of devices in some of the fastest, most reliable and most efficient ways possible, whose impact will be revolutionary, reshaping industries and transforming our world. Therefore, 5G is currently attracting extensive research interest from both industry and academia. It is widely agreed that in contrast to 4G, 5G should achieve 1000 times system throughput, 10 times spectral efficiency, higher data rates (i.e., the peak data rate of 20 Gb/s and the user experienced rate of 1Gb/s), 25 times average cell throughput, less than 1 ms in end-to-end (E2E) latency, and 100 times higher connectivity density. Among those requirements, the 1000-fold increase in system capacity becomes the most important and maybe the most challenging for 5G systems."


ABSTRACT: "To cater to the exponential increase in wireless data demands under limited availability of licensed spectrum, the Federal Communications Commission has released extra bandwidth of 295 MHz in the 5 GHz unlicensed national information infrastructure bands for wireless communications. This free, unlicensed band has drawn considerable attention from academia and cellular operators worldwide. Several standards are being developed for flexible integration, aggregation, and interworking of this unlicensed band with licensed networks or spectrum. Of many candidate approaches, in this article, we introduce LTE WLAN aggregation (LWA). LWA, capable of leveraging the LTE and WLAN spectra simultaneously, has emerged as a prominent solution to increase network capacity and enhanced end users’ quality of experience. Further, we present latest advances in this exciting technology by reviewing the state-of-the-art LWA architecture, and identify several opportunities and open challenges related to LWA design for future research."


ABSTRACT: "The envisioned 5G ecosystem will be composed of heterogeneous networks based on different technologies and communication means, including satellite communication networks. The latter can help increase the capabilities of terrestrial networks, especially in terms of higher coverage, reliability, and availability, contributing to the achievement of some of the 5G KPIs. However, technological changes are not immediate. Many current satellite communication networks are based on proprietary hardware, which hinders the integration with future 5G
terrestrial networks as well as the adoption of new protocols and algorithms. On the other hand, the two main paradigms that are emerging in the networking scenario -- software defined networking (SDN) and network functions virtualization -- can change this perspective. In this respect, this article presents first an overview of the main research works in the field of SDN satellite networks in order to understand the already proposed solutions. Then some open challenges are described in light of the network slicing concept by 5G virtualization, along with a possible roadmap including different network virtualization levels. The remaining unsolved problems are related to the development and deployment of a complete integration of satellite components in the 5G ecosystem."


Full-text retrieved from IEEEXplore database: [http://dx.doi.org/10.1109/MNET.2018.1800024](http://dx.doi.org/10.1109/MNET.2018.1800024)

ABSTRACT: "The fifth generation of mobile radio communication systems, dubbed 5G, has the challenge of coping with tremendous increases in data traffic volume and peak data rates, reduced latencies, along with improved energy-efficient transmissions and new use cases. In fact, besides the traditional MBB services, future 5G networks will face the opportunity to embody connections to billions of objects, the so-called IoT or mMTC. The article addresses the question of what is the possible role of satellite systems in mMTC services. Key satellite mMTC system design trade-offs are outlined jointly with some examples of network sizing."


Full-text retrieved from Springer Link database: [https://doi.org/10.1007/s11276-017-1513-2](https://doi.org/10.1007/s11276-017-1513-2)

ABSTRACT: "In recent years, mobile access networks operating at millimeter wavelengths have received a great deal of attention, as they promise previously unattainably high mobile data rates. At these frequencies, mobile access links are expected to use highly directional beamforming antennas, which are also well suited to backhaul links. Therefore, access points can efficiently act as self-backhauled relays by using the same spectrum, circuits and antennas for mobile access and backhaul links, thus forming a multi-hop in-band backhaul network. The contributions of our paper are extensive simulations to investigate user level performance in such multi-hop networks. We specifically take into account the momentary data traffic of every link in order to calculate the interference. Results quantify the detrimental effect of interference on user level performance. Furthermore, the potential benefit of using the combination of in-band and dedicated backhaul links is evaluated. Additionally, this paper investigates the user level effects of the sudden loss of a link in the backhaul mesh network, and underlines the importance of effective rerouting algorithms. The feasibility of the in-band concept is demonstrated, and we can confirm that the user level experience will surpass the performance provided by previous generation mobile networks."


Full-text retrieved from IEEEXplore database: [http://dx.doi.org/10.1109/MNET.2018.1800045](http://dx.doi.org/10.1109/MNET.2018.1800045)

ABSTRACT: "5G systems have started field trials, and deployment plans are being formulated, following completion of comprehensive standardization efforts and the introduction of multiple technological innovations for improving data rates and latency. Similar to earlier terrestrial wireless technologies, build-out of 5G systems will occur initially in higher population density areas offering the best business cases while not fully addressing airborne and marine applications. Satellite communications will thus continue to be indispensable as part of an
integrated 5G/satellite architecture to achieve truly universal coverage. Such a unified architecture across terrestrial and satellite wireless technologies can ensure global service, support innovative 5G use cases, and reduce both capital investments and operational costs through efficiencies in network infrastructure deployment and spectrum utilization. This article presents an architectural framework based on a layered approach comprising network, data link, and physical layers together with a multimode user terminal. The network layer uses off-the-shelf building blocks based on 4G and 5G industry standards. The data link layer benefits from dynamic sharing of resources across multiple systems, enabled by intersystem knowledge of estimated and actual traffic demands, RF situational awareness, and resource availability. Communication resource sharing has traditionally comprised time, frequency, and power dimensions. Sharing can be enhanced by leveraging dynamic knowledge of communication platform location, trajectory, and antenna directivity. Logically centralized resource management provides a scalable approach for better utilization of spectrum, especially in higher bands that have traditionally been used by satellites and now are also being proposed for 5G systems. Resource sharing maximizes the utility of a multimode terminal that can access satellite or terrestrial RF links based on specific use cases, traffic demand, and QoS requirements.


Full-text retrieved from IEEE Xplore database: [http://dx.doi.org/10.1109/MCOM.2018.1800036](http://dx.doi.org/10.1109/MCOM.2018.1800036)

ABSTRACT: "The requirement of high data rates, low latency, efficient use of spectrum, and coexistence of different network technologies are major considerations in Internet of Things (IoT)-based fifth generation (5G) networks. To achieve the above requirements, the incorporation of artificial intelligence (AI) is required to make efficient decisions based on the massive data generated by the large number of IoT devices. AI methods analyze the data to extract patterns and make sense of the data to prescribe action to the end devices. In this work, we first give an overview, discussing the challenges and relevant solutions of the 5G and IoT technologies including the IoT-based 5G enabling technologies. We discuss the need for AI in future IoT-based 5G networks from the perspective of Kipling's method. In addition, we review the intelligent use of spectrum through full duplex and cognitive radio technologies."


Full-text retrieved from IEEE Xplore database: [http://dx.doi.org/10.1109/EMR.2018.2863253](http://dx.doi.org/10.1109/EMR.2018.2863253)

ABSTRACT: "The modern mobile telecommunication industry is an active ecosystem, with a ten-year cycle time for the evolution wave from 1G to 5G. On investigating the mechanism using a systems thinking approach, we find that there are three innovation waves driving the evolution of the industry: A ten-year radical innovation wave for key technology research, standards definition, and the first product launch; followed by another ten years of incremental innovation to cover product refinement, which precedes the ten-year ecosystem innovation wave. The three innovation waves are driven by the three reinforced innovation feedback loops. Now, 5G is nearing the end of the radical innovation wave, bringing us a connected intelligent future. Considering the long period of incremental innovation wave and ecosystem innovation wave associated with 5G, it is clear that 5G will be an enterprising journey with many challenges."


Full-text retrieved from IEEE Xplore database: [http://dx.doi.org/10.1109/CC.2018.8485472](http://dx.doi.org/10.1109/CC.2018.8485472)
ABSTRACT: "The traffic explosion and the rising of diverse requirements lead to many challenges for traditional mobile network architecture on flexibility, scalability, and deployability. To meet new requirements in the 5G era, service based architecture is introduced into mobile networks. The monolithic network elements (e.g., MME, PGW, etc.) are split into smaller network functions to provide customized services. However, the management and deployment of network functions in service based 5G core network are still big challenges. In this paper, we propose a novel management architecture for 5G service based core network based on NFV and SDN. Combined with SDN, NFV and edge computing, the proposed framework can provide distributed and on-demand deployment of network functions, service guaranteed network slicing, flexible orchestration of network functions and optimal workload allocation. Simulations are conducted to show that the proposed framework and algorithm are effective in terms of reducing network operating cost."

Full-text retrieved from Science Direct database: http://doi.org/10.1016/S1353-4858(18)30098-9
ABSTRACT: "In the evolving landscape of mobile networks, we are beginning to see new vulnerabilities open up through 3G and 4G networks, and it is more than likely that 5G will follow this same fate. Protecting only this Gi interface is no longer enough for any service providers' security. We are beginning to see new vulnerabilities open up through 3G and 4G networks, and it is more than likely that 5G will suffer the same fate. In addition to mitigating and stopping terabit-scale attacks coming from the Internet, it is imperative for enterprises to improve their security by using full-spectrum defences that protect the whole infrastructure. With the assistance of 5G service providers, businesses can then rest easy knowing they have multiple lines of defence, explains Ronald Sens at A10 Networks. ""

Bibliography on “accessibility and ICTs”

Full-text retrieved from Science Direct database: http://dx.doi.org/10.1109/ACCESS.2018.2848978
ABSTRACT: "The Web has revolutionized our daily lives, becoming a prime source of information, knowledge, inquiry, and provision of services in various areas. It is possible to obtain information easily from any institution through the Internet; in fact, the first impression of an organization an individual perceives is almost always based on its official website. Services related to education are increasing worldwide; therefore, it is important that users, regardless of their disabilities, be able to access these websites in an effective manner. However, the homepages of universities in Latin America still do not meet web accessibility criteria. This paper describes the problems of web accessibility identified in 348 main university websites in Latin America according to their rankings on Webometrics. The results show that the universities' websites have frequent problems related to the lack of alternative image text. It was found that the university websites included in the present study violate Web accessibility requirements based on the Web Content Accessibility Guidelines 2.0. The many problems identified concerning Website accessibility indicate that it is necessary to strengthen Web accessibility policies in each country and apply better directives in this area to make Websites more inclusive."

Full-text retrieved from Science Direct database: [http://dx.doi.org/10.1109/MPRV.2018.022511246](http://dx.doi.org/10.1109/MPRV.2018.022511246)

ABSTRACT: "Making a physical environment accessible to blind people generally requires sighted assistance. VizLens and Facade put blind users at the center of a crowdsourced, computer-vision-based workflow that lets them make the environment accessible on their own terms."


Full-text retrieved from ACM DL database: [https://dl.acm.org/citation.cfm?doid=3289188.3274572](https://dl.acm.org/citation.cfm?doid=3289188.3274572)

ABSTRACT: "In this forum we celebrate research that helps to successfully bring the benefits of computing technologies to children, older adults, people with disabilities, and other populations that are often ignored in the design of mass-marketed products. --- Juan Pablo Hourcade, Editor"


Full-text retrieved from Springer Link database: [https://doi.org/10.1007/s10209-017-0529-9](https://doi.org/10.1007/s10209-017-0529-9)

ABSTRACT: "Open Educational Resources (OER) are being fostered as a global movement for providing educational opportunities to all. However, people with disabilities are still excluded from full participation because of the lack of accessibility of OER websites, as well as of the resources themselves. This work presents a proposal for the design of OER websites that would enable equitable access for all users. This design aims to bridge the accessibility gap through the personalization of the whole OER environment to facilitate an accessible User Experience (UX) based on a user profile that includes the self-identification of disability status. This profile configures not only the "look and feel" of the interface but also the delivery of educational resources suitable for this user profile. To achieve this purpose, the design goes beyond compliance with the ISO/IEC 40500 W3C Web Content Accessibility Guidelines (WCAG) 2.0, since it includes the personalization of the accessible experience through usability considerations and adaptations of educational resources. The delivery of educational resources matches the user’s profile with regard to their sensory abilities, cognitive faculties and their requirements of functionality control, display layout and language. As a proof of concept, we have developed an OER website based on this design and have conducted a set of UX tests that include users with different disabilities. The test results confirm the feasibility and suitability of our design regarding accessible UX. Finally, the contribution of this document arises from the explicit recognition of the particular needs associated with the disability profiles to establish the response of the entire OER system which enables a truly inclusive experience by exempting the user from performing configuration tasks."


Full-text retrieved from Springer Link database: [https://doi.org/10.1007/s10209-017-0568-2](https://doi.org/10.1007/s10209-017-0568-2)

ABSTRACT: "This article presents a study aimed at assessing an application offering audio description for mobile devices. By means of questionnaires, three features of the application were evaluated: usability, utility and quality. Fifteen blind and visually impaired volunteers participated in the study, which took place in real-life conditions—during a film festival..."
screening. The results indicated positive ratings of all three assessed features, but also pointed to specific elements that could be subject to improvement. Overall, the application was considered as having good potential. Modifications were introduced, and the application is currently fully operational. The application can be used as a tool for providing improved access to cinema content, making cinema accessible for all.

Bibliography on “big data”


Full-text retrieved from SpringerOpen database: https://doi.org/10.1186/s40537-018-0146-3

ABSTRACT: "MapReduce (MR) is a criterion of Big Data processing model with parallel and distributed large datasets. This model knows difficult problems related to low-level and batch nature of MR that gives rise to an abstraction layer on the top of MR. Therefore; several High-Level MapReduce Query Languages built on the top of MR provide more abstract query languages and extend the MR programming model. These High-Level MapReduce Query Languages remove the burden of MR programming away from the developers and make a soft migration of existing competences with SQL skills to Big Data. This paper investigates the very used—common High-Level MapReduce Query Languages built directly on the top of MR that translate queries into executable native MR jobs. It evaluates the performance of the four presented High-Level MapReduce Query Languages: JAQL, Hive, Big SQL and Pig, with regards to their insightful perspectives and ease of programming. The baseline metrics reported are increasing input size, scale-out number of nodes and controlling number of reducers. The experimental results study the technical advantages and limitations of each High-Level MapReduce Query Languages. Finally, the paper provides a summary for developers to choose the High-Level MapReduce Query Languages which fulfill their needs and interests."


Full-text retrieved from ProQuest Central database: https://search.proquest.com/docview/2094378245?accountid=41838

ABSTRACT: "Regulations to protect personal data don't inspire much love. Companies frequently regard them as a nuisance, a needless expense, and a hindrance to innovation. Governments think the rules should apply to everyone but themselves. And ordinary people often act as if they don't care whether their data is safeguarded at all. But such regulations matter now more than ever. The world is increasingly defined by technological asymmetries; a huge gulf has opened up, with big corporations and powerful governments on one side and ordinary individuals on the other. Even in wealthy democratic societies, individual autonomy is at risk now that even simple choices, such as what news stories to read or what music to listen to, are dictated by algorithms that operate deep within software and devices-so deep that users are usually unaware of the extent to which data processing shapes their decisions and opportunities. Today, technology "is being used to control what we see, what we can do, and, ultimately, what we say," the cryptographer and privacy specialist Bruce Schneier has written. "It makes us less safe. It makes us less free." Most people have yet to realize that truth. In the era of the Internet and mobile communications, people tend to focus more on the goods, services, and experiences that technology offers and less on the ways in which privacy is
imperiled by software, code, and devices that have become an invisible but integral part of everyday life. Although many people want to have a sense of how data processing affects them, most aren't interested in the details."


Full-text retrieved from ACM DL database: https://dl.acm.org/citation.cfm?doid=3289188.3274572

**ABSTRACT:** "In this forum we celebrate research that helps to successfully bring the benefits of computing technologies to children, older adults, people with disabilities, and other populations that are often ignored in the design of mass-marketed products. --- Juan Pablo Hourcade, Editor"


Full-text retrieved from ACM DL database: http://doi.acm.org/10.1145/3158337

**ABSTRACT:** "While attention has always been prized above money, few people have had the means to attract it to themselves. But the new digital economy has provided everyone with a loudspeaker; thus efforts at getting noticed have rapidly escalated in global society. The attention economy focuses on the mechanisms that mediate the allocation of this scarce entity. Social networks and big data play a role in determining what is noticed and acted upon."


Full-text retrieved from IEEEXplore database: http://dx.doi.org/10.1109/ICICCT.2018.8473353

**ABSTRACT:** "The rapid expansion in IT and related technologies have made massive digitalization in most of the sectors. The E-governance is one of the sector where a digitalized provision of services has significantly increased the public access to government services. The access to government portal involves uploading and downloading of different formats of data like text, images, compressed files, pdf etc. with massive in size. But in the process of digitization, the strategies for handling big data are not been considered. As a result, E-governance becomes prone to big data challenges in terms of its data size, the speed of data generation, uncertainty and different formats of data. The processing of such a huge E-government data becomes more and more difficult using traditional database management solutions. Therefore the emerging technology like big data Analytics can be leveraged in E-governance to process and analyze a huge amount of data generated by E-governance portals and applications. The resulting benefits of big data analytics in E-governance will increase the transparency in government operations, improve the efficiency and provide effective E-governance. In this paper we provide an overview of big data analytics and hadoop along with the practical approach to leverage the big data analytics in E-governance using proposed framework."


Full-text retrieved from ACM DL database: http://doi.acm.org/10.1145/3158335
ABSTRACT: "The evolution of special purpose standards for networked vehicles towards IP based communication networks and the high-volume data processing requirements call for the introduction of a new concept – the big data virtual network. The virtual network operator, which may be integrated with the operators of networked vehicle applications, combines sensor and camera devices with big data, either using large data centers (cloud computing) or local processing (fog computing), and complementary QoS (Quality of Service) differentiated bandwidth capacities from the all-IP network. The growing importance of camera-based sensors as well as geo-awareness requirements create a need for more pronounced QoS differentiated bandwidth as well as big data processing efforts. In particular, combining QoS differentiated all-IP bandwidth capacities with local data processing within the edge cloud constitutes a new task for big data virtual network service providers, enabling deterministic guarantees for ultra-low latencies required for networked fully automated (driverless) vehicles."

ABSTRACT: "Recently, big data and its applications have drawn the attention of academic researchers and business professionals. However, there are still a number of potential and useful values hidden in large-scale data. For instance, the large volumes of human activity data in social media might reflect people’s consumption patterns and preferences. The aim of this study is to adopt social computing to explore valuable patterns or knowledge from social structures. This study develops five algorithms by integrating the notions of anticipatory computing and social network analysis, and also designs an application interface (API) which can be utilized in big data. These analytics can be applied to develop various applications in different contexts, e.g., marketing strategies in business or disease/symptom analysis in healthcare. This study contributes to social computing and discloses intelligent patterns in the social network."

ABSTRACT: "The Economist recently declared that digital information has overtaken oil as the world’s most valuable commodity. Big data technology is inherently global and borderless, yet little international consensus exists over what standards should govern its use. One source of global standards benefiting from considerable international consensus might be used to fill the gap: international human rights law. This article considers the extent to which international human rights law operates as a legal or ethical constraint on global commercial use of big data technologies. By providing clear baseline standards that apply worldwide, human rights can help shape cultural norms—implemented as ethical practices and global policies and procedures—about what businesses should do with their information technologies. In this way, human rights could play a broad and important role in shaping business thinking about the proper handling of this increasingly valuable commodity in the modern global society."

ABSTRACT: "Managing and improving the quality of information generated in data-driven empirical studies is of central importance for Industry 4.0. A fundamental and necessary condition for conducting these activities is to be able to measure the quality of information - "If you can not measure it, you can not improve it" (Lord Kelvin). It is somewhat surprising that, with so many efforts devoted to take the most out of the available data resources, not much attention has been paid to this key aspect. Therefore, in this article we described and apply a framework, the InfoQ framework, for evaluating, analyzing and improving the quality of information generated in the variety of data-driven activities found in the Chemical Processing Industry (CPI). This systematic framework can be used by anyone involved in conducting these activities, irrespectively of the context and the specific goals to achieve. For instance, it can either be used to provide a preliminary assessment of the project risk, by analyzing the adequacy of the data set and analysis methods to achieve the intended goal, as well as to perform a SWOT analysis on an ongoing project, to improve it and increase the quality of information generated, i.e., increasing its InfoQ. The framework is applied to a real world case study in order to illustrate its implementation, utility and relevance. The author recommend its routine adoption, as part of the Definition stage in any data-driven task, such as in Lean Six Sigma projects, exploratory studies, on-line and off-line process monitoring, predictive modelling and diagnostic & troubleshooting activities."


Full-text retrieved from ScienceDirect database: http://doi.org/10.1016/j.suscom.2018.06.003

ABSTRACT: "With the significant advances in communication technologies and in many other sectors, also are growing up security and privacy issues. In our research, is introduced a base technology called Cloud Computing (CC) to operate with the Big Data (BD). CC is a technology which refers to the processing power of data in the fog, providing more "green" computational and sustainable computing. Since it is a recently investigated technology, it has many gaps in security and privacy. So, in this paper, we proposed a new system for Cloud Computing integrated with Internet of Things as a base scenario for Big Data. Moreover, we tried to establish an architecture relaying on the security of the network in order to improve the security issues. A solution proposed is installing a security “wall” between the Cloud Server and the Internet, with the aim to eliminate the privacy and security issues. As a result, we consider that CC deals more efficient with the privacy issue of bits transferred through time. Through our proposed system, the interaction and cooperation between things and objects communicate through the wireless networks in order to fulfil the objective set to them as a combined entity. Regarding the major goal of our research, which is the security, a sort survey of IoT and CC presented, with a focus on the security issues of both technologies. In addition to this, we try present the security challenges of the integration of IoT and Cloud Computing with the aim to provide an architecture relaying on the security of the network in order to improve their security issues. Finally, we realize that through our study Cloud Computing could offer a more "green" and efficient fog environment for sustainable computing scenarios."


ABSTRACT: "Big data promises to transform public decision-making for the better by making it more responsive to actual needs and policy effects. However, much recent work on big data in public decision-making assumes a rational view of decision-making, which has been much criticized in the public administration debate. In this paper, we apply this view, and a more political one, to
the context of big data and offer a qualitative study. We question the impact of big data on decision-making, realizing that big data – including its new methods and functions – must inevitably encounter existing political and managerial institutions. By studying two illustrative cases of big data use processes, we explore how these two worlds meet. Specifically, we look at the interaction between data analysts and decision makers. In this we distinguish between a rational view and a political view, and between an information logic and a decision logic. We find that big data provides ample opportunities for both analysts and decision makers to do a better job, but this doesn't necessarily imply better decision-making, because big data also provides opportunities for actors to pursue their own interests. Big data enables both data analysts and decision makers to act as autonomous agents rather than as links in a functional chain. Therefore, big data's impact cannot be interpreted only in terms of its functional promise; it must also be acknowledged as a phenomenon set to impact our policymaking institutions, including their legitimacy.


Full-text retrieved from Springer Link database: https://doi.org/10.1007/s00779-018-1154-1

ABSTRACT: "This paper offered a ubiquitous parking guidance robot system used for assisting drivers in selection of parking lots near their destination locations and recommending the parking lot with optimum conditions based on the forecast results by deep learning the big data of parking lots obtained through Internet of Things, which not only decreased the cost and the required time of parking, but also reduced the parking failure by a relatively accurate guidance way, and is important for drivers to save time on parking when drivers hurry to their destination locations such as hospital. The ubiquitous parking guidance robot system can be implemented as parking guidance apps or parking guidance plugins of navigation apps installed in drivers' mobile phones. Drivers can independently set their filtering criteria of guidance, and then the parking lot with the optimum conditions such as shortest distance, largest number of parking spaces and best environment will be recommended."

Bibliography on “broadband”


Full-text retrieved from ScienceDirect database: http://dx.doi.org/10.1016/j.jebo.2018.08.020

ABSTRACT: "The recent economics literature has begun to recognise that ICT is a heterogeneous technology altering information storage, processing and communication in distinct ways. In this paper we use the arrival of a new communication technology, ADSL broadband, to study the effects of heterogeneous types of ICT on firm performance. To do so free from endogeneity bias, we construct instruments using postcode-level geographic variation in the infrastructure underlying broadband internet – the pre-existing telephone network. We show that after placing various restrictions on the sample, instruments based on the timing of ADSL broadband enablement and the cable distance to the local telephone exchange satisfy the conditions for instrument relevancy and validity. We find in turn, that ICT causally affects firm size (captured by either sales or employment) but not productivity."

