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Bibliography on “5G mobile”

http://dx.doi.org/10.1109/MCOM.2018.1700878.
ABSTRACT: Future cellular systems will employ the so-called big three technologies: UDN, massive MIMO, and mmWave (and/or terahertz) communications. The goal is to support the explosive demands for mobile broadband services foreseen for the next decade. In this work, we investigate the joint impact of the three technologies. Using system-level simulations, we evaluate the performance of two-tier cellular networks with μ Wave macrocells and densely deployed mmWave small cells. Our results show that much higher capacity can be realized with UDNs than in macrocell-only setups. The results also reveal that performance does not scale proportionally with increase in the employed mmWave bandwidth. The corresponding increase in noise (due to larger bandwidths) reduces the SINR. Outdoor users experience promising data rates notwithstanding, but the throughputs of indoor users are highly degraded. This is due to the additional wall and indoor losses (on top of the inherently high path loss at mmWave frequencies), which further reduce the SINR of indoor users. Therefore, techniques that significantly enhance the SINR are highly important design considerations in unleashing the amazing prospects and potentials of mmWave UDNs.

http://dx.doi.org/10.1109/MCOM.2018.1700924.
ABSTRACT: This article presents a network architecture for the next generation of MHNs, where mmW, terahertz, and conventional mW bands coexist, with cost-benefit trade-offs of each type of link. We envision a radically different communication paradigm and outline a MAC protocol design that switches among the aforementioned bands for data transmissions, falling back on the slower link each time for the reverse channel ACKs. The use of the higher-capacity link in the forward direction for data communication and the slower reverse channel for the returning ACKs allows for uninterrupted unidirectional communication and efficient use of the channel. The article discusses the challenges in analyzing and parameter setting for the various features of the protocol, and identifies candidate solutions. A performance evaluation of the approach is undertaken using a realistic scenario of vehicle-to-infrastructure communication enabling data center traffic backhauling. This performance shows that by adopting the proposed MAC protocol data transfer of around 100 Terabits, it is possible for typical vehicle-to-infrastructure contact times.

http://dx.doi.org/10.1109/TCOMM.2018.2850813.
ABSTRACT: Cooperative cognitive radio for satellite networks is considered, in which the primary network is a satellite network and the secondary network is a cellular network. Due to the lack of multipath in a satellite environment, the channel matrices of the satellite network are assumed to be rank-deficient, which implies that the capacity cannot be increased in proportion to the
number of antennas. To overcome the rank deficiency, we propose a novel cooperative transmission strategy where the base station or mobile users in the cellular network both help the communication of the satellite network and transmit and receive their own streams. Not only does the secondary network carefully adjust the number of transmitted streams to avoid causing interference to the primary network beyond a certain threshold; it also provides alternative signal paths for the primary network, thereby effectively increasing the channel ranks of the primary network. We obtain both the achievable sum degrees of freedom (DoF) and the sum rate under the proposed scheme, and we also derive upper bounds on the sum DoF. Using analytical and numerical analysis, we show that our scheme significantly improves the overall system throughput compared to the satellite network alone, without cognitive access.


**ABSTRACT:** This study presents a frequency spreading filter bank multi-carrier (FS-FBMC) waveform as a potential candidate for the fifth generation (5G) network applications at millimetre-waves (mmWaves). The proposed model is developed based on the orthogonal frequency division multiplexing (OFDM) waveform standardised by IEEE 802.15.3c for 60 GHz high data-rate applications. The effects of non-linearities of power amplifiers (PAs) at 60 GHz for both OFDM and FS-FBMC are presented and compared using a realistic PA model. In particular, the sensitivity of both transmission schemes to the non-linear effects is investigated and its impact on the performance degradation in terms of output-power-backoff, is characterised over typical indoor line-of-sight, kiosk and residential, 60 GHz IEEE channel models. The assessment metrics considered are bit error rate and out-of-band emissions. This study concludes radio access schemes for future communication generations, i.e. 5G may employ OFDM for up-link and FS-FBMC for down-link due to the sensitivity to PA non-linearities of both waveforms.


**ABSTRACT:** Heterogeneous wireless networks (HWNs), composed of densely deployed base stations of different types with various radio access technologies, have become a prevailing trend to accommodate ever increasing traffic demand. Nowadays, users rely heavily on HWNs for ubiquitous network access to support critical applications such as financial transactions, e-health, and public safety. Cyber risks, representing one of the most significant threats to network security and reliability, are increasing in severity. To address this problem, this article introduces the concept of cyber insurance to transfer the cyber risks in HWNs to a third-party insurer. First, a review of the enabling technologies for HWNs and their vulnerabilities to cyber risks is presented. Then the fundamentals of cyber insurance are introduced, and subsequently, a cyber insurance framework for HWNs is presented. Finally, open issues are discussed and the challenges are highlighted for integrating cyber insurance as a service of next generation HWNs.


**ABSTRACT:** Next generation, i.e., fifth generation (5G), cellular networks will provide a significant higher capacity per area to support the ever-increasing traffic demands. In order to achieve that, many small cells need to be deployed that are connected using a combination of optical fiber links and millimeter-wave (mmWave) backhaul architecture to forward heterogeneous traffic over mesh topologies. In this paper, we present a general optimization framework for the design of policies that optimally solve the problem of where to associate a user, over which links to route
its traffic towards which mesh gateway, and which base stations and backhaul links to switch off in order to minimize the energy cost for the network operator and still satisfy the user demands. We develop an optimal policy based on mixed integer linear programming (MILP) which considers different user distribution and traffic demands over multiple time periods. We develop also a fast iterative two-phase solution heuristic, which associates users and calculates backhaul routes to maximize energy savings. Our strategies optimize the backhaul network configuration at each timeslot based on the current demands and user locations. We discuss the application of our policies to backhaul management of mmWave cellular networks in light of current trend of network softwarization (Software-Defined Networking, SDN). Finally, we present extensive numerical simulations of our proposed policies, which show how the algorithms can efficiently trade-off energy consumption with required capacity, while satisfying flow demand requirements.


**Abstract:** Outage events caused by dynamic blockage of a radio signal propagation path are one of the key challenges in 5G millimetre-wave (mmWave) cellular networks. To mitigate them, Third Generation Partnership Project standardisation has recently ratified multi-connectivity techniques aiming to enable user connectivity to several base stations simultaneously, while switching between them whenever the currently active connection becomes blocked. A closed-form upper bound on the probability density function of the respective system capacity in a random field of moving blockers is obtained.


**Abstract:** Enabling the transport of fronthaul traffic in next-generation cellular networks fifth-generation (5G)] following the cloud radio access network (C-RAN) architecture requires a redesign of the fronthaul network featuring high capacity and ultra-low latency. With the aim of leveraging statistical multiplexing gains, infrastructure reuse, and, ultimately, cost reduction, the research community is focusing on Ethernet-based packet-switch networks. To this end, we propose using the high queuing delay percentiles of the G/G/1 queuing model as the key metric in front-haul network dimensioning. Simulations reveal that Kingman's exponential law of congestion provides accurate estimates on such delays for the particular case of aggregating a number of evolved Common Public Radio Interface fronthaul flows, namely functional splits and IID. We conclude that conventional 10 G, 40 G, and 100 G transponders can cope with multiple legacy 10–20 MHz radio channels with worst-case delay guarantees. Conversely, scaling to 40 and 100 MHz channels will require the introduction of 200G, 400G, and even 1T high-speed transponders.


**Abstract:** As a novel non-orthogonal multiple access scheme, pattern division multiple access (PDMA) has been proposed for the fifth generation mobile communication technology (5G) to enhance spectrum efficiency and increase connexion capability. This study analyses the theory performance of uplink PDMA. The exact closed-form expressions for outage probability (OP) are derived in the Rayleigh fading channel, and the OPs of each user with different pattern and target signal-to-interference-plus-noise ratio are evaluated. In addition, the comparison between PDMA and conventional orthogonal multiple access (OMA) in terms of sum data rate (SDR) is conducted. Numerical simulation results verify the authors' analysis and show that PDMA outperforms OMA in terms of OP and SDR.
Bibliography on “accessibility and ICTs”

doi: 10.1109/ICEDEG.2018.8372332
http://dx.doi.org/10.1109/ICEDEG.2018.8372332
ABSTRACT: The Web has become a primary source for communicating information and providing services worldwide. Governments are not unaware of this trend; thus, in some countries their government institutions have taken the initiative of offering web-based electronic services (eGovernment). These services are available to its citizens, regardless of their location and physical, cognitive or technological capabilities. Unfortunately, some web designers and developers of eGovernment websites do not follow the web accessibility criteria, creating a gap in the accessibility of eGovernment services. This lack of web accessibility causes exclusion of some people and infringement of the human rights. This gap must be eliminated for the purpose of enabling elderly or disabled people to benefit from the use of eGovernment services offered by governments through their websites. This paper presents a study on the accessibility of eGovernment interactive services offered by two official entities of the Latin America countries. The evaluation was carried out based on the criterion of the experts on web accessibility and the use of a web accessibility evaluation tool. In both cases, the Web Content Accessibility Guidelines (WCAG) 2.0 proposed by the World Wide Web Consortium (W3C) were considered. These guidelines aim to achieve accessible web content for people with disabilities. The results of this research show that none of the evaluated websites which offer eGovernment services meet an acceptable level of accessibility. Additionally, several recommendations are presented to correct all accessibility errors detected in the analyzed web page. These recommendations can be applied to websites worldwide with the aim of achieving universal access to eGovernment websites.

doi: 10.1007/s10209-017-0540-1.
https://doi.org/10.1007/s10209-017-0540-1.
ABSTRACT: Mobile devices can be an important ally that improves the quality of life of visually impaired people by permitting greater independence in the execution of certain tasks and facilitating social inclusion. This work presents a systematic review that maps out the accessibility issues that visually impaired people experience when they interact with mobile devices. We identified 68 accessibility problems that were mapped into seven problem groups. This mapping was used to propose 28 recommendations to improve the accessibility of mobile devices. This analysis identified the persistence of certain accessibility problems such as the difficulty of typing on keyboards but also finds the emergence of new challenges such as the failure to recognize gesture-based interactions that demand more extensive training for users. This work is important because it provides an overview of accessibility problems that people with visual disabilities experience with mobile devices and proposes a number of accessibility recommendations to guide future studies. The main contribution of this paper is the mapping of accessibility problems into categories and the development of recommendations for identified problems.

https://doi.org/10.1007/s10209-017-0548-6.
ABSTRACT: The emergence and popularization of information and communications technologies (ICT) is changing modern society and its educational landscape. ICT facilitates individuals' ability to learn anywhere and at any time. In fact, by using ICT, access to knowledge acquisition...
is not restricted to formal contexts, such as academic institutions. This position paper reviews the educational contexts in which new learning strategies using ICT have been adapted, by focusing on how users access information and improve their digital skills. Our initial hypothesis is that in technological environments, learners use very specific devices and applications to access information, because content accessibility depends on both the user’s profiles and ICT. We demonstrate this through a case study applied in several Spanish university institutions.

https://doi.org/10.1007/s10209-017-0550-z.

ABSTRACT: Although current touchscreen-based smartphones are equipped with some accessibility functions for visually impaired people, these users still face substantial challenges, particularly when using smooth touchscreens. In this study, the accessibility factors of touchscreen interfaces for people with visual impairment were explored through principal components analysis. A total of 32 persons with moderate visual impairment and an average age of 35.6 Â± 1.62 years participated. The accessibility requirements and user experiences of smartphone touchscreen interfaces were collected. The results indicate that touchscreen interfaces have six major accessibility factors. In addition, the operational style of touchscreen interfaces should be redesigned according to a two-stage process. Furthermore, the design guidelines for accessible touchscreen interfaces that meet the requirements of people with visual impairments are summarised. The findings provide an essential reference for product designers constructing accessible touchscreen interfaces, and reinforce the concept of equality in product use.

https://doi.org/10.1007/s10209-017-0541-0.

ABSTRACT: It is important that university websites and services offered through their sites are used effectively, efficiently and satisfactorily by the whole target group of the university, including disabled users. However, universities in many countries are still unable to meet the criteria for web accessibility. This study aimed to test the websites of the top universities in Kyrgyzstan, Kazakhstan, Azerbaijan and Turkey using automated assessment tools. The results showed that university websites are more popular in Turkey, and in Turkish universities developers pay more attention to the performance of websites, followed by websites of Azerbaijan, Kyrgyz and Kazakh universities. The majority of the university websites in the study did not meet the WCAG 2.0 accessibility criteria. Only two Kyrgyz and two Kazakh university websites attained conformance level A, and only three, one Kyrgyz and two Kazakh, achieved accessibility conformance level AAA. Based on the results, it was determined that universities included in the present study need to devote more effort to making their websites more accessible for their users.

https://doi.org/10.1007/s10209-017-0562-8.

ABSTRACT: Collaborative play, an educational tool for children on the Autism Spectrum Disorder (ASD) spectrum, has been demonstrated as having potential for increasing the engagement of children with ASD. Researchers in China and the USA have assessed three approaches for accessible interface design and learning by students with ASD. With the use of known tools and appropriate occupational therapy interventions, an educational protocol was designed to evaluate the two selected applications and a commercially available application. The pilot studies, including
experimental design and outcomes, are presented in this paper in the context of prior ASD intervention research, correlated with child development studies, and provide a solid foundation for comparative usability assessment of mid-air finger gesture interaction as well as hand gesture interaction for the wider population of users. Early results in China are promising, based on experiences in the USA.

Bibliography on “big data”


ABSTRACT: Internet of things (IOT) paradigm is changing day to day lives towards sophisticated automation and enhancing living standards of our societies. The most of “Things” in IOT are having limited power, storage, and computational capabilities. Therefore data is collected, manipulated and stored in the clouds. The benefit of anywhere and anytime access of data gives rise to serious security and privacy issues and lead to many problems like exposure of user’s personal and sensitive information and loss of the trust between parties. These challenges need to be addressed with adequately with utmost care. From an operational point of view, the major concern for IOT is “Privacy”. In this article, we discuss difference between privacy and security. Further, and present several approaches and techniques that are being used to fulfill the privacy requirements. This comparative study also contains advantages and disadvantages of the mentioned approaches. Finally, we discuss the future opportunities, trends, and provide recommendations about the privacy for IOT based applications and services.


ABSTRACT: The business concept of the circular economy (CE) has gained significant momentum among practitioners and researchers alike. However, successful adoption and implementation of this paradigm of managing business remains a challenge. In this article, we build a case for utilizing big data analytics (BDA) as a fundamental basis for informed and data driven decision making in supply chain networks supporting CE. We view this from a stakeholder perspective and argue that a collaborative association among all supply chain members can positively affect CE implementation. We propose a model highlighting the facilitating role of big data analytics for achieving shared sustainability goals. The model is based on integrating thematic categories coming out of 10 semi-structured interviews with key position holders in industry. We argue that mutual support and coordination driven by a stakeholder perspective coupled with holistic information processing and sharing along the entire supply chain network can effectively create a basis for achieving the triple bottom line of economic, ecological and social benefits. The proposed model is useful for managers in that it provides a reference point for aligning activities with the circular economy paradigm. The conceptual model provides a theoretical basis for future empirical research in this domain.


ABSTRACT: Mobile health (m-Health) has been repeatedly called the biggest technological breakthrough of our modern times. Similarly, the concept of big data in the context of healthcare
is considered one of the transformative drivers for intelligent healthcare delivery systems. In recent years, big data has become increasingly synonymous with mobile health, however key challenges of 'Big Data and mobile health', remain largely untackled. This is becoming particularly important with the continued deluge of the structured and unstructured data sets generated on daily basis from the proliferation of mobile health applications within different healthcare systems and products globally. The aim of this paper is of twofold. First we present the relevant big data issues from the mobile health (m-Health) perspective. In particular we discuss these issues from the technological areas and building blocks (communications, sensors and computing) of mobile health and the newly defined (m-Health 2.0) concept. The second objective is to present the relevant rapprochement issues of big m-Health data analytics with m-Health. Further, we also present the current and future roles of machine and deep learning within the current smart phone centric m-health model. The critical balance between these two important areas will depend on how different stakeholder from patients, clinicians, healthcare providers, medical and m-health market businesses and regulators will perceive these developments. These new perspectives are essential for better understanding the fine balance between the new insights of how intelligent and connected the future mobile health systems will look like and the inherent risks and clinical complexities associated with the big data sets and analytical tools used in these systems. These topics will be subject for extensive work and investigations in the foreseeable future for the areas of data analytics, computational and artificial intelligence methods applied for mobile health. ".


ABSTRACT: Industry 4.0 and its other synonyms like Smart Manufacturing, Smart Production or Internet of Things, have been identified as major contributors in the context of digital and automated manufacturing environment. The term industry 4.0 comprises a variety of technologies to enable the development of the value chain resulting in reduced manufacturing lead times, and improved product quality and organizational performance. Industry 4.0 has attracted much attention in the recent literature, however there are very few systematic and extensive review of research that captures the dynamic nature of this topic. The rapidly growing interest from both academics and practitioners in Industry 4.0 has urged the need for review of up-to-date research and development to develop a new agenda. Selected 85 papers were classified in five research categories namely conceptual papers on Industry 4.0, human-machine interactions, machine-equipment interactions, technologies of Industry 4.0 and sustainability. The review primarily attempted to seek answers to the following two questions: (1) What are different research approaches used to study Industry 4.0? and (2) What is the current status of research in the domains of Industry 4.0?. We propose a sustainable Industry 4.0 framework based on the findings of the review with three critical components viz., Industry 4.0 technologies, process integration and sustainable outcomes. Finally, the scope of future research is discussed in detail.


ABSTRACT: Although Big Data, IoT and cloud computing are three distinct approaches that have evolved independently, they are becoming more and more interconnected over time. The convergence of IoT, Big Data and clouds provides new opportunities and results in development of new applications in many fields, including business, healthcare, sciences and engineering. At the same time, various challenges are faced during processing and management of massive amounts of data, as well as during their storage in cloud environments. This special issue presents novel research approaches related to Big Data, IOT and cloud computing. It also discusses the encountered problems and open issues. ".

**ABSTRACT:** Cities worldwide are attempting to transform themselves into smart cities. Recent cases and studies show that a key factor in this transformation is the use of urban big data from stakeholders and physical objects in cities. However, the knowledge and framework for data use for smart cities remain relatively unknown. This paper reports findings from an analysis of various use cases of big data in cities worldwide and the authors’ four projects with government organizations toward developing smart cities. Specifically, this paper classifies the urban data use cases into four reference models and identifies six challenges in transforming data into information for smart cities. Furthermore, building upon the relevant literature, this paper proposes five considerations for addressing the challenges in implementing the reference models in real-world applications. The reference models, challenges, and considerations collectively form a framework for data use for smart cities. This paper will contribute to urban planning and policy development in the modern data-rich economy.


**ABSTRACT:** Social networking big data is a collection of extremely big data sets with great diversity in social networks. Social networking big data is also a core component for the social influence analysis and the security. However, current work on social networking big data focuses on information processing, such as data mining and analysis. There are two important issues for social networking big data, one is how to conduct social network analysis; the other is how to ensure security. This special issue aims to solicit original research that discuss foundational theories, new technologies, security, trust and privacy of social networking big data; and to provide a review on the progress in opportunities, solutions, and challenges of social networking big data.