ABSTRACT: "Since the beginning of the 21st century mobile broadband has diffused very rapidly in many countries around the world. This paper investigates to what extent the diffusion of mobile broadband has impacted economic development in terms of GDP. The study is based on data for 135 countries (90 countries once controlling for capital, employment and human capital) for the period 2002–2014. The results show that there is a statistically significant effect from mobile broadband on GDP both when mobile broadband is first introduced and gradually as mobile broadband diffuses throughout different economies. Based on a two stage model we are able to conclude that on average a 10 percent increase of mobile broadband adoption causes a 0.8 percent increase in GDP. Moreover, once we control for the years since mobile broadband was introduced, we find that the economic effect gradually decreases over time. For the country with median average growth of mobile broadband penetration, this implies that the economic effect has disappeared 6 years after introduction (if introduction is defined as a mobile penetration of 1 percent)."


ABSTRACT: "Purpose This paper aims to compare the costs of deploying different wireless terrestrial broadband technologies in the Andes and Amazon Regions of Peru. These areas are representatives of different and challenging geographic regions throughout the globe that currently are severely underserved or unserved for vital broadband services necessary to bridge the ?Digital Divide?. Design/methodology/approach The broadband technologies studied include Wi-Fi, Worldwide Interoperability for Microwave Access (WiMAX), long term evolution (LTE), TVWS and new stratospheric platforms (super-pressure balloons). This study conducts a technical analysis (design and simulation) of wireless broadband networks, and a bottom-up engineering cost analysis to estimate and compare the deployment and operating costs of the networks over a 10-year period. The analysis also identifies potential regulatory barriers to deployment associated with spectrum allocation licenses and overbooking requirements intended to improve quality of service. Findings Comparison of the capital and operating expenses of these options over a 10-year period finds that LTE and Wi-Fi can be the lowest cost alternatives, though significantly, stratospheric balloons have the lowest initial costs for the first few years and can factor as a low-cost broadband catalyst early in deployment. Finally, the lowest cost technology broadband roadmap for the 10-year period is presented, which includes using stratospheric balloons (carrying micro-LTE base stations) for the first years and deploying complementary terrestrial LTE networks for the rest of the 10-year period. Originality/value This study presents detailed technical and engineering cost analysis results of wireless access network deployments, including advanced wireless technologies and new unmanned aerial systems, to expand broadband services to rural areas in mountainous (Andes Region) and rainforest (Amazon Region) geographies to reduce the digital divide in emerging countries. Results aim to aid governments, regulators, internet service providers (incumbents and competitive) and content providers to assess current alternatives to expand broadband service in these rural areas.; Purpose This paper aims to compare the costs of deploying different wireless terrestrial broadband technologies in the Andes and Amazon Regions of Peru. These areas are representatives of different and challenging geographic regions throughout the globe that currently are severely underserved or unserved for vital broadband services necessary to bridge the ?Digital Divide?. Design/methodology/approach The broadband technologies studied include Wi-Fi, Worldwide Interoperability for Microwave Access (WiMAX), long term evolution (LTE), TVWS and new stratospheric platforms (super-pressure balloons). This study conducts a technical analysis (design and simulation) of wireless broadband networks, and a bottom-up engineering cost analysis to estimate and compare the deployment and operating costs of the
networks over a 10-year period. The analysis also identifies potential regulatory barriers to deployment associated with spectrum allocation licenses and overbooking requirements intended to improve quality of service. Findings Comparison of the capital and operating expenses of these options over a 10-year period finds that LTE and Wi-Fi can be the lowest cost alternatives, though significantly, stratospheric balloons have the lowest initial costs for the first few years and can factor as a low-cost broadband catalyst early in deployment. Finally, the lowest cost technology broadband roadmap for the 10-year period is presented, which includes using stratospheric balloons (carrying micro-LTE base stations) for the first years and deploying complementary terrestrial LTE networks for the rest of the 10-year period. Originality/Value This study presents detailed technical and engineering cost analysis results of wireless access network deployments, including advanced wireless technologies and new unmanned aerial systems, to expand broadband services to rural areas in mountainous (Andes Region) and rainforest (Amazon Region) geographies to reduce the digital divide in emerging countries. Results aim to aid governments, regulators, internet service providers (incumbents and competitive) and content providers to assess current alternatives to expand broadband service in these rural areas."


ABSTRACT: "In this paper, I aim to quantify the relationship between higher broadband speeds (10 Mbps versus 25 Mbps) and the growth rates in important economic outcomes in U.S. counties including jobs, personal income, and labor earnings. Doing so exposes the potential for severe selection bias in studies of broadband's economic impact, which is addressed in this study using Coarsened Exact Matching. Once balanced, the data reveal no economic payoff from the 15 Mbps speed difference between the years 2013 and 2015 (when data is available). I also revisit an early and widely-cited study on broadband's effect on employment to evaluate the possible impacts of selection bias, and conclude that the positive benefits of broadband reported in that particular study are likely spurious. The selection bias problem may infect other studies on the economic impacts of broadband Internet services. Future research on broadband’s economic impact should explicitly address selection bias. "


ABSTRACT: "High speed broadband creates potential productivity gains and has a positive impact on economic growth. Achieving Europe’s broadband access objectives will require large scale investment in next generation broadband networks, and it is imperative that an appropriate investment climate is created to encourage fibre network rollout. This study considers whether and how competition in the DSL market affects the incentives of operators to invest in the deployment of high-end fibre optic networks. Most earlier research on the drivers of investment in broadband technology has focused on the effect of mandatory access policies, such as local loop unbundling, or competing infrastructures. We posit that competition in the DSL sector may also influence fibre penetration, possibly to a considerable extent. We find that the relationship between service-based competition and fibre penetration is non-linear: a lack of or severe DSL competition is correlated with a negative effect on fibre penetration, but if a moderate degree of competition is already present in the market, more service-based competition may positively influence fibre penetration. The scale of these effects however varies with the openness of the DSL market: operators' incentives to invest in fibre appear to be more sensitive to changes in DSL competition if there is extensive local loop unbundling. "

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Bibliography on “climate change and ICTs”


Full-text retrieved from ProQuest Central database: [https://search.proquest.com/docview/2123891806?accountid=41838](https://search.proquest.com/docview/2123891806?accountid=41838)

ABSTRACT: "Numerous Information and Communication Technologies (ICTs) applications have been developed in irrigated agriculture. While there are studies focusing on ICTs impacts at the farm level, no research deals with this issue at the Water Authority (WA) level where ICTs can support strategic decisions on land and water allocation. The present study aims to design a theoretical model to estimate economic benefits from the ICT-informed decision process of water management in agriculture. Specifically, the study analyzes the motivations driving a case study WA using ICTs to support strategic management decisions involving risky choices. Results show that the WA under investigation has potentialities to save water and to implement adaptation strategies to climate change. Higher benefits from ICTs are attainable in areas with limited water availability and where the WA can effectively manage land allocation and control water delivery volumes. The study concludes that ICTs might have a disruptive potential in fulfilling WA’s specific information needs, but there is still a need to improve their accuracy due to the risk surrounding the decisions at stake."


Full-text retrieved from Science Direct database: [http://doi.org/10.1016/j.respol.2018.10.001](http://doi.org/10.1016/j.respol.2018.10.001)

ABSTRACT: "A techno-economic paradigm embraces a whole constellation of technically and economically interrelated innovations and influences most industries and an entire phase of economic development. Its full potential to drive and shape economic growth can only be realized after far-reaching reforms have been made in the “socio-institutional frameworks” of major economies and the world economy. In close association with ICT, biotechnology – or the trio of biotechnologies: red (biomedicine), green (plant breeding) and white (industrial) – is now capable of such a role, although the necessary reforms remain to be made. This paper shows how far and in what sense it has reached technological maturity, and what “mismatches” between it and the socio-institutional framework are obstructing its further development and diffusion. It argues that biotechnology (green and white) is needed to play a key role in the struggle against climate change – which in turn can be expected to draw out its potential. "

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Bibliography on “cybersecurity”

Full-text retrieved from ScienceDirect database: [http://doi.acm.org/10.1145/3158372](http://doi.acm.org/10.1145/3158372)

ABSTRACT: "The intrusiveness of Web tracking and the increasing invasiveness of digital advertising have raised serious concerns regarding user privacy and Web usability, leading a substantial chunk of the populace to adopt ad-blocking technologies in recent years. The problem with these technologies, however, is that they are extremely limited and radical in their approach, and they completely disregard the underlying economic model of the Web, in which users get content free in return for allowing advertisers to show them ads. Nowadays, with around 200 million people regularly using such tools, said economic model is in danger. In this article, we investigate an Internet technology that targets users who are not, in general, against advertising, accept the trade-off that comes with the “free” content, but—for privacy concerns—they wish to exert fine-grained control over tracking. Our working assumption is that some categories of web pages (e.g., related to health or religion) are more privacy-sensitive to users than others (e.g., about education or science). Capitalizing on this, we propose a technology that allows users to specify the categories of web pages that are privacy-sensitive to them and block the trackers present on such web pages only. As tracking is prevented by blocking network connections of third-party domains, we avoid not only tracking but also third-party ads. Since users continue receiving ads on those web pages that belong to non-sensitive categories, our approach may provide a better point of operation within the trade-off between user privacy and the Web economy. To test the appropriateness and feasibility of our solution, we implemented it as a Web-browser plug-in, which is currently available for Google Chrome and Mozilla Firefox. Experimental results from the collected data of 746 users during one year show that only 16.25% of ads are blocked by our tool, which seems to indicate that the economic impact of the ad-blocking exerted by privacy-sensitive users could be significantly reduced."

Full-text retrieved from ACM DL database: [http://doi.acm.org/10.1145/3176246](http://doi.acm.org/10.1145/3176246)

ABSTRACT: "Third-party networks collect vast amounts of data about users via websites and mobile applications. Consolidations among tracker companies can significantly increase their individual tracking capabilities, prompting scrutiny by competition regulators. Traditional measures of market share, based on revenue or sales, fail to represent the tracking capability of a tracker, especially if it spans both web and mobile. This article proposes a new approach to measure the concentration of tracking capability, based on the reach of a tracker on popular websites and apps. Our results reveal that tracker prominence and parent–subsidiary relationships have significant impact on accurately measuring concentration."

ABSTRACT: "Internet of Things (IoT) is ubiquitous in society. IoT-enabled dynamic capabilities in real-time sensing and responding can spur digital transformation in unlocking the potential of digital government into data-driven smart government capable of delivering policies and services of public interest and public value. However, the literature indicates challenges in IoT cybersecurity and systemic use across the government. There is the urgent need for IoT research on policy and use. This paper developed a framework for IoT-enabled smart government performance. We applied this framework to conduct case study analyses of digital technology policy, IoT cybersecurity policy, and IoT use in major application domains at the U.S. federal government level. The results show that some agencies were strategic and forward-thinking in funding and partnering with sub-national governments in promoting the IoT use. However, there remains a critical need for national IoT policies to promote systemic IoT use across the application domains."


ABSTRACT: "Online social networks provide an environment for their users to share content with others, where the user who shares a content item is put in charge, generally ignoring others that might be affected by it. However, a content that is shared by one user can very well violate the privacy of other users. To remedy this, ideally, all users who are related to a content should get a say in how the content should be shared. Recent approaches advocate the use of agreement technologies to enable stakeholders of a post to discuss the privacy configurations of a post. This allows related individuals to express concerns so that various privacy violations are avoided up front. Existing techniques try to establish an agreement on a single post. However, most of the time, agreement should be established over multiple posts such that the user can tolerate slight breaches of privacy in return of a right to share posts themselves in future interactions. As a result, users can help each other preserve their privacy, viewing this as their social responsibility. This article develops a reciprocity-based negotiation for reaching privacy agreements among users and introduces a negotiation architecture that combines semantic privacy rules with utility functions. We evaluate our approach over multiagent simulations with software agents that mimic users based on a user study."


ABSTRACT: "The success (or failure) of malware attacks depends upon both technological and human factors. The most security-conscious users are susceptible to unknown vulnerabilities, and even the best security mechanisms can be circumvented as a result of user actions. Although there has been significant research on the technical aspects of malware attacks and defence, there has been much less research on how users interact with both malware and current malware defences. This article describes a field study designed to examine the interactions between users, antivirus (AV) software, and malware as they occur on deployed systems. In a fashion similar to medical studies that evaluate the efficacy of a particular treatment, our experiment aimed to assess the performance of AV software and the human risk factors of malware attacks. The 4-month study involved 50 home users who agreed to use laptops that were instrumented to monitor for possible malware attacks and gather data on user behaviour. This study provided some very interesting, non-intuitive insights into the efficacy of AV software and human risk factors. AV performance was found to be lower under real-life conditions compared to tests.
conducted in controlled conditions. Moreover, computer expertise, volume of network usage, and peer-to-peer activity were found to be significant correlates of malware attacks. We assert that this work shows the viability and the merits of evaluating security products, techniques, and strategies to protect systems through long-term field studies with greater ecological validity than can be achieved through other means.


ABSTRACT: "The cybersecurity issues represent a complex challenge for all companies committing to Industry 4.0 paradigm. On the other hand, the characterization of cybersecurity concept within Industry 4.0 contexts proved to be an emerging and relevant topic in the recent literature. The paper proposes to analyse, through a systematic literature review approach, the way in which the existing state of art deals with the cybersecurity issues in Industry 4.0 contexts. In particular, the focus will be on the investigation of the main elements associated with cybersecurity theme (i.e. asset involved into cyber-attacks, system vulnerabilities, cyber threats, risks and countermeasures) within those industrial contexts where physical systems (machines, shop floors, plants) are connected each other via the Internet. Four areas of analysis are defined: definitions of cybersecurity and Industry 4.0 concepts, the industrial focus of the analysed studies, the cybersecurity characterization and the management attempts of cybersecurity issues. Through the literature review analysis, a framework of the main features characterizing each area is discussed, providing interesting evidences for future research and applications."

Full-text retrieved from ACM DL database: [http://doi.acm.org/10.1145/3155808](http://doi.acm.org/10.1145/3155808)

ABSTRACT: "Bitcoin has enjoyed wider adoption than any previous cryptocurrency; yet its success has also attracted the attention of fraudsters who have taken advantage of operational insecurity and transaction irreversibility. We study the risk that investors face from the closure of Bitcoin exchanges, which convert between Bitcoins and hard currency. We examine the track record of 80 Bitcoin exchanges established between 2010 and 2015. We find that nearly half (38) have since closed, with customer account balances sometimes wiped out. Fraudsters are sometimes to blame, but not always. Twenty-five exchanges suffered security breaches, 15 of which subsequently closed. We present logistic regressions using longitudinal data on Bitcoin exchanges aggregated quarterly. We find that experiencing a breach is correlated with a 13 times greater odds that an exchange will close in that same quarter. We find that higher-volume exchanges are less likely to close (each doubling in trade volume corresponds to a 12% decrease in the odds of closure). We also find that exchanges that derive most of their business from trading less popular (fiat) currencies, which are offered by at most one competitor, are less likely to close."

Full-text retrieved from IEEEXplore database: [http://dx.doi.org/10.1109/MSP.2018.3761723](http://dx.doi.org/10.1109/MSP.2018.3761723)

ABSTRACT: "Organizations must understand their specific risks and plan for their systems to be resilient to quantum attacks. Assessment is based on three quantities: the security shelf life of the information assets, the migration time to systems designed to resist quantum attacks, and the time remaining before quantum computers break the security."

Full-text retrieved from Springer Link database: https://doi.org/10.1007/s11235-018-0446-0

ABSTRACT: "The rapid proliferation of mobile networks has made security an important issue, particularly for transaction oriented applications. Recently, Jo et al. presented an efficient authentication protocol for wireless mobile networks and asserted that their proposed approach provides all known security functionalities including session key (SK) security under the assumption of the widely-accepted Canetti–Krawczyk (CK) model. We reviewed Jo et al.’s proposed roaming protocol and we demonstrate that it fails to provide the SK-security under the CK-adversary setting. We then propose an enhancement to Jo et al.’s roaming protocol to address the security drawback found in Jo et al.’s protocol. In the enhanced roaming protocol, we achieve the SK-security along with reduced computation, communication and storage costs. We also simulate the enhanced roaming protocol using NS2 for end-to-end delay and network throughput, and the simulation results obtained demonstrate the efficiency of our protocol.”


Full-text retrieved from Science Direct database: http://doi.org/10.1016/j.compeleceng.2018.08.021

ABSTRACT: "With the rapid development of internet of things (IoT), it has brought great convenience to users in different fields, such as smart home, smart transportation and so on. However, it also carries potential security risks. In order to solve this challenge, in this paper, we first introduce three layers of IoT, i.e., perception layer, network layer and application layer, then corresponding security problems of three layers are introduced. Second, we propose a high-level security management scheme based on blockchain for different IoT devices in the full life cycle. Finally, we give open research problems and future work."


Full-text retrieved from Science Direct database: http://doi.org/10.1016/S1353-4858(18)30098-9

ABSTRACT: "In the evolving landscape of mobile networks, we are beginning to see new vulnerabilities open up through 3G and 4G networks, and it is more than likely that 5G will follow this same fate. Protecting only this Gi Interface is no longer enough for any service providers’ security. We are beginning to see new vulnerabilities open up through 3G and 4G networks, and it is more than likely that 5G will suffer the same fate. In addition to mitigating and stopping terabit-scale attacks coming from the Internet, it is imperative for enterprises to improve their security by using full-spectrum defences that protect the whole infrastructure. With the assistance of 5G service providers, businesses can then rest easy knowing they have multiple lines of defence, explains Ronald Sens at A10 Networks."


Full-text retrieved from ScienceDirect database: http://doi.org/10.1016/j.suscom.2018.06.003

ABSTRACT: "With the significant advances in communication technologies and in many other sectors, also are growing up security and privacy issues. In our research, is introduced a base technology called Cloud Computing (CC) to operate with the Big Data (BD). CC is a technology which refers to the processing power of data in the fog, providing more “green” computational and sustainable computing. Since it is a recently investigated technology, it has many gaps in security and privacy. So, in this paper, we proposed a new system for Cloud Computing..."
integrated with Internet of Things as a base scenario for Big Data. Moreover, we tried to establish an architecture relying on the security of the network in order to improve the security issues. A solution proposed is installing a security “wall” between the Cloud Server and the Internet, with the aim to eliminate the privacy and security issues. As a result, we consider that Cloud Computing deals more efficiently with the privacy issue of bits transferred through time. Through our proposed system, the interaction and cooperation between things and objects communicate through the wireless networks in order to fulfill the objective set to them as a combined entity. Regarding the major goal of our research, which is the security, a sort survey of IoT and Cloud Computing presented, with a focus on the security issues of both technologies. In addition to this, we try to present the security challenges of the integration of IoT and Cloud Computing with the aim to provide an architecture relying on the security of the network in order to improve their security issues. Finally, we realize that through our study Cloud Computing could offer a more “green” and efficient fog environment for sustainable computing scenarios. 


Full-text retrieved from ACM DL database: http://doi.acm.org/10.1145/3122985

ABSTRACT: "Internet security and technology policy research regularly uses technical indicators of abuse to identify culprits and to tailor mitigation strategies. As a major obstacle, current inferences from abuse data that aim to characterize providers with poor security practices often use a naive normalization of abuse (abuse counts divided by network size) and do not take into account other inherent or structural properties of providers. Even the size estimates are subject to measurement errors relating to attribution, aggregation, and various sources of heterogeneity. More precise indicators are costly to measure at Internet scale. We address these issues for the case of hosting providers with a statistical model of the abuse data generation process, using phishing sites in hosting networks as a case study. We decompose error sources and then estimate key parameters of the model, controlling for heterogeneity in size and business model. We find that 84% of the variation in abuse counts across 45,358 hosting providers can be explained with structural factors alone. Informed by the fitted model, we systematically select and enrich a subset of 105 homogeneous “statistical twins” with additional explanatory variables, unreasonable to collect for all hosting providers. We find that abuse is positively associated with the popularity of websites hosted and with the prevalence of popular content management systems. Moreover, hosting providers who charge higher prices (after controlling for level differences between countries) witness less abuse. These structural factors together explain a further 77% of the remaining variation. This calls into question premature inferences from raw abuse indicators about the security efforts of actors, and suggests the adoption of similar analysis frameworks in all domains where network measurement aims at informing technology policy.


ABSTRACT: "The explosive growth of smart objects and their dependency on wireless technologies for communication increases the vulnerability of Internet of Things (IoT) to cyberattacks. Cyberattacks faced by IoT present daunting challenges to digital forensic experts. Researchers adopt various forensic techniques to investigate such attacks. These techniques aim to track internal and external attacks by emphasizing on communication mechanisms and IoT’s architectural vulnerabilities. In this study, we explore IoT’s novel factors affecting traditional computer forensics. We investigate recent studies on IoT forensics by analyzing their strengths and weaknesses. We categorize and classify the literature by devising a taxonomy based on
forensics phases, enablers, networks, sources of evidence, investigation modes, forensics models, forensics layers, forensics tools, and forensics data processing. We also enumerate a few prominent use cases of IoT forensics and present the key requirements for enabling IoT forensics. Finally, we identify and discuss several indispensable open research challenges as future research directions.

Bibliography on “digital divide”


Full-text retrieved from Emerald Insight database: https://doi.org/10.1080/1369118X.2017.1355403

ABSTRACT: "There is a strong push to increase American students? interest in Science, Technology, Engineering, and Mathematic (STEM) careers. However, minority and female students remain underrepresented in the STEM fields. Therefore, it is essential that we continue to examine the potential factors that both incite and dissuade STEM interest. We apply Expectancy-Value Theory (EVT) to examine STEM attitudes of predominantly low-socioeconomic status minority elementary school students over the course of a computing intervention. Furthermore, we integrate the digital inequality mental access conceptualization of emotional costs into the EVT model in order to predict students? negative STEM attitudes. Data are from a large-scale computing intervention that took place in a primarily minority, high poverty, urban elementary school district located in the southeastern USA. Results indicate that positive expectancies for success and subjective task values predict students? positive STEM attitudes. Emotional costs toward technology primarily predict negative STEM attitudes. Students? expectancies/values and emotional costs may have a push-and-pull? effect on the formation of STEM attitudes. This study successfully links digital disparities to STEM disparities by integrating the digital inequality concept of emotional costs. Practically, we conclude that future computing interventions should increase students? academic-related expectancies and values while also minimizing their emotional costs in order to address both digital and STEM inequalities. Theoretically, we conclude that broad conceptualizations of emotional costs should be included in future studies to help explain negative attitudes/motivations toward STEM-related topics."


Full-text retrieved from Taylor & Francis database: https://doi.org/10.1080/1369118X.2017.1371785

ABSTRACT: Given the accelerated aging of the global population, countries must prepare to assure their older adults? welfare. The Internet appears to be a means of ensuring that everybody, regardless of age, has access to information and can stay in touch. Data so far show the existence of a digital divide, so the question becomes: Is there a way to accelerate the digital inclusion of older adults? Using microdata from Buenos Aires (Argentina), Lima (Peru) and Guatemala City (Guatemala), this paper focuses on the role of younger people in the household in the process of Internet adoption by older adults. Regression analysis confirms that younger people play a pivotal role in the adoption process, but not in intensity of use, in which living with a spouse or partner is important for increasing the number of hours spent using the Internet."