**ABSTRACT:** Big data created by social media and mobile networks provide an exceptional opportunity to mine valuable insights from them. This information is harnessed by business entities to measure the level of customer satisfaction but its application in disaster response is still in its inflection point. Social networks are increasingly used for emergency communications and help related requests. During disaster situations, such emergency requests need to be mined from the pool of big data for providing timely help. Though government organizations and emergency responders work together through their respective national disaster response framework, the sentiment of the affected people during and after the disaster determines the success of the disaster response and recovery process. In this paper, we propose a big data driven approach for disaster response through sentiment analysis. The proposed model collects disaster data from social networks and categorize them according to the needs of the affected people. The categorized disaster data are classified through machine learning algorithm for analyzing the sentiment of the people. Various features like, parts of speech and lexicon are analyzed to identify the best classification strategy for disaster data. The results show that lexicon based approach is suitable for analyzing the needs of the people during disaster. The practical implication of the proposed methodology is the real-time categorization and classification of social media big data for disaster response and recovery. This analysis helps the emergency responders and rescue personnel to develop better strategies for effective information management of the rapidly changing disaster environment."
doi: 10.1109/MITP.2018.032501750.
http://dx.doi.org/10.1109/MITP.2018.032501750.
ABSTRACT: Big data systems have been instrumental in solving computational problems for business intelligence and predictive analysis. Despite this, they exhibit serious concerns for user privacy. The authors provide an overview of privacy in the context of big data, categorizing four types of existing privacy violations in big data systems and assessing the strengths and weaknesses of their protection techniques. They also provide measures that can be taken to strengthen users privacy.

doi: 10.1016/j.techfore.2018.06.009.
https://doi.org/10.1016/j.techfore.2018.06.009.
ABSTRACT: Although big data, big data analytics (BDA) and business intelligence have attracted growing attention of both academics and practitioners, a lack of clarity persists about how BDA has been applied in business and management domains. In reflecting on Professor Ayre's contributions, we want to extend his ideas on technological change by incorporating the discourses around big data, BDA and business intelligence. With this in mind, we integrate the burgeoning but disjointed streams of research on big data, BDA and business intelligence to develop unified frameworks. Our review takes on both technical and managerial perspectives to explore the complex nature of big data, techniques in big data analytics and utilisation of big data in business and management community. The advanced analytics techniques appear pivotal in bridging big data and business intelligence. The study of advanced analytics techniques and their applications in big data analytics led to identification of promising avenues for future research.

doi: 10.1016/j.future.2018.05.022.
https://doi.org/10.1016/j.future.2018.05.022.

doi: 10.1016/j.cose.2018.05.015.
https://doi.org/10.1016/j.cose.2018.05.015.
ABSTRACT: Social media platforms allow billions of individuals to share their thoughts, likes and dislikes in real-time, without any censorship. This freedom, however, comes at a cyber-security risk. Cyber threats are more difficult to detect in a cyber world where anonymity and false
identities are ever-present. The speed at which these deceptive identities evolve calls for solutions to detect identity deception. Cyber-security threats caused by humans on social media platforms are widespread and warrant attention. This research posits a solution towards the intelligent detection of deceptive identities contrived by human individuals on social media platforms (SMPs). Firstly, this research evaluates machine learning models by using attributes such as the "profile image" found on SMPs. To improve on the results delivered by these models, past research findings from the field of psychology, such as that humans lie about their gender, are used. Newly engineered features such as "gender-derived-from-the-profile-image" are evaluated to grasp whether these features detect deception with greater accuracy. Furthermore, research results from detecting non-human (also known as bot) accounts are also leveraged to improve on the initial results. These machine learning results are lastly applied to a proposed model for the intelligent detection and interpretation of identity deception on SMPs. This paper shows that the cyber-security threat of identity deception can potentially be minimized, should the vulnerability in the current way of setting up user accounts on SMPs be re-engineered in the future.


ABSTRACT: As one of the most impactful emerging technologies, big data analytics and its related applications are powering the development of information technologies and are significantly shaping thinking and behavior in today's interconnected world. Exploring the technological evolution of big data research is an effective way to enhance technology management and create value for research and development strategies for both government and industry. This paper uses a learning-enhanced bibliometric study to discover interactions in big data research by detecting and visualizing its evolutionary pathways. Concentrating on a set of 5840 articles derived from Web of Science covering the period between 2000 and 2015, text mining and bibliometric techniques are combined to profile the hotspots in big data research and its core constituents. A learning process is used to enhance the ability to identify the interactive relationships between topics in sequential time slices, revealing technological evolution and death. The outputs include a landscape of interactions within big data research from 2000 to 2015 with a detailed map of the evolutionary pathways of specific technologies. Empirical insights for related studies in science policy, innovation management, and entrepreneurship are also provided.

Bibliography on “broadband”


ABSTRACT: Future cellular systems will employ the so-called big three technologies: UDN, massive MIMO, and mmWave (and/or terahertz) communications. The goal is to support the explosive demands for mobile broadband services foreseen for the next decade. In this work, we investigate the joint impact of the three technologies. Using system-level simulations, we evaluate the performance of two-tier cellular networks with μ Wave macrocells and densely deployed mmWave small cells. Our results show that much higher capacity can be realized with UDNs than in macrocell-only setups. The results also reveal that performance does not scale proportionally with increase in the employed mmWave bandwidth. The corresponding increase in noise (due to larger bandwidths) reduces the SINR. Outdoor users experience promising data rates notwithstanding, but the throughputs of indoor users are highly degraded. This is due to the
additional wall and indoor losses (on top of the inherently high path loss at mmWave frequencies), which further reduce the SINR of indoor users. Therefore, techniques that significantly enhance the SINR are highly important design considerations in unleashing the amazing prospects and potentials of mmWave UDNs.

https://doi.org/10.1016/j.telpol.2018.03.008.

**ABSTRACT:** This study investigates the contribution of modern communication infrastructure characterized by high speed broadband access network on the productivity growth, production structure and factor demands for US industries and for the aggregate economy. To evaluate such contribution, we modify the traditional cost function by incorporating communication infrastructure as input in production process in conjunction with other public infrastructures. The network externality and spillover effect of broadband access technology are captured by introducing broadband penetration rate as a shift factor in industry level production function. Empirical results show that the increased use of modern communications infrastructure increases the productivity of all industries with wide variations across industries. Estimated impacts on input demands show that increase in use of communications infrastructure service saves labor and materials and increase the demand for private capital. Finally, aggregate social rate of return on such investment has been estimated for policy implications.


**ABSTRACT:** The paper aims to explore accountability as a virtue and as a mechanism (Bovens, 2010) of global telecommunication operators in the process of governing spectrum and of broadband development. The two concepts of accountability are juxtaposed with operators? corporate reporting practices and spectrum licensing procedures of European national regulatory authorities (NRAs) and are analysed accordingly. The paper argues that spectrum licensing within the European Union regulatory context offers possible venues for policy intervention, rendering telecom providers to take an account on their global operations. Corruption is the case study to draw connections to public accountability, with a focus on the information and communication technology global market activity.

https://doi.org/10.1007/s11036-017-0971-1.

**ABSTRACT:** A video service recovery mechanism based on quality of experience (QoE) aware is proposed to unambiguously evaluate the quality of video service and recover the unacceptable video service in hybrid wireless-optical broadband-access network (WOBAN). The QoS parameters are modeled to the objective metric of QoE. Furthermore, the objective metric of QoE is mapped to the subjective MOS value. And the unacceptable video service is recovered by searching for a recovery routing which has better QoE. The recovery rerouting problem is divided to the subproblem of selecting the object mesh portal point and the subproblem of searching the alternate routing. The object mesh portal point is selected by the basis of load balance. And the subproblem of searching alternate routing is addressed by the Dijkstra mechanism to find the path which can provide the best QoE for the video service. Simulation results show that the proposed mechanism can effectively improve the quality of video services.
Beatriz FEIJOO FERNÁNDEZ and Aurora GARCÍA GONZÁLEZ. "Analysis of Children Consumption of TV, Videogames and the Internet: Differences Based on Gender in their Selection of Audiovisual Content." Fonseca, no. 15 (2017): 95-108
doi: 10.14201/fjc20171595108.
ABSTRACT: Under a strategy to attract diverse audiences, the audiovisual industry has been fragmenting its content based on several criteria, including the gender. In this sense, this research aims to verify if these distinctions are reflected in the children's content selection in relation with different screens (TV, videogames and the internet). To cope with this research, we selected a quantitative analysis using the technique of the questionnaire that was distributed among students of 6th year primary school, who are between 11 and 12 years to finally access to a sample of 2200 individuals from 77 public and private Galician schools. Thanks to this data, we could corroborate that children choose completely different content according to their gender, excepting internet, media in which their preferences tend to converge.

doi: 10.1016/j.chb.2018.05.041.
https://doi.org/10.1016/j.chb.2018.05.041.
ABSTRACT: During adolescence, adolescents move away from their parents in order to establish their place in society. Therefore, there are two arenas that have a significant impact on adolescents: the family and the social one. Adolescents’ intensive internet use leads to concern about Problematic Internet Use (PIU) (Siciliano et al., 2015). Therefore, the goal of this study was to examine if stressful environments such as being a victim to bullying and/or cyberbullying, and poor relationships with parents could be linked directly and indirectly to PIU. Data was collected from a representative sample of 1,000 Israeli adolescents aged 12-17 (53% females, average age 14.19 (SD=1.34)). Measures included demographics, a short problematic internet use test, relationships with parents’ questionnaire, cyberbullying scale and, separately, a traditional bullying test. Path analysis model revealed that both poor parent-child communication and being a cyberbullying victim were related to PIU. Correspondingly, Poor parent-child communication had an indirect effect on PIU through bullying and/or cyberbullying victimization. Conversely, both positive mother-child communication and positive father-child communication had an indirect effect on PIU through bullying or cyberbullying victimization, implying that good communication with parents actually can assist reducing bullying victimization and PIU behavior. Limitations, conclusions, and suggestions for further research are discussed.

ABSTRACT: Background Adolescents are among the highest consumers of social media while research has shown that their well-being decreases with age. The temporal relationship between social media interaction and well-being is not well established. The aim of this study was to examine whether the changes in social media interaction and two well-being measures are related across ages using parallel growth models. Methods Data come from five waves of the youth questionnaire, 10-15 years, of the Understanding Society, the UK Household Longitudinal Study (pooled n = &thinsp;9859). Social media interaction was assessed through daily frequency of chatting on social websites. Well-being was measured by happiness with six domains of life and the Strengths and Difficulties Questionnaire. Results Findings suggest gender differences in the relationship between interacting on social media and well-being. There were significant correlations between interacting on social media and well-being intercepts and between social media interaction and well-being slopes among females. Additionally higher social media
interaction at age 10 was associated with declines in well-being thereafter for females, but not for males. Results were similar for both measures of well-being. Conclusions High levels of social media interaction in early adolescence have implications for well-being in later adolescence, particularly for females. The lack of an association among males suggests other factors might be associated with their reduction in well-being with age. These findings contribute to the debate on causality and may inform future policy and interventions.

https://doi.org/10.1016/j.childyouth.2018.05.036.
ABSTRACT: The purpose of this study is to examine the relationships between smartphone addiction, cyberloafing, stress and social support. The research data were collected from 885 undergraduate students studying at a public university in Turkey using an online questionnaire. The relationship between the variables was tested by path analysis. The results of the research showed that class level, family income and place of residence had no significant effect on smartphone addiction, cyberloafing, stress and perceived social support. Smartphone addiction, stress and perceived social support differed significantly by gender. Stress has significant effect on cyberloafing and smartphone addiction, and cyberloafing has significant effect on smartphone addiction. Social support has a small but significant effect on cyberloafing, but it has no significant effect on stress. The results of the research are discussed with regard to higher education students and future studies.

Bibliography on “climate change and ICTs”

https://doi.org/10.1016/j.adhoc.2018.05.008.
ABSTRACT: Next generation, i.e., fifth generation (5G), cellular networks will provide a significant higher capacity per area to support the ever-increasing traffic demands. In order to achieve that, many small cells need to be deployed that are connected using a combination of optical fiber links and millimeter-wave (mmWave) backhaul architecture to forward heterogeneous traffic over mesh topologies. In this paper, we present a general optimization framework for the design of policies that optimally solve the problem of where to associate a user, over which links to route its traffic towards which mesh gateway, and which base stations and backhaul links to switch off in order to minimize the energy cost for the network operator and still satisfy the user demands. We develop an optimal policy based on mixed integer linear programming (MILP) which considers different user distribution and traffic demands over multiple time periods. We develop also a fast iterative two-phase solution heuristic, which associates users and calculates backhaul routes to maximize energy savings. Our strategies optimize the backhaul network configuration at each timeslot based on the current demands and user locations. We discuss the application of our policies to backhaul management of mmWave cellular networks in light of current trend of network softwarization (Software-Defined Networking, SDN). Finally, we present extensive numerical simulations of our proposed policies, which show how the algorithms can efficiently trade-off energy consumption with required capacity, while satisfying flow demand requirements.

http://dx.doi.org/10.1109/MITP.2018.032501740.
ABSTRACT: In the Internet of Things (IoT), what can we measure? The authors explore how the field of metrology might be applicable to the IoT.

Bibliography on “cybersecurity”

doi: 10.1109/MSPEC.2018.8389185.
http://dx.doi.org/10.1109/MSPEC.2018.8389185.

ABSTRACT: In 1882, a banker in Sacramento, Calif., named Frank Miller developed an absolutely unbreakable encryption method. Nearly 140 years later, cryptographers have yet to come up with something better. Miller had learned about cryptography while serving as a military investigator during the U.S. Civil War. Sometime later, he grew interested in telegraphy and especially the challenge of preventing fraud by wire—a problem that was frustrating many bankers at the time. As a contemporary, Robert Slater, the secretary of the French Atlantic Telegraph Co., wrote in his 1870 book Telegraphic Code, to Ensure Secrecy sic] in the Transmission of Telegrams, "Nothing then is easier for a dishonest cable operator than the commission of a fraud of gigantic extent."


ABSTRACT: Internet of things (IOT) paradigm is changing day to day lives towards sophisticated automation and enhancing living standards of our societies. The most of “Things” in IOT are having limited power, storage, and computational capabilities. Therefore data is collected, manipulated and stored in the clouds. The benefit of „anytime and anywhere“ access of data gives rise to serious security and privacy issues and lead to many problems like exposure of user’s personal and sensitive information and loss of the trust between parties. These challenges need to be addressed with adequately with utmost care. From an operational point of view, the major concern for IOT is „Privacy“. In this article, we discuss difference between privacy and security. Further, and present several approaches and techniques that are being used to fulfill the privacy requirements. This comparative study also contains advantages and disadvantages of the mentioned approaches. Finally, we discuss the future opportunities, trends, and provide recommendations about the privacy for IOT based applications and services.

http://doi.acm.org/10.1145/3149408.

ABSTRACT: Content Security Policy (CSP) is a recent W3C standard introduced to prevent and mitigate the impact of content injection vulnerabilities on websites. In this article, we introduce a formal semantics for the latest stable version of the standard, CSP Level 2. We then perform a systematic, large-scale analysis of the effectiveness of the current CSP deployment, using the formal semantics to substantiate our methodology and to assess the impact of the detected issues. We focus on four key aspects that affect the effectiveness of CSP: browser support, website adoption, correct configuration, and constant maintenance. Our analysis shows that browser support for CSP is largely satisfactory, with the exception of a few notable issues. However, there are several shortcomings relative to the other three aspects. CSP appears to have a rather limited deployment as yet and, more crucially, existing policies exhibit a number of weaknesses and misconfiguration errors. Moreover, content security policies are not regularly updated to ban insecure practices and remove unintended security violations. We argue that...
many of these problems can be fixed by better exploiting the monitoring facilities of CSP, while other issues deserve additional research, being more rooted into the CSP design.

doi: 10.1109/MCOM.2018.1700912.
http://dx.doi.org/10.1109/MCOM.2018.1700912.
ABSTRACT: In order to improve communication efficiency, applying THz communication to MHNs is envisioned as a promising approach. However, the security of THz MHNs is rarely discussed and urgently needs attention. For the purpose of effectively resolving the exposed security issues in THz MHNs, in this article, an intelligent spectrum control strategy in a THz network is proposed, and an intelligent spectrum control sequence is generated, which has the characteristics of adaptive frequency slot number, wide gap, and orthogonality. Extensive theoretical analyses prove that this sequence outperforms the sequences available in uniformity, randomness, and Hamming correlation. Simulation results indicate that the proposed strategy has great anti-attack capability and high throughput, and that the BER of THz communication with the proposed strategy can be increased two orders of magnitude in a complex electromagnetic environment. By using the proposed strategy, the security and reliability of future THz MHNs can be ensured.

doi: 10.1109/MCOM.2018.1700504.
http://dx.doi.org/10.1109/MCOM.2018.1700504.
ABSTRACT: Heterogeneous wireless networks (HWNs), composed of densely deployed base stations of different types with various radio access technologies, have become a prevailing trend to accommodate ever increasing traffic demand. Nowadays, users rely heavily on HWNs for ubiquitous network access to support critical applications such as financial transactions, e-health, and public safety. Cyber risks, representing one of the most significant threats to network security and reliability, are increasing in severity. To address this problem, this article introduces the concept of cyber insurance to transfer the cyber risks in HWNs to a third-party insurer. First, a review of the enabling technologies for HWNs and their vulnerabilities to cyber risks is presented. Then the fundamentals of cyber insurance are introduced, and subsequently, a cyber insurance framework for HWNs is presented. Finally, open issues are discussed and the challenges are highlighted for integrating cyber insurance as a service of next generation HWNs.

ABSTRACT: This article analyses government deployment of information security sensor systems from primarily a European human rights perspective. Sensor systems are designed to detect attacks against information networks by analysing network traffic and comparing this traffic to known attack-vectors, suspicious traffic profiles or content, while also recording attacks and providing information for the prevention of future attacks. The article examines how these sensor systems may be one way of ensuring the necessary protection of personal data stored in government IT-systems, helping governments fulfil positive obligations with regards to data protection under the European Convention on Human Rights (ECHR), the EU Charter of Fundamental Rights (The Charter), as well as data protection and IT-security requirements established in EU-secondary law. It concludes that the implementation of sensor systems illustrates the need to balance data protection against the negative privacy obligations of the state under the ECHR and the Charter and the accompanying need to ensure that surveillance of communications and associated metadata reach established principles of legality and proportionality. The article highlights the difficulty in balancing these positive and negative obligations, makes recommendations on the scope of such sensor systems and the legal
safeguards surrounding them to ensure compliance with European human rights law and concludes that there is a risk of privatised policymaking in this field barring further guidance in EU-secondary law or case law.

doi: 10.1016/j.cose.2018.03.001.
https://doi.org/10.1016/j.cose.2018.03.001.
ABSTRACT: Since the beginning of the Internet, cyberattacks have threatened users and organisations. They have become more complex concurrently with computer networks. Nowadays, attackers need to perform several intrusion steps to reach their final objective. The set of these steps is known as multi-step attack, multi-stage attack or attack scenario. Their multi-step nature hinders intrusion detection, as the correlation of more than one action is needed to understand the attack strategy and identify the threat. Since the beginning of 2000s, the security research community has tried to propose solutions to detect this kind of threat and to predict further steps. This survey aims to gather all the publications proposing multi-step attack detection methods. We focus on methods that go beyond the detection of a symptom and try to reveal the whole structure of the attack and the links between its steps. We follow a systematic approach to bibliographic research in order to identify the relevant literature. Our effort results in a corpus of 181 publications covering 119 methods, which we describe and classify. The analysis of the publications allows us to extract some conclusions about the state of research in multi-step attack detection. As far as we know, this is the first survey fully dedicated to multi-step attack detection methods as mechanisms to reveal attack scenarios composed of digital traces left by attackers. ".

doi: 10.1016/j.cosrev.2018.05.003.
https://doi.org/10.1016/j.cosrev.2018.05.003.
ABSTRACT: In the era of electronic and mobile commerce, massive numbers of financial transactions are conducted online on daily basis, which created potential fraudulent opportunities. A common fraudulent activity that involves creating a replica of a trustful website to deceive users and illegally obtain their credentials is website phishing. Website phishing is a serious online fraud, costing banks, online users, governments, and other organisations severe financial damages. One conventional approach to combat phishing is to raise awareness and educate novice users on the different tactics utilised by phishers by conducting periodic training or workshops. However, this approach has been criticised of being not cost effective as phishing tactics are constantly changing besides it may require high operational cost. Another anti-phishing approach is to legislate or amend existing cyber security laws that persecute online fraudsters without minimising its severity. A more promising anti-phishing approach is to prevent phishing attacks using intelligent machine learning (ML) technology. Using this technology, a classification system is integrated in the browser in which it will detect phishing activities and communicate these with the end user. This paper reviews and critically analyses legal, training, educational and intelligent anti-phishing approaches. More importantly, ways to combat phishing by intelligent and conventional are highlighted, besides revealing these approaches differences, similarities and positive and negative aspects from the user and performance prospective.
Different stakeholders such as computer security experts, researchers in web security as well as business owners may likely benefit from this review on website phishing.

doi: 10.1109/MSP.2018.2701150.
http://dx.doi.org/10.1109/MSP.2018.2701150.
ABSTRACT: Cybersecurity is becoming an important element in curricula at all education levels. However, the foundational knowledge on which the field of cybersecurity is being developed is
fragmented, and as a result, it can be difficult for both students and educators to map coherent paths of progression through the subject. The Cyber Security Body of Knowledge (CyBOK) project (www.cybok.org) aims to codify the foundational and generally recognized knowledge on cyber security.

doi: 10.1109/MITP.2018.032501750.
http://dx.doi.org/10.1109/MITP.2018.032501750.
ABSTRACT: Big data systems have been instrumental in solving computational problems for business intelligence and predictive analysis. Despite this, they exhibit serious concerns for user privacy. The authors provide an overview of privacy in the context of big data, categorizing four types of existing privacy violations in big data systems and assessing the strengths and weaknesses of their protection techniques. They also provide measures that can be taken to strengthen users privacy.

doi: 10.1016/j.cose.2018.05.015.
https://doi.org/10.1016/j.cose.2018.05.015.
ABSTRACT: Social media platforms allow billions of individuals to share their thoughts, likes and dislikes in real-time, without any censorship. This freedom, however, comes at a cyber-security risk. Cyber threats are more difficult to detect in a cyber world where anonymity and false identities are ever-present. The speed at which these deceptive identities evolve calls for solutions to detect identity deception. Cyber-security threats caused by humans on social media platforms are widespread and warrant attention. This research posits a solution towards the intelligent detection of deceptive identities contrived by human individuals on social media platforms (SMPs). Firstly, this research evaluates machine learning models by using attributes such as the "profile image" found on SMPs. To improve on the results delivered by these models, past research findings from the field of psychology, such as that humans lie about their gender, are used. Newly engineered features such as "gender-derived-from-the-profile-image" are evaluated to grasp whether these features detect deception with greater accuracy. Furthermore, research results from detecting non-human (also known as bot) accounts are also leveraged to improve on the initial results. These machine learning results are lastly applied to a proposed model for the intelligent detection and interpretation of identity deception on SMPs. This paper shows that the cyber-security threat of identity deception can potentially be minimized, should the vulnerability in the current way of setting up user accounts on SMPs be re-engineered in the future.

doi: 10.1109/MITP.2018.032501741.
http://dx.doi.org/10.1109/MITP.2018.032501741.
ABSTRACT: There are various interpretations and definitions for the Internet of Things (IoT) and its components. People often talk about objects, devices, and sensors connecting the virtual world to the physical world. A recent NIST publication provides insights that might lead to standardization and promote formalization, logical reasoning, simulations, reliability measurements, and security risk analysis for the IoT by first examining the things that make up the IoT.

https://doi.org/10.1108/IntR-11-2016-0340.
ABSTRACT: Purpose The purpose of this paper is to investigate the influence of mobile internet (MI) use and risk factors on MI happiness. Design/methodology/approach An online survey with
521 MI users was conducted to test the direct and moderating effects of risk factors on MI happiness. Findings The results provide evidence that there is a non-linear relationship between variety of use and MI happiness, and consumers become happier with increased frequency of use. The results also indicate that the privacy risk and task risk reduce MI happiness, and both types of risks moderate the inverted U-shaped relationship between variety of use and MI happiness. Research limitations/implications This study reconciles two opposing theories, stimulation vs displacement, on the impact of internet use on consumer well-being. The findings suggest that the stimulation effect of MI use is associated with an intermediate level of usage variety, while social displacement is more likely connected with higher- or lower-variety of use. Risk plays an important role in exploring the boundary conditions of both theories. The findings also have important implications to the debate over the role of privacy in consumer adoption of internet services or applications. Originality/value This study reconciles two opposing theories, stimulation vs displacement, on consumer happiness by elaborating the role of risk associated with MI use.; Purpose The purpose of this paper is to investigate the influence of mobile internet (MI) use and risk factors on MI happiness. Design/methodology/approach An online survey with 521 MI users was conducted to test the direct and moderating effects of risk factors on MI happiness. Findings The results provide evidence that there is a non-linear relationship between variety of use and MI happiness, and consumers become happier with increased frequency of use. The results also indicate that the privacy risk and task risk reduce MI happiness, and both types of risks moderate the inverted U-shaped relationship between variety of use and MI happiness. Research limitations/implications This study reconciles two opposing theories, stimulation vs displacement, on the impact of internet use on consumer well-being. The findings suggest that the stimulation effect of MI use is associated with an intermediate level of usage variety, while social displacement is more likely connected with higher- or lower-variety of use. Risk plays an important role in exploring the boundary conditions of both theories. The findings also have important implications to the debate over the role of privacy in consumer adoption of internet services or applications. Originality/value This study reconciles two opposing theories, stimulation vs displacement, on consumer happiness by elaborating the role of risk associated with MI use.

Bibliography on “digital divide”

Belloc, Marianna. "Voting Behavior and the Terrestrial Digital Divide." Economics Letters, 167(2018): 14-17 doi: 10.1016/j.econlet.2018.02.027. https://doi.org/10.1016/j.econlet.2018.02.027. ABSTRACT: In this paper, we explore the impact of the advent of the digital television on political selection and voting behavior in Italian municipal elections. To this aim, we exploit a unique quasi-experiment offered by the idiosyncratic deadlines to switch from analog to digital TV in Italian cities. We find that, when proper account is taken of possible omitted variables and local trends, the advent of the terrestrial digital television did not affect in a statistically significant way the quality of elected local politicians, but lowered voter turnout. ".

nature of the digital economy. The paper also explores the extent to which a G20 advisory body may inform a nationally representative data collection strategy within the context of a data collection process that is cognizant of the evolving demands of businesses and users alike.

doi: 10.1016/j.chb.2018.05.039.
https://doi.org/10.1016/j.chb.2018.05.039.
ABSTRACT: Digital divide, the differential in access and use of information and communication technologies (ICT) represents an obstacle to the information society. This study proposes a new theoretical model based on the extended unified theory of acceptance, and use of technology (UTAUT2), Schwartz's basic values and ICT skills to explore the role of values on ICT acceptance and, examine how these factors explain the digital divide. The research model was tested in the context of a sub-Saharan country (Angola). Empirical results suggest that ICT use is mainly influenced by habit, ICT skills, and benevolence.

ABSTRACT: The paper aims to explore accountability as a virtue and as a mechanism (Bovens, 2010) of global telecommunication operators in the process of governing spectrum and of broadband development. The two concepts of accountability are juxtaposed with operators' corporate reporting practices and spectrum licensing procedures of European national regulatory authorities (NRAs) and are analysed accordingly. The paper argues that spectrum licensing within the European Union regulatory context offers possible venues for policy intervention, rendering telecom providers to take an account on their global operations. Corruption is the case study to draw connections to public accountability, with a focus on the information and communication technology global market activity.

doi: 10.1016/j.telpol.2018.03.007.
https://doi.org/10.1016/j.telpol.2018.03.007.
ABSTRACT: This paper contributes to the literature on digital divide by analysing regional- and country level determinants of the regional digital divide in the EU, based on panel data and using the multilevel analysis- the three level random slope model. The results indicate that only a mix of effective regional and national measures could mitigate the regional digital divide in the EU. Stimulating regional economic growth, increasing the tertiary education attainments, boosting R&D expenditure, and discouraging early leaving from education are regional- and national level policy measures that are found to successfully reduce the regional digital divide in the EU.

Bibliography on “digital economy”

"Preparing for disruption: Technological Readiness Ranking." London, United Kingdom: The Economist Intelligence Unit Limited, 2018
ABSTRACT: This report assesses how well prepared countries are for technological change. The Index examines three factors - access to the internet, digital economy infrastructure, and
openness to innovation - exploring why they are important, how they are changing, and which countries are best exploiting the opportunities that they offer.

ABSTRACT: The world is united with invisible force of internet. As the connectivity greatly improves with technology enhancement, world population is now seeing the digital gap reduced. Surge in number of mobile devices sold world-wide play a greater role in connecting people to internet. This has change the behavior of people nowadays from the way they interact to the way the shop for goods. This study is performed to analyze Malaysian adoption, acceptance and perception towards online shopping or electronic commerce. Population of the study is among Malaysian aged from 16 to more than 50 years old with variety education background. It is found that adoption and acceptance of e-commerce websites relate to the level of education. 86.4% of respondents have experience with e-commerce and benefit from its cheaper price and conveniences. Three websites (Lazada, Lelong and 11 Street) selected in the study and evaluated based on their physical appearances and how they are optimized for search engines. Lazada is ranked first followed by 11 Street and Lelong in their physical appearance which mainly focusing on websites contents, functionality, authority and attractiveness. Using free tool of seositecheckup, Search Engine Optimization (SEO) are evaluated. Lazada maintains its top position with score of 79%, followed by Lelong (76%) and 11 Street (68%). SeO evaluation is important for an e-commerce website to capture more traffic or visits which relate to revenue generation. As more Malaysian are increasingly exposed to e-commerce, the e-commerce players are expected to take advantage on the evaluation report and improve their websites to provide consumers the level of satisfaction that guarantees repeated visits, hence increasing revenue.

ABSTRACT: The objective of this study was to analyze the influence of E-commerce on growth of businesses in Pakistan. To find out the participation of E-commerce on organization's growth, an administered questionnaire was used. The research was exploratory in nature and the measurement tool was quantitative. Pearson correlation was used to find out the effect of FDI (Foreign Direct Investment) on economic growth. The results reveal that privacy, trust, system security, cost, social & ethical issues and market value help out in determining the success of businesses. Ecommerce projects an opportunity to every new venture in the market to reduce the cost of business and increases their market value in certain ways. Although, if the variables considered in the study were addressed properly, this directly leads the businesses towards higher returns and long run success. The results demonstrate that companies can perform extraordinary if these companies take care of the critical success factors.

https://doi.org/10.1016/j.techfore.2018.06.030.
ABSTRACT: The business concept of the circular economy (CE) has gained significant momentum among practitioners and researchers alike. However, successful adoption and implementation of this paradigm of managing business remains a challenge. In this article, we build a case for utilizing big data analytics (BDA) as a fundamental basis for informed and data driven decision making in supply chain networks supporting CE. We view this from a stakeholder perspective and argue that a collaborative association among all supply chain members can positively affect CE
implementation. We propose a model highlighting the facilitating role of big data analytics for achieving shared sustainability goals. The model is based on integrating thematic categories coming out of 10 semi-structured interviews with key position holders in industry. We argue that mutual support and coordination driven by a stakeholder perspective coupled with holistic information processing and sharing along the entire supply chain network can effectively create a basis for achieving the triple bottom line of economic, ecological and social benefits. The proposed model is useful for managers in that it provides a reference point for aligning activities with the circular economy paradigm. The conceptual model provides a theoretical basis for future empirical research in this domain.


ABSTRACT: Purpose The purpose of this paper is to examine the effects of inhibiting, motivating, and technological factors on users' intention to participate in the sharing economy. Design/methodology/approach A self-reported online survey was conducted among Uber users in Hong Kong. A total of 295 valid responses were collected. The research model was empirically tested using the structural equation modeling technique. Findings The results suggested that perceived risks, perceived benefits, trust in the platform, and perceived platform qualities were significant predictors of users' intention to participate in Uber. Research limitations/implications This study bridged the research gaps in the sharing economy literature by examining the effects of perceived risks, perceived benefits, and trust in the platform on users' intention to participate in the sharing economy. Moreover, this study enriched the extended valence framework by incorporating perceived platform qualities into the research model, responding to the calls for the inclusion of technological variables in information systems research. Practical implications The findings provided practitioners with insights into enhancing users' intention to participate in the sharing economy. Originality/value This study presented one of the first attempts to systematically examine the effects of inhibiting, motivating, and technological factors on users' intention to participate in the sharing economy.


ABSTRACT: As per the report of Boston Consulting (BCG) and internet mobile association of India (IAMAI) 2015, the internet population increased 25 times in the last 12 years. The reinvention of marketing requires a re-examination of existing techniques and practices to assure their appropriateness for changing global digital environment. The need to carry out research on usage of digital marketing in the Small and medium enterprises is utmost importance. The main
objective of this research is to develop a clear understanding about existing research related to SMEs and digital marketing. This paper aims to empirically explore all the different research points related to studies of digital marketing published between 2005 and 2016 and explore different methodologies adopted by researchers in the field of SMEs. For analyzing, review of the literature concerning the usage of digital marketing in SMEs, the author used systematic analysis and classifies the published data of marketing journals, economic, business and management journals and IT journals along with online accessible newspapers and reports. In this paper, author proposes a model of DOI (Diffusion of Innovation), Everett Rogers’ five dimensional model, for understanding the studies on Indian SMEs' decisions to use digital marketing. The result indicated lack of structured research studies in order to use digital marketing in small businesses in India. The study covers many related areas such as: Electronic commerce, electronic platforms, Mobile marketing, E-marketing and many other research areas. There are clear research gap in field of digital marketing, to fill the same, there is need to conduct research to investigate the opportunities created by digital marketing for Indian SMEs. The use of different methods in reviewing the similar phenomenon should lead to greater validity and reliability than single method. Authors' recommends that triangulation approach will help in answering future researcher's questions and filling the research gap in this field. This paper may give clearer view towards the published work in the field of digital marketing. Beneficiaries of this research may be industrialists, policy maker, practitioners, researchers and academicians. The outcomes of the study illustrate the research gap between digital marketing and its usage in SMEs. It may also facilitate better approach towards accumulated knowledge in the field.


ABSTRACT: This paper examines the implications for European music culture of the European Union’s (EU) Digital Single Market strategy. It focuses on the regulatory framework being created for the management of copyright policy, and in particular the role played by collective management organisations (CMOs or collecting societies). One of the many new opportunities created by digitalisation has been the music streaming services. These depend on consumers being able to access music wherever they are, but such a system runs counter to the management of rights on a national basis and through collecting organisations which act as monopolies within their own territories. The result has been ?geo-blocking?. The EU has attempted to resolve this problem in a variety of ways, most recently in a Directive designed to reform the CMOs. In this paper, we document these various efforts, showing them to be motivated by a deep-seated and persisting belief in the capacity of ?competition? to resolve problems that, we argue, actually lie elsewhere in copyright policy itself. The result is that the EU’s intervention fails to address its core concern and threatens the diversity of European music culture by rewarding those who are already commercially successful.


ABSTRACT: Although big data, big data analytics (BDA) and business intelligence have attracted growing attention of both academics and practitioners, a lack of clarity persists about how BDA has been applied in business and management domains. In reflecting on Professor Ayre’s contributions, we want to extend his ideas on technological change by incorporating the discourses around big data, BDA and business intelligence. With this in mind, we integrate the burgeoning but disjointed streams of research on big data, BDA and business intelligence to develop unified frameworks. Our review takes on both technical and managerial perspectives to explore the complex nature of big data, techniques in big data analytics and utilisation of big data in business and management community. The advanced analytics techniques appear pivotal in
bridging big data and business intelligence. The study of advanced analytics techniques and their applications in big data analytics led to identification of promising avenues for future research.


ABSTRACT: Purpose Online reviews have shown important information that affects consumers' online shopping behavior. However, little research has examined how they may influence consumers' online impulse buying behavior. The purpose of this paper is to bring theoretical and empirical connections between them. Design/methodology/approach The framework of this study was tested on three popular online group shopping websites in China (ju.taobao.com, dianping.com, and meituan.com). An online survey with 315 participants who had experience using these websites was recruited to verify the effects of consumers' perceived value from reading online reviews on urge to buy impulsively and impulse buying behavior. Findings The empirical findings show that consumers' perceived utilitarian and hedonic value from reading online reviews enhance their browsing behavior. Browsing positively affects consumers' urge to buy impulsively and finally affects their impulse buying behavior. Further, this study finds that consumers with high impulsiveness focus more on hedonic value of online reviews, whereas consumers with low impulsiveness put more emphasis on utilitarian value. Browsing demonstrates a stronger effect on urge to buy impulsively for consumers with high impulsiveness. Originality/value This study is one of the early studies to investigate the relationship between social influence (e.g. influence of online reviews) and impulse buying. It draws upon the perspectives of browsing and consumer's perceived value from the literature. This research also considers consumer differences regarding the level of impulsiveness.


ABSTRACT: Purpose The purpose of this paper is to understand the effect of online cross-recommendation of products from e-retailers on consumers? instant cross-buying intention, and compare the effect between the contexts that the decision making on focal product is difficult and easy. Design/methodology/approach Based on the information adoption model, this paper develops a theoretical model to investigate how online cross-recommendation of products from e-retailers influence consumers? instant cross-buying intention. Empirical data were collected from 224 online shoppers. The Partial Least Squares technique was used to test the proposed research
model. Findings Choice confidence on focal product and perceived usefulness of cross-buying is the antecedents of instant cross-buying intention. Brand awareness of recommended product, one-stop shopping convenience, and perceived price advantage are the antecedents of perceived usefulness of cross-buying and choice confidence on focal product when the decision making on focal product is difficult, whereas brand awareness is not when it is easy to make focal product decision. Choice confidence on focal product positively affects perceived usefulness of cross-buying when it is easy to make focal product decision, whereas the effect is not significant when the decision making on focal product is difficult. Originality/value Knowledge about the effect of online cross-recommendation of products on instant cross-buying intention is scarce. This study reveals the psychological mechanism of the effect of online cross-recommendation of products on consumers? instant cross-buying intention and finds that decision-making difficulty on focal product is an important moderator.; Purpose The purpose of this paper is to understand the effect of online cross-recommendation of products from e-retailers on consumers? instant cross-buying intention, and compare the effect between the contexts that the decision making on focal product is difficult and easy. Design/methodology/approach Based on the information adoption model, this paper develops a theoretical model to investigate how online cross-recommendation of products from e-retailers influence consumers? instant cross-buying intention. Empirical data were collected from 224 online shoppers. The Partial Least Squares technique was used to test the proposed research model. Findings Choice confidence on focal product and perceived usefulness of cross-buying is the antecedents of instant cross-buying intention. Brand awareness of recommended product, one-stop shopping convenience, and perceived price advantage are the antecedents of perceived usefulness of cross-buying and choice confidence on focal product when the decision making on focal product is difficult, whereas brand awareness is not when it is easy to make focal product decision. Choice confidence on focal product positively affects perceived usefulness of cross-buying when it is easy to make focal product decision, whereas the effect is not significant when the decision making on focal product is difficult. Originality/value Knowledge about the effect of online cross-recommendation of products on instant cross-buying intention is scarce. This study reveals the psychological mechanism of the effect of online cross-recommendation of products on consumers? instant cross-buying intention and finds that decision-making difficulty on focal product is an important moderator.

Bibliography on “e-Government”

Acosta, T., P. Acosta-Vargas, and S. LujÃ­n-Mora. "Accessibility of eGovernment Services in Latin America." 74, 2018
doi: 10.1109/ICEDEG.2018.8372332
http://dx.doi.org/10.1109/ICEDEG.2018.8372332

ABSTRACT: The Web has become a primary source for communicating information and providing services worldwide. Governments are not unaware of this trend; thus, in some countries their government institutions have taken the initiative of offering web-based electronic services (eGovernment). These services are available to its citizens, regardless of their location and physical, cognitive or technological capabilities. Unfortunately, some web designers and developers of eGovernment websites do not follow the web accessibility criteria, creating a gap in the accessibility of eGovernment services. This lack of web accessibility causes exclusion of some people and infringement of the human rights. This gap must be eliminated for the purpose of enabling elderly or disabled people to benefit from the use of eGovernment services offered by governments through their websites. This paper presents a study on the accessibility of eGovernment interactive services offered by two official entities of the Latin America countries. The evaluation was carried out based on the criterion of the experts on web accessibility and the use of a web accessibility evaluation tool. In both cases, the Web Content Accessibility Guidelines (WCAG) 2.0 proposed by the World Wide Web Consortium (W3C) were considered. These guidelines aim to achieve accessible web content for people with disabilities. The results of this research show that none of the evaluated websites which offer eGovernment services meet an acceptable level of accessibility. Additionally, several recommendations are presented to correct
ABSTRACT: The major aim of this study to examine the factors that enable end-user adoption of e-government services in Turkey. A research model is proposed and tested using data based on a sample of 242 individual e-government web portal users in Turkey, the research model were evaluated with the model using the Partial Least Squares (PLS) method was applied for structural model assessment and analysis of the relationships among constructs. Results show that perceived usefulness and user satisfaction affects user's adoption and continuance intention. The findings are useful for policy-makers and decision-makers to develop a better understanding of citizens' needs. The adopted model can be used as a guideline for the implementation of e-government services in Turkey. This study suggests that government should run extensive advertising campaigns to ensure that people are aware of the services and use them. This implies that government should place emphasis on increasing awareness of the services, show the benefits of citizens and encouraging confidence in the system.

ABSTRACT: This study examines the factors affecting citizen satisfaction with e-government portals in Malaysia. The four determinants tested are perceived ease of use, citizen trust, service quality, and content quality. The target population consists of individuals with experience in using e-government portals in Malaysia. The convenience sampling procedure was used to collect data from 111 respondents in a face-to-face questionnaire survey. Data were then analyzed using partial least squares path modeling (PLS-PM) with R. The results indicate that citizen satisfaction with e-government portals in Malaysia is somewhat positive and that three of the four determinants are significant predictors of citizen satisfaction; namely, service quality, followed by perceived ease of use and content quality. However, citizen trust is not statistically significantly related to their satisfaction with e-government portals. The findings have important implications for government departments and agencies in developing e-government portals that meet citizen expectation. Specifically, e-government portals should contain user-friendly Web features, high-quality information content, and excellent service quality in order to enhance citizen satisfaction with their use.

ABSTRACT: Studies in digital government research have not sufficiently considered the internal networking aspects of social media beyond interactions with the public. This article examines the function of social media as informal networks of professional practice within the public sector. The empirical study is based on a longitudinal analysis of the Twitter hashtag community #localgov used by British local government actors (dataset of 235,681 tweets posted within 2013–2015). In a period of significant budget reductions, Twitter conversations involved a wide range of responses about the impact of the cuts and future of services. #Localgov shows high level of cross-service exchanges in the institutional sharing of good practice while the dynamics of interaction reflect the traditional landscape of intergovernmental relationships in England. We argue about the importance and characteristics of hashtag communities like #localgov as spaces that bring together different actors with a public sector interest."

https://doi.org/10.1016/j.tele.2018.01.005.