Full-text retrieved from Emerald Insight database: https://doi.org/10.1108/DPRG-03-2018-0009

**ABSTRACT:** "Purpose This paper aims to compare the costs of deploying different wireless terrestrial broadband technologies in the Andes and Amazon Regions of Peru. These areas are representatives of different and challenging geographic regions throughout the globe that currently are severely underserved or unserved for vital broadband services necessary to bridge the ?Digital Divide?. Design/methodology/approach The broadband technologies studied include Wi-Fi, Worldwide Interoperability for Microwave Access (WiMAX), long term evolution (LTE), TVWS and new stratospheric platforms (super-pressure balloons). This study conducts a technical analysis (design and simulation) of wireless broadband networks, and a bottom-up engineering cost analysis to estimate and compare the deployment and operating costs of the networks over a 10-year period. The analysis also identifies potential regulatory barriers to deployment associated with spectrum allocation licenses and overbooking requirements intended to improve quality of service. Findings Comparison of the capital and operating expenses of these options over a 10-year period finds that LTE and Wi-Fi can be the lowest cost alternatives, though significantly, stratospheric balloons have the lowest initial costs for the first few years and can factor as a low-cost broadband catalyst early in deployment. Finally, the lowest cost technology broadband roadmap for the 10-year period is presented, which includes using stratospheric balloons (carrying micro-LTE base stations) for the first years and deploying complementary terrestrial LTE networks for the rest of the 10-year period. Originality/value This study presents detailed technical and engineering cost analysis results of wireless access network deployments, including advanced wireless technologies and new unmanned aerial systems, to expand broadband services to rural areas in mountainous (Andes Region) and rainforest (Amazon Region) geographies to reduce the digital divide in emerging countries. Results aim to aid governments, regulators, internet service providers (incumbents and competitive) and content providers to assess current alternatives to expand broadband service in these rural areas.; Purpose This paper aims to compare the costs of deploying different wireless terrestrial broadband technologies in the Andes and Amazon Regions of Peru. These areas are representatives of different and challenging geographic regions throughout the globe that currently are severely underserved or unserved for vital broadband services necessary to bridge the ?Digital Divide?. Design/methodology/approach The broadband technologies studied include Wi-Fi, Worldwide Interoperability for Microwave Access (WiMAX), long term evolution (LTE), TVWS and new stratospheric platforms (super-pressure balloons). This study conducts a technical analysis (design and simulation) of wireless broadband networks, and a bottom-up engineering cost analysis to estimate and compare the deployment and operating costs of the networks over a 10-year period. The analysis also identifies potential regulatory barriers to deployment associated with spectrum allocation licenses and overbooking requirements intended to improve quality of service. Findings Comparison of the capital and operating expenses of these options over a 10-year period finds that LTE and Wi-Fi can be the lowest cost alternatives, though significantly, stratospheric balloons have the lowest initial costs for the first few years and can factor as a low-cost broadband catalyst early in deployment. Finally, the lowest cost technology broadband roadmap for the 10-year period is presented, which includes using stratospheric balloons (carrying micro-LTE base stations) for the first years and deploying complementary terrestrial LTE networks for the rest of the 10-year period. Originality/value This study presents detailed technical and engineering cost analysis results of wireless access network deployments, including advanced wireless technologies and new unmanned aerial systems, to expand broadband services to rural areas in mountainous (Andes Region) and rainforest (Amazon Region) geographies to reduce the digital divide in emerging countries. Results aim to aid governments, regulators, internet service providers (incumbents and competitive) and content providers to assess current alternatives to expand broadband service in these rural areas."
competitive) and content providers to assess current alternatives to expand broadband service in these rural areas."


ABSTRACT: "The digital economy offers home based micro-businesses in rural areas many advantages but stubborn social, economic and territorial digital divides continue to create challenges for this sector of the rural economy. Complex digital inequalities are illustrated in our case studies of the digital behaviour and Internet experiences of those running micro, home based businesses in a remote, digitally underserved rural community before, during and after the deployment of broadband technology. Findings draw attention to the role and importance of fit-for-purpose broadband in promoting digital inclusion for individuals, households and small, home based businesses: in a fast changing digital national and global economy remote rural home based micro-businesses are at risk of being left behind."

Bibliography on “digital economy”


Full-text retrieved from ScienceDirect database: http://doi.acm.org/10.1145/3158372

ABSTRACT: "The intrusiveness of Web tracking and the increasing invasiveness of digital advertising have raised serious concerns regarding user privacy and Web usability, leading a substantial chunk of the populace to adopt ad-blocking technologies in recent years. The problem with these technologies, however, is that they are extremely limited and radical in their approach, and they completely disregard the underlying economic model of the Web, in which users get content free in return for allowing advertisers to show them ads. Nowadays, with around 200 million people regularly using such tools, said economic model is in danger.

In this article, we investigate an Internet technology that targets users who are not, in general, against advertising, accept the trade-off that comes with the “free” content, but—for privacy concerns—they wish to exert fine-grained control over tracking. Our working assumption is that some categories of web pages (e.g., related to health or religion) are more privacy-sensitive to users than others (e.g., about education or science). Capitalizing on this, we propose a technology that allows users to specify the categories of web pages that are privacy-sensitive to them and block the trackers present on such web pages only. As tracking is prevented by blocking network connections of third-party domains, we avoid not only tracking but also third-party ads. Since users continue receiving ads on those web pages that belong to non-sensitive categories, our approach may provide a better point of operation within the trade-off between user privacy and the Web economy. To test the appropriateness and feasibility of our solution, we implemented it as a Web-browser plug-in, which is currently available for Google Chrome and Mozilla Firefox. Experimental results from the collected data of 746 users during one year show that only 16.25% of ads are blocked by our tool, which seems to indicate that the economic impact of the ad-blocking exerted by privacy-sensitive users could be significantly reduced."

ABSTRACT: "Payment systems play a significant role in our daily lives. They are an important driver of economic activities and a vital part of the banking infrastructure of any country. Several current payment systems focus on security and reliability but pay less attention to users’ needs and behaviors. For example, people may share their bankcards with friends or relatives to withdraw money for various reasons. This behavior can lead to a variety of privacy and security issues since the cardholder has to share a bankcard and other sensitive information such as a personal identification number (PIN). In addition, it is commonplace that cardholders may lose their cards, and may not be able to access their accounts due to various reasons. Furthermore, transferring money to an individual who has lost their bankcard and identification information is not a straightforward task. A user-friendly person-to-person payment system is urgently needed to perform secure and reliable transactions that benefit from current technological advancements. In this paper, we propose two secure fund transfer methods termed QuickCash Online and QuickCash Offline to transfer money from peer to peer using the existing banking infrastructure. Our methods provide a convenient way to transfer money quickly, and they do not require using bank cards or any identification card. Unlike other person-to-person payment systems, the proposed methods do not require the receiving entity to have a bank account, or to perform any registration procedure. We implement our QuickCash payment systems and analyze their security strengths and properties."


ABSTRACT: "Current and near future organizational strategies are placing great emphasis on machines, robots and AI. Automation to reduce menial or repetitive jobs, digitization of work to render remaining workers more efficient and AI to provide more reliable and productive top-end professional work are all inter-related initiatives enacted by current dominant imaginaries of efficiency and maximization. We argue that there is an Ellulian phenomenon of efficient techniques spreading within technical logics that go beyond neo-liberal frontiers – namely, algorithmic approaches which attempt to capture and reduce all manners of human knowledge and meaning across the efficient explication, formalization and manipulation of signs. Such purely ‘efficient’ and analytical approaches fail to recognize the unique and inimitable characteristics of human creativity and its associated tacit knowledge. Inspirations from more holistic interpretations of Jungian symbolism allow us to provide a starting point towards comprehending the complex, ambiguous, constantly emerging and essentially hard-to-define aspects of human creativity and tacit knowledge. This, along with the argument that there exists a relationship between the democratization of knowledge and democratic decisional processes, provides us the basis to present an alternative imaginary of efficiency as proposed by Feenberg (1999). Such an imaginary, allows for the democratic participation of humans in the decisional process and development of technology; and also recognizes and enacts humans as full legitimate partners with technology in their mutual shaping capacities – thus, leading to human-centric organizations."


ABSTRACT: "This study compares the factors that determine consumer acceptance SMS (Short Message Service), NFC (Near Field Communication) and QR (Quick Response) mobile
payment systems, in addition to determining the principal factors which influence the adoption of these mobile payment systems as means payment. A comprehensive review of the scientific literature has justified the development of a behavioral model that explains intention to use of mobile payments. The results and novelty of this research lies in the formulation of a different behavior according to the use given by users to each of the proposed payment tools. The conclusions and implications for management provide alternatives for companies."


ABSTRACT: "The digital transformation will have large effects on the labour market. Previous studies mostly reveal that half of all current jobs are susceptible to automation in the next 10 to 20 years. These studies use assessments by technology experts on the future automation probabilities of occupations. We, instead, assume that only certain tasks in an occupation, rather than entire occupations, can be substituted. We directly calculate automation probabilities – labelled as substitution potentials – for occupations in Germany by using German occupational data from an expert database. Considering approximately 8000 tasks, we assess whether they can be replaced by computers or computer-controlled machines according to programmable rules. We do not give a forecast for the future but estimate existing technological possibilities. We argue that previous studies overestimate automation probabilities because they do not start with the tasks. We demonstrate that we obtain values similar to those in previous studies when assuming that entire occupations are replaceable: approximately 47% of German employees work in a substitutable occupation in 2013. Assuming that only certain tasks can be substituted, we find that only 15% of German employees are at risk. Furthermore, we provide evidence on the relationship between automation risks and employment growth."


Full-text retrieved from ACM DL database: [http://doi.acm.org/10.1145/3158337](http://doi.acm.org/10.1145/3158337)

ABSTRACT: "While attention has always been prized above money, few people have had the means to attract it to themselves. But the new digital economy has provided everyone with a loudspeaker; thus efforts at getting noticed have rapidly escalated in global society. The attention economy focuses on the mechanisms that mediate the allocation of this scarce entity. Social networks and big data play a role in determining what is noticed and acted upon."


ABSTRACT: "With contemporary life becoming more instantly connected and as the disruptiveness of technologies is occurring at a faster pace, the Internet-of-Things (IoT) is now even more accessible and common, prompting companies to adopt IoT solutions to improve their customers’ experiences. IoT enables physical devices to connect and exchange data through the Internet by collecting strategic information, thus creating opportunities for companies to become more efficient and responsive to market changes. This paper thus investigates how companies are blending IoT solutions into their relationship marketing strategies and focuses on finding how this combination can boost business performance and what the challenges are when dealing with disruptive technology changes. To explore the subject’s detailed information and to get a better understanding of managerial decisions concerning IoT, this research conducts in-depth case design analysis from a company’s point of view. The data presented herein come from two main sources: open-ended interviews and direct observations, with the
interviewees holding high managerial positions in Taiwan’s IoT industry. This study aims to contribute to the literature by bringing awareness to the importance of closely following technological trends in combination with relationship marketing strategies and how they help firms remain competitive and profitable. The results of this empirical research shed light on the importance of understanding the impacts of IoT solutions on businesses, especially on clients' behaviors and the development of targeted strategies. The cases herein present similarities on the awareness of the speed of disruptive technologies like IoT, the importance of developing new solutions aligned with new technologies, their impact at creating new business solutions, and their contribution to the development of firm strategies. The findings also show that the application of innovative IoT solutions positively affects the process of developing long and successful relationships through relationship marketing actions. Conversely, concerns related to data security vary according to business segments and relationship marketing pillars such as trust, commitment, and reliability, which could help reduce feelings of ambiguity. This research contributes to filling the gap in the literature by offering a deeper understanding of the correlation between IoT and relationship marketing. Moreover, we illustrate how a combination of these two factors can contribute to the development of stronger marketing strategies, as well as their implications on business. The results of this research suggest further and more comprehensive investigations are needed in the future in order to explore the topic in greater depth and to see how the speed of technology is evolving."


ABSTRACT: "The deployment of cryptocurrencies in e-commerce has reached a significant number of transactions and continuous increases in monetary circulation; nevertheless, they face two impediments: a lack of awareness of the technological utility, and a lack of trust among consumers. E-commerce carried out through social networks expands its application to a new paradigm called social commerce. Social commerce uses the content generated within social networks to attract new consumers and influence their behavior. The objective of this paper is to analyze the role played by social media in increasing trust and intention to use cryptocurrencies in making electronic payments. It develops a model that combines constructs from social support theory, social commerce, and the technology acceptance model. This model is evaluated using the partial least square analysis. The obtained results show that social commerce increases the trust and intention to use cryptocurrencies. However, mutual support among participants does not generate sufficient trust to adequately promote the perceived usefulness of cryptocurrencies. This research provides a practical tool for analyzing how collaborative relationships that emerge in social media can influence or enhance the adoption of a new technology in terms of perceived trust and usefulness. Furthermore, it provides a significant contribution to consumer behavior research by applying the social support theory to the adoption of new information technologies. These theoretical and practical contributions are detailed in the final section of the paper." 


ABSTRACT: "Bitcoin has enjoyed wider adoption than any previous cryptocurrency; yet its success has also attracted the attention of fraudsters who have taken advantage of operational insecurity and transaction irreversibility. We study the risk that investors face from the closure of Bitcoin exchanges, which convert between Bitcoins and hard currency. We examine the track record of 80 Bitcoin exchanges established between 2010 and 2015. We find that nearly half (38) have since closed, with customer account balances sometimes wiped out. Fraudsters are"
sometimes to blame, but not always. Twenty-five exchanges suffered security breaches, 15 of which subsequently closed. We present logistic regressions using longitudinal data on Bitcoin exchanges aggregated quarterly. We find that experiencing a breach is correlated with a 13 times greater odds that an exchange will close in that same quarter. We find that higher-volume exchanges are less likely to close (each doubling in trade volume corresponds to a 12% decrease in the odds of closure). We also find that exchanges that derive most of their business from trading less popular (fiat) currencies, which are offered by at most one competitor, are less likely to close.


Full-text retrieved from Springer Link database: https://doi.org/10.1007/s00779-018-1138-1

ABSTRACT: "The communication process is very easy today due to the rapid growth of information technology. In addition, the development of cloud computing technology makes it easier than earlier days by facilitating the large volume of data exchange anytime and from anywhere in the world. E-businesses are successfully running today due to the development of cloud computing technology. Specifically in cloud computing, cloud services are providing enormous support to share the resources and data in an efficient way with less cost expenses for businessmen. However, security is an essential issue for cloud users and services. For this purpose, many security policies have been introduced by various researchers for enhancing the security in e-commerce applications. However, the available security policies are also failing to provide the secured services in the society and e-commerce applications. To overcome this disadvantage, we propose a new policy-oriented secured service model for providing the security of the services in the cloud. The proposed model is the combination of a trust aware policy scheduling algorithm and an effective and intelligent re-encryption scheme. Here, the dynamic trust aware policy-oriented service for allocating the cloud user’s request by the cloud service provider and an effective and re-encryption scheme is used that uses intelligent agent for storing the data in the cloud database securely. The proposed model assures the scalability, reliability, and security for the stored e-commerce data and service access."

Bibliography on “e-Government”


Full-text retrieved from Science Direct database: http://doi.org/10.1016/j.giq.2018.10.005

ABSTRACT: "In the face of the growing digitization of society, a series of transformations are taking place in the public sector that have been described as the second generation of e-government development. The present article traces how these transformations have been anticipated by successive generations of e-government maturity models and critically assesses existing stage models. Based on a survey among 1560 heritage institutions in 11 countries, an empirically validated maturity model for the implementation of open government is presented. The model uses innovation diffusion theory as a theoretical backdrop. While the model is at odds with the unidimensional nature of the Lee & Kwak Open Government Maturity Model (Lee & Kwak, 2012), the findings suggest that the transformative processes predicted by various e-government maturity models are well at work. They result in increasingly integrated services, participative approaches and an emerging collaborative culture, accompanied by a break-up of proprietary data silos and their replacement by a commonly shared data infrastructure, allowing data to be freely shared, inter-linked and re-used. In order to put our findings into perspective,
we take stock of earlier discussions and criticisms of e-government maturity models and offer a new take on the issue of stages-of-growth models in the field of e-government. The proposed approach rests on the assumption of an evolutionary model that is empirically grounded and allows for varying development paths."


Full-text retrieved from ScienceDirect database: [http://doi.org/10.1016/j.giq.2018.10.009](http://doi.org/10.1016/j.giq.2018.10.009)

ABSTRACT: "Low uptake is one of the largest risks facing government agencies that seek to increase efficiency and reduce costs by providing services online. To date, very few studies have tested interventions to increase citizens' use of e-government services. Instead, almost all existing research has focused on identifying correlates of adoption. In the current study, we developed an intervention to increase citizens' use of an e-government service and tested it using a quasi-experiment. The intervention used several techniques informed by research from the applied behavioural sciences to encourage usage, including: altering defaults (customers who visited a customer service centre were invited to complete a form online rather than joining a queue), providing facilitating conditions (customer support was made available), and promoting the benefits and ease of the online service (a customer service representative and in-store written materials emphasised these points). Results indicated that the intervention significantly increased customers' use of the online service by 14.1 percentage points, 95% CI [9.1, 19.2]. Additionally, a survey of customers who experienced the intervention showed they were highly satisfied and appreciated the time-saving benefits, ease of use, and customer support provided. This study is among the first to provide a rigorous test of an intervention to encourage citizens to use e-government services, and can be used to inform practical efforts to increase e-government uptake."


Full-text retrieved from IEEEExplore database: [http://dx.doi.org/10.1109/ICICCT.2018.8473353](http://dx.doi.org/10.1109/ICICCT.2018.8473353)

ABSTRACT: "The rapid expansion in IT and related technologies have made massive digitalization in most of the sectors. The E-governance is one of the sector where a digitalized provision of services has significantly increased the public access to government services. The access to government portal involves uploading and downloading of different formats of data like text, images, compressed files, pdf etc. with massive in size. But in the process of digitization, the strategies for handling big data are not been considered. As a result, E-governance becomes prone to big data challenges in terms of its data size, the speed of data generation, uncertainty and different formats of data. The processing of such a huge E-government data becomes more and more difficult using traditional database management solutions. Therefore the emerging technology like big data Analytics can be leveraged in E-government to process and analyze a huge amount of data generated by E-government portals and applications. The resulting benefits of big data analytics in E-governance will increase the transparency in government operations, improve the efficiency and provide effective E-governance. In this paper we provide an overview of big data analytics and hadoop along with the practical approach to leverage the big data analytics in E-governance using proposed framework."

ABSTRACT: "Changing governance paradigms has been shaping and reshaping the landscape of citizen-administration relationships, from impartial application of rules and regulations by administration to exercise its authority over citizens (bureaucratic paradigm), through provision of public services by administration to fulfil the needs of citizens (consumerist paradigm), to responsibility-sharing between administration and citizens for policy and service processes (participatory paradigm). The recent trend is the administration empowering citizens to create public value by themselves, through socio-technical systems that bring data, services, technologies and people together to respond to changing societal needs. Such systems are called “platforms” and the trend is called “platform paradigm”. The aim of this article is to offer a conceptual framework for citizen-administration relationships under the platform paradigm. While existing models of citizen-administration relationships mainly focus on specific types of relationships, e.g. citizen trust versus administrative transparency, or citizen satisfaction versus administrative performance, the proposed framework identifies a comprehensive set of relationships that explain how decisions by citizens or administration and the policy environment mutually agreed by them contribute to shaping such relationships and building individual and collective capacity for pursuing sustainable development. The framework comprises 15 types of relationships organized along the four governance paradigms. It is illustrated through the analysis of 11 case studies published in the current issue. Based on this analysis, the article also formulates some insights that are relevant to researchers and policymakers who intend to utilize platform governance for sustainable development."


ABSTRACT: "Purpose The purpose of this study is to explore the factors that enable citizens to adopt e-government services in India. Design/methodology/approach The study uses a qualitative approach by conducting semi-structured interviews. Findings The study reveals novel e-government adoption factors, namely, auxiliary facilities, corruption avoidance, transparency and fairness in process, customer support, connectedness and forced adoption, previously unexplored in e-government adoption literature. In addition, the results highlight 17 e-government adoption factors that strengthen the findings from previous literature. Research limitations/implications This study was qualitative in nature, and rather than generalization, the focus was explicitly on obtaining an in-depth understanding. The sample used was sufficient for the purpose of this study and allowed reasonable conclusions to be drawn; however, it cannot be considered representative of a vast country like India. Academicians and information systems researchers can use these findings for further research. Practical implications The findings of this study provide useful insights into the decision-making process of e-government services users in India and similar emerging economies. These findings can be important for government officials tasked with providing e-government services. Originality/value Previous studies in the context of e-government adoption, so far, have tried to integrate adoption factors from previous technology adoption models. Hence, these studies have not been able to capture the complete essence of e-government characteristics. In addition, there are limited studies in e-government adoption in the Indian context.; Purpose The purpose of this study is to explore the factors that enable citizens to adopt e-government services in India. Design/methodology/approach The study uses a qualitative approach by conducting semi-structured interviews. Findings The study reveals novel e-government adoption factors, namely, auxiliary facilities, corruption avoidance, transparency and fairness in process, customer support, connectedness and forced adoption, previously unexplored in e-government adoption literature. In addition, the results highlight 17 e-government adoption factors that strengthen the
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Full-text retrieved from ScienceDirect database: http://doi.org/10.1016/j.giq.2015.08.004

ABSTRACT: "Governments are well on their way to realizing many of the efficiency gains and administrative improvements promised by traditional e-government. Leveraging this mature infrastructure, Taiwan and other leading implementers have begun to explore ways to harness IT innovations beyond efficiency to also alter how government delivers services and solves public problems. Accordingly, Taiwan’s fourth e-government strategy includes a notable commitment to “proactive” service and information delivery. The aim is to flip the service delivery model by shifting from the “pull” approach of traditional e-government—whereby the citizen must seek out government services—towards a “push” model, whereby government proactively and seamlessly delivers just-in-time services to citizens shaped around their individual needs, preferences, circumstance, and location. The article explores Taiwan’s implementation of this new approach through three case studies. From this, the authors extract common trends and characteristics to articulate a consolidated framework for Proactive e-Governance based on citizen-centricity, data-driven personalization, and the empowerment of frontline civil servants. The article concludes with a discussion on the importance of shared global learning as leading e-governments simultaneously seek to uncover new models for governance in the 21st century."


Full-text retrieved from ScienceDirect database: http://doi.org/10.1016/j.giq.2018.01.006

ABSTRACT: "Dashboards visualize a consolidated set data for a certain purpose which enables users to see what is happening and to initiate actions. Dashboards can be used by governments to support their decision-making and policy processes or to communicate and interact with the public. The objective of this paper is to understand and to support the design of dashboards for creating transparency and accountability. Two smart city cases are investigated showing that dashboards can improve transparency and accountability, however, realizing these benefits was cumbersome and encountered various risks and challenges. Challenges include insufficient data quality, lack of understanding of data, poor analysis, wrong interpretation, confusion about the outcomes, and imposing a pre-defined view. These challenges can easily result in misconceptions, wrong decision-making, creating a blurred picture resulting in less transparency and accountability, and ultimately in even less trust in the government. Principles guiding the design of dashboards are presented. Dashboards need to
be complemented by mechanisms supporting citizens' engagement, data interpretation, governance and institutional arrangements."


Full-text retrieved from Science Direct database: http://doi.org/10.1016/j.giq.2018.10.007

ABSTRACT: "Electronic government (e-Government) systems are becoming an essential strategic tool in the delivery of e-Government-to-Business services (e-G2B). The purpose of this research is to explore direct and indirect effects of trust in online services on the satisfaction of the e-Government service users and other perceptions such as e-G2B system effectiveness and the operational effectiveness of organizations. Based on a sample of e-G2B service users from Saudi Arabia, our preliminary findings suggest that the effects of trust on user satisfaction are mediated by e-G2B system effectiveness measures (e.g., System Quality, Service Quality, and Information Quality) and by operational effectiveness. In addition, we find that operational effectiveness and information quality are the most important drivers of user satisfaction. In contrast to previous research, our results show a negative relationship between trust in online services and service quality and suggest that this finding may have important implications for theory and practice."


Full-text retrieved from Emerald Insight database: https://doi.org/10.1108/DPRG-11-2017-0059

ABSTRACT: "Purpose With the ongoing drives towards Open Government Data (OGD) initiatives across the globe, governments have been keen on pursuing their OGD policies to ensure transparency, collaboration and efficiency in administration. As a developing country, India has recently adopted the OGD policy (www.data.gov.in); however, the percolation of this policy in the States has remained slow. This paper aims to underpin the ?asymmetry? in OGD framework as far as the Indian States are concerned. Besides, the study also assesses the contribution of ?Open Citizens? in furthering the OGD initiatives of the country.