**ABSTRACT:** Actions towards an effective city management require a focus on citizens, and it is a role of local governments to search for ways to provide their participation in the decision-making process. Among other information technology resources, local governments use social platforms thus facing the challenge of extracting and classifying information for strategic use. The objective of this study is to analyze Twitter information to contribute to the strategic digital city. The research methodology used was a case study of a Brazilian city. Twitter was analyzed, and the information assessed according to its characteristics, source, nature, quality, intelligence and organizational level. Results reveal Twitter allows communication, rudiments of public services and exchange and sharing information on municipal themes inherent to strategic digital cities. Information has quality and intelligence to serve the strategic level of government. The conclusion confirms that Twitter enhances transparency and strengthens bonds between local government and citizens.


http://dx.doi.org/10.1109/ICECDS.2017.8390221

**ABSTRACT:** This Electronic government system is a web application for the public to provide all type of services online. Where online means using internet and services means applications submission for pan card, passport, driving license etc. The services may be provided by NGO, public sector or private sector organization but till date service providers are only government and mobile companies like Airtel and Vodafone etc. for paying bill only. The main concept of the proposed system is to maximize the services of the present tools by adding new modules for services like education, banking, insurance, health, notice board, inbox and Grievances. And also improve existing modules of personal, utilities and agriculture by adding new features like home for poor, expert suggestion for farming etc.


http://dx.doi.org/10.1109/EE1.2018.8385274

**ABSTRACT:** The government of Tonga has identified that ICT technologies can be used as an engine for growth. As a result, they have developed and put in place their National ICT Vision and Strategy to aid the national growth. The Tonga National e-Strategy objectives are — first is for ICT to reach individuals homes and various communities; to develop and focus on Education and improvement of skills in various domain; the e-Government initiative; focus on growing the country's economies; Provide support and enable the country's technical infrastructure; develop and update relevant legislations to ICT. A set of Goals that consist of 17 steps released by the UN, this covers a range of social and economic developments. These were created based on the accomplishments and difficulties of previous goals known as the Millennium Development Goals. This study is in two folds — one is to investigate how the Tonga National e-Strategy aligns to the UN's SDGs 17 steps. Second is to analyze the Tonga e-Government model and provide a set of recommendations.


http://dx.doi.org/10.1109/ICICI.2017.8365370

**ABSTRACT:** The initiation of e governance leads to a new platform of digital innovation for dissemination of information between citizens of the country and the government. Although, governments of developing economies are investing huge outlay for making this project a big
success but there are various threats related to this system that must be addressed but not much researches conducted on the issue. This paper examines various security issues related to e-government in India and its comparison to African countries. It also includes various suggestions pertaining to the issue.

ABSTRACT: E-government is conceived as a tool to improve efficiency and effectiveness in the provision of public services. However, in spite of the efforts to achieve a widespread adoption of e-government, it has lower usage rates than expected. Although this fact has been studied from different viewpoints, in the present work the behavioral perspective is presented as an approach that may answer to this challenge. To get it, the relationship between different cognitive biases linked to the SQB (habit, inertia and resistance) with the intention (of use for users and continuation for users) is analyzed. The data were collected after a qualitative (two group sessions) and a quantitative work (923 questionnaires), aimed at two different samples of citizens (non-users and users of e-government). The results confirm the presence of the trend towards the status quo in the use of e-government. Besides, while in the case of non-users of e-government the cognitive biases analyzed are present, leading to delay its use, among the users of e-government habit lacks relevance, so they remain in use as a channel of access to public services. El e-gobierno se presenta como una herramienta al servicio de la mejora de la eficacia y eficiencia en la prestación de los servicios públicos. Pero, pese a los esfuerzos por lograr una adopción generalizada del e-gobierno, éste presenta unas tasas de uso inferiores a las anheladas. Si bien dicho fenómeno ha sido estudiado desde diferentes perspectivas, en el presente trabajo se presenta la perspectiva conductual como enfoque que responda a tal reto. Para ello, se analiza la relación entre diferentes sesgos cognitivos vinculados a la tendencia del statu quo (hábito, inercia y resistencia) con la intención (de uso para los usuarios y de continuación para los usuarios). Los datos fueron captados tras un trabajo cualitativo (dos sesiones de grupo) y un trabajo cuantitativo (923 cuestionarios), dirigido a dos muestras diferentes de ciudadanos (no-users y usuarios del e-gobierno). Los resultados constatan la presencia de la tendencia al statu quo en el uso del e-gobierno. Mientras en el caso de los no-users del e-gobierno se encuentran presentes los sesgos cognitivos analizados, llevando a dilatar su uso, entre los usuarios del e-gobierno carece de relevancia el hábito, por lo que se mantienen en su uso como canal de acceso a los servicios públicos.

Torres-Porras, A. and H. Duarte-Amaya. "E-Government Development Index Analysis in South America Region: Challenges and Improvement Opportunities.". 275-280, 2018
doi: 10.1109/ICEDEG.2018.8372321
http://dx.doi.org/10.1109/ICEDEG.2018.8372321
ABSTRACT: South American countries are not in the top of E-Government development, As a proof of this, in the EGovernment Develop Index survey given by the United Nations, no country of the region have been in the top 20 of the index. Additionally, from the first survey to the last in 2016, no one have been calibrated with a very high score of development. Even worse according to the same survey all countries in South America have regressed relative to the rest of the world. In this paper is analyzed the South America E-Government performance based in the United Nation surveys taking into account the each subindexes that composed the surveys and comparing the region with the E-Government top countries in 2016. Finally, it is suggested a set of strategies that could help to improve the index values.

doi: 10.1109/ICEDEG.2018.8372325
http://dx.doi.org/10.1109/ICEDEG.2018.8372325
ABSTRACT: In order to transform e-government initiatives into significant results, several determining factors of success that influence the development of e-government projects and that...
vary according to the structural characteristics of the social, cultural and political environment must also be considered. The aim of this paper is to explore some determining aspects of success that affect the development of e-government of the most representative cantons in Ecuador. The result of this study has made it possible to classify municipalities according to their e-government index and has also allowed establishing a baseline of determining aspects that influence the development of municipal e-government, such as: size of the government, population density, financing, geographic location, demographic resources, among others. The main determining factors that lead to success in e-government initiatives present many differences when referring to a unified conceptual framework.

Bibliography on “e-Health”

"Digital Health: Digital Transformation in the Middle East." London, United Kingdom: The Economist Intelligence Unit Limited, 2018

ABSTRACT: This report explores how digital technologies are shaping the Middle East’s healthcare ecosystems, activities and stakeholders in significant ways.


ABSTRACT: The technological advances in low-cost sensor devices and communication technologies bring rapid increase in development of smart homes and smart environments. The developments in wireless sensor networks (WSN), body area networks (BAN), cloud computing and big data technologies trigger the use of Internet of Things (IoT) in healthcare industry. This poses many challenges such as heterogeneous data fusion, context-awareness, complex query processing, reliability and accuracy etc. Data fusion techniques are used to extract meaningful information from heterogeneous IoT data. It combines individual data from sensor sources to collectively obtain a result, which is more reliable, accurate and complete. Apart from wearable sensors, additional context sensors need to be added to build a context. Health IoT applications has potential benefits of using context-aware data fusion. By using context information, the behavior of the application can be customized according to the specific situation. This paper provides a brief concept of context-aware data fusion and includes data management approach for context-aware systems for healthcare applications. Finally, a context-aware data fusion approach for health IoT is proposed. It includes context acquisition, situation building and reasoning and inference.

doi: 10.1016/j.prps.2018.05.001.
https://doi.org/10.1016/j.prps.2018.05.001.

ABSTRACT: Résumé Face aux défis de santé contemporains, le marché des technologies digitales se développe de manière exponentielle. Cet article vise à explorer les profils types d’usage en lien avec des objets connectés et applications de santé, ainsi que les perceptions relatives aux usages, non usages et contextes d’usage. Ainsi, notre objectif est de contribuer au débat scientifique en proposant une étude de terrain en psychologie, focalisée sur les perspectives des consommateurs et les non consommateurs de ces technologies dans un contexte suisse francophone. Pour ce faire, nous avons passé un questionnaire auprès d’une population assistant à un salon grand public sur la thématique de la santé (n = 760). Suivant nos résultats, une
majorité de répondants déclare ne pas posséder d’objet connecté/application de santé et un tiers des non usagers ne souhaite pas en avoir. De même, nous constatons une tendance chez des nouvelles générations à posséder ce type de technologies. Les contextes d’usage concernent principalement le suivi de l’activité physique et de l’alimentation, avec un degré de satisfaction élevé par rapport à l’utilisation de ces objets. Par conséquent, nos analyses suggèrent une division au sein de l’échantillon entre une partie qui déclare ne pas avoir ce type de technologie et semble réticent envers ces objets, et une autre qui les utilise durablement. Nos résultats apportent un éclairage sur des usages concrets et contextes d’usage des consommateurs et non consommateurs d’objets connectés/applications de santé au-delà de promesses technoscientifiques qui prédominent actuellement dans nos sociétés. Abstract In a contemporary context of major health challenges, the market of digital technologies has increasingly developed in past years. This article aims to explore main profiles of use in relation to connected objects and health apps, as well as attitudes related to uses, non-uses and contexts of use. Therefore, our objective is to contribute to the scientific debate by proposing an empirical study in psychology that focusses on the perspectives of consumers and non-consumers of these technologies in the French-speaking part of Switzerland. To do this, a survey was conducted among participants of a large public health exhibition (n = 760). According to our results, the majority of respondents declare not having a connected object/health app and a third of non-users does not intend to acquire such technologies. Also, there is a trend among younger generations to have a connected object/health app. Concerning the contexts of use, such technologies are employed to self-track physical activity and eating practices. The degree of satisfaction of such use is rather high. Given these results, our analyses point out a divide within our sample, between individuals who seem resistant and declare not willing to have this kind of technology and those who use it in the long run. These results cast new light upon concrete uses and contexts of use among consumers and non-consumers of connected objects/health apps beyond techno-scientific promises that prevail today in our societies.

doi: 10.1109/MITP.2018.032501754.
http://dx.doi.org/10.1109/MITP.2018.032501754.
ABSTRACT: In the era of extreme automation and connectivity, digital health is rapidly changing the healthcare industry by presenting effective solutions to several healthcare challenges, such as interoperability and patient satisfaction.

http://doi.acm.org/10.1145/3193759.
ABSTRACT: One of the formidable challenges healthcare providers face is putting medical data to maximum use. Somewhere between the quest to unlock the mysteries of medicine and design better treatments, therapies, and procedures, lies the real world of applying data and protecting patient privacy.

doi: 10.1016/j.ymeth.2018.05.015.
https://doi.org/10.1016/j.ymeth.2018.05.015.
ABSTRACT: Mobile health (m-Health) has been repeatedly called the biggest technological breakthrough of our modern times. Similarly, the concept of big data in the context of healthcare is considered one of the transformative drivers for intelligent healthcare delivery systems. In recent years, big data has become increasingly synonymous with mobile health, however key challenges of "Big Data and mobile health", remain largely untackled. This is becoming particularly important with the continued deluge of the structured and unstructured data sets generated on daily basis from the proliferation of mobile health applications within different healthcare systems and products globally. The aim of this paper is of twofold. First we present the relevant big data
issues from the mobile health (m-Health) perspective. In particular we discuss these issues from the technological areas and building blocks (communications, sensors and computing) of mobile health and the newly defined (m-Health 2.0) concept. The second objective is to present the relevant rapprochement issues of big m-Health data analytics with m-Health. Further, we also present the current and future roles of machine and deep learning within the current smart phone centric m-health model. The critical balance between these two important areas will depend on how different stakeholder from patients, clinicians, healthcare providers, medical and m-health market businesses and regulators will perceive these developments. These new perspectives are essential for better understanding the fine balance between the new insights of how intelligent and connected the future mobile health systems will look like and the inherent risks and clinical complexities associated with the big data sets and analytical tools used in these systems. These topics will be subject for extensive work and investigations in the foreseeable future for the areas of data analytics, computational and artificial intelligence methods applied for mobile health. 


ABSTRACT: [...]this paper attempts to bring about the relevance of IoT architecture through a detailed analysis which will help a novice to understand and appreciate the power of IoT in the field of human health and allied fields of medicine. [...] if the hospitals and traffic control is connected, the traffic control system can clear up traffic or alert well in advance of the arrival of ambulance to signals well in advance, so there will be smooth patient commute possible. In developing countries like India, efficacy of a surveillance system is often hindered by the quality and availability of data. [...]the authors have proposed a IoT based Smart Disease Surveillance" the smart device which will keep gathering information from RFID tagged objects be it human or device and give information to health ministry which in turn can analyse the data further to identify patterns or trends and come up with preventive and counter measures. [...]we would like to highlight the importance of designing all the IoT based systems, irrespective of which ever field they are deployed in, be it Medical or automobile or education to be given utmost priority and tested completely for all the vulnerable threats before they are offered to public use.


ABSTRACT: Mobile healthcare social networks (MHSNs) have arisen as a very promising brand new healthcare system, which will greatly improve the quality of life. Moreover, with the help of software defined networking (SDN) paradigm, it can enhance the user experience. To achieve personal health information sharing and the access control among parties, a similar symptoms matching process should be executed before that. However, the matching process requires users to exchange symptoms information, conflicting with the ever-increasing privacy concerns on protecting private symptoms from strangers. To realize privacy-preserving symptoms matching, in this paper, we design two blind signature-based symptom matching schemes in SDN-based MHSNs, which can achieve the coarse-grained symptom matching and fine-grained symptom matching, respectively. Moreover, our schemes do not relay on any trusted third party. Security analysis and detailed simulations show that our proposed schemes can realize efficient privacy-preserving symptom matching. Finally, we do comprehensive experimental evaluation on real-world smartphones to demonstrate the practicality of our proposed schemes.

ABSTRACT: When IOT is enlarged with embedded system the technology becomes a model for physical system and environ the technologies such as smart homes, smart cities, smart grid, and transportation, building automation, heat detector, smart cities, smart farming, smart lock, wearable, video surveillance, video recorder, motor devices, fire alarm etc. Nowadays while traveling from one place to another, we are facing the major problem that is traffic on the road. Because of this ambulance are unable to move from that place and have to wait for few times or few hours until the traffic gets cleared. By using GPS location the chauffeur of the ambulance will sent the request to the signal point and the user is connected to the cloud with GSM(global system for mobile communication) technology .when the signal board receives the request spontaneously sends the received acknowledgment. Clinical Decision Support system (CDSS) helps to store and view the huge amount of information about the medical reports of the patients.

https://doi.org/10.1016/j.ypmed.2018.05.018.  
ABSTRACT: Health information and communication technologies (ICTs) are increasingly used but little is known about routine exposure to health information from ICTs and its associations with health behaviors. A territory-wide population-based dual landline and mobile telephone survey was conducted in 2016 in Hong Kong, where smartphone ownership and Internet access are among the most prevalent, easiest and fastest in the world. Health information exposure from traditional sources (television/radio/newspaper/magazine), Internet websites, social media sites and instant messaging (IM); and information on smoking, alcohol consumption and physical activity were recorded. Prevalence was weighted by age, sex and education level of the general population. Multinomial logistic regression was used to assess the association of health information exposure with smoking and alcohol consumption, whilst multivariable linear regression was used to assess the association with frequency of moderate and vigorous physical activity (days/week). Of 3063 respondents, most (71.6%) were often or sometimes exposed to health information from traditional sources, followed by Internet websites (40.9%), social media sites (40.7%), and IM (27.0%). Respondents with lower education and household income were less frequently exposed to health information from Internet websites, social media sites and IM (all P < 0.001). Health information exposure from IM was associated with being never smokers, and more frequent moderate and vigorous physical activity (all P for trend <0.05). Health information exposure from IM was least frequent but associated with healthier behaviors. Further public health education campaigns can consider using IM to deliver information, particularly to disadvantaged groups.

http://dx.doi.org/10.1109/JIOT.2018.2792423.  
ABSTRACT: The widespread use of Internet of Things (IoT), especially smart wearables, will play an important role in improving the quality of medical care, bringing convenience for patients and improving the management level of hospitals. However, due to the limitation of communication protocols, there exists non unified architecture that can connect all intelligent things in smart hospitals, which is made possible by the emergence of the Narrowband IoT (NB-IoT). In light of this, we propose an architecture to connect intelligent things in smart hospitals based on NB-IoT, and introduce edge computing to deal with the requirement of latency in medical process. As a case study, we develop an infusion monitoring system to monitor the real-time drop rate and the volume of remaining drug during the intravenous infusion. Finally, we discuss the challenges and future directions for building a smart hospital by connecting intelligent things.
Bibliography on “emergency communication”

ABSTRACT: JUNE 2013 Uttarakhand flash-flood killed nearly 5700 people and trapped 110,000. The disaster caused a black-out, leading to a serious network failure which delayed rescue work in isolated areas. The lack of robust communication network has become a sizable topic for scrutiny of disaster inflicted area network system. Thus, it is important to design a network which never fails during such crisis. In this paper, a detailed survey of AONs (Always-On Network) is done and issues in implementation of those are highlighted. The architecture of existing networks has several practical issues in case of emergency which need to be addressed. ".

ABSTRACT: Social media has been widely adopted by emergency management organizations and agencies to disseminate emergency messages to the public. However, the traditional one-to-all post-and-wait practice does not serve this purpose well in the complex and dynamic environments in disasters and extreme events. In this paper, we examine an engaged social media node targeting strategy to facilitate message propagation, and propose an optimization scheme incorporating this strategy to determine the optimal sets of nodes to target with planning horizon length, source messaging capacity, social network characteristics and user behaviors considered. Experiments, computational results and managerial insights are discussed. ".

ABSTRACT: Now a dayâ€™s an important source of information is social media, which reports any major event including natural disasters. Social media also includes conversational data. As a result, the volume of data on social media has an enormous increase. During the time of natural disaster like floods, tsunami, earthquake, landslide etc., people require information in those situations, so that relief operations like help, medical facilities can save many lives (Goswami et al. in Ain Shams Eng J, 2016). An attempt is made in this article on Geoparsing which will identify the places of disaster on a Map. Geoparsing is a process of converting free text description of locations into the geographical identifier in an unambiguous manner with the help of longitude and latitude. With the help of geographical coordinates, it can be mapped and entered into geographical information system (GIS). A real-time, reliable at robust twitter messages which are the source of the information can handle a large amount of data. After collecting tweets at the real time we can parse them for the disaster situation and its location. This information will help to identify the exact location of the event. For knowing information on the natural disaster, tweets are extracted from twitter to R-Studio environment. First the extracted tweets from twitter are parsed using R about â€œnatural disasterâ€. Later we parsed the tweets and store in.CSV format in R database. For all posted data tweets are calculated and stored in a file. Later visual analysis is performed for the data store using R Statistical Software. Further, it is useful to assess the severity of the natural disaster. Sentiment analysis (Rahmath in IJAIME 3(5):1â€“3,
ABSTRACT: Big data created by social media and mobile networks provide an exceptional opportunity to mine valuable insights from them. This information is harnessed by business entities to measure the level of customer satisfaction but its application in disaster response is still in its inflection point. Social networks are increasingly used for emergency communications and help related requests. During disaster situations, such emergency requests need to be mined from the pool of big data for providing timely help. Though government organizations and emergency responders work together through their respective national disaster response framework, the sentiment of the affected people during and after the disaster determines the success of the disaster response and recovery process. In this paper, we propose a big data driven approach for disaster response through sentiment analysis. The proposed model collects disaster data from social networks and categorize them according to the needs of the affected people. The categorized disaster data are classified through machine learning algorithm for analyzing the sentiment of the people. Various features like, parts of speech and lexicon are analyzed to identify the best classification strategy for disaster data. The results show that lexicon based approach is suitable for analyzing the needs of the people during disaster. The practical implication of the proposed methodology is the real-time categorization and classification of social media big data for disaster response and recovery. This analysis helps the emergency responders and rescue personnel to develop better strategies for effective information management of the rapidly changing disaster environment.

https://doi.org/10.1016/j.cageo.2018.06.002.

ABSTRACT: Natural disasters are chaotic and disruptive events, with compressed timelines and high levels of uncertainty. Comprehensive data on the impact becomes only available well into the response phase and data is scattered across organizations. Data heterogeneity issues are common. Consequently, responding organizations have difficulties finding data that match their information needs. We investigated the information needs of and the disaster management data available to both national and local decision makers during the 2014 floods in Bangladesh. We conducted 13 semi-structured interviews and three focus group discussions, collecting in this way input from 51 people, transcribed and coded them so that themes of information needs emerged. We mapped the information needs on the available data sets and determined which needs were not, partially or completely covered. We identified seven themes of in total 71 information needs and 15 data sets. The mapping revealed a significant information gap of timely and location-based data. Only 40% of the information needs are covered in time and 75% if no time constraints are considered. Instead of using all data sets, we optimized for coverage -with Integer Linear Programming-combinations of data sets against the costs of extracting data from structured versus unstructured data and against the quality in terms of recency, source and content rating and granularity. Without time constraints, three data sets yield already a coverage of 68%, whereas adding five extra data sets only gives an improvement of 7%. We recommend executing identification and mapping of available data sets on the information needs as part of Data Preparedness. Determination of the optimal combination of data sets can be used to extract data on information needs more efficiently. Currently, we did this manually, but future research will investigate automatic matching of information needs on data sets, by applying intelligent querying and semantic data matching.