Design/methodology/approach An exploratory qualitative following a case study approach informs the present study using documentary analysis where evidentiary support from five Indian States (Uttar Pradesh, Telangana, West Bengal, Sikkim and Gujarat) is being drawn to assess the nature and scope of the OGD framework. Further, conceptualization for ?Open Citizen? framework is provided to emphasize upon the need to have aware, informed and proactive citizens to spearhead the OGD initiatives in the country.

Findings While the National OGD portal has a substantial number of data sets across different sectors, the States are lagging behind in the adoption and implementation of OGD policies, and while Telangana and Sikkim have been the frontrunners in adoption of OGD policies in a rudimentary manner, others are yet to catch up with them. Further, there is ?asymmetry? in terms of the individual contribution of the government bodies to the open data sets where some government bodies are more reluctant to share their datasets than the others. Practical implications It is the conclusion of the study that governments need to institutionalize the OGD framework in the country, and all the States should appreciate the requirement of adopting a robust OGD policy for furthering transparency, collaboration and efficiency in administration.

Originality/value While there are many studies on OGD in the West, studies focused upon the developing countries are starkly lacking. This study plugs this gap by attempting a comparative analysis of the OGD frameworks across Indian States. Besides, the study has provided a conceptualization of ?Open Citizen? (OGD) which may be tapped for further
research in developing and developed countries to ascertain the linkage between OGD and OC.; Purpose With the ongoing drives towards Open Government Data (OGD) initiatives across the globe, governments have been keen on pursuing their OGD policies to ensure transparency, collaboration and efficiency in administration. As a developing country, India has recently adopted the OGD policy (www.data.gov.in); however, the percolation of this policy in the States has remained slow. This paper aims to underpin the ?asymmetry? in OGD framework as far as the Indian States are concerned. Besides, the study also assesses the contribution of ?Open Citizens? in furthering the OGD initiatives of the country.

Design/methodology/approach An exploratory qualitative following a case study approach informs the present study using documentary analysis where evidentiary support from five Indian States (Uttar Pradesh, Telangana, West Bengal, Sikkim and Gujarat) is being drawn to assess the nature and scope of the OGD framework. Further, conceptualization for ?Open Citizen? framework is provided to emphasize upon the need to have aware, informed and pro-active citizens to spearhead the OGD initiatives in the country. Findings While the National OGD portal has a substantial number of data sets across different sectors, the States are lagging behind in the adoption and implementation of OGD policies, and while Telangana and Sikkim have been the frontrunners in adoption of OGD policies in a rudimentary manner, others are yet to catch up with them. Further, there is ?asymmetry? in terms of the individual contribution of the government bodies to the open data sets where some government bodies are more reluctant to share their datasets than the others. Practical implications It is the conclusion of the study that governments need to institutionalize the OGD framework in the country, and all the States should appreciate the requirement of adopting a robust OGD policy for furthering transparency, collaboration and efficiency in administration. Social implications As an ?Open Citizen?, it behooves upon the citizens to be pro-active and contribute towards the open data sets which would go a long way in deriving social and economic value out of these data sets. Originality/value While there are many studies on OGD in the West, studies focused upon the developing countries are starkly lacking. This study plugs this gap by attempting a comparative analysis of the OGD frameworks across Indian States. Besides, the study has provided a conceptualization of ?Open Citizen? (OGD) which may be tapped for further research in developing and developed countries to ascertain the linkage between OGD and OC."


ABSTRACT: "As an integral part of the Internet of Things (IoT), smart and connected sensors are emerging information and communication technologies that collect and transmit real-time data from various urban domains to inform decision-making. While smart sensors and IoT technologies have great potential to transform public service provision, their adoption in the public sector seems to be slow and incremental. Using cross-sectional data of 65 large and mid-sized cities in the United States, we examine what affects local governments' adoption of smart and connected sensors. We propose a path-dependence explanation for the incremental adoption and test if a local government's sensor adoption behavior is shaped by its existing policy priorities and managerial practices in related fields. Our results show that local governments' early adoption of smart sensors is likely to stem from their needs in specific policy domains. We also find that a local government's historical paths on urban sustainability and data-driven decision-making practices can predict its trajectory of sensor deployment, in terms of the scope and the integration of smart sensors across different urban domains. Surprisingly, a local government's e-government progressiveness is not a significant predictor. Our results confirm the incremental change in smart sensor adoption and provide implications for local governments' IoT planning."


ABSTRACT: "Public adoption of policies detailed on government websites is an important topic in the field of e-government research, and researchers have mainly focused on the key factors that influence initial adoption. However, there has been much less discussion on factors influencing the continued use of government websites. This study identifies and tests a theoretical model that predicts consumers' intentions to continue using government portals, using a mixed methods approach based on Grounded Theory. To construct a theoretical framework of public interest in continued use of government information portals, we interviewed 56 respondents and coded the interview data. Next, we tested the resulting model using data collected from a questionnaire-based survey of 354 users. The Structural Equation Modeling (SEM) results indicate that continued use is influenced by psychological perception, user characteristics, service parameters of the government portals and the government’s idea. Of these, psychological perception was found to have the strongest effect. These findings enrich the theoretical system of e-government public adoption of intention and have important practical significance for the development of Chinese government portals. "


Full-text retrieved from ScienceDirect database: http://doi.org/10.1016/j.giq.2018.10.006

ABSTRACT: "While most data originate within a local context, our knowledge about the realization of open government data (OGD) at local levels is limited due to the lack of systematic analysis of local OGD portals. Thus, we focus on a core question about analysing and guiding the development of local OGD portals. An evaluation framework is developed based on the comparison of related studies and principles. To fill the gap in existing frameworks which lack clarity in the prioritization process, Analytic Hierarchy Process together with an expert survey is used to derive priorities of elements of the framework. To test the capability of the framework in analysing and guiding the development of local OGD portals, a case study of Chinese province-level OGD portals has been carried out. Results show that data accessibility and quality matter more than data quantity for a local OGD portal. Currently, Chinese province-level OGD portals are in their infancy of development, with a great gap between Taiwan and Hong Kong with other portals. Data relating to local statistics, credit records, and budget and spending are well released on portals in China. Population size and the size and wealth of the local government show no significant relation with the number of datasets. By combining priorities of the framework with evaluation results, it could help local governments to recognise their present shortcomings and give them recommendations for recognizing directions for OGD portal's future development. "

Bibliography on “e-Health”


Full-text retrieved from IEEEExplore database: http://dx.doi.org/10.1109/MSPEC.2018.8482421

ABSTRACT: "In a hospital's intensive care unit (ICU), the sickest patients receive round-the-clock care as they lie in beds with their bodies connected to a bevvy of surrounding
machines. This advanced medical equipment is designed to keep an ailing person alive. Intravenous fluids drip into the bloodstream, while mechanical ventilators push air into the lungs. Sensors attached to the body track heart rate, blood pressure, and other vital signs, while bedside monitors graph the data in undulating lines. When the machines record measurements that are outside of normal parameters, beeps and alarms ring out to alert the medical staff to potential problems. • While this scene is laden with high tech, the technology isn't being used to best advantage. Each machine is monitoring a discrete part of the body, but the machines aren't working in concert. The rich streams of data aren't being captured or analyzed. And it's impossible for the ICU team—critical-care physicians, nurses, respiratory therapists, pharmacists, and other specialists—to keep watch at every patient's bedside. • The ICU of the future will make far better use of its machines and the continuous streams of data they generate. Monitors won't work in isolation, but instead will pool their information to present a comprehensive picture of the patient's health to doctors. And that information will also flow to artificial intelligence (AI) systems, which will autonomously adjust equipment settings to keep the patient in optimal condition."


ABSTRACT: "The aim of this study is to analyze the determinants of access to health-related information on the Internet and their influence on perceived knowledge of health-related topics in European countries. Referring to the European citizens' digital health literacy survey and applying structural equation modelling hypotheses, the obtained results showed that assumption of acceptance of information and capacity level are the main determinants which have the biggest influence on the perception of access to health-related information on the Internet. The access to health-related information negatively determined the perceived level of knowledge about health-related topics, which reveals that people making more use of the information are more critical in assessing the level of their knowledge. People who evaluated their health status as poor stated that they knew about health-related topics less. Therefore, the high level of access to health-related information does not mean that people would assume having more knowledge about health-related topics. The establishment of a platform on the Internet, which would supply all understandable information on health-related topics, would be the main tool for enhancing the level of knowledge of health-related topics."


ABSTRACT: "The deployment of Internet of Things (IoT) results in an enlarged attack surface that requires end-to-end security mitigation. IoT applications range from mission-critical predicaments (e.g., Smart Grid, Intelligent Transportation Systems, video surveillance, e-health) to business-oriented applications (e.g., banking, logistics, insurance, and contract law). There is a need for comprehensive support of security in the IoT, especially for mission-critical applications, but also for the down-stream business applications. A number of security techniques and approaches have been proposed and/or utilized. Blockchain mechanisms (BCM) play a role in securing many IoT-oriented applications by becoming part of a security mosaic, in the context of a defenses-in-depth/Castle Approach. A blockchain is a database that stores all processed transactions – or data – in chronological order, in a set of computer memories that are tamperproof to adversaries. These transactions are then shared by all participating users. Information is stored and/or published as a public ledger that is infeasible to modify; every user or node in the system retains the same ledger as all other users or nodes in the network. This paper highlights some IoT environments where BCMs play an important role,
while at the same time pointing out that BCMs are only part of the IoT Security (IoTSec) solution.


Full-text retrieved from ScienceDirect database: http://doi.org/10.1016/j.iot.2018.09.009
ABSTRACT: "Building upon cloud, IoT and smart sensors technologies we design and develop an IoT as a Service (iTaaS) framework, that transforms a user device (e.g. a smart phone) to an IoT gateway that allows for fast and efficient data streams transmission to the cloud. We develop a two-fold solution, based on micro-services for the IoT (users’ smart devices) and the cloud side (back-end services). iTaaS includes configurations for (a) the IoT side to support data collection from IoT devices to a gateway on a real time basis and, (b) the cloud back-end side to support data sharing, storage and processing. iTaaS provides the technology foreground to enable immediate application deployments in the domain of interest. An obvious and promising implementation of this technology is e-Health and remote health monitoring. As a proof of concept we implement a real time remote patient monitoring system that integrates the proposed framework and uses BLE pulse oximeter and heart rate monitoring sensing devices. The experimental analysis shows fast data collection, as (for our experimental setup) data is transmitted from the IoT side (i.e. the gateway) to the cloud in less than 130ms. We also stress the back-end system with high user concurrency (for example with 40 users per second) and high data streams (for example 240 data records per second) and we show that the requests are executed at around 1 second, a number that signifies a satisfactory performance by considering the number of requests, the network latency and the relatively small size of the Virtual Machines implementing services on the cloud (2GB RAM, 1 CPU and 20GB hard disk size)."

Full-text retrieved from ScienceDirect database: http://doi.org/10.1016/j.ijmedinf.2018.09.022
ABSTRACT: "Background and Purpose After investing billions of dollars in an integrated Electronic Medical Records (physicians) and Personal Health Records (patients) system to allow both parties to manage and communicate through e-health innovative technologies, Canada is still making slow adoption progress. In an attempt to bridge the human and technological perspectives by developing and testing a holistic model, this study purports to predict patients’ behavioral intentions to use e-health applications. Methods An interdisciplinary approach labelled as a techno-humanism model (THM) is testing twelve constructs identified from the technological, sociological, psychological, and organizational research literature and deemed to have a significant effect upon and positive relationship with patients’ e-health applications adoption. Subjects were Canadians recruited in a mall-intercept mode from a region representing a demographically diverse population, including rural and urban residents. The SmartPLS measurement tool was used to evaluate the reliability and validity of study constructs. The twelve constructs were separately tested with quantitative data such as factor analysis, single, multiple, and hierarchical multiple regression. Results The hierarchical multiple regression analysis process led us to formulate four models, each hinged on a combination of interdisciplinary variables. Model 1 consisted of the technological predictors and explained 62.3% (p < .001) of variance in the behavioral intention to use e-health. Model 2 added the sociological predictors to the equation and explained 72.3% (p < .001) of variance. Model 3 added the psychological predictors to Model 2 and explained 72.8% (p < .001). Finally, Model 4 included all twelve predictors and explained 73% (p < .001) of variance in the behavioral..."
intention to use e-health applications. Conclusions One of the greatest barriers to applying e-health records in Canada resides in the lack of coordination among stakeholders. The present study implies that healthcare policy makers must consider the twelve variables with their findings and implications as a whole. The techno-humanist model (THM) we are proposing is a more holistic and continuous approach. It pushes back to a breakdown of the various technological, sociological, psychological, and managerial factors and stakeholders that are at the root cause of behavioral intentions to use e-health, as opposed to merely observing behavioral outcomes at the end of the “assembly line”. Active participation and coordination of all stakeholders is a key feature."


ABSTRACT: "Social media changes the way people and organizations communicate with each other. Health interventions on social media are, however, a relatively new phenomenon. This article includes a review of health intervention studies done via social media. The review is divided into four different validity types: (a) statistical conclusion validity, (b) internal validity, (c) construct validity, and (d) external validity. Findings show that health interventions on social media have validity challenges because of small sample size, geographic area, level of reductionism, measurement instruments, participants memories and experience, and a lack of experimental control. The conclusion is that health intervention on social media is possible—and needed. However, a focus on validity is important. Guidelines for social media intervention are suggested, and implications for future research are given."


ABSTRACT: "The Internet of Medical Things (IoMTs) are the group of medical devices connected to Internet, to perform the processes and services that support healthcare. The amount of data handled by medical devices grows exponentially, which means higher exposure of personal sensitive data. RSA, ECC and, other related public key cryptographic systems with countermeasures of power analysis and fault analysis, e.g., random masking, are often adapted by medical devices for guaranteeing security and privacy. However, Shor algorithm has proven that they are not secure to quantum computer attacks. Fortunately, there exists a few quantum-resistant public key cryptographic schemes, e.g., Rainbow. To ensure end-to-end service delivery in the IoMTs under quantum attacks, there is a critical need for research into new designs and evaluation for the hardware security of new quantum-resistance cryptographic systems, e.g., rainbow, to make the medical devices more secure and reliable. Therefore, we present a physical analysis model of Rainbow by combining fault analysis and differential power analysis. The proposed model is implemented on cloud computing platform. Based on the experimental results, we successfully recover all the secret keys of Rainbow signature, which shows the importance of protecting multivariate signature with countermeasures on medical devices."


ABSTRACT: "In order to explore the data fusion algorithm in medical Internet of things, the monitoring of medical data in the Internet of things is discussed and studied focusing on data
fusion and related routing technology. According to the particularity of the data in the medical Internet of things, a data fusion cluster-tree construction algorithm based on event-driven (DFCTA) is proposed. The fusion delay problem in the network is analyzed, and the minimum fusion delay method is proposed by calculation of the fusion waiting time of the nodes. Finally, the intelligent health management data fusion system in the medical Internet of things is designed. Aiming at the characteristics of multilevel integration of multisource heterogeneous data fusion for intelligent health management, the data fusion architecture of fusion tree composed of fusion nodes is proposed. The experiment shows that the DFCTA algorithm has good fusion performance. Based on the above findings, it is concluded that the algorithm is a fast and reliable method, which has important practical significance."

Bibliography on “emergency communication”

ABSTRACT: "After the earthquake, carrying out disaster investigation on earthquake site is one of the primary tasks. Traditional survey methods rely mainly on manual processing, costing a long period of time, which is difficult to meet the post-earthquake emergency response requirements. Using remote sensing image interpretation to obtain disasters information is more efficient, but the accuracy cannot be guaranteed. In response to the problem, this article has realized the full chain technology for providing remote sensing image mobile services for earthquake emergency sites, and built a bridge for information exchange between the earthquake site and the emergency command center. The main issues discussed in this paper include: pre-processing of remote sensing image data into hierarchical slices, which is convenient for packaging and distribution to on-site terminal equipment; constructing a system management platform to facilitate distribution of data to terminal equipment and management of data transmitted back from earthquake sites; developing mobile application for receiving remote sensing image data and reporting on-site survey data. The application of this technology has important practical significance for improving the emergency response capability of earthquakes."

ABSTRACT: "Social media changes the way people and organizations communicate with each other. Health interventions on social media are, however, a relatively new phenomenon. This article includes a review of health intervention studies done via social media. The review is divided into four different validity types: (a) statistical conclusion validity, (b) internal validity, (c) construct validity, and (d) external validity. Findings show that health interventions on social media have validity challenges because of small sample size, geographic area, level of reductionism, measurement instruments, participants memories and experience, and a lack of experimental control. The conclusion is that health intervention on social media is possible—and needed. However, a focus on validity is important. Guidelines for social media intervention are suggested, and implications for future research are given. "

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Monthly Reading List
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Bibliography on “gender”


Full-text retrieved from IEEE Xplore database: [http://dx.doi.org/10.1109/EDUCON.2018.8363496](http://dx.doi.org/10.1109/EDUCON.2018.8363496)

ABSTRACT: "There is a social and economic concern for the low representativeness of women in the technology industry. The timeline of recent years shows a drop in the interest of women in studying a career related to science, technology, engineering and mathematics (STEM), just when the demand labor in these fields is growing rapidly and new jobs will continue to emerge, and it is feared that they will not have enough people to cover it. There are many social organizations that are taking measures to alleviate this situation, including educational branches, government agencies, industry and technological communities composed of women. In this research, the cases of industry and communities are studied. It is intended to dissect how these two ecosystems work to strengthen mechanisms that minimize the gender gap. On the one hand, the paper addresses, what are the communities, why they arise, what are their objectives, what they contribute to society and what actions they develop to contain the problem. Regarding companies, three major leaders of the sector, namely, Google, IBM and Microsoft, show their weaknesses and successes, and present development programs created to improve the internal situation in the themes of diversity and inclusion."


ABSTRACT: "Artificial intelligence is increasingly influencing the opinions and behaviour of people in everyday life. However, the over-representation of men in the design of these technologies could quietly undo decades of advances in gender equality. Over centuries, humans developed critical theory to inform decisions and avoid basing them solely on personal experience. However, machine intelligence learns primarily from observing data that it is presented with. While a machine’s ability to process large volumes of data may address this in part, if that data is laden with stereotypical concepts of gender, the resulting application of the technology will perpetuate this bias. While some recent studies sought to remove bias from learned algorithms they largely ignore decades of research on how gender ideology is embedded in language. Awareness of this re-search and incorporating it into approaches to machine learning from text would help prevent the generation of biased algorithms. Leading thinkers in the emerging field addressing bias in artificial intelligence are also primarily female, suggesting that those who are potentially affected by bias are more likely to see, understand and attempt to resolve it. Gender balance in machine learning is therefore crucial to prevent algorithms from perpetuating gender ideologies that disadvantage women."


ABSTRACT: "Global Gender Issues in the New Millennium argues that the power of gender works to help keep gender, race, class, sexual, and national divisions in place despite increasing attention to gender issues in the study and practice of world politics. Accessible and student-friendly for both undergraduate and graduate courses, authors Anne Sisson Runyan and V. Spike Peterson analyze gendered divisions of power and resources that contribute to the
worldwide crises of representation, violence, and sustainability. They emphasize how hard-won attention to gender equality in world affairs can be co-opted when gender is used to justify or mystify unjust forms of global governance, international security, and global political economy. In the new and updated fourth edition, Runyan and Peterson examine the challenges of forging transnational solidarities to de-gender world politics, scholarship, and practice through renewed politics for greater representation and redistribution. Yet they see promise in coalitional struggles to re-radicalize feminist world political demands to change the downward conditions of women, men, children, and the planet. Updated to include framing questions at the opening of each chapter, discussion questions and exercises at the end of each chapter, and updated data on gender statistics and policymaking. Chapters One and Two have also been revised to provide more support to readers with less of a background in gender politics. Case studies and web resources are now also provided.

Full-text retrieved from ProQuest Central database: https://search.proquest.com/docview/2108803217?accountid=41838
ABSTRACT: "This study investigates a rarely studied topic on gender difference in restaurant online booking timing, and the impact of sell-out risk and online review rating and review text on restaurant booking among males and females. The data were collected from Xiaomishu.com, a leading restaurant reservation website in China. A total of 719,812 reservations for 4,359 restaurants in Shanghai, China, were included in the analysis. The empirical results demonstrate that (1) females tend to make a restaurant booking further in advance than males, and this gender difference is more salient under the condition of high sell-out risk (i.e., big dining group size or weekend meals); (2) general review information (proxied by online average rating) and specific review information (proxied by online review texts) have a positive impact on restaurant online booking; (3) males are more likely to be affected by general review information, whereas females tend to pay more attention to specific review information. These findings shed light on gender differences in the timing of restaurant online booking and provide insights into restaurant booking policy."

Bibliography on ‘ICT for development (ICT4D)”

Full-text retrieved from ScienceDirect database: http://dx.doi.org/10.1016/j.jebo.2018.08.020
ABSTRACT: "The recent economics literature has begun to recognise that ICT is a heterogeneous technology altering information storage, processing and communication in distinct ways. In this paper we use the arrival of a new communication technology, ADSL broadband, to study the effects of heterogeneous types of ICT on firm performance. To do so free from endogeneity bias, we construct instruments using postcode-level geographic variation in the infrastructure underlying broadband internet – the pre-existing telephone network. We show that after placing various restrictions on the sample, instruments based on the timing of ADSL broadband enablement and the cable distance to the local telephone exchange satisfy the conditions for instrument relevancy and validity. We find in turn, that ICT causally affects firm size (captured by either sales or employment) but not productivity. "

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Full-text retrieved from ScienceDirect database: [http://doi.org/10.1016/j.infoecopol.2018.10.001](http://doi.org/10.1016/j.infoecopol.2018.10.001)

ABSTRACT: "Since the beginning of the 21st century mobile broadband has diffused very rapidly in many countries around the world. This paper investigates to what extent the diffusion of mobile broadband has impacted economic development in terms of GDP. The study is based on data for 135 countries (90 countries once controlling for capital, employment and human capital) for the period 2002–2014. The results show that there is a statistically significant effect from mobile broadband on GDP both when mobile broadband is first introduced and gradually as mobile broadband diffuses throughout different economies. Based on a two stage model we are able to conclude that on average a 10 percent increase of mobile broadband adoption causes a 0.8 percent increase in GDP. Moreover, once we control for the years since mobile broadband was introduced, we find that the economic effect gradually decreases over time. For the country with median average growth of mobile broadband penetration, this implies that the economic effect has disappeared 6 years after introduction (if introduction is defined as a mobile penetration of 1 percent)."


Full-text retrieved from ScienceDirect database: [http://doi.org/10.1016/j.spc.2018.10.003](http://doi.org/10.1016/j.spc.2018.10.003)

ABSTRACT: "The social perspectives of sustainability have been historically under-addressed in sustainability assessment methodologies of scenarios. A recent research project - "Scenarios and sustainability impacts of future ICT societies" - explored five society-wide scenarios with an ICT focus for Sweden in 2060. A methodology was developed within the research project to assess the scenarios in terms of impacts on the societal level, as well as consumption-related impacts on the global level. This paper develops and tests a methodology that could be employed in wider scenario-based assessments of future societies that include consumption-related impacts. At the core of the new methodology is the categorization of social aspects under five categories for the national assessment and four for the global assessment. A qualitative assessment is performed for each of the following categories on national level: Participation and Influence in Society, Health Conditions, Equity and Justice, Social Cohesion and Learning and Education. For the global assessment the level of trade and the commitment to sustainable development in the different scenarios was considered. The categories assessed globally are Poverty, Health, Employment and Justice for All. The assessments should be made based on expert knowledge. One result of the application of the methodology was among other, that the most environmentally adapted scenario – Valued Environment – was also the best performing scenario from a social sustainability perspective."


Full-text retrieved from ScienceDirect database: [http://doi.org/10.1016/j.telpol.2018.05.006](http://doi.org/10.1016/j.telpol.2018.05.006)

ABSTRACT: "In this paper, I aim to quantify the relationship between higher broadband speeds (10 Mbps versus 25 Mbps) and the growth rates in important economic outcomes in U.S. counties including jobs, personal income, and labor earnings. Doing so exposes the potential for severe selection bias in studies of broadband's economic impact, which is addressed in this study using Coarsened Exact Matching. Once balanced, the data reveal no economic payoff from the 15 Mbps speed difference between the years 2013 and 2015 (when data is available). I also revisit an early and widely-cited study on broadband’s effect on employment to evaluate"
the possible impacts of selection bias, and conclude that the positive benefits of broadband reported in that particular study are likely spurious. The selection bias problem may infect other studies on the economic impacts of broadband Internet services. Future research on broadband's economic impact should explicitly address selection bias.