ABSTRACT: We describe the design and implementation of a system to automate patient handling and assignment to hospitals in mass disasters involving a large number of injured victims over a wireless network. In addition, the previously developed MEDTOC system is modified and enhanced to include location-aware features at the disaster site, as well as quick classification and assignment of patients to nearby hospitals. We present the designed implementation and the results from a simulated disaster involving a fictitious 20-story apartment building located in Ras Al Khaimah, United Arab Emirates. It is expected that chaotic mass-disaster situations can be more suitably controlled and stabilized by using the techniques from this project, thus saving more lives."

Bibliography on “gender”


ABSTRACT: Under a strategy to attract diverse audiences, the audiovisual industry has been fragmenting its content based on several criteria, including the gender. In this sense, this research aims to verify if these distinctions are reflected in the children’s content selection in relation with different screens (TV, videogames and the internet). To cope with this research, we selected a quantitative analysis using the technique of the questionnaire that was distributed among students of 6th year primary school, who are between 11 and 12 years to finally access to a sample of 2200 individuals from 77 public and private Galician schools. Thanks to this data, we could corroborate that children choose completely different content according to their gender, excepting internet, media in which their preferences tend to converge.


ABSTRACT: Background Adolescents are among the highest consumers of social media while research has shown that their well-being decreases with age. The temporal relationship between social media interaction and well-being is not well established. The aim of this study was to examine whether the changes in social media interaction and two well-being measures are related across ages using parallel growth models. Methods Data come from five waves of the youth questionnaire, 10-15 years, of the Understanding Society, the UK Household Longitudinal Study (pooled n = &thinsp;9859). Social media interaction was assessed through daily frequency of chatting on social websites. Well-being was measured by happiness with six domains of life and the Strengths and Difficulties Questionnaire. Results Findings suggest gender differences in the relationship between interacting on social media and well-being. There were significant correlations between interacting on social media and well-being intercepts and between social media interaction and well-being slopes among females. Additionally higher social media interaction at age 10 was associated with declines in well-being thereafter for females, but not for males. Results were similar for both measures of well-being. Conclusions High levels of social media interaction in early adolescence have implications for well-being in later adolescence, particularly for females. The lack of an association among males suggests other factors might be
associated with their reduction in well-being with age. These findings contribute to the debate on causality and may inform future policy and interventions.

Fell, J. "What Women Want." Engineering & Technology, 12, no. 6 (2017): 52-54
ABSTRACT: A male-dominated workforce in the wearable technology market is isolating female consumers. A new organisation is striving to bridge this gap by encouraging women to unite and become the Women of Wearables.

10.1016/j.cedpsych.2018.06.009.  
ABSTRACT: According to Eccles-Parsons et al.'s (1983) parent socialization model, children's beliefs, values, and grades in mathematics are directly related to their parents' values and perceptions of children's mathematical abilities, which are often gendered. However, few researchers have examined how associations between parent and child beliefs and values and grades differ by parent and child gender. In the present study, we measured mathematics ability beliefs, utility value, and grades from 830 students in grades 5-12, as well as their mothers' and fathers' perceptions of their child's mathematics ability and utility of mathematics for their child. Parents of boys believed mathematics was more useful for their child than parents of girls. In most cases, both mothers' and fathers' beliefs uniquely contributed to children's own beliefs and grades. There were several interactions between mothers and fathers for children's self-concept of ability and girls' end of year grades, such that high ability beliefs of one parent compensated for low ability beliefs of the other parent. Associations between parents' ability beliefs and utility value for their children's end of year grades and mathematics utility value were stronger when the parent was the same gender as the child. However, we also found that a stronger association between parents' utility value for their children's and girls' end of year grades occurred when the parent was the opposite gender of the child (i.e., fathers). Thus, it is important to take into account parent and child gender when understanding associations between parents’ beliefs and children’s beliefs and grades.

doi: 10.5209/CIYC.55974.  
ABSTRACT: Spanish: This paper analyze the image of women in the two most widely read sports digital media Spain. On the covers of as.com and marca.com 5,105 photographs have been counted. Only in 2.45% of the images analyzed we found a woman athlete. In six out of ten photos we see some sort of sexual connotation.

doi: 10.1016/j.sssresearch.2018.05.010.  
https://doi.org/10.1016/j.sssresearch.2018.05.010.  
ABSTRACT: In recent years, researchers have begun to explore the extent to which the impact of switching firms (inter-firm mobility) on wages varies between men and women. Using data from the NLSY79 from 1979 to 2012, this paper extends existing research by exploring how occupational segregation and individual level factors contribute to gender differences in the impact of voluntary inter-firm mobility on wages. The paper also examines how patterns vary depending on education level. Findings suggest that men without a college education receive greater wage gains from voluntary inter-firm mobility than similarly educated women although there is no overall gender difference for individuals with a bachelor's degree. The wage returns to
voluntary inter-firm mobility for both men and women increase as a function of the male representation in the occupation. For individuals without a college education, the male premium to voluntary inter-firm mobility is largest in highly male dominated occupations. However, women with a bachelor’s degree employed in highly male dominated occupations use voluntary inter-firm mobility to narrow the gender wage gap.

Bibliography on “ICT for development (ICT4D)”

"Preparing for disruption: Technological Readiness Ranking." London, United Kingdom: The Economist Intelligence Unit Limited, 2018  

ABSTRACT: This report assesses how well prepared countries are for technological change. The Index examines three factors - access to the internet, digital economy infrastructure, and openness to innovation - exploring why they are important, how they are changing, and which countries are best exploiting the opportunities that they offer.

https://doi.org/10.1016/j.giq.2018.06.002.

ABSTRACT: The adoption of new information and communication technologies (ICT) has been one of the main strategies used by organizations of the Brazilian Judiciary in the search for solutions to the major challenges they face, such as limited access to justice services, high levels of congestion in courts and delays in the adjudication of lawsuits. However, empirical studies showing the results of this strategy are limited. The present study seeks to fill this gap. The objective is to identify and explain the effects of investment in information and communication technologies on productivity of courts in Brazil. In addition to the direct relationship between technology and judicial performance, we investigate the mediating and moderating effects of technology on other drivers of judicial performance. Official data were collected from the Justice in Numbers database of the National Justice Council. Secondary data refer to all state, federal and labor courts in the country, and cover a seven-year period, from 2009 to 2015. Panel data were analyzed using hierarchical regression and conditional analysis. The results confirm four of the five hypotheses, indicating that ICT investment has a direct and positive effect on court productivity, as well as mediating and moderating the effect of other variables on productivity. However, contrary to expectations, investment in ICT does not moderate the relationship between court caseload and productivity; although weak, the observed relationship was negative. Explanations for the findings are presented in the article.

doi: 10.1109/EE1.2018.8385274  
http://dx.doi.org/10.1109/EE1.2018.8385274

ABSTRACT: The government of Tonga has identified that ICT technologies can be used as an engine for growth. As a result, they have developed and put in place their National ICT Vision and Strategy to aid the national growth. The Tonga National e-Strategy objectives are — first is for ICT to reach individuals homes and various communities; to develop and focus on Education and improvement of skills in various domain; the e-Government initiative; focus on growing the country’s economies; Provide support and enable the country’s technical infrastructure; develop and update relevant legislations to ICT. A set of Goals that consist of 17 steps released by the UN, this covers a range of social and economic developments. These were created based on the accomplishments and difficulties of previous goals known as the Millennium Development Goals.
This study is in two folds — one is to investigate how the Tonga National e-Strategy aligns to the UN’s SDGs 17 steps. Second is to analyze the Tonga e-Government model and provide a set of recommendations.

https://doi.org/10.1016/j.techfore.2018.06.027.

ABSTRACT: This paper investigates whether advanced manufacturing technologies (AMT) can modify the patterns of upgrading in manufacturing subsidiaries operating in FDI hosting factory economies. Does the digital transformation of local manufacturing engender the accumulation of local technological and R&D capabilities, or the beneficial impact of AMT remains confined to production capability? Analysis is based on primary data collected through in-depth interviews with a sample of high-flying manufacturing subsidiaries in Hungary, complemented with interviews with AMT providers. We find that AMT have spectacularly improved all components of production capability. AMT redefined the boundaries of production activities and incited a fusion of selected technological activities in production activities. AMT deployment has automated selected tacit knowledge-intensive technological activities, making the related subsidiary-level capabilities obsolete. Conversely, other local technological activities have become more knowledge-intensive than before. AMT propelled the upgrading of subsidiary-level R&D capabilities by supporting specific R&D activities and by acting as enabler of innovation collaboration. AMT created an integrated development environment and thus reduced the risks related to the decentralisation of R&D. Altogether, AMT adoption contributed to subsidiary R&D capability becoming ‘revealed’ and further upgraded through learning by doing.

Bibliography on “intelligent transportation systems (ITS)”

https://doi.org/10.1007/s11036-017-0916-8.

ABSTRACT: The increasing use of smartphones, tablets, and other vehicular network applications with varied capabilities and the associated growth in the use of all types of data-hungry multimedia services pose a significant challenge to cellular infrastructure operators. Vehicular Wi-Fi offloading (VWO) is one of the potential solutions for offloading cellular traffic. Several offloading techniques through vehicular ad-hoc networks are proposed in the literature. Thus, this paper reviews several state-of-the-art VWO techniques. We categorize the techniques based on the application requirements and the medium used for offloading. Two groups of techniques are identified. All techniques that depend on the roadside unit as offloading media are classified as vehicle-to-infrastructure-based techniques and those that depend on the opportunistic vehicle-to-vehicle (V2Â–V) network are called V2Â–V-based techniques. We present a comprehensive VWO architecture and VWO performance metrics derived from mobile-data offloading metrics. We also elucidate the important issues to be incorporated in designing VWO techniques together with future research directions in this domain.

https://doi.org/10.1016/j.compeleceng.2018.05.023.

ABSTRACT: The key goal of Internet of Things (IoT) has been the provision of value-added services based on the ubiquitously available smart devices that can offer diverse services by
interacting with each other. However, the paradigm has evolved to its next phase, Social Internet of Things (SIoT), with the inception of an idea to empower these devices with consciousness. This cognizance enables these smart devices to socialize with each other based on shared context and mutual interests. The Social Internet of Vehicles (SIoV) applies SIoT concepts in the vehicular domain to revolutionize the existing ITS (Intelligent Transport System) by adding value to existing VANET (Vehicular Ad-hoc Network) technology. This paper presents a scalable SIoV architecture based on Restful web technology. Furthermore, this paper emphasizes the importance of web technology to meet the required interoperability to support the composition of numerous services. The paper also discusses the enabling technologies and protocols.

ABSTRACT: Over the last years, there has been a considerable development in the field of wireless vehicular communications so as to satisfy the requirements of Cooperative Intelligent Transportation Systems (C-ITS). Standards such as IEEE 802.11p and ETSI ITS-G5 enable the so-called Vehicular Ad-Hoc Networks (VANETs). Vehicles can exploit VANETs to exchange information, such as alerts and awareness information, so as to improve drivers' comfort and traffic efficiency. However, due to the expected popularity of ITS, VANETs could be prone to attacks by malicious sources. To prevent this, security standards, such as IEEE 1609.2 and ETSI ITSâ€™ standards, were developed. In this work, the design and implementation of an API capable of conducting the required cryptographic algorithms and protocols for the transmission of secure messages according to the IEEE 1609.2 and ETSI ITSâ€™ security standards are presented. The implemented security protocols are then integrated into a system emulating a public key infrastructure to evaluate the performance impact on safety-related communications, in particular, the delay associated with the communicationâ€™ coding/decoding process.

ABSTRACT: This article proposes a method to find intersections at which cars tend to deviate from the optimal route based on global positioning system (GPS) tracking data under the assumption that such deviations indicate that car navigation systems (CNSs) and road signage are not readily available. If the intended route is known, deviations can be enumerated by comparing the intended route with the vehicle’s actual route as observed by a GPS; however, the intended route is unknown and can differ from the route suggested by a CNS. To identify intersections with high deviation rates without knowing intended routes, we exhaustively sampled subsequences from each vehicular GPS track, and detected deviations from the optimal route for the subsequences. Although the detected deviations are not always caused by driver confusion, accumulating such erroneous detection results would yield a meaningful difference in the number of accumulated deviations at each intersection. We applied the proposed method to 3,843 GPS tracks collected from visitor drivers in the city of Kyoto. Thresholding the estimated deviation rate yielded 39 intersections from 14,543 candidates. The results show a certain level of correlation between obtained deviations and rerouting locations from actual CNS data. We also found several intersections where faulty route suggestions are provided by CNSs.

ABSTRACT: This paper presents a new technique for almost sure asymptotic state tracking,
stability and reference tracking of nonlinear dynamic systems by remote controller over the packet erasure channel, which is an abstract model for transmission via WiFi and the Internet. By implementing a suitable linearization method, a proper encoder and decoder are presented for tracking the state trajectory of nonlinear systems at the end of communication link when the measurements are sent through the packet erasure channel. Then, a controller for reference tracking of the system is designed. In the proposed technique linearization is applied when the error between the states and an estimate of these states at the decoder increases. It is shown that the proposed technique results in almost sure asymptotic reference tracking (and hence stability) over the packet erasure channel. The satisfactory performance of the proposed state trajectory and reference tracking technique is illustrated by computer simulations by applying this technique on the unicycle model, which represents the dynamic of autonomous vehicles.

Bibliography on “internet of things (IoT)”

"6 Ways IoT is Vulnerable." IEEE Spectrum, 55, no. 7 (2018): 21-21
doi: 10.1109/MSPEC.2018.8389181.
ABSTRACT: CONNECTING PHYSICAL infrastructure to the Internet makes systems vulnerable to new security threats. What keeps executives awake at night varies by industry, but cybersecurity problems are worsening everywhere. Security officers in manufacturing worry about employees inserting infected USB drives into machines, while hospital administrators fear that malware will wipe out an unpatched MRI machine, or that a hacker will direct an infusion pump to administer a lethal dose of medicine.

ABSTRACT: Internet of things (IOT) paradigm is changing day to day lives towards sophisticated automation and enhancing living standards of our societies. The most of "Things" in IOT are having limited power, storage, and computational capabilities. Therefore data is collected, manipulated and stored in the clouds. The benefit of "anytime and anywhere" access of data gives rise to serious security and privacy issues and lead to many problems like exposure of user's personal and sensitive information and loss of the trust between parties. These challenges need to be addressed with adequately with utmost care. From an operational point of view, the major concern for IOT is "Privacy". In this article, we discuss difference between privacy and security. Further, and present several approaches and techniques that are being used to fulfill the privacy requirements. This comparative study also contains advantages and disadvantages of the mentioned approaches. Finally, we discuss the future opportunities, trends, and provide recommendations about the privacy for IOT based applications and services.

Alshehri, Mohammad Dahman, Farookh Khadeer Hussain, and Omar Khadeer Hussain. "Clustering-Driven Intelligent Trust Management Methodology for the Internet of Things (CITM-IoT)." Mobile Networks and Applications, 23, no. 3 (2018): 419-431
https://doi.org/10.1007/s11036-018-1017-z.
ABSTRACT: The growth and adoption of the Internet of Things (IoT) is increasing day by day. The large number of IoT devices increases the risk of security threats such as (but not limited to) viruses or cyber-attacks. One possible approach to achieve IoT security is to enable a trustworthy IoT environment in IoT wherein the interactions are based on the trust value of the communicating nodes. Trust management and trust assessment has been extensively studied in distributed networks in general and the IoT in particular, but there are still outstanding pressing
issues such as bad-mouthing of trust values which prevent them from being used in practical IoT applications. Furthermore, there is no research in ensuring that the developed IoT trust solutions are scalable across billions of IoT nodes. To address the above-mentioned issues, we propose a methodology for scalable trust management solution in the IoT. The methodology addresses practical and pressing issues related to IoT trust management such as trust-based IoT clustering, intelligent methods for countering bad-mouthing attacks on trust systems, issues of memory-efficient trust computation and trust-based migration of IoT nodes from one cluster to another. Experimental results demonstrate the effectiveness of the proposed approaches.

ABSTRACT: The technological advances in low-cost sensor devices and communication technologies bring rapid increase in development of smart homes and smart environments. The developments in wireless sensor networks (WSN), body area networks (BAN), cloud computing and big data technologies trigger the use of Internet of Things (IoT) in healthcare industry. This poses many challenges such as heterogeneous data fusion, context-awareness, complex query processing, reliability and accuracy etc. Data fusion techniques are used to extract meaningful information from heterogeneous IoT data. It combines individual data from sensor sources to collectively obtain a result, which is more reliable, accurate and complete. Apart from wearable sensors, additional context sensors need to be added to build a context. Health IoT applications has potential benefits of using context-aware data fusion. By using context information, the behavior of the application can be customized according to the specific situation. This paper provides a brief concept of context-aware data fusion and includes data management approach for context-aware systems for healthcare applications. Finally, a context-aware data fusion approach for health IoT is proposed. It includes context acquisition, situation building and reasoning and inference.

https://doi.org/10.1016/j.cose.2018.05.011.
ABSTRACT: Smart objects connected within the Internet of Things (IoT) are often poorly physically protected, low-cost and simple embedded systems connected using Machine to Machine (M2M) and Machine to Cloud (M2C) lightweight communication protocols. These protocols guarantee basic data confidentiality and integrity, securing communication channels using cryptography, but there are still important challenges related to access control in IoT. This work proposes SmartObjectConnect, a new Identity and Access Management mechanism for smart objects based on current Internet federated specifications but adapted, and re-defined in certain aspects, to the specific requirements of this kind of environment. The proposed mechanism allows IoT services deployed locally or in the cloud to identify, to authenticate and to authorize smart objects using HTTP and CoAP. It also allows end users to be identified, authenticated and authorized via these smart objects if possible and/or required. Furthermore, the proposed mechanism is validated and its usability, efficiency and security are evaluated using a real healthcare case study.

doi: 10.1016/j.compeleceng.2018.05.023.
https://doi.org/10.1016/j.compeleceng.2018.05.023.
ABSTRACT: The key goal of Internet of Things (IoT) has been the provision of value-added services based on the ubiquitously available smart devices that can offer diverse services by interacting with each other. However, the paradigm has evolved to its next phase, Social Internet
of Things (SIoT), with the inception of an idea to empower these devices with consciousness. This cognizance enables these smart devices to socialize with each other based on shared context and mutual interests. The Social Internet of Vehicles (SIoV) applies SIoT concepts in the vehicular domain to revolutionize the existing ITS (Intelligent Transport System) by adding value to existing VANET (Vehicular Ad-hoc Network) technology. This paper presents a scalable SIoV architecture based on Restful web technology. Furthermore, this paper emphasizes the importance of web technology to meet the required interoperability to support the composition of numerous services. The paper also discusses the enabling technologies and protocols.

ABSTRACT: The Internet of Things (IoT) brings a set of unique and complex challenges to the field of digital forensics. To take advantage of the volume and variety of data captured by and stored in ubiquitous IoT services, forensic investigators need to draw upon evidence-acquisition methods and techniques from all areas of digital forensics and possibly create new IoT-specific investigation processes. Although a number of conceptual process models have been developed to address the unique characteristics of the IoT, many challenges remain unresolved.

ABSTRACT: Résumé Face aux défis de santé contemporains, le marché des technologies digitales se développe de manière exponentielle. Cet article vise à explorer les profils types d’usage en lien avec des objets connectés et applications de santé, ainsi que les perceptions relatives aux usages, non usages et contextes d’usage. Ainsi, notre objectif est de contribuer au débat scientifique en proposant une étude de terrain en psychologie, focalisée sur les perspectives des consommateurs et les non consommateurs de ces technologies dans un contexte suisse francophone. Pour ce faire, nous avons passé un questionnaire auprès d’une population assistant à un salon grand public sur la thématique de la santé (n = 760). Suivant nos résultats, une majorité de répondants déclare ne pas posséder d’objet connecté/application de santé et un tiers des non usagers ne souhaite pas en avoir. De même, nous constatons une tendance chez des nouvelles générations à posséder ce type de technologies. Les contextes d’usage concernent principalement le suivi de l’activité physique et de l’alimentation, avec un degré de satisfaction élevé par rapport à l’utilisation de ces objets. Par conséquent, nos analyses suggèrent une division au sein de l’échantillon entre une partie qui déclare ne pas avoir ce type de technologie et semble réticent envers ces objets, et une autre qui les utilise durablement. Nos résultats apportent un éclairage sur des usages concrets et contextes d’usage des consommateurs et non consommateurs d’objets connectés/applications de santé au-delà de promesses technoscientifiques qui prédominent actuellement dans nos sociétés. Abstract In a contemporary context of major health challenges, the market of digital technologies has increasingly developed in past years. This article aims to explore main profiles of use in relation to connected objects and health apps, as well as attitudes related to uses, non-uses and contexts of use. Therefore, our objective is to contribute to the scientific debate by proposing an empirical study in psychology that focusses on the perspectives of consumers and non-consumers of these technologies in the French-speaking part of Switzerland. To do this, a survey was conducted among participants of a large public health exhibition (n = 760). According to our results, the majority of respondents declare not having a connected object/health app and a third of non-users does not intend to acquire such technologies. Also, there is a trend among younger generations to have a connected object/health app. Concerning the contexts of use, such technologies are employed to self-track physical activity and eating practices. The degree of satisfaction of such use is rather high. Given these results, our analyses point out a divide within our sample, between individuals who seem resistant and declare not willing to have this kind of technology and those who use it in the long
run. These results cast new light upon concrete uses and contexts of use among consumers and non-consumers of connected objects/health apps beyond techno-scientific promises that prevail today in our societies.