Full-text retrieved from ScienceDirect database: http://doi.org/10.1016/j.techfore.2018.09.012

ABSTRACT: "Local urban identity, culture and knowledge ecosystems continue to shape innovative capacity and technological acceptance despite global exchange in talent, trade and technology. This has important implications for the development and implementation of future smart cities. The last two decades of smart city research has presented smart cities as a generic, universal aspiration without taking into consideration such local cultural differences. Future smart cities have several tasks ahead of them. The first is selecting culturally appropriate technologies from the vast array of global technologies now on offer. The second task is adapting such technology and the third task is in managing the acceptance of such technology. The above process is not linear but must be iterative, with technology acceptance considered simultaneously alongside the selection and adoption of such technologies. This study integrates the substantial literature on Technology Acceptance Modelling into the smart city discourse to begin to address this need. It also further develops our understanding of technology acceptance using the Structural Equation Modelling Method. A new synthetic model is proposed consisting of twelve factors, which have been selected based on a targeted literature review. A survey-based method was used to develop and cross-validate the model sampling a diverse population from various Iranian cities. The result of the above process is a new model named the Urban Services Technology Acceptance Model (USTAM). The validated model includes key factors related to technology such as Self-Efficacy, Operation, Work Facilitation, Relative Advantage and Compatibility. The USTAM is a useful tool for the prediction of technology acceptance in the implementation of smart cities. The final model is significant for various reasons. Firstly, it is significant for ensuring that selected technology is appropriate to local cultural contexts. Secondly it is significant to ensure that integration of technologies at metropolitan scales is managed effectively. The final significant reason is that it is well-suited to helping developing economies participate in the smart city boom in a resource efficient manner. The proposed model can potentially help cities achieve this by guiding them in the selection of appropriate technologies. The proposed model is developed with specific reference to Iran and Bangladesh. The authors suggest that the model is useful for cities of different cultural identities and characteristics, who wish to initiate their own distinctive smart city strategies."


Full-text retrieved from Emerald Insight database: https://doi.org/10.1108/DPRG-03-2018-0008

ABSTRACT: "Purpose This paper aims to shed some light on the role of video games within the media industry and IT sector, on its contribution to the production and distribution of digital content in emerging economies. It offers a case study on the role of mobile devices as a factor of transformation and shows how under changing socio-economic conditions, the transformations enabled the creation of digital ecosystems and innovative business models. Design/methodology/approach The paper is based on desk research, a review of literature and trade press and comments from experts and industry players. Findings The paper argues that as the internet is going mobile, driven by data ? mostly video ? the new mobile platforms are becoming the key for the distribution of content and mobile games. Whether it is the history of
browser games in China, mobile games in India or PC games in Russia, each national gaming industry has required a unique strategy for making money, building on some prominent cultural factors and adapting to the local economic conditions. The paper reveals that video games are now clearly a vital part of digital content production in these countries, while stressing upon the role of public policies. Research limitations/implications The paper relies mostly on industry and consultancy data, as in such a fast-changing environment official data even when accessible are in most cases too old to remain relevant to identify the trends and the fast changing stakes. This calls for some caution about the data. Therefore, the data used should be treated as just signals of potential trends, sufficient to provide an appropriate overview of the evolution of the global mobile ecosystem. Practical implications This paper shows that the video games industry can serve as a pivot for the ICT industry. Besides, this prompts upstream and downstream industries of the entire digital entertainment market to thrive. Social implications The paper shows that companies from emerging markets companies have been betting on a combination of factors: the development of the economies, the growth of the mobile market, emerging middle-classes and young customers. It provides a growth model that appears to be close to a ?regular? industrial growth model. Originality/value Although there is a growing academic literature on the video games industry, few research have been devoted to specific issues of emerging economies and to the role of video games within the media industry and IT sector.; Purpose This paper aims to shed some light on the role of video games within the media industry and IT sector, on its contribution to the production and distribution of digital content in emerging economies. It offers a case study on the role of mobile devices as a factor of transformation and shows how under changing socio-economic conditions, the transformations enabled the creation of digital ecosystems and innovative business models. Design/methodology/approach The paper is based on desk research, a review of literature and trade press and comments from experts and industry players. Findings The paper argues that as the internet is going mobile, driven by data ? mostly video ? the new mobile platforms are becoming the key for the distribution of content and mobile games. Whether it is the history of browser games in China, mobile games in India or PC games in Russia, each national gaming industry has required a unique strategy for making money, building on some prominent cultural factors and adapting to the local economic conditions. The paper reveals that video games are now clearly a vital part of digital content production in these countries, while stressing upon the role of public policies. Research limitations/implications The paper relies mostly on industry and consultancy data, as in such a fast-changing environment official data even when accessible are in most cases too old to remain relevant to identify the trends and the fast changing stakes. This calls for some caution about the data. Therefore, the data used should be treated as just signals of potential trends, sufficient to provide an appropriate overview of the evolution of the global mobile ecosystem. Practical implications This paper shows that the video games industry can serve as a pivot for the ICT industry. Besides, this prompts upstream and downstream industries of the entire digital entertainment market to thrive. Social implications The paper shows that companies from emerging markets companies have been betting on a combination of factors: the development of the economies, the growth of the mobile market, emerging middle-classes and young customers. It provides a growth model that appears to be close to a ?regular? industrial growth model. Originality/value Although there is a growing academic literature on the video games industry, few research have been devoted to specific issues of emerging economies and to the role of video games within the media industry and IT sector;.”

Bibliography on “Intelligent transportation systems (ITS)”

ABSTRACT: "The Internet of Vehicles (IoV) represents the emerging paradigm where vehicles are (almost) always connected to the Internet to deliver and receive information to/from other services so as to augment the knowledge and services the users can benefit from when moving in urban and rural areas by their vehicles, but not only. Furthermore, the exploitation of social networking notions into the IoV has brought to the definition of the Social IoV (SloV) paradigm, i.e., a social network where every vehicle is capable of establishing social relationships in an autonomous way with other vehicles or road infrastructure equipments. In this paper, we propose an implementation of the SloV leveraging on an existing cloud-based IoT platform to manage the social activity of the vehicles as defined by the SloV paradigm. The contribution of the paper is multifold: i) we define some static and dynamic relationships that can be established between vehicles and road infrastructures taking part to the SloV; ii) we show how the proposed system can be integrated into the standard Intelligent Transportation System Station Architecture (ITS SA); iii) we illustrate an effective low-cost and flexible solution for the On-Board Unit (OBU) to enable every vehicles to participate in the SloV and create their own relationships; iv) we show the results of the conducted experimental tests for the creation of social relationships aimed at comparing the performance of Bluetooth and Wi-Fi technologies when used to manage vehicles' radio visibility. Finally, we present two use cases: the Vehicle Diagnostic and the Smart Parking applications."


ABSTRACT: "Worldwide intelligent transportation systems (ITSs) are at the edge from research and development to deployment and commercial operation. Japan has already introduced ITS technology in the market and the USA and the European Union have elaborated plans for deployment. ITS in this context means communication and services based on communication technology between vehicles and other traffic participants on one hand and traffic and road infrastructure, vehicle manufacturer, and other mobility service provider on the other hand. For a successful introduction, a reliable and secure exchange of mobility-related information is a key factor. To provide such an exchange for an overall architecture for ITS and for all participants and users is necessary. With the introduction of the market, the assessment of an ITS architecture without an existing reference system arises. Since most assessment methods currently existing, measure how ‘good’ an architecture is in comparison with another architecture. In this study, the authors describe ways and approaches how existing methods can be extended and combined to provide means for the assessment of ITS architectures in the pre-deployment phase. As a result, deploying parties should be enabled to assess an architecture before introducing it to the public."


ABSTRACT: "The evolution of special purpose standards for networked vehicles towards IP based communication networks and the high-volume data processing requirements call for the introduction of a new concept – the big data virtual network. The virtual network operator, which may be integrated with the operators of networked vehicle applications, combines sensor and camera devices with big data, either using large data centers (cloud computing) or local processing (fog computing), and complementary QoS (Quality of Service) differentiated bandwidth capacities from the all-IP network. The growing importance of camera-based sensors as well as geo-awareness requirements create a need for more pronounced QoS differentiated

Full-text retrieved from Science Direct database: [http://doi.org/10.1016/j.comnet.2018.10.001](http://doi.org/10.1016/j.comnet.2018.10.001)


bandwidth as well as big data processing efforts. In particular, combining QoS differentiated all-IP bandwidth capacities with local data processing within the edge cloud constitutes a new task for big data virtual network service providers, enabling deterministic guarantees for ultra-low latencies required for networked fully automated (driverless) vehicles."


ABSTRACT: "This paper proposes a cooperative scheduling mechanism for autonomous vehicles passing through an intersection, called TP-AIM. The main objective of this research is to ensure safe driving while minimizing delay in an intersection without traffic lights. Firstly, an intersection management system, used as an info-collecting-organizing center, assigns reasonable priorities for all present vehicles and hence plans their trajectories. Secondly, a window searching algorithm is performed to find an entering window, which can produce a collision-free trajectory with minimal delay, besides backup windows. Finally, vehicles can arrange their trajectory individually, by applying dynamic programming to compute velocity profile, in order to pass through intersection. MATLAB/Simulink and SUMO based simulations are established among three types of traffic mechanisms with different traffic flows. The results show that the proposed TP-AIM mechanism significantly reduces the average evacuation time and increases throughput by over 20%. Moreover, the paper investigates intersection delay, which can be reduced to less than 10% compared to classical light management systems. Both safety and efficiency can be guaranteed in our proposed mechanism."


ABSTRACT: "In recent years, due to the growing interest in smart cities and Internet of Things (IoT) applications, several innovation types of networks, such as Vehicular Ad-hoc Networks (VANETs) and Opportunistic networks have been deeply investigated. Moreover, inter-vehicle communication has attracted attention because it can be applicable not only to alternative networks but also to various communication systems. In this paper, we present a Fuzzy-Based Cluster-Management System (FBCMS) for VANETs. We present and compare two fuzzy-based system models: FBCMS1 and FBCMS2 for clustering of vehicles in VANETs. We evaluate both systems by simulations. The simulation results show that by selecting vehicles with high GS, RA, SC and DC values, the vehicles have high connectivity with other vehicles and are more secure, so they will be selected as the cluster head of the cluster. By comparing FBCMS1 and FBCMS2, we found that the FBCMS2 can manage better the vehicles in the cluster than FBCMS1."


Full-text retrieved from Science Direct database: http://doi.org/10.1016/j.adhoc.2018.10.014

ABSTRACT: "The evolution of smart city services and applications requires a more efficient wireless infrastructure to provide the needed data rate to users in a high-density environment with high mobility, satisfying at the same time the request for high-connectivity and low-energy consumption. To address the challenges in this new network scenario, we propose to opportunistically rely on the increasing number of connected vehicles in densely populated urban areas. The idea is to support the macro base station (BS) with a secondary communication tier composed of a set of smart and connected vehicles that are in movement in
the urban area. As a first step towards a comprehensive cost-benefit analysis of this architecture, this paper considers the case where these vehicles are equipped with femto-mobile access points (fmAPs) and constitute a mobile out-of-band relay infrastructure. We first study this network system with a continuous time model, in which three techniques to select an fmAP (if more than one is available) are proposed and the maximal feasible gain in the data rate is characterized as a function of the vehicle density, average vehicle speeds, handoff overhead cost, as well as physical layer parameters. We then introduce a time slotted model, in which we consider a more realistic communication channel, with an exponential path loss model, and we investigate the tradeoff between energy consumption and expected data rate, as a function of the system parameters. The analytical and simulation results, with both the continuous and time slotted models, provide a first benchmark characterizing this architecture and the definition of guidelines for its future realistic study and implementation.


Full-text retrieved from Springer Link database: https://doi.org/10.1007/s11235-018-0429-1

ABSTRACT: "Vehicular Ad hoc Network (VANET) enables high speed vehicles to communicate with each other. This kind of communication can provide road safety and passengers' comfort. Covert channels are used to transmit information secretly over the network. Network covert channel is not only used as a hacking tool, but also used to convey secret information such as private keys. Unlike wired and conventional wireless networks, few studies are conducted on covert communication in VANET. The goal of this paper is to develop a hybrid (timing and storage) covert channel in VANET. In the timing part, covert messages are sent by altering the timing pattern of the service and control packets. The proposed covert timing algorithm is dynamically changed based on the vehicular traffic volume in the transmitter's radio range. This dynamism is used to achieve better covert capacity with an acceptable error rate. On the other hand, some fields of the periodic status messages, sent in the control channel, are utilized in the storage part. An encoding algorithm is also proposed to embed the covert data in the mentioned covert timing and storage opportunities. The encoding algorithm provides a high embedding capacity, even if the number of opportunities' possible values is not any power of two. Finally, the transmitted secret data volume, the packet loss ratio, the channel error rate and the effect of the proposed method on other vehicles' throughput are evaluated in a simulation process."


Full-text retrieved from IEEEExplore database: http://dx.doi.org/10.1109/MSPEC.2018.8482420

ABSTRACT: "Life is short, and it seems shorter still when you're in a traffic jam. Or sitting at a red light when there's no cross traffic at all. • In Mexico City, São Paolo, Rome, Moscow, Beijing, Cairo, and Nairobi, the morning commute can, for many exurbanites, exceed 2 hours. Include the evening commute and it is not unusual to spend 3 or 4 hours on the road every day. • Now suppose we could develop a system that would reduce a two-way daily commute time by a third, say, from 3 to 2 hours a day. That's enough to save 22 hours a month, which over a 35-year career comes to more than 3 years."


Full-text retrieved from IEEE Explore database: http://dx.doi.org/10.1109/MITS.2018.2867534
ABSTRACT: "In recent years, significant attention has been paid to the implementation of cooperative driving by means of the integration of Advanced Driver Assistance Systems (ADAS) and Vehicle-to-Vehicle (V2V) communication, which has led to a wide range of applications with the potential to enhance road safety and prevent traffic accidents. Prior to the implementation of these systems in vehicles, comprehensive analysis through exhaustive and realistic simulations is vital. Accordingly, this paper presents the effects on road safety of a variety of penetration rates of vehicles equipped with ADAS and V2V, either separately or combined, using the simulation platforms Scene Suite and Simulation of Urban Mobility (SUMO). A total of six simulation scenarios were developed, three for intersections and three for urban cases. The obtained results show that the ADAS Adaptive Cruise Control (ACC) requires combination with V2V communication in order to increase safety, especially in certain scenarios with side and rear-end collisions. However, V2V alone at the lowest penetration rate already provided a level of safety similar to the one reached by combining it with ADAS-ACC."


ABSTRACT: "Spatial challenges for the vehicular Internet of Things come from mobility, high density, sparse connectivity, and heterogeneity. In this article, we propose two techniques, namely decentralized moving edge and multi-tier multi-access edge clustering, to handle these challenges. The "vehicle as an edge" concept of the decentralized moving edge provides a more suitable solution to meet the throughput and latency performance requirements by conducting distributed communication, data caching, and computing tasks at vehicles. Multi-tier multi-access edge clustering generates different levels of clusters for more efficient integration of different types of access technologies including licensed/unlicensed long-range low-throughput communications and unlicensed short-range high-throughput communications. We employ fuzzy logic to jointly consider multiple inherently contradictory metrics and use Q-learning to achieve a self-evolving capability. Realistic computer simulations are conducted to show the advantage of the proposed protocols over alternatives, an"


ABSTRACT: "Vehicular Ad-hoc Network (VANET) is the fundamental of intelligent transportation systems. Security and privacy are the important issues needed to be addressed. Existing schemes for privacy-preserving vehicular communications face many challenges, such as strong assumption on ideal tamper-proof device (TPD) and reducing the cost of computation and communication. In order to overcome the challenge, we propose a privacy-preserving authentication scheme with full aggregation in VANET, using certificateless aggregate signature to achieve secure vehicle-to-infrastructure(V2I) communications. The technique of aggregate signature can achieve message authentication and greatly save the bandwidth and computation resources. In addition, we use pseudonym to realize conditional privacy preserving and a trace authority (TRA) is responsible for generating pseudonym and tracking the real identity during the communication if it is necessary. When a vehicle enters an area under a new road side unit (RSU)'s coverage, we pre-calculate some data for once, thus the computation cost in sign phase can be reduced. The length of aggregated signature is constant which reduces the communication and storage overhead. "
Bibliography on “internet of things (IoT)”


Full-text retrieved from IEEE Xplore database: [http://dx.doi.org/10.1109/MCOM.2018.8493125](http://dx.doi.org/10.1109/MCOM.2018.8493125)

ABSTRACT: "The Internet of Things (IoT), one of the hottest trends in technology, is transforming our future by interconnecting everything; humans, vehicles, appliances, utilities, infrastructures, street lights, etc., through intelligent connections. For deploying the realization of IoT by 2020, Fifth Generation (5G) wireless communication networks are considered as an essential unifying fabric that will connect billions of devices in some of the fastest, most reliable and most efficient ways possible, whose impact will be revolutionary, reshaping industries and transforming our world. Therefore, 5G is currently attracting extensive research interest from both industry and academia. It is widely agreed that in contrast to 4G, 5G should achieve 1000 times system throughput, 10 times spectral efficiency, higher data rates (i.e., the peak data rate of 20 Gb/s and the user experienced rate of 1Gb/s), 25 times average cell throughput, less than 1 ms in end-to-end (E2E) latency, and 100 times higher connectivity density. Among those requirements, the 1000-fold increase in system capacity becomes the most important and maybe the most challenging for 5G systems."


Full-text retrieved from ScienceDirect database: [http://doi.org/10.1016/j.comnet.2018.10.001](http://doi.org/10.1016/j.comnet.2018.10.001)

ABSTRACT: "The Internet of Vehicles (IoV) represents the emerging paradigm where vehicles are (almost) always connected to the Internet to deliver and receive information to/from other services so as to augment the knowledge and services the users can benefit from when moving in urban and rural areas by their vehicles, but not only. Furthermore, the exploitation of social networking notions into the IoV has brought to the definition of the Social IoV (SoIoV) paradigm, i.e., a social network where every vehicle is capable of establishing social relationships in an autonomous way with other vehicles or road infrastructure equipments. In this paper, we propose an implementation of the SoIoV leveraging on an existing cloud-based IoT platform to manage the social activity of the vehicles as defined by the SoIoV paradigm. The contribution of the paper is multifold: i) we define some static and dynamic relationships that can be established between vehicles and road infrastructures taking part to the SoIoV; ii) we show how the proposed system can be integrated into the standard Intelligent Transportation System Station Architecture (ITS SA); iii) we illustrate an effective low-cost and flexible solution for the On-Board Unit (OBU) to enable every vehicles to participate in the SoIoV and create their own relationships; iv) we show the results of the conducted experimental tests for the creation of social relationships aimed at comparing the performance of Bluetooth and Wi-Fi technologies when used to manage vehicles’ radio visibility. Finally, we present two use cases: the Vehicle Diagnostic and the Smart Parking applications."


ABSTRACT: "Internet of Things (IoT) is ubiquitous in society. IoT-enabled dynamic capabilities in real-time sensing and responding can spur digital transformation in unlocking the potential of digital government into data-driven smart government capable of delivering policies and
services of public interest and public value. However, the literature indicates challenges in IoT cybersecurity and systemic use across the government. There is the urgent need for IoT research on policy and use. This paper developed a framework for IoT-enabled smart government performance. We applied this framework to conduct case study analyses of digital technology policy, IoT cybersecurity policy, and IoT use in major application domains at the U.S. federal government level. The results show that some agencies were strategic and forward-thinking in funding and partnering with sub-national governments in promoting the IoT use. However, there remains a critical need for national IoT policies to promote systemic IoT use across the application domains.


Full-text retrieved from Science Direct database: [http://dx.doi.org/10.1016/j.giq.2018.09.009](http://dx.doi.org/10.1016/j.giq.2018.09.009)

ABSTRACT: "With the advancement of disruptive new technologies, there has been a considerable focus on personalisation as an important component in nurturing users' engagement. In the context of smart cities, Internet of Things (IoT) offer a unique opportunity to help empower citizens and improve societies' engagement with their governments at both micro and macro levels. This study aims to examine the role of perceived value of IoT in improving citizens' engagement with public services. A survey of 313 citizens in the UK, engaging in various public services, enabled through IoT, found that the perceived value of IoT is strongly influenced by empowerment, perceived usefulness and privacy related issues resulting in significantly affecting their continuous use intentions. The study offers valuable insights into the importance of perceived value of IoT-enabled services, while at the same time, providing an intersectional perspective of UK citizens towards the use of disruptive new technologies in the public sector."


Full-text retrieved from IEEE Xplore database: [http://dx.doi.org/10.1109/MCOM.2018.1800036](http://dx.doi.org/10.1109/MCOM.2018.1800036)

ABSTRACT: "The requirement of high data rates, low latency, efficient use of spectrum, and coexistence of different network technologies are major considerations in Internet of Things (IoT)-based fifth generation (5G) networks. To achieve the above requirements, the incorporation of artificial intelligence (AI) is required to make efficient decisions based on the massive data generated by the large number of IoT devices. AI methods analyze the data to extract patterns and make sense of the data to prescribe action to the end devices. In this work, we first give an overview, discussing the challenges and relevant solutions of the 5G and IoT technologies including the IoT-based 5G enabling technologies. We discuss the need for AI in future IoT-based 5G networks from the perspective of Kipling's method. In addition, we review the intelligent use of spectrum through full duplex and cognitive radio technologies."


ABSTRACT: "The evolution of special purpose standards for networked vehicles towards IP based communication networks and the high-volume data processing requirements call for the introduction of a new concept – the big data virtual network. The virtual network operator, which may be integrated with the operators of networked vehicle applications, combines sensor and camera devices with big data, either using large data centers (cloud computing) or local processing (fog computing), and complementary QoS (Quality of Service) differentiated bandwidth capacities from the all-IP network. The growing importance of camera-based sensors
as well as geo-awareness requirements create a need for more pronounced QoS differentiated bandwidth as well as big data processing efforts. In particular, combining QoS differentiated all-IP bandwidth capacities with local data processing within the edge cloud constitutes a new task for big data virtual network service providers, enabling deterministic guarantees for ultra-low latencies required for networked fully automated (driverless) vehicles."


Full-text retrieved from Science Direct database: http://doi.org/10.1016/j.compind.2018.09.004

ABSTRACT: "The cybersecurity issues represent a complex challenge for all companies committing to Industry 4.0 paradigm. On the other hand, the characterization of cybersecurity concept within Industry 4.0 contexts proved to be an emerging and relevant topic in the recent literature. The paper proposes to analyse, through a systematic literature review approach, the way in which the existing state of art deals with the cybersecurity issues in Industry 4.0 contexts. In particular, the focus will be on the investigation of the main elements associated with cybersecurity theme (i.e. asset involved into cyber-attacks, system vulnerabilities, cyber threats, risks and countermeasures) within those industrial contexts where physical systems (machines, shop floors, plants) are connected each other via the Internet. Four areas of analysis are defined: definitions of cybersecurity and Industry 4.0 concepts, the industrial focus of the analysed studies, the cybersecurity characterization and the management attempts of cybersecurity issues. Through the literature review analysis, a framework of the main features characterizing each area is discussed, providing interesting evidences for future research and applications."


Full-text retrieved from Science Direct database: http://doi.org/10.1016/j.techfore.2018.09.029

ABSTRACT: "With contemporary life becoming more instantly connected and as the disruptiveness of technologies is occurring at a faster pace, the Internet-of-Things (IoT) is now even more accessible and common, prompting companies to adopt IoT solutions to improve their customers' experiences. IoT enables physical devices to connect and exchange data through the Internet by collecting strategic information, thus creating opportunities for companies to become more efficient and responsive to market changes. This paper thus investigates how companies are blending IoT solutions into their relationship marketing strategies and focuses on finding how this combination can boost business performance and what the challenges are when dealing with disruptive technology changes. To explore the subject’s detailed information and to get a better understanding of managerial decisions concerning IoT, this research conducts in-depth case design analysis from a company’s point of view. The data presented herein come from two main sources: open-ended interviews and direct observations, with the interviewees holding high managerial positions in Taiwan's IoT industry. This study aims to contribute to the literature by bringing awareness to the importance of closely following technological trends in combination with relationship marketing strategies and how they help firms remain competitive and profitable. The results of this empirical research shed light on the importance of understanding the impacts of IoT solutions on businesses, especially on clients' behaviors and the development of targeted strategies. The cases herein present similarities on the awareness of the speed of disruptive technologies like IoT, the importance of developing new solutions aligned with new technologies, their impact at creating new business solutions, and their contribution to the development of firm strategies. The findings also show that the application of innovative IoT solutions positively affects the process of developing long and successful relationships through relationship marketing actions. Conversely, concerns related to
data security vary according to business segments and relationship marketing pillars such as trust, commitment, and reliability, which could help reduce feelings of ambiguity. This research contributes to filling the gap in the literature by offering a deeper understanding of the correlation between IoT and relationship marketing. Moreover, we illustrate how a combination of these two factors can contribute to the development of stronger marketing strategies, as well as their implications on business. The results of this research suggest further and more comprehensive investigations are needed in the future in order to explore the topic in greater depth and to see how the speed of technology is evolving."


ABSTRACT: "The deployment of Internet of Things (IoT) results in an enlarged attack surface that requires end-to-end security mitigation. IoT applications range from mission-critical predicaments (e.g., Smart Grid, Intelligent Transportation Systems, video surveillance, e-health) to business-oriented applications (e.g., banking, logistics, insurance, and contract law). There is a need for comprehensive support of security in the IoT, especially for mission-critical applications, but also for the down-stream business applications. A number of security techniques and approaches have been proposed and/or utilized. Blockchain mechanisms (BCMs) play a role in securing many IoT-oriented applications by becoming part of a security mosaic, in the context of a defenses-in-depth/Castle Approach. A blockchain is a database that stores all processed transactions – or data – in chronological order, in a set of computer memories that are tamperproof to adversaries. These transactions are then shared by all participating users. Information is stored and/or published as a public ledger that is infeasible to modify; every user or node in the system retains the same ledger as all other users or nodes in the network. This paper highlights some IoT environments where BCMs play an important role, while at the same time pointing out that BCMs are only part of the IoT Security (IoTSec) solution."


ABSTRACT: "The widespread adoption of the Internet of Things (IoT) has created a demand for ubiquitous connectivity of IoT devices into the Internet. While end-to-end connectivity for IoT requires in practice IPv6, a vast majority of nodes in Internet are only IPv4-capable. To address this issue, the use of Network Address Translation (NAT) at the IoT network boundary becomes necessary. However, the constrained nature of the IoT devices hinders the integration of traditional NAT traversal architectures through IoT networks. In this article, we introduce a novel transition mechanism that transparently enables IoT devices behind NATs to connect across different network-layer infrastructures. Our mechanism adopts the IoT standards to provide a global connectivity solution in a transparent, secure, and elegant way. Additionally, we revisit the NAT solutions for IoT and describe and evaluate our current implementation."


ABSTRACT: "This study examines factors influencing the risk perception of Internet of Things (IoT) services in the home energy management sector. We focus on investigating the effects of the various types of perceived risks and individuals’ propensities on the overall risk perception of the IoT services and explore some demographic variables. The perceived risks include perceived financial risk, perceived performance risk, perceived security/privacy risk, and
perceived electromagnetic radiation (EMR) risk. The individuals' propensities include the sensitivity to electricity price changes, environmental destruction, and new technology acceptance. As a result, this study confirms the existence of various influencing factors in the risk perception of the IoT-based home energy management services. Perceived EMR risk is the most influential one among the various types of perceived risks of the services, followed by perceived performance risk and perceived security/privacy risk. In general, experts point out cybersecurity threats as a weakness of ICT services, but users are more likely to have fear of the EMR. Moreover, sensitivity to electricity price changes and sensitivity to new technology acceptance are significant factors. This study has a significance in that we explore various factors affecting the risk perception of IoT services in the energy management sector in detail and comprehensively. Particularly, we discuss not only perceptions about the IoT services, but also individuals' propensities. This work may contribute not only to studies on perceived risk and technology acceptance but also to stakeholders trying to market the IoT services to consumers. 


ABSTRACT: "Building upon cloud, IoT and smart sensors technologies we design and develop an IoT as a Service (iTaaS) framework, that transforms a user device (e.g. a smart phone) to an IoT gateway that allows for fast and efficient data streams transmission to the cloud. We develop a two-fold solution, based on micro-services for the IoT (users’ smart devices) and the cloud side (back-end services). iTaaS includes configurations for (a) the IoT side to support data collection from IoT devices to a gateway on a real time basis and, (b) the cloud back-end side to support data sharing, storage and processing. iTaaS provides the technology foreground to enable immediate application deployments in the domain of interest. An obvious and promising implementation of this technology is e-Health and remote health monitoring. As a proof of concept we implement a real time remote patient monitoring system that integrates the proposed framework and uses BLE pulse oximeter and heart rate monitoring sensing devices. The experimental analysis shows fast data collection, as (for our experimental setup) data is transmitted from the IoT side (i.e. the gateway) to the cloud in less than 130ms. We also stress the back-end system with high user concurrency (for example with 40 users per second) and high data streams (for example 240 data records per second) and we show that the requests are executed at around 1 second, a number that signifies a satisfactory performance by considering the number of requests, the network latency and the relatively small size of the Virtual Machines implementing services on the cloud (2GB RAM, 1 CPU and 20GB hard disk size). "


Full-text retrieved from Science Direct database: [http://doi.org/10.1016/j.compeceng.2018.08.021](http://doi.org/10.1016/j.compeceng.2018.08.021)

ABSTRACT: "With the rapid development of internet of things (IoT), it has brought great convenience to users in different fields, such as smart home, smart transportation and so on. However, it also carries potential security risks. In order to solve this challenge, in this paper, we first introduce three layers of IoT, i.e., perception layer, network layer and application layer, then corresponding security problems of three layers are introduced. Second, we propose a high-level security management scheme based on blockchain for different IoT devices in the full life cycle. Finally, we give open research problems and future work. "

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Full-text retrieved from ScienceDirect database: [http://doi.org/10.1016/j.suscom.2018.06.003](http://doi.org/10.1016/j.suscom.2018.06.003)

ABSTRACT: "With the significant advances in communication technologies and in many other sectors, also are growing up security and privacy issues. In our research, is introduced a base technology called Cloud Computing (CC) to operate with the Big Data (BD). CC is a technology which refers to the processing power of data in the fog, providing more “green” computational and sustainable computing. Since it is a recently investigated technology, it has many gaps in security and privacy. So, in this paper, we proposed a new system for Cloud Computing integrated with Internet of Things as a base scenario for Big Data. Moreover, we tried to establish an architecture relaying on the security of the network in order to improve the security issues. A solution proposed is installing a security “wall” between the Cloud Server and the Internet, with the aim to eliminate the privacy and security issues. As a result, we consider that CC deals more efficient with the privacy issue of bits transferred through time. Through our proposed system, the interaction and cooperation between things and objects communicate through the wireless networks in order to fulfil the objective set to them as a combined entity. Regarding the major goal of our research, which is the security, a sort survey of IoT and CC presented, with a focus on the security issues of both technologies. In addition to this, we try present the security challenges of the integration of IoT and Cloud Computing with the aim to provide an architecture relaying on the security of the network in order to improve their security issues. Finally, we realize that through our study Cloud Computing could offer a more “green” and efficient fog environment for sustainable computing scenarios."


ABSTRACT: "As an integral part of the Internet of Things (IoT), smart and connected sensors are emerging information and communication technologies that collect and transmit real-time data from various urban domains to inform decision-making. While smart sensors and IoT technologies have great potential to transform public service provision, their adoption in the public sector seems to be slow and incremental. Using cross-sectional data of 65 large and mid-sized cities in the United States, we examine what affects local governments’ adoption of smart and connected sensors. We propose a path-dependence explanation for the incremental adoption and test if a local government’s sensor adoption behavior is shaped by its existing policy priorities and managerial practices in related fields. Our results show that local governments’ early adoption of smart sensors is likely to stem from their needs in specific policy domains. We also find that a local government’s historical paths on urban sustainability and data-driven decision-making practices can predict its trajectory of sensor deployment, in terms of the scope and the integration of smart sensors across different urban domains. Surprisingly, a local government’s e-government progressiveness is not a significant predictor. Our results confirm the incremental change in smart sensor adoption and provide implications for local governments’ IoT planning."


Full-text retrieved from Emerald Insight database: [https://doi.org/10.1108/IMDS-09-2017-0384](https://doi.org/10.1108/IMDS-09-2017-0384)
ABSTRACT: "Since the handling of environmentally sensitive products requires close monitoring under prescribed conditions throughout the supply chain, it is essential to manage specific supply chain risks, i.e. maintaining good environmental conditions, and ensuring occupational safety in the cold environment. The purpose of this paper is to propose an Internet of Things (IoT)-based risk monitoring system (IoTRMS) for controlling product quality and occupational safety risks in cold chains. Real-time product monitoring and risk assessment in personal occupational safety can be then effectively established throughout the entire cold chain." 


Full-text retrieved from IEEE Xplore database: [http://dx.doi.org/10.1109/MCOM.2018.1800089](http://dx.doi.org/10.1109/MCOM.2018.1800089)

ABSTRACT: "Spatial challenges for the vehicular Internet of Things come from mobility, high density, sparse connectivity, and heterogeneity. In this article, we propose two techniques, namely decentralized moving edge and multi-tier multi-access edge clustering, to handle these challenges. The "vehicle as an edge" concept of the decentralized moving edge provides a more suitable solution to meet the throughput and latency performance requirements by conducting distributed communication, data caching, and computing tasks at vehicles. Multi-tier multi-access edge clustering generates different levels of clusters for more efficient integration of different types of access technologies including licensed/unlicensed long-range low-throughput communications and unlicensed short-range high-throughput communications. We employ fuzzy logic to jointly consider multiple inherently contradictory metrics and use Q-learning to achieve a self-evolving capability. Realistic computer simulations are conducted to show the advantage of the proposed protocols over alternatives, an"


ABSTRACT: "The explosive growth of smart objects and their dependency on wireless technologies for communication increases the vulnerability of Internet of Things (IoT) to cyberattacks. Cyberattacks faced by IoT present daunting challenges to digital forensic experts. Researchers adopt various forensic techniques to investigate such attacks. These techniques aim to track internal and external attacks by emphasizing on communication mechanisms and IoT's architectural vulnerabilities. In this study, we explore IoT's novel factors affecting traditional computer forensics. We investigate recent studies on IoT forensics by analyzing their strengths and weaknesses. We categorize and classify the literature by devising a taxonomy based on forensics phases, enablers, networks, sources of evidence, investigation modes, forensics models, forensics layers, forensics tools, and forensics data processing. We also enumerate a few prominent use cases of IoT forensics and present the key requirements for enabling IoT forensics. Finally, we identify and discuss several indispensable open research challenges as future research directions."


Full-text retrieved from Springer Link database: [https://doi.org/10.1007/s00779-018-1149-y](https://doi.org/10.1007/s00779-018-1149-y)

ABSTRACT: "The Internet of Medical Things (IoMTs) are the group of medical devices connected to Internet, to perform the processes and services that support healthcare. The amount of data handled by medical devices grows exponentially, which means higher exposure of personal sensitive data. RSA, ECC and, other related public key cryptographic systems with countermeasures of power analysis and fault analysis, e.g., random masking, are often adapted
by medical devices for guaranteeing security and privacy. However, Shor algorithm has proven that they are not secure to quantum computer attacks. Fortunately, there exists a few quantum-resistant public key cryptographic schemes, e.g., Rainbow. To ensure end-to-end service delivery in the IoMTs under quantum attacks, there is a critical need for research into new designs and evaluation for the hardware security of new quantum-resistance cryptographic systems, e.g., rainbow, to make the medical devices more secure and reliable. Therefore, we present a physical analysis model of Rainbow by combining fault analysis and differential power analysis. The proposed model is implemented on cloud computing platform. Based on the experimental results, we successfully recover all the secret keys of Rainbow signature, which shows the importance of protecting multivariate signature with countermeasures on medical devices.”


Full-text retrieved from Science Direct database: http://doi.org/10.1016/j.ifacol.2018.08.057

ABSTRACT: "With the development of sensing, wireless communication, and Internet technologies, we are now living in a world that is filled with various smart things – the Internet of Things (IOT). This paper introduces and prospects an emerging research area – the Embedded Intelligence (EI). This field aims at revealing the individual behaviours, spatial contexts, as well as social patterns and urban dynamics by mining the digital traces left by people while interacting with Internet of smart things (cameras, smart cars, smart cards, etc). In the agricultural sector we add mining of existing technology (books, articles, blue prints) to generate high depth ontologies or metadata and knowledge extraction from Big Data for reasoning and making pro-active decisions using open data information. We include intelligent data analysis to discover new knowledge from data records. The paper discusses the research history, characteristics, general architecture, major applications, and research issues of EI and exemplifies an application of the team in IOT smart irrigation. The purpose of presenting it as a Technology Roadmap (TRM) was to clarify the challenges and opportunities in the general area of “Intelligent Building Technologies” (IBT) and more specifically to smart greenhouses, smart irrigation, or smart crop management. The understanding of smart agriculture is important to be identified by the scientific community as a significant issue because it is needed for nations to develop and adopt these emerging technologies. Global interoperability is of key importance, and so it is a common understanding of values such as privacy and security, based on open, fair and transparent international standards."


Full-text retrieved from Springer Link database: https://doi.org/10.1007/s00779-018-1173-y

ABSTRACT: "In order to explore the data fusion algorithm in medical Internet of things, the monitoring of medical data in the Internet of things is discussed and studied focusing on data fusion and related routing technology. According to the particularity of the data in the medical Internet of things, a data fusion cluster-tree construction algorithm based on event-driven (DFCTA) is proposed. The fusion delay problem in the network is analyzed, and the minimum fusion delay method is proposed by calculation of the fusion waiting time of the nodes. Finally, the intelligent health management data fusion system in the medical Internet of things is designed. Aiming at the characteristics of multilevel integration of multisource heterogeneous data fusion for intelligent health management, the data fusion architecture of fusion tree composed of fusion nodes is proposed. The experiment shows that the DFCTA algorithm has good fusion performance. Based on the above findings, it is concluded that the algorithm is a fast and reliable method, which has important practical significance."

ABSTRACT: "This paper offered a ubiquitous parking guidance robot system used for assisting drivers in selection of parking lots near their destination locations and recommending the parking lot with optimum conditions based on the forecast results by deep learning the big data of parking lots obtained through Internet of Things, which not only decreased the cost and the required time of parking, but also reduced the parking failure by a relatively accurate guidance way, and is important for drivers to save time on parking when drivers hurry to their destination locations such as hospital. The ubiquitous parking guidance robot system can be implemented as parking guidance apps or parking guidance plugins of navigation apps installed in drivers’ mobile phones. Drivers can independently set their filtering criteria of guidance, and then the parking lot with the optimum conditions such as shortest distance, largest number of parking spaces and best environment will be recommended."

Bibliography on “regulatory/statistical report”


Full-text retrieved from ProQuest Central database: https://search.proquest.com/docview/2103204987?accountid=41838.


Full-text retrieved from ProQuest Central database: https://search.proquest.com/docview/2103214751?accountid=41838.


Full-text retrieved from ProQuest Central database: https://search.proquest.com/docview/2108559210?accountid=41838.

ABSTRACT: "We expect to see robust organic growth in the mobile sector as mobile penetration rates are far from the 100% mark, although SIM deactivations will present short-term downsides to reported growth. Launch of 4G services in 2018 will be a key driver for growth, with operators competing to roll-out networks to divisional capitals. In the long-run, we expect operators to migrate subscribers to a single technology to reduce operational expenditure involved in maintaining several networks at once, with low-cost featurephones being key to a 4G-only strategy. Poor regulation and the government's continuous perception of the sector as a cash cow remain the biggest downsides to our forecasts, alongside slow growth in disposable incomes."


Full-text retrieved from ProQuest Central database: https://search.proquest.com/docview/2116502944?accountid=41838.
ABSTRACT: "As Central American markets mature, opportunities for organic growth will diminish over our 10-year forecast to 2027. Operators will have to focus on migrating customers to 4G networks and advanced services to grow their revenue streams. Regulators will also need to be proactive in distributing spectrum to allow networks to cope with growing data demand. This will be especially the case in remote areas where customers rely on mobile broadband due to a dearth of adequate wireline infrastructure. National policies to improve broadband usage and digitalisation of the economy will provide some upside for fixed broadband in urban centres, while wireline voice will see waning interest due to mobile and IP substitution."


Full-text retrieved from ProQuest Central database: https://search.proquest.com/docview/2115494343?accountid=41838.
ABSTRACT: "IT spending in Colombia is forecast to record sustained growth over the medium term, supported by economic recovery from the lows of 2017, but also outperforming growth rates for the economy as a whole as vendors tap into potential presented by low levels of software and service adoption in the public and private sector. There is, however, downside for the hardware segment because of shifting usage patterns towards mobile devices. Meanwhile, in the domestic industry, software and services also has a brighter outlook, while Colombia is almost entirely reliant on imported hardware."

Full-text retrieved from ProQuest Central database: https://search.proquest.com/docview/2113631909?accountid=41838.
ABSTRACT: "We have made minor adjustments to our outlook and extended our forecast to 2027 in this update. Côte d’Ivoire’s mobile market will continue to benefit from recent consolidation and the launch of new technologies. We expect 3G/4G access to be a key growth driver of the overall mobile market, on the back of operators such as Orange and MTN having deployed LTE. With regards to the wireline sector, we believe access to mobile services will hamper
growth of fixed voice subscriptions. Despite this, the broadband market will be bolstered by the development of fibre networks by the government and operators."

Full-text retrieved from ProQuest Central database: https://search.proquest.com/docview/2115830056?accountid=41838.
ABSTRACT: "The IT spending outlook for Egypt is strong over 2018-2022 as the market and economy rebound after the negative shock delivered by the devaluation that followed currency free-float in late 2016. In the short term, growth will be strong as vendors tap into pent-up demand post-crisis, however, from 2019 the underlying engine will switch to economic modernisation and expansion. The local industry also has a bright outlook, in part due to domestic IT demand, but also Egypt's expanding role as an IT outsourcing location that is being driven by investments in technology zones, supporting infrastructure and training. The main risks are external economic conditions, and the interaction of domestic and regional political trends."

Full-text retrieved from ProQuest Central database: https://search.proquest.com/docview/2103204058?accountid=41838.

Full-text retrieved from ProQuest Central database: https://search.proquest.com/docview/2116175467?accountid=41838.
ABSTRACT: "The IT markets of Ghana, Kenya and Nigeria have huge growth potential based on a large and untapped population and enterprise base where device and solution penetration is far behind developed markets - and even most other emerging or frontier markets. Strong investments into economic modernisation, power and energy, construction, infrastructure and transportation and logistics will provide steady enterprise demand for a healthy IT market growth albeit from a nascent stage of development. The downside is, however, that per capita IT spending is still low and demand is vulnerable to external shocks, especially in the commodity export economies of Ghana and Nigeria, while the operating environment also presents major challenges such as logistics and IP protection."

Full-text retrieved from ProQuest Central database: https://search.proquest.com/docview/2117585048?accountid=41838.
ABSTRACT: "5G mobile broadband networks are beginning to be rolled out in key markets across the world. There will be many opportunities for vendors of next-generation equipment in both developed and emerging markets, although the enthusiasm of clients in the operator space will likely be more temperate than was the case with 3G and 4G. The problem is that few compelling use cases for 5G have been developed, with the enterprise communications and connected home markets best-placed to use the new technology to its best advantage. That said, enterprises have already tired of waiting for public networks to catch up with their needs, and we anticipate new service delivery paradigms to emerge, driven by alternative technologies, such as low-power wide area networking and small cells."


Full-text retrieved from ProQuest Central database: [https://search.proquest.com/docview/2113633686?accountid=41838](https://search.proquest.com/docview/2113633686?accountid=41838).

ABSTRACT: "Kazakhstan’s telecoms market continues to perform in line with our forecasts. Faced with a saturated market, operators are looking to migrate customers from basic to premium services, such as mobile data packages via LTE, fibre and connected objects. We maintain our positive outlook for the market. It will be driven by the uptake of 3G/4G services with an increasing number of operators investing in 4G roll-out. The latest round of government funding will accelerate the building of digital networks in rural Kazakhstan, a positive development that will result in rising broadband uptake. Still, ARPU have suffered from the significant devaluation of the Tenge against the US Dollar since Q315. and the looming takeover of mobile market leader Kcell by incumbent Kazakhtelecom could hamper innovation in the market."


Full-text retrieved from ProQuest Central database: [https://search.proquest.com/docview/2112353277?accountid=41838](https://search.proquest.com/docview/2112353277?accountid=41838).

ABSTRACT: "The IT market in Malaysia is forecast to maintain local currency spending growth throughout the medium term, but the outlook was lowered to reflect a softer economic outlook in mid-2018. The main driver will be enterprise and public sector investments in software and services as a result of technology trends and the opportunities presented by modernisation and higher levels of digitisation."


Full-text retrieved from ProQuest Central database: [https://search.proquest.com/docview/2108555621?accountid=41838](https://search.proquest.com/docview/2108555621?accountid=41838).

ABSTRACT: "Our 10-year outlook for the telecommunications market is broadly positive, with strong opportunities for 4G service growth. Content and services provide avenues for revenue growth, although premium data services also present positive upsides. Price-led competition resulting from the entrance of alternative 4G licensees and U Mobile will drive down mobile revenues in the short-run. Wireline broadband will grow albeit at a slow pace, as migration to fibre-based connections will largely cannibalise DSL connections. Wireline voice will continue to see declines, with a majority of connections to be enterprise-based as mobile substitution takes place."


Full-text retrieved from ProQuest Central database: [https://search.proquest.com/docview/2112822430?accountid=41838](https://search.proquest.com/docview/2112822430?accountid=41838).

ABSTRACT: "Strong economic performance will support IT market growth over 2018-2022, as improving sentiment and rising incomes from businesses and households translate into demand for the latest technologies. Some downside risk for local industry and the consumer market remains, however, deriving mainly from potential policy shocks in the Trump era, despite the core scenario being for NAFTA to remain intact."


Full-text retrieved from ProQuest Central database: https://search.proquest.com/docview/2116502435?accountid=41838.

ABSTRACT: "We have left our mobile forecasts unchanged but have downgraded our fixed-broadband outlook slightly as a more accurate reflection of the market situation. KPN and VodafoneZiggo continue to exert an effective duopoly on the market; the regulator the ACM has ruled for the first time that VodafoneZiggo has significant market power (SMP) in the fixed wholesale market. The European Commission (EC) has asked the ACM to look again at some of its proposals but did not object to the ACM’s decision that VodafoneZiggo has SMP. The EC has raised concerns about the intended T-Mobile/Tele2 merger on competition grounds; the operators are hopeful that the deal will be granted permission by the end of 2018."


Full-text retrieved from ProQuest Central database: https://search.proquest.com/docview/2116185151?accountid=41838.

ABSTRACT: "The Saudi Arabian five-year IT market outlook is robust and our bullish view is based on a number of drivers including an oil price rally, high foreign and domestic investor sentiment and the bold modernisation initiatives related to the landmark Vision 2030. The government has established various multibillion dollar funds to support infrastructure investment and to reorient the economy away from hydrocarbons in a bid to secure a long-term economic future for the country. Out to 2022 and beyond, we see strong demand for enterprise hardware, software and services driven by a process of social and economic digitisation as the region’s largest country embarks on a bold new agenda."


Full-text retrieved from ProQuest Central database: https://search.proquest.com/docview/2111297928?accountid=41838.

ABSTRACT: "Sri Lanka’s IT market is forecast to sustain strong growth throughout the medium term 2018-2022 based on catch-up potential in the level of IT device and solutions adoption across the private and public sectors towards the levels reached in developed and even most emerging markets, and fuelled by an expanding economy and national level modernisation momentum. The domestic IT industry is also well positioned for further growth through increased domestic demand and Sri Lanka’s position as an outsourcing centre."