**ABSTRACT:** Internet of Things (IoT) provides ubiquitous intelligence and pervasive interconnections to diverse physical objects. The overall network performance of existing IoT is restricted by limited network lifetime. Hence, energy harvesting technology with energy replenishment from mobile charger is proposed to prolong the network lifetime. Energy harvesting IoT is emerged. Nodes can not only request energy replenishment from the mobile charger, but also transfer surplus energy to the mobile charger for improving energy utilization. This gives rise to bidirectional energy flows in the network. A new paradigm that energy flows coexist with data flows is further resulted in. But there exist great challenges on controlling these flows. Toward centralized flow control, we exploit software defined networking to simplify and optimize network management, thus introduce software defined energy harvesting IoT (SEANET). In our proposed architecture, the data plane, energy plane, and control plane are decoupled to support enhanced communications and flexible energy scheduling. We consider reliable communications for SEANET, and propose to relay data packets among the nodes with high reputation values and sufficient energy. In particular, reputation values of nodes are computed by the multiweighted subjective logic for higher accuracy. Besides, a Nash bargaining game is formulated to solve the benefit allocation problem for energy trading in SEANET. Numerical results indicate that SEANET improves data traffic by reducing packet loss, optimizes energy utilization, and saves energy.


**ABSTRACT:** [...]this paper attempts to bring about the relevance of IoT architecture through a detailed analysis which will help a novice to understand and appreciate the power of IoT in the field of human health and allied fields of medicine. [...]if the hospitals and traffic control is connected, the traffic control system can clear up traffic or alert well in advance of the arrival of ambulance to signals well in advance, so there will be smooth patient commute possible. In developing countries like India, efficacy of a surveillance system is often hindered by the quality and availability of data. [...]the authors have proposed a IoT based Smart Disease Surveillance" the smart device which will keep gathering information from RFID tagged objects be it human or device and give information to health ministry which in turn can analyse the data further to identify patterns or trends and come up with preventive and counter measures. [...]we would like to highlight the importance of designing all the IoT based systems, irrespective of which ever field they are deployed in, be it Medical or automobile or education to be given utmost priority and tested completely for all the vulnerable threats before they are offered to public use.


**ABSTRACT:** Mobile healthcare social networks (MHSNs) have arisen as a very promising brandnew healthcare system, which will greatly improve the quality of life. Moreover, with the help of software defined networking (SDN) paradigm, it can enhance the user experience. To achieve personal health information sharing and the access control among parities, a similar
Symptoms matching process should be executed before that. However, the matching process requires users to exchange symptoms information, conflicting with the ever-increasing privacy concerns on protecting private symptoms from strangers. To realize privacy-preserving symptoms matching, in this paper, we design two blind signature-based symptom matching schemes in SDN-based MHSNs, which can achieve the coarse-grained symptom matching and fine-grained symptom matching, respectively. Moreover, our schemes do not rely on any trusted third party. Security analysis and detailed simulations show that our proposed schemes can realize efficient privacy-preserving symptom matching. Finally, we do comprehensive experimental evaluation on real-world smartphones to demonstrate the practicality of our proposed schemes.


ABSTRACT: When IOT is enlarged with embedded systems technology becomes a model for physical system and environ the technologies such as smart homes, smart cities, smart grid, and transportation, building automation, heat detector, smart cities, smart farming, smart lock, wearable, video surveillance, video recorder, motor devices, fire alarm etc. Nowadays while traveling from one place to another, we are facing the major problem that is traffic on the road. Because of this ambulance are unable to move from that place and have to wait for few times or few hours until the traffic gets cleared. By using GPS location the chauffeur of the ambulance will sent the request to the signal point and the user is connected to the cloud with GSM(global system for mobile communication) technology .when the signal board receives the request spontaneously sends the received acknowledgment. Clinical Decision Support system (CDSS) helps to store and view the huge amount of information about the medical reports of the patients.


ABSTRACT: Industry 4.0 and its other synonyms like Smart Manufacturing, Smart Production or Internet of Things, have been identified as major contributors in the context of digital and automated manufacturing environment. The term industry 4.0 comprises a variety of technologies to enable the development of the value chain resulting in reduced manufacturing lead times, and improved product quality and organizational performance. Industry 4.0 has attracted much attention in the recent literature, however there are very few systematic and extensive review of research that captures the dynamic nature of this topic. The rapidly growing interest from both academics and practitioners in Industry 4.0 has urged the need for review of up-to-date research and development to develop a new agenda. Selected 85 papers were classified in five research categories namely conceptual papers on Industry 4.0, human-machine interactions, machine-equipment interactions, technologies of Industry 4.0 and sustainability. The review primarily attempted to seek answers to the following two questions: (1) What are different research approaches used to study Industry 4.0? and (2) What is the current status of research in the domains of Industry 4.0?. We propose a sustainable Industry 4.0 framework based on the findings of the review with three critical components viz., Industry 4.0 technologies, process integration and sustainable outcomes. Finally, the scope of future research is discussed in detail.

ABSTRACT: Although Big Data, IoT and cloud computing are three distinct approaches that have evolved independently, they are becoming more and more interconnected over time. The convergence of IoT, Big Data and clouds provides new opportunities and results in development of new applications in many fields, including business, healthcare, sciences and engineering. At the same time, various challenges are faced during processing and management of massive amounts of data, as well as during their storage in cloud environments. This special issue presents novel research approaches related to Big Data, IOT and cloud computing. It also discusses the encountered problems and open issues.


ABSTRACT: This paper deals with the internet of things (IoT) which has become a promising and vibrant technology to build powerful smart systems to monitor and analyze various real time operating systems. In recent years a wide range of IoT applications have been developed. To understand the IoT concept, this paper studies the insights into the four building blocks of IoT (Things, Gateways, Network infrastructure, and Cloud infrastructure), three main components of IoT (The Things with Networked Sensors and Actuators, Raw Information and Processed Data Stores, and Analytical and Computing Engines) along with architecture layers (Three Layer, Five Layer, Six Layer, Seven Layer, Cloud, and FOG). The interaction between three components of IoT is also presented. The main contribution of this paper is that it summarizes the IoT, IoT building blocks, components and their interactions along with architecture layers systematically.

http://dx.doi.org/10.1109/ICPHYS.2018.8390803

ABSTRACT: Recent advances in the Internet of Things (IoT) has kindled the possibility of a lot of smart industrial systems. With the evolution of these IoT systems in the form of size and complexity, there is a growing need for a high level of interoperability. Autonomic Computing, with the vision of equipping software systems with self-management capabilities, emerges as a potential catalyst to support interoperability. In this paper, we present an approach which exploits Autonomic Computing to facilitate the development of interoperable IoT systems at semantic level. Our approach extends state-of-the-art IoT ontologies as well as Semantic Web Technologies to fit the MAPE-K (Monitor-Analyze-Plan-Execute-Knowledge) paradigm in Autonomic Computing. By using a Smart Home Use Case, the approach is also evaluated under different performance criteria.


ABSTRACT: The low power wide area network (LPWAN) technologies, which is now embracing a booming era with the development in the Internet of Things (IoT), may offer a brand new solution for current smart grid communications due to their excellent features of low power, long range, and high capacity. The mission-critical smart grid communications require secure and reliable connections between the utilities and the devices with high quality of service (QoS). This is difficult to achieve for unlicensed LPWAN technologies due to the crowded license-free band. Narrowband IoT (NB-IoT), as a licensed LPWAN technology, is developed based on the existing long-term evolution specifications and facilities. Thus, it is able to provide cellular-level QoS, and henceforth can be viewed as a promising candidate for smart grid communications. In this paper, we introduce NB-IoT to the smart grid and compare it with the existing representative communication technologies in the context of smart grid communications in terms of data rate,
latency, range, etc. The overall requirements of communications in the smart grid from both quantitative and qualitative perspectives are comprehensively investigated and each of them is carefully examined for NB-IoT. We further explore the representative applications in the smart grid and analyze the corresponding feasibility of NB-IoT. Moreover, the performance of NB-IoT in typical scenarios of the smart grid communication environments, such as urban and rural areas, is carefully evaluated via Monte Carlo simulations.

doi: 10.1016/j.procs.2018.05.042.
https://doi.org/10.1016/j.procs.2018.05.042.
ABSTRACT: Internet of Things (IoT) being a powerful integration of radio-frequency identification (RFID), sensor and wireless devices, has given a challenging yet powerful opportunity to shape the existing systems thereby making them intelligent. Abounding applications are developed in the recent years. Millions of physical objects are expected to be connected to form a system creating wide distribution network inferencing meaningful deductions from raw data. This survey paper is an effort to describe IoT along with its vision, possible application domains and key challenges faced in making IoT a reality. This paper presents current state-of-art of IoT in a systematic manner. ".

doi: 10.1016/j.automatica.2018.05.016.
https://doi.org/10.1016/j.automatica.2018.05.016.
ABSTRACT: This paper presents a new technique for almost sure asymptotic state tracking, stability and reference tracking of nonlinear dynamic systems by remote controller over the packet erasure channel, which is an abstract model for transmission via WiFi and the Internet. By implementing a suitable linearization method, a proper encoder and decoder are presented for tracking the state trajectory of nonlinear systems at the end of communication link when the measurements are sent through the packet erasure channel. Then, a controller for reference tracking of the system is designed. In the proposed technique linearization is applied when the error between the states and an estimate of these states at the decoder increases. It is shown that the proposed technique results in almost sure asymptotic reference tracking (and hence stability) over the packet erasure channel. The satisfactory performance of the proposed state trajectory and reference tracking technique is illustrated by computer simulations by applying this technique on the unicycle model, which represents the dynamic of autonomous vehicles.

doi: 10.1016/j.future.2018.05.022.
https://doi.org/10.1016/j.future.2018.05.022.

doi: 10.1016/j.future.2018.06.009.
https://doi.org/10.1016/j.future.2018.06.009.
ABSTRACT: Fog Computing is a new computation paradigm, recently emerged from the convergence of IoT, WSN, mobile computing, edge computing, and Cloud Computing, which is particularly well suited for Smart City environments. Fog Computing aims at supporting the development of time-sensitive, location-, social-, and context-aware applications by using computational resources in close proximity of information producers and consumers, such as increasingly common cheap and powerful modern hardware platforms. However, realizing Fog Computing solutions for Smart Cities represents a very challenging task, because of the massive
amount of data to process, the strict resource and time constraints, and the significant
dynamicity and heterogeneity of computation and network resources. These formidable
challenges suggest taking into consideration new information and service model solutions that
explore several trade-offs between processing speed and accuracy. Along these guidelines, we
designed the SPF Fog-as-a-Service platform, which proposes a new information-centric and
utility-based service model and allows the definition of self-adaptive and composition-friendly
services, which can execute either on edge devices or in the Cloud. In numerous evaluations, SPF
proved to be a very effective platform for running Fog services on heterogeneous devices with
significantly different computational capabilities while also demonstrating remarkable ease of
development and management characteristics.

(2018): 11-14
doi: 10.1109/MITP.2018.032501741.
http://dx.doi.org/10.1109/MITP.2018.032501741.
ABSTRACT: There are various interpretations and definitions for the Internet of Things (IoT) and
its components. People often talk about objects, devices, and sensors connecting the virtual
world to the physical world. A recent NIST publication provides insights that might lead to
standardization and promote formalization, logical reasoning, simulations, reliability
measurements, and security risk analysis for the IoT by first examining the things that make up
the IoT.

doi: 10.1109/MITP.2018.032501740.
http://dx.doi.org/10.1109/MITP.2018.032501740.
ABSTRACT: In the Internet of Things (IoT), what can we measure? The authors explore how the
field of metrology might be applicable to the IoT.

Xu, J., J. Yao, L. Wang, et al. "Narrowband Internet of Things: Evolutions, Technologies, and
doi: 10.1109/JIOT.2017.2783374.
http://dx.doi.org/10.1109/JIOT.2017.2783374.
ABSTRACT: We are on the threshold of the explosive growth in the global Internet-of-Things
(IoT) market. Comparing with the legacy human-centric applications, machine type
communication scenarios exhibit totally different characteristics, such as low throughput, delay
insensitivity, occasional transmission, and deep coverage. Meanwhile, it also requires the
terminal devices to be cheap enough and sustain long battery life. These demands hasten the
prosperity of low power wide area (LPWA) technologies. Narrowband IoT (NB-IoT) is the newest
Long Term Evolution (LTE) specification ratified by the third generation partner project as one of
the LPWA solutions to achieve the objectives of super coverage, low power, low cost, and
massive connection. Working in the licensed frequency band, it is designed to reuse and coexist
with the existing LTE cellular networks, which endows it with outstanding advantages in
decreasing network installation cost and minimizing product time-to-market. In this backdrop, it
has been extensively regarded as one of the most promising technologies toward the IoT
landscape. However, as a new LTE standard, there are still a lot of challenges that need to
overcome. This paper surveys its evolutions, technologies, and issues, spanning from
performance analysis, design optimization, combination with other leading technologies, to
implementation and application. The goal is to deliver a holistic understanding for the emerging
wireless communication system, in helping to spur further research in accelerating the broad use
of NB-IoT.

Yang, Heetae, Wonji Lee, and Hwansoo Lee. "IoT Smart Home Adoption: The Importance of
ABSTRACT: The word "smart" has been used in various fields and is widely accepted to mean
intelligence. Smart home service, one of the representative emerging technologies in the IoT era, has changed house equipment into being more intelligent, remote controllable, and interconnected. However, the intelligence and controllability of a smart home service are contradictory concepts, under certain aspects. In addition, the level of intelligence or controllability of a smart home service that users want may differ according to the user. As potential users of smart home services have diversified in recent years, providing the appropriate functions and features is critical to the diffusion of the service. Thus, this study examines the smart home service features that current users require and empirically evaluates the relationship between the critical factors and the adoption behavior with 216 samples from Korea. The moderating effect of personal characteristics on behavior is also tested. The results of the analysis provide various theoretical and practical implications.

http://dx.doi.org/10.1109/JIOT.2018.2792423.  
ABSTRACT: The widespread use of Internet of Things (IoT), especially smart wearables, will play an important role in improving the quality of medical care, bringing convenience for patients and improving the management level of hospitals. However, due to the limitation of communication protocols, there exists non unified architecture that can connect all intelligent things in smart hospitals, which is made possible by the emergence of the Narrowband IoT (NB-IoT). In light of this, we propose an architecture to connect intelligent things in smart hospitals based on NB-IoT, and introduce edge computing to deal with the requirement of latency in medical process. As a case study, we develop an infusion monitoring system to monitor the real-time drop rate and the volume of remaining drug during the intravenous infusion. Finally, we discuss the challenges and future directions for building a smart hospital by connecting intelligent things.

Bibliography on “regulatory/statistical report”

https://search.proquest.com/docview/2046802165?accountid=41838  
ABSTRACT: The Angolan government has announced a series of developments to liberalise the telecommunications market, including licensing a fourth operator. These efforts are welcomed, as they will bring in much-needed competition and potentially lead to improved services. Still, growth opportunities will require a long commitment and significant investments to expand into underserved and rural areas, which limits interest to operators with robust financial backing.

https://search.proquest.com/docview/2056920312?accountid=41838  
ABSTRACT: Data from the Austrian telecoms regulator indicate that the fixed-line voice sector is buoyant, an unusual trend for the majority of European markets. The traditional consumer mobile market is saturated, but T-Mobile has recently seen strong growth in the take-up of M2M/IoT SIMs, while all operators continue to witness demand for data services. Competition between the three MNOs and multiple MVNOs means that ARPU growth will remain limited despite greater usage, given the intense competition in the ‘no frills’ prepaid segment. On the broadband side, demand for higher speed services is ongoing and though fixed broadband numbers began to decline in 2017 the demand for dedicated mobile broadband services remains strong and is driving growth. The newly merged Drei/Tele2 is expected to launch its first converged services in the summer of 2018 and this will inject further competition into the fixed sector. The proposed acquisition of UPC by T-Mobile would create a third strong converged player.
https://search.proquest.com/docview/2046801165?accountid=41838
ABSTRACT: This quarter, we have extended our forecasts for the Bahraini telecoms market from five- to 10 years and added breakdowns of mobile subscriptions by technology (including separate numbers for 3G and 4G). Regulatory updates regarding biometric SIM registration and new ownership limits has led to a severe decline of mobile subscribers during 2017, from inactive prepaid subscriptions. Despite this, the Bahraini mobile market is still highly saturated: we forecast limited growth in mobile subscriptions to 2027. Growth in the mobile market will come from the uptake of 4G services and investment into new technologies, as well as the corporate sector and other VAS. In the wire line sector, regulatory developments for the establishment of a national broadband network are a positive step in the right direction, although we believe mobile broadband will continue to be the main point of access to Internet services.

https://search.proquest.com/docview/2046801722?accountid=41838
ABSTRACT: We have extended our forecasts to 2027; despite the lengthened forecast-period, we have made no significant change to our outlook for the Bangladesh telecoms sector, bar several revisions based on newly-reported data. Mobile penetration rates, which stood at 87.5% in Q417 suggest room for growth, although inactive SIM deactivation will threaten to reduce this number. We have also created 4G forecasts for Bangladesh in view of the launch of LTE services in late-Q118, and we will continue to model our growth forecasts based on new data. Poor regulation and high costs, however, continue to weigh on total cost of ownership of telecoms services and threatens profitability of the sector, which is often viewed by the government as a cash-cow.

https://search.proquest.com/docview/2057588460?accountid=41838
ABSTRACT: We have positively revised our forecasts this quarter for Myanmar to account for the stronger-than-anticipated organic subscriber growth, but have downgraded Laos mobile growth outlook, as previous forecasts were too optimistic. Meanwhile, Cambodia's mobile market has experienced significant growth in the last few years, but the momentum has come at the cost of one of the lowest ARPU levels in the Asia Pacific region. The lack of growth opportunities, coupled with intense price competition and a crowded market, has seen prominent companies exit the market. There is a danger that a recent tax increase on telecommunications companies in Myanmar could also negatively impact foreign investment. In Laos, operators struggle to make a significant return on investment in networks in spectrum as low-value prepaid mobile services predominate and customers have little incentive to upgrade to higher-value products.

https://search.proquest.com/docview/2046801104?accountid=41838
ABSTRACT: Based on a full-year data from the regulators and the operators we have upgraded out mobile growth view for Congo and Congo-Brazzaville. Similarly, BMI believes that 3G/4G growth in these markets will be stronger than expected. Opportunities lie in low penetration rates, which suggest strong medium- and long-term organic growth potential. All three mobile markets are highly prepaid-focused and advanced non-voice data services are largely absent, although 3G is present in all three countries and some operators have started rolling out 4G. Mobile broadband accounts for nearly all of the countries' broadband subscriptions, as fixed providers are hampered by a lack of infrastructure and the high cost of international bandwidth.

https://search.proquest.com/docview/2046241086?accountid=41838
ABSTRACT: France has one of the largest and most advanced IT markets in the region, and it is
also home to a sophisticated local industry that is specialised on high value activities such as integrated circuits, software publishing and consulting. The outlook for the industry and market improved since the 2017 election of Macron, which brought a more pro-business approach to governance, as well as sector-specific positives such as the artificial intelligence strategy announced in 2018. The overall economic outlook does however, still limit potential due to sluggish growth momentum, and there is potential downside in the ongoing Brexit negotiations.

https://search.proquest.com/docview/2046239047?accountid=41838
ABSTRACT: Germany is the largest economy and IT market in Europe, as well as housing an advanced IT industry that is a leading centre for semiconductor manufacturing and software production. The domestic IT spending outlook is for steady expansion to be driven by enterprise investment in software and services where cloud computing will be the key technology trend. The main downside risk is for economic growth deceleration due to external events such as the Brexit process or a financial crisis in the US or China.

"India. Industry Report : Telecommunications 2nd Quarter 2018.." London, United Kingdom: The Economist Intelligence Unit Limited, 2018

https://search.proquest.com/docview/2046237278?accountid=41838
ABSTRACT: The medium- and long-term outlook for Indonesia's telecommunications sector remains positive as the country offers a vast market with a massive consumer base. Rising spending powers and growing mobile technological proliferation will all support innovative uptake out to 2022 and beyond. High-profile investment programmes will help improve Indonesia's national broadband landscape, with the emphasis on low-cost 3G/4G mobile networks. The high cost of accommodating Indonesia's archipelagic nature impedes efforts to develop a national wireline broadband platform. In addition, the proliferation of mobile connections would have a dampening effect on demand for fixed broadband services. We have, therefore, raised our forecasts for 3G/4G adoption and reined in our expectations for overall broadband subscription growth.

"Italy Information Technology Report - Q3 2018." London, United Kingdom: Business Monitor International, 2018
https://search.proquest.com/docview/2046236655?accountid=41838
ABSTRACT: The growth outlook for Italian IT spending remained subdued in the Q318 update as the outcome of elections in May 2018 resulted in the persistence of economic and political uncertainty because of the difficulties of forming a pro-reform coalition due to the success of eurosceptic and populist parties. The weak economic outlook will be a drag on enterprise investment, including for IT products and solutions, and means Italy is expected to continue to trail the leading Western European markets in terms of per capita spending, adoption rates and complexity. There are however, some important positive trends such as digitisation of enterprises and the public sector, and adoption of solutions based on cloud computing and Internet of Things technologies.

"Italy. Industry Report : Telecommunications 2nd Quarter 2018.." London, United Kingdom: The Economist Intelligence Unit Limited, 2018

https://search.proquest.com/docview/2046801036?accountid=41838
ABSTRACT: There is a low-growth outlook for Japan's IT market over the medium term due to weak economic growth and demographic forecast, but it will still be high value in per capita terms in 2022. The outlook is particularly weak for IT hardware where there are also product trends reducing growth potential, in contrast to software and services where cloud computing, advanced automation and the Internet of Things are positives. Meanwhile, there will be an uptick in performance in 2019 and 2020 associated with the country hosting the Olympic Games.

https://search.proquest.com/docview/205397367?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 continue to 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 through to 2022. Still, ARPU is falling as the Tenge has been devaluing against the US Dollar.

https://search.proquest.com/docview/2056920187?accountid=41838
ABSTRACT: We have upgraded our mobile, broadband and 3G/4G forecast based on the latest data from the regulator. This is also supported by the fact that Airtel has recently launched its 4G services in two of the most populous cities in the country. Additionally, convergence trend continues. Several news sources have suggested that Airtel and Telkom Kenya plan to share outlets and infrastructure. We do not believe the acquisition of Airtel Kenya by Telkom Kenya, or the merger of their infrastructure and resources, will be enough to displace Safaricom as the market leader, who can leverage its popular mobile money platform and its superior mobile broadband coverage.

https://search.proquest.com/docview/2056921879?accountid=41838
ABSTRACT: While the Kuwaiti mobile market saw growth in Q417 for the first time since 2015, we maintain that the market is mature and saturated. Moreover, given the large proportion of prepaid SIMs, we expect SIM deactivations to continue in the coming quarters. As such, operators will continue to focus on migration to postpaid plans, 3G and 4G uptake and development of new technologies and over-the-top (OTT) services. Premium 4G packages will drive most growth in the mobile market until 5G has a mass-market business case, and the potential liberalisation of the wireline market could further attract higher degrees of investment in the fibre domain.

https://search.proquest.com/docview/2046801736?accountid=41838
ABSTRACT: The five-year outlook for the telecommunications market remains positive with steady scope for premium 3G/4G services expansion. Revenue growth in Malaysia's mobile market will be increasingly driven by content and services as it is saturated and the three dominant mobile operators are facing increased price-led competition from the entrance of alternative 4G licensees into the market. In the wireline market, new entrant ViewQwest's disruptively-priced fibre broadband service will have a limited impact on Malaysia's fixed broadband market due to its limited scale. However, the emergence of low-cost rivals could compel incumbent Telekom Malaysia to reduce its prices, boosting uptake of broadband, and consequently, IT and other digital content services.
"Norway Telecommunications Report - Q3 2018."
London, United Kingdom: Business Monitor International, 2018
https://search.proquest.com/docview/2054327861?accountid=41838
ABSTRACT: Our mobile forecasts remain unchanged this quarter. In general the Norwegian mobile market is stagnant with the dominant operators seeing their customer bases shrinking. 3G/4G take-up is nearly at its maximum, although the move to high-speed fixed and mobile broadband services is the main driver in Norway's markets. We have revised our fixed broadband forecast down slightly on the back of recent operator data and our estimates. Though the fibre-to-the-home/building (FTTH/B) sector is competitive and growing, cable is fairly stagnant and DSL and dedicated mobile broadband subscriptions are increasingly being supplanted by FTTH/B and 4G. The auction of 700MHz spectrum, expected in H119, will enable further mobile broadband expansion in terms of capacity and services.

"Oman Telecommunications Report - Q3 2018."
London, United Kingdom: Business Monitor International, 2018
https://search.proquest.com/docview/2055396840?accountid=41838
ABSTRACT: Despite a market decline in mobile subscribers during Q417, we have maintained our long term views as the volatility of the market was expected given the high penetration rates. Organic growth in the mobile sector will be elusive and operators will continue to focus on 4G migration and expanding their OTT offers. With no updates on the establishment of a third MNO, we still believe a third MNO would have limited success in attracting organic growth and could possibly lead to a price war, as MVNOs have already been successful in cannibalising the low-cost subscribers away from Omantel and Ooredoo. In the wireline sector we have seen positive growth both in broadband and voice services, which we believe is due to investments in FTTx by operators, but we continue to believe that broadband growth will be driven by mobile services.

"Poland. Industry Report : Telecommunications 2nd Quarter 2018..
London, United Kingdom: The Economist Intelligence Unit Limited, 2018

"Qatar Telecommunications Report - Q3 2018."
London, United Kingdom: Business Monitor International, 2018
https://search.proquest.com/docview/2046237191?accountid=41838
ABSTRACT: We maintain a positive view of the Qatari telecoms market. Despite high penetration rates and the decline of mobile subscriber base, we believe economic diversification and investment into advances technologies will provide opportunities for growth. Both operators have invested heavily in advanced LTE-A mobile broadband services, as well as developing their 5G platforms while also focusing on converged services and the private sector. The strong influx of migrants will continue as the FIFA World Cup approaches, which will allow operators to market services to the high and low-value ends of the market. The wireline sector will follow trends present in the region, with limited to no growth in fixed voice services and uptake of fixed broadband thanks to fibre investments and converged services.

London, United Kingdom: The Economist Intelligence Unit Limited, 2018

"South Africa Telecommunications Report - Q3 2018."
London, United Kingdom: Business Monitor International, 2018
https://search.proquest.com/docview/2046237272?accountid=41838
ABSTRACT: Mobile and wireline data services offer the best growth opportunities in the market. There is scope for upsell, as the majority of South African subscriptions are low-value prepaid SIM’s. However, price competition may also now intensify and operators therefore need to focus on the range and price of their services to retain customers in a market with limited opportunities for organic growth. The key determinant of how the broadband market develops is the
government and how it executes its plan to allocate all high-value LTE spectrum to a national wholesale operator.


https://search.proquest.com/docview/2046241084?accountid=41838
ABSTRACT: The Sri Lankan mobile market is highly saturated, with growth opportunities mainly confined to rural areas. However, the necessary investments needed to increase coverage in rural areas and to expand data services could be curbed by the country's precarious tax regime. The Sri Lankan government plans to levy a monthly LKR200,000 (USD1,300) fee on every mobile tower in the country effective April 2018. The levy would reduce margins of mobile and tower operators and slow mobile growth in Sri Lanka, but it would also provide the catalyst for long-needed consolidation. Inefficient smaller operators would be acquired and the survivors would likely sell their tower assets to specialised towercos, which possess the scale to absorb the higher costs. In doing so, Sri Lanka would undergo a paradigm shift we refer to as 'Operator-As-A-Service'.

https://search.proquest.com/docview/2048143589?accountid=41838
ABSTRACT: We have extended our forecast outlook to 2027 in this update and made modest revisions to account for the latest market trends. In Sudan, we expect 3G/4G access to be a key growth driver of the overall mobile market, on the back of operators such as Zain and Sudani deploying LTE. In the South Sudanese market, we expect the persisting macroeconomic as well as political crises to continue limiting subscription growth in the overall mobile market. The mobile market ended December 2017 with a -20.5% y-o-y contraction rate, indicating chronic systemic issues in the country. The mobile market will not witness recovery till 2020 at the earliest and the contractions will be compounded by the government’s possible telecoms tax in the 2017/18 budget. However, we note that over the long-term, beyond 2021, both markets will have significant organic growth potential that will be unlocked once the economic and security situations begin to brighten.

https://search.proquest.com/docview/2054329993?accountid=41838
ABSTRACT: We have extended our 5-year forecasts to 10-year, with the view that the mobile market will see very gradual declines as the Thai mobile market matures and reliance on multi-SIM ownership decreases. We maintain that competition will be strong to migrate 3G subscribers to 4G, incurring higher costs from marketing expenses and handset subsidies. The broadband market will see growth, while wireline voice subscriptions will continue to decrease. Upcoming spectrum auctions will be positive for operators to develop 4G coverage to audiences in rural areas.

https://search.proquest.com/docview/2047900087?accountid=41838
ABSTRACT: Data from the regulator and operators suggests healthy mobile growth, with roughly 2.8mn new subscribers. While mobile growth will gradually peter off over the coming years, considering the size of the Turkish market, it will still translate into nearly 7mn new subscribers over the next five years to 2022. Meanwhile, 4G growth has been stronger-than-expected and we forecast 4G subscriptions to account for 99.9% of the market by 2022. Yet, this will have little
impact on mobile ARPU’s, which will fall to EUR6.4, despite the additions. Broadband growth will also decelerate, but with forecast penetration at just 20%, there is still scope for latent demand.

"United Kingdom. Industry Report : Telecommunications 2nd Quarter 2018.." London, United Kingdom: The Economist Intelligence Unit Limited, 2018

https://search.proquest.com/docview/2056920430?accountid=41838
ABSTRACT: The launch of 4G in 2016 was a success and the uptake has been exponential, but this has not lead to a significant increase in data usage due to high prices. The ‘equitisation’ of MobiFone and VNPT, which the government has instructed to be completed by 2018 and 2019 respectively, will continue to dominate headlines and attract international investors. The VNPT has already achieved regulatory approval to sell Telecommunication Finance Company Ltd (PTF) to a Southeast Asia Commercial Joint Stock Bank (SeABank).

Bibliography on “satellite communications”

doi: 10.1109/TAES.2018.2849919.
http://dx.doi.org/10.1109/TAES.2018.2849919.
ABSTRACT: Radiation effects in star trackers can cause malfunctions that may lead to loss of communication with the satellite. This paper presents a scheme to protect star tracker images tored in memory against single event upsets (SEUs). Fault injection and resource utilization reports show that, with our protection technique, 99.98% of the SEUs can be corrected using 37% less memory space than Single Error Correction (SEC) Hamming codes. The remaining 0.02% has a negligible effect in the star identification algorithm.

doi: 10.1109/TCOMM.2018.2850813.
http://dx.doi.org/10.1109/TCOMM.2018.2850813.
ABSTRACT: Cooperative cognitive radio for satellite networks is considered, in which the primary network is a satellite network and the secondary network is a cellular network. Due to the lack of multipath in a satellite environment, the channel matrices of the satellite network are assumed to be rank-deficient, which implies that the capacity cannot be increased in proportion to the number of antennas. To overcome the rank deficiency, we propose a novel cooperative transmission strategy where the base station or mobile users in the cellular network both help the communication of the satellite network and transmit and receive their own streams. Not only does the secondary network carefully adjust the number of transmitted streams to avoid causing interference to the primary network beyond a certain threshold; it also provides alternative signal paths for the primary network, thereby effectively increasing the channel ranks of the primary network. We obtain both the achievable sum degrees of freedom (DoF) and the sum rate under the proposed scheme, and we also derive upper bounds on the sum DoF. Using analytical and numerical analysis, we show that our scheme significantly improves the overall system throughput compared to the satellite network alone, without cognitive access.

ABSTRACT: The Global Positioning System (GPS) has become an effective tool for estimating ionospheric total electron content (TEC). One of the critical factors affecting ionospheric TEC estimation from GPS data is the differential code biases (DCBs) inherent in both GPS receivers and satellites. To investigate the factor that affects the receiver DCB, we consider the relationship between the receiver DCB and the grounding of an antenna. GPS data from 9 stations in South Korea from three periods (the years 2009, 2014, and 2017) were used in the analysis. It was found that a significant jump ($\sim8$–$13$ ns, or $\sim23$–$37$ TECU) in hourly DCB time series occurred simultaneously at the two different sites when an antenna is changed from a grounded to the non-grounded state. Thus, our study clearly identifies that the grounding of GPS equipment is a factor of the receiver DCB changes. 

http://doi.acm.org/10.1145/3204455.

ABSTRACT: This article proposes a method to find intersections at which cars tend to deviate from the optimal route based on global positioning system (GPS) tracking data under the assumption that such deviations indicate that car navigation systems (CNSs) and road signage are not readily available. If the intended route is known, deviations can be enumerated by comparing the intended route with the vehicle’s actual route as observed by a GPS; however, the intended route is unknown and can differ from the route suggested by a CNS. To identify intersections with high deviation rates without knowing intended routes, we exhaustively sampled subsequences from each vehicular GPS track, and detected deviations from the optimal route for the subsequences. Although the detected deviations are not always caused by driver confusion, accumulating such erroneous detection results would yield a meaningful difference in the number of accumulated deviations at each intersection. We applied the proposed method to 3,843 GPS tracks collected from visitor drivers in the city of Kyoto. Thresholding the estimated deviation rate yielded 39 intersections from 14,543 candidates. The results show a certain level of correlation between obtained deviations and rerouting locations from actual CNS data. We also found several intersections where faulty route suggestions are provided by CNSs.

doi: 10.1007/s11235-017-0401-5.
https://doi.org/10.1007/s11235-017-0401-5.

ABSTRACT: Global positioning system (GPS) has undergone intensive development, starting as an advanced specialized tool to a general-purpose gadget used in our daily lives. GPS exists in new technologies, applications, and consumer products, especially in smartphones and tablets. In a GPS receiver design, power consumption and localization accuracy are critical factors that affect the outcome of a GPS receiver system. Theoretically, increasing the number of required tracking channels in a GPS baseband receiver increases the design complexity and size of this system. Thus, power consumption can significantly increase. The receiver should acquire and track numerous satellites to improve the location accuracy of a position, thereby indicating that the receiver requires a high number of tracking channels. Thus, optimizing these tracking channels to balance the conflict among performance parameters is a difficult and challenging task. This paper presents a technique for order performance by similarity to ideal solution (TOPSIS) for solving complex situations for multi-criteria optimization of the tracking channels of GPS baseband telecommunication receiver. Nine operation modes of GPS receiver were evaluated by each design parameter, such as power consumption, localization accuracy, and time with no position available for static and dynamic positioning. Then, the TOPSIS was utilized and implemented to measure and rank the overall performance of tracking channel selection. Results of this study indicate that (1) multi-objective optimization is a reliable strategy for visualizing the trade-off among the GPS design parameters and providing a dynamic power consumption planning. (2)
The best aggregated performance of the GPS receiver occurs when the number of tracking channels equals five and six for static and dynamic positioning, respectively. (3) The most frequent number of available satellites is eight, whereas the other number of satellites is a rare case to acquire. However, GPS standards require that available GPS satellites are constantly 12 at any time and place.


**ABSTRACT:** Fragmentation events, caused by the collision of two objects in space, have been a significant source of space debris objects over a cumulative five decades of space activity. Current proposals by different commercial entities aim to launch constellations comprising thousands of satellites in Low Earth Orbit (LEO), which would result in an increase of more than five times the number of currently active satellites in a region where debris objects are most concentrated. The Inter-Agency Space Debris Coordination Committee (IADC) has already recognized the potential influence of large constellations on the LEO environment and the subsequent need to assess whether current mitigation guidelines will be adequate moving forward. Given developments for such constellations are already underway, independent research efforts ahead of any revision to current IADC guidelines could be of great value not only to the organizations involved in their operation, but also to policymakers and existing space users. This paper evaluates the probability of collisions for mega-constellations operating in the current LEO debris environment under best and worst-case implementation of current mitigation guidelines. Simulation studies are performed using the European Space Agency's (ESA) MASTER-2009 debris evolutionary model, and the specifications of the proposed OneWeb and SpaceX constellations as example mega-constellations. Multiple scenarios are then tested to assess mitigation measures and their ability to minimize the probability of fragmentation events and the creation of new debris in LEO.


**ABSTRACT:** A new method of deriving satellite manoeuvring information from historical two-line element (TLE) data is proposed. The historical manoeuvres of a satellite are detected by identifying abnormal data segments in the TLE derived time series of selected orbital parameters (semi-major axis and inclination). Firstly, moving window approach is used to divide the time series into a series of equal-length data segments. Secondly, two anomaly indexes are introduced to measure the anomaly degree of the semi-major axis segment and the inclination segment with respect to the propagated states. Finally, the corresponding detection thresholds are separately derived by analysing the anomaly indexes of the two types of data segments indicative of orbit manoeuvre. When the anomaly index of a semi-major axis segment or inclination segment exceeds the corresponding threshold, a specific type of orbit manoeuvre with specific magnitude is declared. The manoeuvre detection results of two low Earth orbiting satellites indicate that the proposed method can efficiently eliminate data noise interference and accurately detect historical manoeuvres. Furthermore, manoeuvres with designated magnitudes can be exclusively detected by adjusting the user-specified arguments in the threshold expression levels.


**ABSTRACT:** In this paper, a new in-flight alignment (IFA) method of the integrated inertial navigation system (INS) and global positioning system (GPS) is proposed for the aerial mapping applications. The integrated INS/GPS measurement system is used to provide attitude
information and, based on this, the exterior orientation parameters can be derived for the purpose of direct georeference of the airborne imagery. The IFA plays an important role in achieving high accuracy of attitude estimation. However, the statistics of INS noise is usually time-varying and seriously degrades the estimation accuracy in practice. In order to solve the problem, two strategies are taken into account in the paper. First, an adaptive estimation algorithm is developed by adjusting the window size of data processing in IFA, so that the covariances of INS noise can be estimated and updated online to improve the state estimation performance. Second, a strong tracking filter is applied to guarantee the convergence of the IFA algorithm as well as its robustness against parameter perturbations and trajectory maneuvers. Finally, an aerial mapping experiment is implemented, and the results demonstrate the effectiveness of the proposed method.

Bibliography on “semantic web”

ABSTRACT: A Semantic Web Service (SWS) is a web service attached with a description that defines its semantic in a computer-interpretable language. This semantic description plays an essential role in the automation of tasks in the web services lifecycle and fills a semantic gap existing in the standard web service technologies. Like any software, an SWS needs to be tested to ensure a certain level of quality. The semantics also plays an important role in the testing process since it can be used as input for testing activities such as the design of test cases and the definition of oracles. In this context, this paper aims to identify and characterize the existing testing initiatives for SWSs by conducting a Systematic Mapping. A rigorous process was followed by defining research questions, conducting a search for primary studies in scientific databases, selecting papers according to pre-defined criteria and analyzing the papers to answer the research questions and to identify trends and gaps in the area. As a result, a total of 43 papers were selected and analyzed concerning a defined classification scheme that reflects the area. The analysis showed the primary goals and issues addressed by the initiatives, the testing techniques applied, evidence on the maturity of the area and trends. ".

ABSTRACT: Recent advances in the Internet of Things (IoT) has kindled the possibility of a lot of smart industrial systems. With the evolution of these IoT systems in the form of size and complexity, there is a growing need for a high level of interoperability. Autonomic Computing, with the vision of equipping software systems with self-management capabilities, emerges as a potential catalyst to support interoperability. In this paper, we present an approach which exploits Autonomic Computing to facilitate the development of interoperable IoT systems at semantic level. Our approach extends state-of-the-art IoT ontologies as well as Semantic Web Technologies to fit the MAPE-K (Monitor-Analyze-Plan-Execute-Knowledge) paradigm in Autonomic Computing. By using a Smart Home Use Case, the approach is also evaluated under different performance criteria.

ABSTRACT: Jointly launched in mid-2011 by major search engines like Google and Bing,
Schema.org is designed to facilitate structured and knowledge graph–centric search applications on the Web. The Web Data Commons project has crawled increasing amounts of Schema.org data in recent years, providing a golden opportunity for socio-technological data studies that consider the semantics of content. The authors present empirical studies of organizations in three economic sectors that expose semantically linked Schema.org annotations.

Bibliography on “smart cities”

ABSTRACT: Internet of things (IOT) paradigm is changing day to day lives towards sophisticated automation and enhancing living standards of our societies. The most of â€œThingsâ€ in IOT are having limited power, storage, and computational capabilities. Therefore data is collected, manipulated and stored in the clouds. The benefit of â€œanytime and anywhereâ€ access of data gives rise to serious security and privacy issues and lead to many problems like exposure of userâ€™s personal and sensitive information and loss of the trust between parties. These challenges need to be addressed with adequately with utmost care. From an operational point of view, the major concern for IOT is â€œPrivacyâ€. In this article, we discuss difference between privacy and security. Further, and present several approaches and techniques that are being used to fulfill the privacy requirements. This comparative study also contains advantages and disadvantages of the mentioned approaches. Finally, we discuss the future opportunities, trends, and provide recommendations about the privacy for IOT based applications and services.

https://doi.org/10.1016/j.scs.2018.06.006.
ABSTRACT: As a consequence of the spread of the Smart City paradigm, many cities are implementing Smart Mobility initiatives that are more suitable than other fields of investment for the dissemination of new technologies. This article is an empirical study about 11 Italian metropolitan cities, to investigate whether and to what extent the Smart City paradigm, applied to the mobility sector, is able to enhance the efficiency and liveability of urban areas. Through a set of parameters and the grouping of the main Smart Mobility initiatives, this study seeks to answer the following research question: as a result of the Smart City approach, have the Italian metropolitan cities enhanced their mobility system? This study highlights the fact that the application of the Smart City paradigm has had different effects on urban mobility systems, as the potential application of the model in question can be limited by the poor starting position of some cities. Indeed, in cities with a well-functioning mobility system, ICTs are a means to improve the efficiency of the transport system, while in metropolitan contexts where there is a lack of transport infrastructure, the use of new technologies becomes only a label rather than being integrated into urban policies. “.