Full-text retrieved from ProQuest Central database: https://search.proquest.com/docview/2108552115?accountid=41838.

ABSTRACT: "Customer deepening strategies will be operators’ new focus in Sub-Saharan Africa (SSA), with mobile being the only viable alternative to wireline broadband. Mobile financial services (MFS) will secure loyalty at the lower end of the market, while e-commerce, music and..."
gaming will secure the middle tier. A newly emerging downside risk is increased regulatory intervention in MFS, which will lead to higher operating costs that will have to be passed on to end-users."

Full-text retrieved from ProQuest Central database: [https://search.proquest.com/docview/2116185050?accountid=41838](https://search.proquest.com/docview/2116185050?accountid=41838).
**ABSTRACT:** "Despite strong uptake of 4G services in Algeria and Tunisia, we caution that within a weak macroeconomic environment, strong competition in price will continue to erode operators’ revenues while also limiting the potential for advanced mobile services. However, investment into fixed broadband services in both countries and active players pose an upside risk to our predictions, even if mobile broadband will remain the more popular technology. In Libya, the deteriorated security situation will continue to limit growth and investment into the market."


Full-text retrieved from ProQuest Central database: [https://search.proquest.com/docview/2116503599?accountid=41838](https://search.proquest.com/docview/2116503599?accountid=41838).
**ABSTRACT:** "The UK market continues to move along operationally, with the main issues being regulatory. The decisions to allow the deal between BT and EE, but not the one between 3 and O2, have created deep imbalances in the market, with BT a clear dominant player. Meanwhile, the government is keen to improve data services in the country and has offered GBP25mn to six 5G test centres, and 13 areas in the country have secured GBP95mn to develop fibre connections. The award of mobile spectrum for 5G development is conducted in two stages with auctions held in April 2018 and planned for the second half of 2019 to allow commercial roll-out in 2020."

Full-text retrieved from ProQuest Central database: [https://search.proquest.com/docview/2112812940?accountid=41838](https://search.proquest.com/docview/2112812940?accountid=41838).
**ABSTRACT:** "We continue to maintain a positive outlook for the market, expecting it to reach USD1,503bn in 2022, due to strong economic growth. Software and services will drive growth, as the hardware segment is saturated. New services such as Internet of Things, Artificial Intelligence or cybersecurity will ensure the US will remain at the cutting edge of new technology."

Full-text retrieved from ProQuest Central database: [https://search.proquest.com/docview/2112809899?accountid=41838](https://search.proquest.com/docview/2112809899?accountid=41838).
**ABSTRACT:** "The Venezuelan IT market and industry collapsed during 2015-2017 as the country experienced a severe economic crisis that saw purchasing power collapse and hyperinflation that meant consumers primary focus switched to obtaining basic goods, and skilled workers fled the country. There is no short-term prospect for recovery, and we maintain our view that a
recovery in the Venezuelan economy and major policy changes will allow the bolívar to regain some purchasing power.

Full-text retrieved from ProQuest Central database: https://search.proquest.com/docview/2103215305?accountid=41838.

Bibliography on “satellite communications”

Full-text retrieved from IEEEXplore database: http://dx.doi.org/10.1109/MNET.2018.1800052
ABSTRACT: "The envisioned 5G ecosystem will be composed of heterogeneous networks based on different technologies and communication means, including satellite communication networks. The latter can help increase the capabilities of terrestrial networks, especially in terms of higher coverage, reliability, and availability, contributing to the achievement of some of the 5G KPIs. However, technological changes are not immediate. Many current satellite communication networks are based on proprietary hardware, which hinders the integration with future 5G terrestrial networks as well as the adoption of new protocols and algorithms. On the other hand, the two main paradigms that are emerging in the networking scenario -- software defined networking (SDN) and network functions virtualization – can change this perspective. In this respect, this article presents first an overview of the main research works in the field of SDN satellite networks in order to understand the already proposed solutions. Then some open challenges are described in light of the network slicing concept by 5G virtualization, along with a possible roadmap including different network virtualization levels. The remaining unsolved problems are related to the development and deployment of a complete integration of satellite components in the 5G ecosystem."

Full-text retrieved from IEEEXplore database: http://dx.doi.org/10.1109/MNET.2018.1800024
ABSTRACT: "The fifth generation of mobile radio communication systems, dubbed 5G, has the challenge of coping with tremendous increases in data traffic volume and peak data rates, reduced latencies, along with improved energy-efficient transmissions and new use cases. In fact, besides the traditional MBB services, future 5G networks will face the opportunity to embody connections to billions of objects, the so-called IoT or mMTC. The article addresses the question of what is the possible role of satellite systems in mMTC services. Key satellite mMTC system design trade-offs are outlined jointly with some examples of network sizing."

Full-text retrieved from IEEEXplore database: http://dx.doi.org/10.1109/MNET.2018.1800045
ABSTRACT: "5G systems have started field trials, and deployment plans are being formulated, following completion of comprehensive standardization efforts and the introduction of multiple technological innovations for improving data rates and latency. Similar to earlier terrestrial wireless technologies, build-out of 5G systems will occur initially in higher population density
areas offering the best business cases while not fully addressing airborne and marine applications. Satellite communications will thus continue to be indispensable as part of an integrated 5G/satellite architecture to achieve truly universal coverage. Such a unified architecture across terrestrial and satellite wireless technologies can ensure global service, support innovative 5G use cases, and reduce both capital investments and operational costs through efficiencies in network infrastructure deployment and spectrum utilization. This article presents an architectural framework based on a layered approach comprising network, data link, and physical layers together with a multimode user terminal. The network layer uses off-the-shelf building blocks based on 4G and 5G industry standards. The data link layer benefits from dynamic sharing of resources across multiple systems, enabled by intersystem knowledge of estimated and actual traffic demands, RF situational awareness, and resource availability. Communication resource sharing has traditionally comprised time, frequency, and power dimensions. Sharing can be enhanced by leveraging dynamic knowledge of communication platform location, trajectory, and antenna directivity. Logically centralized resource management provides a scalable approach for better utilization of spectrum, especially in higher bands that have traditionally been used by satellites and now are also being proposed for 5G systems. Resource sharing maximizes the utility of a multimode terminal that can access satellite or terrestrial RF links based on specific use cases, traffic demand, and QoS requirements."

Full-text retrieved from IEEE Xplore database: http://dx.doi.org/10.1109/TCOMM.2018.2837909
ABSTRACT: "With the rapid development of modern satellite communications, broadband satellite services are experiencing a period of remarkable growth in both the number of users and the available bandwidth. More efficient spectrum management schemes require deeper investigation in order to meet the ever-increasing demand for broadband spectrum. In this paper, we propose a band allocation method for multibeam satellite systems by introducing a market-driven pricing mechanism. Instead of adopting static and fixed band selling, we consider a satellite network operator that utilizes the mode of price bargaining to trade the unused band with terrestrial network operators. By applying market-based mechanism to support satellite spectrum allocation, higher spectrum efficiency can be attained in order for satellite systems to meet the increasing demands for satellite bandwidth at an affordable cost. Besides, for the one-to-many bargaining case without terrestrial operator involved in, a differential spectrum pricing solution is devised to address heterogeneous users' spectrum preferences. In a typical price bargaining model, market participants (i.e., terrestrial network operators) are assumed to know exactly their needs dynamically, which is hard to achieve in near real-time; thus, our approach approximates it with a sub-optimal estimation on the network operators' benefit threshold. To be specific, we obtain the optimal pricing at every round of bargaining by predicting the overall benefits of terrestrial network operators and reaching the Nash equilibrium. Essential discussions and proofs for the pricing rationality are provided. Numerical results are given to evaluate the impact of the pricing scheme on the profits of satellite systems."

Bibliography on “semantic web”

Full-text retrieved from Science Direct database: http://doi.org/10.1016/j.procs.2018.09.008
ABSTRACT: "Autonomous virtual agents that operate in complex IoT environments and apply machine learning algorithms face two fundamental challenges: (i) they usually lack sufficient start-up knowledge and (ii) hence are incapable to adequately adjust their internal knowledge base and decision-making policies during runtime to meet specific user requirements and preferences. This is problematic in Ambient Assisted Living (AAL) and Health-Care (HC) scenarios, since an agent has to expediently operate from the beginning of its lifecycle and adequately address the target users’ needs; without prior user and environmental knowledge, this is not possible. The presented approach addresses these problems by providing a semantic use-case simulation framework that can be tailored to specific AAL and HC use cases. It builds upon a semantic knowledge representation framework to simulate device events and user activities based on semantic task and ambient descriptions. Through such a simulated environment, agents are provided with the ability to learn the best matching actions and to adjust their policies based on generated datasets. We demonstrate the practical applicability of the simulation framework through the evaluation of the chronic kidney disease pathway from the vCare EC project. Thereby, we proof that an agent that uses reinforcement learning (RL) is able to improve its performance during and after the training and thus makes optimal (activity) recommendations to a prospective patient."


ABSTRACT: "Twitter has become instrumental as a means of spreading information, opinions or awareness about real-world events. The classification of event-related tweets is a challenging problem since tweets are noisy and sparse pieces of text that lack contextual information. Related work proposes contextual enrichment techniques using external sources (e.g. semantic web, external documents), often considering underlying assumptions about the target events. However, they lack guidelines for determining the textual features to enrich, the external sources to use, the properties to explore, and how to prevent the inclusion of unrelated information. In this paper, we propose a hybrid semantic enrichment framework for the classification of event-related tweets. We contribute to this field by leveraging different contextual enrichment strategies into a unifying framework targeted at a broad range of event types, where each enrichment technique has a role in the improvement of event classification. The framework also encompasses a solution to deal with the huge number of features that result from semantic enrichment, which combines a pruning method to select domain relevant semantic features and general-purpose feature selection techniques. We assessed the contribution of each framework component to event classification improvement using a broad experimental setting. Using seven events of distinct natures, we outperformed a word embeddings baseline in 93.6% of cases, and a textual baseline in 60.3% of cases. In most cases, we improved the recall, with no significant impact on the precision."


ABSTRACT: "Some facts in the Web of Data are only valid within a certain time interval. However, most of the knowledge bases available on the Web of Data do not provide temporal information explicitly. Hence, the relationship between facts and time intervals is often lost. A few solutions are proposed in this field. Most of them are concentrated more in extracting facts with time intervals rather than trying to map facts with time intervals. This paper studies the problem of determining the temporal scopes of facts, that is, deciding the time intervals in which the fact is valid. We propose a generic approach which addresses this problem by curating temporal
information of facts in the knowledge bases. Our proposed framework, Temporal Information Scoping (TISCO) exploits evidence collected from the Web of Data and the Web. The evidence is combined within a three-step approach which comprises matching, selection and merging. This is the first work employing matching methods that consider both a single fact or a group of facts at a time. We evaluate our approach against a corpus of facts as input and different parameter settings for the underlying algorithms. Our results suggest that we can detect temporal information for facts from DBpedia with an f-measure of up to 80%. 


ABSTRACT: "The development of ontology engineering tools has traditionally lacked a user-centred perspective, instead being guided by the need to address particular gaps indicated by anecdotal evidence. This has typically resulted in prototypes that do not obtain traction beyond a narrow scope. Understanding the authoring patterns of ontology engineers is crucial to informing the development of ontology engineering tools that cater for the activity workflows of the users and, consequently, boosting the adoption of these tools. We report evidence about how Protégé is used across three different authoring settings, addressing the threats to validity of relying on a single user study. These settings address the continuum of expertise (from intermediate to expert users), the type of tasks (whether they are free-form or prescriptive) and the effect of the location (laboratory, tutorial or on their own) and how the studies are administered (whether or not there is a close supervision). While there are activity workflows that are particular to settings, the results indicate a number of core workflows that are common to all of them. We discuss actionable recommendations for ontology engineering tools in light of these results. "

Bibliography on “smart cities”


ABSTRACT: "The transformation of the existing urban environment in digital smart cities has become a reality, which aimed to transform daily life activities into automated processes for the ease in human efforts and reduction in effort time. Vision based sensors are commonly used for monitoring cities, which acquire a huge amount of diverse data and store them for further computer vision processing. In this article, we aim to explore whether and how to navigate a vehicle using cost effective means (vision based sensors) in smart cities without using the calibrated sensors and Global Positioning System (GPS). Vehicle localization and navigation require on-board calibrated sensors and reliable GPS link. In an urban environment, these sensors fail to perform well in: indoor environment (tunnels), crowded and congested areas, and severe weather conditions. The most effective technique used for vision based navigation depends on image registration. The challenges of a successful and effective registration are: sufficient illumination in the environment, dominance of static scene over moving objects, high textured ratio to allow apparent motion and necessary scene overlap between consecutive frames. We proposed a novel approach for vehicle navigation based on vision sensors using modified normalized phase correlation. In the proposed approach, the distinction between textured and texture less surface is based on the identification of corresponding features. In this regard, the Gram polynomial basis function is used to remove the Gibbs error problem
generated due to peak in the registration process. Similarly, entropy based tensor approximation is used to remove outliers for robust image registration. Experiments performed in real time during test drives show excellent results with respect to estimated position accuracy in comparison with GPS calculated data."


ABSTRACT: "Industrial cities still maintain structures for a mass production and consumption dynamics, which result in several issues such as unemployment, homeless, traffic jams, pollution, diseases, violence and so on. This urban industrial configuration no longer fits with the value creation principles of the new techno-economic paradigm. In order to overcome this crisis, cities of the future must find suitable trajectories and become smart cities. However, there is no consensus about what really makes a city smarter. What are the elements that a smart city must have in order to host high quality of life and a prosperous environment for creativity and innovation? This paper aims at disclosing the driving elements that make a city smarter, based on the literature, interviews with experts, and insights from smart cities projects (Amsterdam, Barcelona, Lisbon, Vienna). Results show that a smart city is an urban innovation ecosystem where knowledge easily flows from a deliberated interaction and collaboration among different stakeholders to create wealth, supported by a flexible institutional structure, an integrated-participative governance model, a digital-green infrastructure and a functional urban design with diversified amenities and facilities. We conclude that cities, to become smarter, should upgrade the elements related to their different dimensions, which are the techno-economic activity, the environ-urban configuration and the socio-institutional structures in an integrated manner, guided by an integrated and comprehensive governance model."

Full-text retrieved from ScienceDirect database: [http://dx.doi.org/10.1016/j.giq.2018.07.005](http://dx.doi.org/10.1016/j.giq.2018.07.005)

ABSTRACT: "With the recent increase in urban population worldwide, and the emergence of big data analytics, there is a growing interest in research on how cities are actively reconstructing themselves into a smart and sustainable city. Research studies have shown that the smart city system primarily focuses on integrating three components: economic, environmental, and social. The social component includes participatory democracy with citizen engagement. In many cases, smart cities focus on discovering answers for various urban problems through the adoption of Information Communication Technologies (ICTs) designed to collect and provide knowledge resources that can improve the quality of urban life. However, there are very few studies that attempt to close the information loop and link problems to solutions in one, unified framework. The purpose of this study is to demonstrate such a unified approach. Using the theoretical lens of dynamic capabilities, we expand the definition of a smart city to include the notion of an urban organization with dynamic capabilities, which operates within cycles of ‘sense’, ‘seize’, ‘align’, and ‘transform’ functions. Our case study focuses on the ‘sense’ and ‘seize’ steps, describing a medium-size city in Texas, where an open-ended survey is used as a collection instrument for citizen input and concept-based analytics are employed to convert such input into actionable insights. Our approach has the potential to assist policy makers in designing a comprehensive strategy toward the goal of the smart city."
Full-text retrieved from ProQuest Central database: https://search.proquest.com/docview/2116392627?accountid=41838
ABSTRACT: "No contemporary major city is sustainable, with current population and levels of consumption, beyond the fossil fuels which have facilitated what has appropriately been called “high-energy modernity.” At present, there appears to be no realistic possibility in any major city of replacing most of the energy from fossil fuels with renewable energy. Even in cities which could get most of their electricity from renewables, there is still a heavy reliance on motorized transport of people, goods, and food into and around the city. There does not appear to be a way to power and reproduce these fleets of vehicles solely with renewable energy, and most cities are not sustainable at their current size and density without them. But cities and regions vary in sustainability depending on local renewable energy sources, hinterland food production, population, extent of urban sprawl, and access to water-borne transportation. This paper identifies the features of more sustainable versus less sustainable cities, with examples from Asia, the Americas, and Europe. Case studies of two cities—Hong Kong and Vancouver, B.C.—are used to illustrate the analysis."

Full-text retrieved from ScienceDirect database: http://doi.org/10.1016/j.giq.2018.01.006
ABSTRACT: "Dashboards visualize a consolidated set data for a certain purpose which enables users to see what is happening and to initiate actions. Dashboards can be used by governments to support their decision-making and policy processes or to communicate and interact with the public. The objective of this paper is to understand and to support the design of dashboards for creating transparency and accountability. Two smart city cases are investigated showing that dashboards can improve transparency and accountability, however, realizing these benefits was cumbersome and encountered various risks and challenges. Challenges include insufficient data quality, lack of understanding of data, poor analysis, wrong interpretation, confusion about the outcomes, and imposing a pre-defined view. These challenges can easily result in misconceptions, wrong decision-making, creating a blurred picture resulting in less transparency and accountability, and ultimately in even less trust in the government. Principles guiding the design of dashboards are presented. Dashboards need to be complemented by mechanisms supporting citizens' engagement, data interpretation, governance and institutional arrangements."

Full-text retrieved from Science Direct database: http://doi.org/10.1016/j.adhoc.2018.10.014
ABSTRACT: "The evolution of smart city services and applications requires a more efficient wireless infrastructure to provide the needed data rate to users in a high-density environment with high mobility, satisfying at the same time the request for high-connectivity and low-energy consumption. To address the challenges in this new network scenario, we propose to opportunistically rely on the increasing number of connected vehicles in densely populated urban areas. The idea is to support the macro base station (BS) with a secondary communication tier composed of a set of smart and connected vehicles that are in movement in the urban area. As a first step towards a comprehensive cost-benefit analysis of this architecture, this paper considers the case where these vehicles are equipped with femto-mobile access points (fmAPs) and constitute a mobile out-of-band relay infrastructure. We first study this network system with a continuous time model, in which three techniques to select an
fmAP (if more than one is available) are proposed and the maximal feasible gain in the data rate is characterized as a function of the vehicle density, average vehicle speeds, handoff overhead cost, as well as physical layer parameters. We then introduce a time slotted model, in which we consider a more realistic communication channel, with an exponential path loss model, and we investigate the tradeoff between energy consumption and expected data rate, as a function of the system parameters. The analytical and simulation results, with both the continuous and time slotted models, provide a first benchmark characterizing this architecture and the definition of guidelines for its future realistic study and implementation."


ABSTRACT: "Local urban identity, culture and knowledge ecosystems continue to shape innovative capacity and technological acceptance despite global exchange in talent, trade and technology. This has important implications for the development and implementation of future smart cities. The last two decades of smart city research has presented smart cities as a generic, universal aspiration without taking into consideration such local cultural differences. Future smart cities have several tasks ahead of them. The first is selecting culturally appropriate technologies from the vast array of global technologies now on offer. The second task is adapting such technology and the third task is in managing the acceptance of such technology. The above process is not linear but must be iterative, with technology acceptance considered simultaneously alongside the selection and adoption of such technologies. This study integrates the substantial literature on Technology Acceptance Modelling into the smart city discourse to begin to address this need. It also further develops our understanding of technology acceptance using the Structural Equation Modelling Method. A new synthetic model is proposed consisting of twelve factors, which have been selected based on a targeted literature review. A survey-based method was used to develop and cross-validate the model sampling a diverse population from various Iranian cities. The result of the above process is a new model named the Urban Services Technology Acceptance Model (USTAM). The validated model includes key factors related to technology such as Self-Efficacy, Operation, Work Facilitation, Relative Advantage and Compatibility. The USTAM is a useful tool for the prediction of technology acceptance in the implementation of smart cities. The final model is significant for various reasons. Firstly, it is significant for ensuring that selected technology is appropriate to local cultural contexts. Secondly it is significant to ensure that integration of technologies at metropolitan scales is managed effectively. The final significant reason is that it is well-suited to helping developing economies participate in the smart city boom in a resource efficient manner. The proposed model can potentially help cities achieve this by guiding them in the selection of appropriate technologies. The proposed model is developed with specific reference to Iran and Bangladesh. The authors suggest that the model is useful for cities of different cultural identities and characteristics, who wish to initiate their own distinctive smart city strategies."

Bibliography on “social media”


Full-text retrieved from ACM DL database: [http://doi.acm.org/10.1145/3158373](http://doi.acm.org/10.1145/3158373)
ABSTRACT: "Online social networks provide an environment for their users to share content with others, where the user who shares a content item is put in charge, generally ignoring others that might be affected by it. However, a content that is shared by one user can very well violate the privacy of other users. To remedy this, ideally, all users who are related to a content should get a say in how the content should be shared. Recent approaches advocate the use of agreement technologies to enable stakeholders of a post to discuss the privacy configurations of a post. This allows related individuals to express concerns so that various privacy violations are avoided up front. Existing techniques try to establish an agreement on a single post. However, most of the time, agreement should be established over multiple posts such that the user can tolerate slight breaches of privacy in return of a right to share posts themselves in future interactions. As a result, users can help each other preserve their privacy, viewing this as their social responsibility. This article develops a reciprocity-based negotiation for reaching privacy agreements among users and introduces a negotiation architecture that combines semantic privacy rules with utility functions. We evaluate our approach over multiagent simulations with software agents that mimic users based on a user study."


Full-text retrieved from ScienceDirect database: http://doi.org/10.1016/j.chb.2018.09.040

ABSTRACT: "Recently, big data and its applications have drawn the attention of academic researchers and business professionals. However, there are still a number of potential and useful values hidden in large-scale data. For instance, the large volumes of human activity data in social media might reflect people’s consumption patterns and preferences. The aim of this study is to adopt social computing to explore valuable patterns or knowledge from social structures. This study develops five algorithms by integrating the notions of anticipatory computing and social network analysis, and also designs an application interface (API) which can be utilized in big data. These analytics can be applied to develop various applications in different contexts, e.g., marketing strategies in business or disease/symptom analysis in healthcare. This study contributes to social computing and discloses intelligent patterns in the social network."


Full-text retrieved from Emerald Insight database: https://doi.org/10.1108/IntR-03-2017-0123

ABSTRACT: "Purpose The purpose of this paper is to investigate the motivations, concerns, benefits and consequences associated with non-use of social media. In doing so, it extends Wyatt’s commonly used taxonomy of non-use by identifying new dimensions in which to understand non-use of social media. This framework encompasses a previously unidentified category of non-use that is critical to understand in today’s social media environment. Design/methodology/approach This is an exploratory interview study with 17 self-identified social media non-users distributed across age groups and socioeconomic backgrounds. A thematic analysis is conducted based on a novel extension of Wyatt’s framework and the risk-benefits framework. This is supplemented by open coding to allow for emerging themes. Findings This paper provides empirical insights into a formerly uninvestigated population of non-users who are prevented from using social media because of social engagement (rather than functional) barriers. It identifies how these individuals face social consequences both on and off social media, resulting in social disenfranchisement. Research limitations/implications This is an initial exploration of the phenomenon using an interview study. For generalizability, future research should investigate non-use with a broader and random sample. Practical implications This paper includes design recommendations and implications for social media platform
designers to mitigate the consequences experienced by socially disenfranchised non-users. Social implications Addressing concerns of this newly identified class of non-users is of utmost importance. As others are increasingly connected, these non-users are left behind and even ostracized?showing the dark sides of social media use and non-use. Originality/value This work identifies types of non-use of social media previously unrecognized in the literature.; Purpose The purpose of this paper is to investigate the motivations, concerns, benefits and consequences associated with non-use of social media. In doing so, it extends Wyatt’s commonly used taxonomy of non-use by identifying new dimensions in which to understand non-use of social media. This framework encompasses a previously unidentified category of non-use that is critical to understand in today’s social media environment. Design/methodology/approach This is an exploratory interview study with 17 self-identified social media non-users distributed across age groups and socioeconomic backgrounds. A thematic analysis is conducted based on a novel extension of Wyatt’s framework and the risk-benefits framework. This is supplemented by open coding to allow for emerging themes. Findings This paper provides empirical insights into a formerly uninvestigated population of non-users who are prevented from using social media because of social engagement (rather than functional) barriers. It identifies how these individuals face social consequences both on and off social media, resulting in social disenfranchisement. Research limitations/implications This is an initial exploration of the phenomenon using an interview study. For generalizability, future research should investigate non-use with a broader and random sample. Practical implications This paper includes design recommendations and implications for social media platform designers to mitigate the consequences experienced by socially disenfranchised non-users. Social implications Addressing concerns of this newly identified class of non-users is of utmost importance. As others are increasingly connected, these non-users are left behind and even ostracized?showing the dark sides of social media use and non-use. Originality/value This work identifies types of non-use of social media previously unrecognized in the literature.


ABSTRACT: "Social media changes the way people and organizations communicate with each other. Health interventions on social media are, however, a relatively new phenomenon. This article includes a review of health intervention studies done via social media. The review is divided into four different validity types: (a) statistical conclusion validity, (b) internal validity, (c) construct validity, and (d) external validity. Findings show that health interventions on social media have validity challenges because of small sample size, geographic area, level of reductionism, measurement instruments, participants memories and experience, and a lack of experimental control. The conclusion is that health intervention on social media is possible—and needed. However, a focus on validity is important. Guidelines for social media intervention are suggested, and implications for future research are given."


Full-text retrieved from Taylor & Francis database: [https://doi.org/10.1080/21670811.2018.1490658](https://doi.org/10.1080/21670811.2018.1490658)

ABSTRACT: "Social media today are playing a more important role as a news source than ever before. Yet, there have been no longitudinal studies on journalists’ sourcing practices in recent years that allow us to consider the mechanisms of innovation diffusion. Comparative studies of different social platforms in different media systems are just as rare. We therefore examine the use of Facebook and Twitter as journalistic sources in newspapers of three countries. A main finding is that, after a period of stagnation at the beginning of this decade, the use of social media sources has resurfaced massively in recent years. The patterns of this second rise of
social media in journalism are almost identical in the analyzed newspapers. A comparison of the platforms has shown that Twitter is more commonly used as a news source than Facebook. Compared to Facebook, Twitter is primarily used as an elite channel. An unsupervised topic clustering approach (LDA) also revealed that the issues on which social media are sourced and the quantities of social media references are similar in The New York Times and The Guardian. In Süddeutsche Zeitung, however, journalists source social media considerably less, and in different thematic contexts."

Yu, L., Cao, X., Liu, Z., & Wang, J. "Excessive social media use at work: Exploring the effects of social media overload on job performance."


Full-text retrieved from Emerald Insight database: https://doi.org/10.1108/ITP-10-2016-0237

ABSTRACT: "Purpose The purpose of this paper is to explore the effects of excessive social media use on individual job performance and its exact mechanism. An extended stressor?strain?outcome research model is proposed to explain how excessive social media use at work influences individual job performance. Design/methodology/approach The research model was empirically tested with an online survey study of 230 working professionals who use social media in organizations. Findings The results revealed that excessive social media use was a determinant of three types of social media overload (i.e. information, communication and social overload). Information and communication overload were significant stressors that influence social media exhaustion, while social overload was not a significant predictor of exhaustion. Furthermore, social media exhaustion significantly reduces individual job performance. Originality/value Theory-driven investigation of the effects of excessive social media use on individual job performance is still relatively scarce, underscoring the need for theoretically-based research of excessive social media use at work. This paper enriches social media research by presenting an extended stressor?strain?outcome model to explore the exact mechanism of excessive use of social media at work, and identifying three components of social media-related overload, including information, communication and social overload. It is an initial attempt to systematically validate the casual relationships among excessive usage experience, overload, exhaustion and individual job performance based on the transactional theory of stress and coping."

Purpose The purpose of this paper is to explore the effects of excessive social media use on individual job performance and its exact mechanism. An extended stressor?strain?outcome research model is proposed to explain how excessive social media use at work influences individual job performance. Design/methodology/approach The research model was empirically tested with an online survey study of 230 working professionals who use social media in organizations. Findings The results revealed that excessive social media use was a determinant of three types of social media overload (i.e. information, communication and social overload). Information and communication overload were significant stressors that influence social media exhaustion, while social overload was not a significant predictor of exhaustion. Furthermore, social media exhaustion significantly reduces individual job performance. Originality/value Theory-driven investigation of the effects of excessive social media use on individual job performance is still relatively scarce, underscoring the need for theoretically-based research of excessive social media use at work. This paper enriches social media research by presenting an extended stressor?strain?outcome model to explore the exact mechanism of excessive use of social media at work, and identifying three components of social media-related overload, including information, communication and social overload. It is an initial attempt to systematically validate the casual relationships among excessive usage experience, overload, exhaustion and individual job performance based on the transactional theory of stress and coping."
Bibliography on “spectrum management/spectrum sharing”


Full-text retrieved from IEEE Xplore database: [http://dx.doi.org/10.1109/MCOM.2018.8493125](http://dx.doi.org/10.1109/MCOM.2018.8493125)

**ABSTRACT:** "The Internet of Things (IoT), one of the hottest trends in technology, is transforming our future by interconnecting everything; humans, vehicles, appliances, utilities, infrastructures, street lights, etc., through intelligent connections. For deploying the realization of IoT by 2020, Fifth Generation (5G) wireless communication networks are considered as an essential unifying fabric that will connect billions of devices in some of the fastest, most reliable and most efficient ways possible, whose impact will be revolutionary, reshaping industries and transforming our world. Therefore, 5G is currently attracting extensive research interest from both industry and academia. It is widely agreed that in contrast to 4G, 5G should achieve 1000 times system throughput, 10 times spectral efficiency, higher data rates (i.e., the peak data rate of 20 Gb/s and the user experienced rate of 1Gb/s), 25 times average cell throughput, less than 1 ms in end-to-end (E2E) latency, and 100 times higher connectivity density. Among those requirements, the 1000-fold increase in system capacity becomes the most important and maybe the most challenging for 5G systems."


Full-text retrieved from IEEE Xplore database: [http://dx.doi.org/10.1109/TWC.2018.2859389](http://dx.doi.org/10.1109/TWC.2018.2859389)

**ABSTRACT:** "In this paper, a new spectrum sharing model referred to as riding on the primary (ROP) is proposed for wireless-powered IoT devices with ambient backscatter communication capabilities. The key idea of ROP is that the secondary transmitter harvests energy from the primary signal, then modulates its information bits to the primary signal, and reflects the modulated signal to the secondary receiver without violating the primary system's interference requirement. Compared with the conventional spectrum sharing model, the secondary system in the proposed ROP not only utilizes the spectrum of the primary system but also takes advantage of the primary signal to harvest energy and to carry its information. In this paper, we investigate the performance of such a spectrum sharing system under fading channels. To be specific, we maximize the ergodic capacity of the secondary system by jointly optimizing the transmit power of the primary signal and the reflection coefficient of the secondary ambient backscatter. Different (ideal/practical) energy consumption models, different (peak/average) transmit power constraints, different types (fixed/dynamically adjustable) reflection coefficient, and different primary system's interference requirements (rate/outage) are considered. Optimal power allocation and reflection coefficient are obtained for each scenario."


Full-text retrieved from IEEE Xplore database: [http://dx.doi.org/10.1109/WCNC.2018.8376983](http://dx.doi.org/10.1109/WCNC.2018.8376983)

**ABSTRACT:** "Conventional overlay and underlay spectrum sharing strategies enable the cognitive Small Cells (SCeNBs) to access a spectrum of macrocells. The problem of the overlay approach is strong dependency of its efficiency on an activity of macrocell users. Thus, not enough resources remain for the SCeNB users if the macrocell is loaded heavily. The main
weakness of the underlay approach is that it can result in a low transmission efficiency because the transmission power level of the SCeNBs is restricted. To overcome the above-mentioned problems of both spectrum sharing strategies, a hybrid spectrum sharing combining both overlay and underlay has been introduced in literature. In this paper, we propose a new distributed resource allocation algorithm for hybrid spectrum sharing tailored for realistic scenarios considering varying channel quality over individual resource blocks. The algorithm considers the buffer state at the SCeNBs, ratio of the resources available in the overlay and underlay modes, and channel quality experienced by the users at individual resource blocks. The proposed scheme increases the amount of traffic served for SCeNB users by 22.7% and reduces the packet delay by 27.1% for heavy loaded network comparing to existing schemes."


ABSTRACT: "In this paper, we focus on a wireless flat fading channel in a Cognitive radio network composed of licensed users (primary) and unlicensed users (secondary). We propose a framework for analyzing the access strategy based on the received interference at the secondary receiver and analyzing the achievable capacity of the secondary under the average power and average interference constraints. The proposed approach to the spectrum sharing, based on the received interference at the secondary receiver, significantly reduces the system complexity. We categorize the spectrum sharing into two cases based on the maximum interference threshold. We obtain a critical system parameter to eliminate the interference threshold constraint."


ABSTRACT: "Purpose This paper aims to discuss the effectiveness of the European Union (EU) at World Radiocommunication Conferences (WRCs) by comparing EU objectives prior to and outcomes of recent WRCs. Design/methodology/approach A thematic analysis of qualitative data extracted from documents is conducted. The effectiveness of the EU is discussed by using the concepts of agenda-setting and coalition-building, borrowed from international relations literature. Findings A clear conclusion on EU effectiveness could not be drawn based on the degree of match between EU objectives and WRC outcomes. Other factors need to be included in the analysis, such as relevance of the EU’s participation at WRCs to the EU member states and availability and allocation of EU resources to the various stages of the WRC process. Research limitations/implications Further research is encouraged to investigate the role of the EU at WRCs. In particular, interviews with experts involved in the WRC process may help gather relevant information on EU relevance and EU resource availability and allocation. Originality/value This paper contributes to existing research on international radio spectrum regulation by drawing attention to the role of the EU as an international actor.; Purpose This paper aims to discuss the effectiveness of the European Union (EU) at World Radiocommunication Conferences (WRCs) by comparing EU objectives prior to and outcomes of recent WRCs. Design/methodology/approach A thematic analysis of qualitative data extracted from documents is conducted. The effectiveness of the EU is discussed by using the concepts of agenda-setting and coalition-building, borrowed from international relations literature. Findings A clear conclusion on EU effectiveness could not be drawn based on the degree of match between EU objectives and WRC outcomes. Other factors need to be included in the analysis, such as relevance of the EU’s participation at WRCs to the EU member states and availability and allocation of EU resources to the various stages of the WRC process."
Research limitations/implications Further research is encouraged to investigate the role of the EU at WRCs. In particular, interviews with experts involved in the WRC process may help gather relevant information on EU relevance and EU resource availability and allocation. Originality/value This paper contributes to existing research on international radio spectrum regulation by drawing attention to the role of the EU as an international actor.

Bibliography on “telecommunication/ICT markets”


Full-text retrieved from Emerald Insight database: https://doi.org/10.1080/1369118X.2017.1355403

ABSTRACT: "There is a strong push to increase American students’ interest in Science, Technology, Engineering, and Mathematic (STEM) careers. However, minority and female students remain underrepresented in the STEM fields. Therefore, it is essential that we continue to examine the potential factors that both incite and dissuade STEM interest. We apply Expectancy-Value Theory (EVT) to examine STEM attitudes of predominantly low-socioeconomic status minority elementary school students over the course of a computing intervention. Furthermore, we integrate the digital inequality mental access conceptualization of emotional costs into the EVT model in order to predict students’ negative STEM attitudes. Data are from a large-scale computing intervention that took place in a primarily minority, high poverty, urban elementary school district located in the southeastern USA. Results indicate that positive expectancies for success and subjective task values predict students’ positive STEM attitudes. Emotional costs toward technology primarily predict negative STEM attitudes. Students’ expectancies/values and emotional costs may have a push-and-pull effect on the formation of STEM attitudes. This study successfully links digital disparities to STEM disparities by integrating the digital inequality concept of emotional costs. Practically, we conclude that future computing interventions should increase students’ academic-related expectancies and values while also minimizing their emotional costs in order to address both digital and STEM inequalities. Theoretically, we conclude that broad conceptualizations of emotional costs should be included in future studies to help explain negative attitudes/motivations toward STEM-related topics."


Full-text retrieved from Emerald Insight database: https://doi.org/10.1108/IMDS-07-2017-0326

ABSTRACT: "Purpose The purpose of this paper is to propose a dedication-constraint-temptation (DCT) model to study the factors influencing customers’ loyalty to mobile data service (MDS) providers. The DCT model explicitly explores the important yet overlooked role of alternative attractiveness (the temptation-based mechanism) as a mediator and the boundary condition of their interrelationships (e.g. relationship length). The model also integrates new and established antecedents of customer-based brand equity (C-BBE) (the dedication-based mechanism) and switching barriers (the constraint-based mechanism). Design/methodology/approach The proposed model is tested using partial least squares?structural equation modeling with a sample of 331 MDS users. Findings The results indicate that C-BBE has an indirect effect on customer loyalty (via alternative attractiveness) in both relationship groups (shorter- vs longer-term). However, the indirect effect of switching barriers on customer loyalty only exists in longer
established relationships. The results from multi-group analysis reveal that the effect of switching barriers on alternative attractiveness significantly differs across groups. In addition, customer value anticipation and procedural switching costs appear to be the most salient antecedents of C-BBE and switching barriers for both groups. Originality/value This study makes an incremental contribution by incorporating the temptation-based mechanism as a mediator and relationship length as a moderator into the dedication-constraint model. This study also extends the information systems and brand management literatures by demonstrating the strategic importance of customer value anticipation in the information and communication technology brand equity-building.; Purpose The purpose of this paper is to propose a dedication-constraint-temptation (DCT) model to study the factors influencing customers’ loyalty to mobile data service (MDS) providers. The DCT model explicitly explores the important yet overlooked role of alternative attractiveness (the temptation-based mechanism) as a mediator and the boundary condition of their interrelationships (e.g. relationship length). The model also integrates new and established antecedents of customer-based brand equity (C-BBE) (the dedication-based mechanism) and switching barriers (the constraint-based mechanism). Design/methodology/approach The proposed model is tested using partial least squares?structural equation modeling with a sample of 331 MDS users. Findings The results indicate that C-BBE has an indirect effect on customer loyalty (via alternative attractiveness) in both relationship groups (shorter- vs longer-term). However, the indirect effect of switching barriers on customer loyalty only exists in longer established relationships. The results from multi-group analysis reveal that the effect of switching barriers on alternative attractiveness significantly differs across groups. In addition, customer value anticipation and procedural switching costs appear to be the most salient antecedents of C-BBE and switching barriers for both groups. Originality/value This study makes an incremental contribution by incorporating the temptation-based mechanism as a mediator and relationship length as a moderator into the dedication-constraint model. This study also extends the information systems and brand management literatures by demonstrating the strategic importance of customer value anticipation in the information and communication technology brand equity-building."


ABSTRACT: "The telecommunications market is experiencing a new paradigm of convergence as voice, data, broadcasting, and communication is being used into a new form of service. With this paradigm shift, telecommunications companies will compete under a unified set of broadband wireless multimedia services in the next generation network(NGN) environment(e.g., 5G or beyond 5G), while existing networks provided individual services tailor specifically to their networks. In this situation, one business player cannot provide all kinds of telecommunications services by oneself, instead it might be trying to integrate or collaborate with other companies in the integrated value chain as value co-creation strategies. Unfortunately, however, there are few specific guide lines in deciding their strategic directions; which partner can give us a competitive advantage to support next generation services and what should be preemptive? Therefore, this paper suggests the new strategic framework, called Value Co-Creation Framework (VCF), as the guideline for evaluating and selecting strategic alliance partners to the telecommunications companies in the NGN era. Finally, we provide an example of partner assessment for the major wireless carrier in Korean Telecommunications market and provide the insightful implications. "

Full-text retrieved from ScienceDirect database: http://doi.org/10.1016/j.telpol.2018.07.001

Bibliography on “telecommunication/ICT policy and law”


Full-text retrieved from ScienceDirect database: http://doi.org/10.1016/j.giq.2018.07.006

ABSTRACT: "Investigations of white collar crimes such as corruption are often hindered by the lack of information or physical evidence. Information and communication technologies (ICT), by virtue of their ability to monitor, track, record, analyze, and share vast amounts of information may help countries identify and prosecute criminals, and deter future corruption. While prior studies have demonstrated that ICT is an important tool in reducing corruption at the country level, they provide little explanation as to how ICT influences corruption and when does it work best. We explore these gaps in the literature using the hypothetico-deductive approach to research, by using general deterrence theory to postulate a series of main and moderating effects relating ICT use and corruption, and then testing those effects using secondary data analysis. Our analysis suggests that ICT use influences corruption by increasing the certainty and celerity of punishment related to corruption. Moreover, ICT laws moderate the effect of ICT use on corruption, suggesting that ICT investments may have limited effect on corruption, unless complemented with appropriate ICT laws. Implications of our findings for research and practice are discussed. "


Full-text retrieved from ScienceDirect database: http://doi.org/10.1016/j.giq.2018.09.007

ABSTRACT: "Internet of Things (IoT) is ubiquitous in society. IoT-enabled dynamic capabilities in real-time sensing and responding can spur digital transformation in unlocking the potential of digital government into data-driven smart government capable of delivering policies and services of public interest and public value. However, the literature indicates challenges in IoT cybersecurity and systemic use across the government. There is the urgent need for IoT research on policy and use. This paper developed a framework for IoT-enabled smart government performance. We applied this framework to conduct case study analyses of digital technology policy, IoT cybersecurity policy, and IoT use in major application domains at the U.S. federal government level. The results show that some agencies were strategic and forward-thinking in funding and partnering with sub-national governments in promoting the IoT use. However, there remains a critical need for national IoT policies to promote systemic IoT use across the application domains. "


Full-text retrieved from Emerald Insight database: https://doi.org/10.1108/DPRG-04-2018-0017
ABSTRACT: "Purpose The purpose of this study is to highlight the importance of Internet of Things (IoT) in India. The purpose also includes providing insights regarding policy framing for IoTs with a focus on regulation and governance. Design/methodology/approach A qualitative approach has been taken here for understanding the issues of IoT policy for India so far as regulations and governance are concerned. Findings This study highlights that the draft IoT policy of India, 2015 is to be improved. Attention is to be focused on regulation and governance for addressing security and privacy issues among other issues. For proper enablement of IoT technology, arrangements of funds are essential. Research limitations/implications IoT-related technologies in India have immense potential for the industries. This study implies the importance of security and privacy issues. If these issues are properly addressed, the industries will flourish further. Practical implications The study provides insights covering how usage of IoT technology would help the industry to grow up, how research and development organizations would be able to strengthen IoT technology for further development and to what extent it will improve the human daily activities. Social implications IoT would influence lives of millions of people of India. IoT-related policies would have huge social implication in terms of human?device interactions and communications. This research is a contemporary study on the implication of IoT policy toward the future growth of IoT-enabled devices in India. Originality/value The Government of India is expected to frame a comprehensive IoT policy with the help of draft IoT policy of 2015. This paper has taken a unique attempt to provide effective inputs to develop a comprehensive IoT policy for India. Purpose The purpose of this study is to highlight the importance of Internet of Things (IoT) in India. The purpose also includes providing insights regarding policy framing for IoTs with a focus on regulation and governance. Design/methodology/approach A qualitative approach has been taken here for understanding the issues of IoT policy for India so far as regulations and governance are concerned. Findings This study highlights that the draft IoT policy of India, 2015 is to be improved. Attention is to be focused on regulation and governance for addressing security and privacy issues among other issues. For proper enablement of IoT technology, arrangements of funds are essential. Research limitations/implications IoT-related technologies in India have immense potential for the industries. This study implies the importance of security and privacy issues. If these issues are properly addressed, the industries will flourish further. Practical implications The study provides insights covering how usage of IoT technology would help the industry to grow up, how research and development organizations would be able to strengthen IoT technology for further development and to what extent it will improve the human daily activities. Social implications IoT would influence lives of millions of people of India. IoT-related policies would have huge social implication in terms of human?device interactions and communications. This research is a contemporary study on the implication of IoT policy toward the future growth of IoT-enabled devices in India. Originality/value The Government of India is expected to frame a comprehensive IoT policy with the help of draft IoT policy of 2015. This paper has taken a unique attempt to provide effective inputs to develop a comprehensive IoT policy for India."


Full-text retrieved from ProQuest Central database: [https://search.proquest.com/docview/2094378245?accountid=41838](https://search.proquest.com/docview/2094378245?accountid=41838)

ABSTRACT: "Regulations to protect personal data don’t inspire much love. Companies frequently regard them as a nuisance, a needless expense, and a hindrance to innovation. Governments think the rules should apply to everyone but themselves. And ordinary people often act as if they don’t care whether their data is safeguarded at all. But such regulations matter now more than ever. The world is increasingly defined by technological asymmetries; a huge gulf has opened up, with big corporations and powerful governments on one side and ordinary individuals on the other. Even in wealthy democratic societies, individual autonomy is at risk now that even simple choices, such as what news stories to read or what music to listen to, are
dictated by algorithms that operate deep within software and devices-so deep that users are usually unaware of the extent to which data processing shapes their decisions and opportunities. Today, technology "is being used to control what we see, what we can do, and, ultimately, what we say," the cryptographer and privacy specialist Bruce Schneier has written. "It makes us less safe. It makes us less free." Most people have yet to realize that truth. In the era of the Internet and mobile communications, people tend to focus more on the goods, services, and experiences that technology offers and less on the ways in which privacy is imperiled by software, code, and devices that have become an invisible but integral part of everyday life. Although many people want to have a sense of how data processing affects them, most aren't interested in the details."


Full-text retrieved from Emerald Insight database: https://doi.org/10.1108/DPRG-09-2017-0049

ABSTRACT: "Purpose This paper aims to discuss the effectiveness of the European Union (EU) at World Radiocommunication Conferences (WRCs) by comparing EU objectives prior to and outcomes of recent WRCs. Design/methodology/approach A thematic analysis of qualitative data extracted from documents is conducted. The effectiveness of the EU is discussed by using the concepts of agenda-setting and coalition-building, borrowed from international relations literature. Findings A clear conclusion on EU effectiveness could not be drawn based on the degree of match between EU objectives and WRC outcomes. Other factors need to be included in the analysis, such as relevance of the EU?s participation at WRCs to the EU member states and availability and allocation of EU resources to the various stages of the WRC process. Research limitations/implications Further research is encouraged to investigate the role of the EU at WRCs. In particular, interviews with experts involved in the WRC process may help gather relevant information on EU relevance and EU resource availability and allocation. Originality/value This paper contributes to existing research on international radio spectrum regulation by drawing attention to the role of the EU as an international actor.; Purpose This paper aims to discuss the effectiveness of the European Union (EU) at World Radiocommunication Conferences (WRCs) by comparing EU objectives prior to and outcomes of recent WRCs. Design/methodology/approach A thematic analysis of qualitative data extracted from documents is conducted. The effectiveness of the EU is discussed by using the concepts of agenda-setting and coalition-building, borrowed from international relations literature. Findings A clear conclusion on EU effectiveness could not be drawn based on the degree of match between EU objectives and WRC outcomes. Other factors need to be included in the analysis, such as relevance of the EU?s participation at WRCs to the EU member states and availability and allocation of EU resources to the various stages of the WRC process. Research limitations/implications Further research is encouraged to investigate the role of the EU at WRCs. In particular, interviews with experts involved in the WRC process may help gather relevant information on EU relevance and EU resource availability and allocation. Originality/value This paper contributes to existing research on international radio spectrum regulation by drawing attention to the role of the EU as an international actor."


Full-text retrieved from ScienceDirect database: http://doi.org/10.1016/j.telpol.2018.07.001

Full-text retrieved from IEEEXplore database: [http://dx.doi.org/10.1109/MSP.2018.3761721](http://dx.doi.org/10.1109/MSP.2018.3761721)

**ABSTRACT:** "Current US regulation is not equipped to provide explicit privacy protection for drone use in an era of sophisticated audio/video and social media. In 2016, the National Telecommunications and Information Association recognized this deficit by releasing a set of best practices, which we examine in light of the current privacy concerns with drone use in the US."