ABSTRACT: Engagement can be defined as a psychological state in which an individual focuses all her attention and enjoys the activity she is doing. The literature highlights the importance of improving this in citizen participation by governments and administrations. However, to the best of our knowledge, the literature does not offer clues about how engagement in citizen participation can be improved. This paper aims to develop a theoretical framework of citizen engagement for citizen participation in the context of smart cities. To this end, we first provide a definition of engagement, and describe some of its main characteristics. Next, we present a review of the literature on citizen participation tools in smart cities, analyzing if such tools do influence engagement attributes. The main outcomes of the study are the elaboration of a theoretical framework that integrates characteristic attributes of engagement in the field of citizen participation, and the identification of participation tools analyzing whether they can be designed to increase citizen engagement levels. El engagement puede definirse como un estado psicológico en el que el individuo centra toda su atención y disfruta de la actividad que está realizando (Salanova y Schaufeli, 2004). La literatura resalta la importancia de la búsqueda de ese estado psicológico por parte de gobiernos y administraciones en el ámbito de la participación ciudadana. Sin embargo, hasta donde llega nuestro conocimiento, las claves previstas en la literatura sobre cómo puede fomentarse el engagement en participación ciudadana no han sido estudiadas en profundidad. Abordando este hecho, este artículo tiene como objetivo elaborar un marco teórico del engagement del ciudadano en participación ciudadana dentro de las ciudades inteligentes. Para ello, en primer lugar, se ofrece una definición del concepto y se identifican una serie de atributos que lo caracterizan. Además se presenta una revisión de la literatura sobre herramientas de participación en ciudades inteligentes que pueden estar relacionadas con determinados atributos del engagement. Los resultados principales del estudio son la elaboración de un marco teórico con aplicaciones prácticas que integra atributos característicos del engagement en el campo de la participación ciudadana, y la identificación de aspectos que pueden contener las herramientas de participación para incrementar los niveles de engagement de los ciudadanos.


ABSTRACT: Studying the governance of a smart city food system, this paper offers a critical synthesis of the literature on the governance of smart cities and goes on to use the insights it offers as a basis to examine the claim made about the food system emerging from the 2015 World Expo in Milan. In particular, the claim made about the infrastructure developments underlying this urban and regional innovation as doing nothing less than building a smart city food system from the ground up. In going some way to qualify this claim, the paper suggests that while such a statement does reflect much of what is currently understood about the infrastructure developments underlying this urban and regional innovation, the claim made about the World Expo building a smart city food system from the ground up, offers more of an insight into the state-of-the-art on the governance of smart cities than it does into the critical nature of the food system surfacing from the Expo in Milan. The paper suggests the reason for the partial synthesis of smart cities as food systems, rest with the claims made about the Expo in Milan failing to recognise the: (1) need for the governance of smart cities not to be in strictly technical, but wider social, cultural and environmental terms; (2) requirement for the infrastructure developments underpinning this urban and regional innovation to also support the sustainable growth of food systems; (3) pressure there is to re-direct the participatory governance agenda of smart cities towards urban policies whose management of natural resources is wise in meeting the human expectation of and social need for food and requirement there is for the municipal strategies and capacity-building exercises underpinning food systems, to be systematic in cultivating an environment able to support the inclusive growth of them across regions; (4) call for the resilience of any such sustainable and inclusive growth to constitute a material condition of the infrastructure developments underlying this urban and regional innovation and surfacing as a smart food system in the City of Milan.

**ABSTRACT:** The emergence of 5G technology has enabled a fast development of the wireless communication based on Big Data, Internet of Things (IoT), cloud computing, edge and fog computing. The development has contributed to enhance the lifestyle of the citizens in smart cities. Different applications are provided with 5G technologies to solve problems of the citizens. In this article, we take advantage of the 5G technology to develop a framework of images’ classification to satisfy consumers in smart cities. As a case study, we develop an automatic date fruits classification system in the framework to satisfy date fruits consumers interest. In the proposed system, a deep learning approach is utilized with fine-tuning pre-trained models. The edge computing and caching are used to provide a low latency and real-time transmission of the date fruits’ images. The experimental results show the viability of the proposed framework.


**ABSTRACT:** Cities worldwide are attempting to transform themselves into smart cities. Recent cases and studies show that a key factor in this transformation is the use of urban big data from stakeholders and physical objects in cities. However, the knowledge and framework for data use for smart cities remain relatively unknown. This paper reports findings from an analysis of various use cases of big data in cities worldwide and the authors’ four projects with government organizations toward developing smart cities. Specifically, this paper classifies the urban data use cases into four reference models and identifies six challenges in transforming data into information for smart cities. Furthermore, building upon the relevant literature, this paper proposes five considerations for addressing the challenges in implementing the reference models in real-world applications. The reference models, challenges, and considerations collectively form a framework for data use for smart cities. This paper will contribute to urban planning and policy development in the modern data-rich economy.


**ABSTRACT:** Fog Computing is a new computation paradigm, recently emerged from the convergence of IoT, WSN, mobile computing, edge computing, and Cloud Computing, which is particularly well suited for Smart City environments. Fog Computing aims at supporting the development of time-sensitive, location-, social-, and context-aware applications by using computational resources in close proximity of information producers and consumers, such as increasingly common cheap and powerful modern hardware platforms. However, realizing Fog Computing solutions for Smart Cities represents a very challenging task, because of the massive amount of data to process, the strict resource and time constraints, and the significant dynamicity and heterogeneity of computation and network resources. These formidable challenges suggest taking into consideration new information and service model solutions that explore several trade-offs between processing speed and accuracy. Along these guidelines, we designed the SPF Fog-as-a-Service platform, which proposes a new information-centric and utility-based service model and allows the definition of self-adaptive and composition-friendly services, which can execute either on edge devices or in the Cloud. In numerous evaluations, SPF proved to be a very effective platform for running Fog services on heterogeneous devices with significantly different computational capabilities while also demonstrating remarkable ease of development and management characteristics.
Bibliography on “social media”

ABSTRACT: This study explores how an online market platform, BlaBlaCar, has been able to organize the nascent market of inter-city shared mobility. Data were gathered via three in-depth interviews with BlaBlaCar’s managers, more than two hundred newspaper articles and other archival information. Using an inductive qualitative approach, the case analysis reveals that in claiming, demarcating and controlling the market, BlaBlaCar has adopted a unique course of action while also leveraging on specific social media functional building blocks for creating, extending and locking-in the community of its users. The study concludes with implications for both management theory and practice.

https://doi.org/10.1016/j.giq.2018.05.004.
ABSTRACT: Studies in digital government research have not sufficiently considered the internal networking aspects of social media beyond interactions with the public. This article examines the function of social media as informal networks of professional practice within the public sector. The empirical study is based on a longitudinal analysis of the Twitter hashtag community #localgov used by British local government actors (dataset of 235,681 tweets posted within 2013–2015). In a period of significant budget reductions, Twitter conversations involved a wide range of responses about the impact of the cuts and future of services. #Localgov shows high level of cross-service exchanges in the institutional sharing of good practice while the dynamics of interaction reflect the traditional landscape of intergovernmental relationships in England. We argue about the importance and characteristics of hashtag communities like #localgov as spaces that bring together different actors with a public sector interest. ".

https://doi.org/10.1016/j.tele.2018.01.005.
ABSTRACT: Actions towards an effective city management require a focus on citizens, and it is a role of local governments to search for ways to provide their participation in the decision-making process. Among other information technology resources, local governments use social platforms thus facing the challenge of extracting and classifying information for strategic use. The objective of this study is to analyze Twitter information to contribute to the strategic digital city. The research methodology used was a case study of a Brazilian city. Twitter was analyzed, and the information assessed according to its characteristics, source, nature, quality, intelligence and organizational level. Results reveal Twitter allows communication, rudiments of public services and exchange and sharing information on municipal themes inherent to strategic digital cities. Information has quality and intelligence to serve the strategic level of government. The conclusion confirms that Twitter enhances transparency and strengthens bonds between local government and citizens. ".

ABSTRACT: Online social networks (OSN) have today reached a remarkable capillary diffusion. There are numerous examples of very large platforms people use to communicate and maintain relationships. People also subscribe to several OSNs, e.g., people create accounts on Facebook, Twitter, and so on. This phenomenon leads to online social internetworking (OSI) scenarios where users who subscribe to multiple OSNs are termed as bridges. Unfortunately, several important features make the study of information propagation in an OSI scenario a difficult task, e.g., correlations in both the structural characteristics of OSNs and the bridge interconnections among them, heterogeneity and size of OSNs, activity factors, cross-posting propensity, and so on. In this article, we propose a directed random graph-based model that is amenable to efficient numerical solution to analyze the phenomenon of information propagation in an OSI scenario; in the model development, we take into account heterogeneity and correlations introduced by both topological (correlations among nodes degrees and among bridge distributions) and user-related factors (activity index, cross-posting propensity). We first validate the model predictions against simulations on snapshots of interconnected OSNs in a reference scenario. Subsequently, we exploit the model to show the impact on the information propagation of several characteristics of the reference scenario, i.e., size and complexity of the OSI scenario, degree distribution and overall number of bridges, growth and decline of OSNs in time, and time-varying cross-posting users propensity.


ABSTRACT: This study examines the extent to which politicians' visibility in traditional news coverage explains individual politicians' visibility on social media, and vice versa. We also explore whether these relationships depend on commonly identified characteristics of individual politicians. We collected data for all elected candidates from the 2012 Dutch national elections covering each 15 days prior to the election day (N = 2250). This includes 2736 newspaper articles and 77,597 mentions on Facebook and Twitter. Our results show that the traditional news agenda and social media agenda impact each other, but that the reciprocal influence is not independent of politician characteristics.


ABSTRACT: Social media has been widely adopted by emergency management organizations and agencies to disseminate emergency messages to the public. However, the traditional one-to-all post-and-wait practice does not serve this purpose well in the complex and dynamic environments in disasters and extreme events. In this paper, we examine an engaged social media node targeting strategy to facilitate message propagation, and propose an optimization scheme incorporating this strategy to determine the optimal sets of nodes to target with planning horizon length, source messaging capacity, social network characteristics and user behaviors considered. Experiments, computational results and managerial insights are discussed.


ABSTRACT: Social networking big data is a collection of extremely big data sets with great diversity in social networks. Social networking big data is also a core component for the social influence analysis and the security. However, current work on social networking big data focuses
on information processing, such as data mining and analysis. There are two important issues for social networking big data, one is how to conduct social network analysis; the other is how to ensure security. This special issue aims to solicit original research that discuss foundational theories, new technologies, security, trust and privacy of social networking big data; and to provide a review on the progress in opportunities, solutions, and challenges of social networking big data.

doi: 10.1016/j.ijinfomgt.2018.05.004.
https://doi.org/10.1016/j.ijinfomgt.2018.05.004.

**ABSTRACT:** Big data created by social media and mobile networks provide an exceptional opportunity to mine valuable insights from them. This information is harnessed by business entities to measure the level of customer satisfaction but its application in disaster response is still in its inflection point. Social networks are increasingly used for emergency communications and help related requests. During disaster situations, such emergency requests need to be mined from the pool of big data for providing timely help. Though government organizations and emergency responders work together through their respective national disaster response framework, the sentiment of the affected people during and after the disaster determines the success of the disaster response and recovery process. In this paper, we propose a big data driven approach for disaster response through sentiment analysis. The proposed model collects disaster data from social networks and categorize them according to the needs of the affected people. The categorized disaster data are classified through machine learning algorithm for analyzing the sentiment of the people. Various features like, parts of speech and lexicon are analyzed to identify the best classification strategy for disaster data. The results show that lexicon based approach is suitable for analyzing the needs of the people during disaster. The practical implication of the proposed methodology is the real-time categorization and classification of social media big data for disaster response and recovery. This analysis helps the emergency responders and rescue personnel to develop better strategies for effective information management of the rapidly changing disaster environment.


**ABSTRACT:** This study examined differences by age, gender, and race/ethnicity in the use of technology and interactive social media from 2013 to 2016 using data from nationally-representative samples of U.S. 8th and 10th graders (N = 40,389). Results indicated that 8th graders watch TV and play video games more than 10th graders; boys play more video games and use interactive social media less than girls; and Black adolescents use most forms of media more often than those from other race/ethnic groups, with the exception of using the computer for school reported most often by Asian adolescents. Mean differences showed that adolescents who spend more time on homework spend more time using the computer for school, and spend less time watching weekday TV, playing video games, and talking on the phone. Adolescents with higher grades spend more time using the computer for school and spend less time on all other types of technology and interactive social media, except for watching weekend TV. Multivariable logistic regression results indicate that watching TV on a weekday was consistently negatively associated with academic outcomes and using the computer for school was consistently positively associated with academic outcomes.

doi: 10.1016/j.cose.2018.05.015.
https://doi.org/10.1016/j.cose.2018.05.015.
ABSTRACT: Social media platforms allow billions of individuals to share their thoughts, likes and dislikes in real-time, without any censorship. This freedom, however, comes at a cyber-security risk. Cyber threats are more difficult to detect in a cyber world where anonymity and false identities are ever-present. The speed at which these deceptive identities evolve calls for solutions to detect identity deception. Cyber-security threats caused by humans on social media platforms are widespread and warrant attention. This research posits a solution towards the intelligent detection of deceptive identities contrived by human individuals on social media platforms (SMPs). Firstly, this research evaluates machine learning models by using attributes such as the "profile image" found on SMPs. To improve on the results delivered by these models, past research findings from the field of psychology, such as that humans lie about their gender, are used. Newly engineered features such as "gender-derived-from-the-profile-image" are evaluated to grasp whether these features detect deception with greater accuracy. Furthermore, research results from detecting non-human (also known as bot) accounts are also leveraged to improve on the initial results. These machine learning results are lastly applied to a proposed model for the intelligent detection and interpretation of identity deception on SMPs. This paper shows that the cyber-security threat of identity deception can potentially be minimized, should the vulnerability in the current way of setting up user accounts on SMPs be re-engineered in the future.

Bibliography on “spectrum management/spectrum sharing”

ABSTRACT: Cognitive Radios (CR) propose for an opportunistic access to new Secondary Users (SUs) in the white spaces existing in the already licensed radio spectrum on a non-interfering basis with the current Primary Users (PUs). The Secondary Spectrum Markets (SSMs) have lower operating costs as compared to those for the Primary Licensed Operators (PLOs) as they do not require to license dedicated spectrum bands for their operation. This naturally makes CR a disruptive technology and its emergence is inevitably subject to economic viability challenges and technological hijack threats by the PLOs. The existing literature does not address the possible use of economic malpractices by the PLOs to raise the spectrum reuse costs to be no longer affordable by their direct competitors. This research proposes a secondary spectrum trade model based on a carrot and stick rule to keep the business in the SSMs competitive and fair using monetary incentives and penalties based on participation behaviors. A methodology for QoS optimization using Genetic Algorithms (GAs) with respect to those requested by the SUs is implemented. The simulation results indicate that the overall revenues of the participating PLOs with unfair bidding behaviors are lowered due to the incurrence of penalty costs.

ABSTRACT: The paper aims to explore accountability as a virtue and as a mechanism (Bovens, 2010) of global telecommunication operators in the process of governing spectrum and of broadband development. The two concepts of accountability are juxtaposed with operators' corporate reporting practices and spectrum licensing procedures of European national regulatory authorities (NRAs) and are analysed accordingly. The paper argues that spectrum licensing within the European Union regulatory context offers possible venues for policy intervention, rendering telecom providers to take an account on their global operations. Corruption is the case study to
draw connections to public accountability, with a focus on the information and communication technology global market activity.

doi: 10.1109/MCOM.2018.1700388.
http://dx.doi.org/10.1109/MCOM.2018.1700388.
ABSTRACT: Shortage of free spectrum is a critical problem in deploying new wireless systems, and no standard frequency assignment mechanism exists for cognitive radio systems at present. In this tutorial, we treat that problem in a holistic way, as a part of solving a puzzle of selection of changeable characteristics of system devices. The goal is to achieve best results, which implies matching to the local signal environment. We take into account both intended and incidental interactions, among the system devices and with their environment. We propose meta-heuristics that puts together the concepts of multidimensional space with elements of graph theory and genetic and linear programming algorithms. That approach is service- and technology-agnostic, applicable to non-cognitive systems too.

https://doi.org/10.1016/j.procs.2018.03.020.
ABSTRACT: This paper proposes a reinforcement learning(RL) model for cognitive radio(CR). By using this model, cognitive base station(CBS) can perform two-step decision of channel allocation, that is, whether to switch the channel for CR users and how to select the best channel if the CBS decides to switch, to avoid excessive channel switch and improve the throughput of the unlicensed user. Also, the performance of RL spectrum management depends highly on exploration strategy. Epsilon-greedy exploration method is used to solve the balance problem of RL decision process. Simulation results show that the implementation of the epsilon-greedy in each decision step has a remarkable effect on the system performance. The proposed method is superior to traditional RL spectrum allocation scheme in improving unlicensed users’ throughput and reducing channel switch. ".

Bibliography on “telecommunication/ICT markets”

ABSTRACT: Purpose This paper is concerned with the current decision of the European Commission regarding Google’s comparison shopping service (Google Shopping). In 2017, the Commission has fined Google €2.42 billion for abusing its dominant position as a search engine by giving illegal advantage to Google Shopping. Consequently, Google has to stop its illegal conduct. In particular, the decision requires Google to treat rival comparison shopping services and its own service equally. The purpose of this paper is to analyse the decision from a perspective of two-sided markets. Google Shopping is an integrated service of Google Search and acts as an intermediary between companies, offerings products in the internet and people searching for products in the internet. This complies with the typical conditions of a two-sided market. From the perspective of sellers of goods and services in Europe, Google may be seen as a gatekeeper to the potential customers and thus as an essential facility. In the light of the current decision, this paper provides a possible regulation alternative. It is shown that Google Shopping represents a typical club good, so that welfare-optimising rules must be adhered to. In
In this context, it should be noted that in the current Google Shopping search results, artificial rivalry is created among sellers so as to ensure maximum willingness to pay for a top listing. The solution proposed in this paper entails a summary score list of all sellers of a particular product, for which a turnover-dependent contribution should be required, instead of a reduced score list, where positions are sold by auctions. Design/methodology/approach This paper uses methods of two-sided markets and public good theory. Findings It is shown that Google Shopping represents a typical club good, so that welfare-optimising rules must be adhered to. In this context, it should be noted that in the current Google Shopping search results, artificial rivalry is created among sellers so as to ensure maximum willingness to pay for a top listing. The solution proposed in this paper entails a summary score list of all sellers of a particular product, for which a turnover-dependent contribution should be required, instead of a reduced score list, where positions are sold by auctions. Originality/value To the best of the author's knowledge, it is the very first paper about the decision of the European Union (06/2017) concerning Google Shopping.. Purpose This paper is concerned with the current decision of the European Commission regarding Google's comparison shopping service (Google Shopping). In 2017, the Commission has fined Google €2.42 billion for abusing its dominant position as a search engine by giving illegal advantage to Google Shopping. Consequently, Google has to stop its illegal conduct. In particular, the decision requires Google to treat rival comparison shopping services and its own service equally. The purpose of this paper is to analyse the decision from a perspective of two-sided markets. Google Shopping is an integrated service of Google Search and acts as an intermediary between companies, offerings products in the internet and people searching for products in the internet. This complies with the typical conditions of a two-sided market. From the perspective of sellers of goods and services in Europe, Google may be seen as a gatekeeper to the potential customers and thus as an essential facility. In the light of the current decision, this paper provides a possible regulation alternative. It is shown that Google Shopping represents a typical club good, so that welfare-optimising rules must be adhered to. In this context, it should be noted that in the current Google Shopping search results, artificial rivalry is created among sellers so as to ensure maximum willingness to pay for a top listing. The solution proposed in this paper entails a summary score list of all sellers of a particular product, for which a turnover-dependent contribution should be required, instead of a reduced score list, where positions are sold by auctions. Design/methodology/approach This paper uses methods of two-sided markets and public good theory. Findings It is shown that Google Shopping represents a typical club good, so that welfare-optimising rules must be adhered to. In this context, it should be noted that in the current Google Shopping search results, artificial rivalry is created among sellers so as to ensure maximum willingness to pay for a top listing. The solution proposed in this paper entails a summary score list of all sellers of a particular product, for which a turnover-dependent contribution should be required, instead of a reduced score list, where positions are sold by auctions. Originality/value To the best of the author's knowledge, it is the very first paper about the decision of the European Union (06/2017) concerning Google Shopping.


ABSTRACT: Purpose The purpose of this paper is to examine in a fully up-to-date manner the position in respect to the licensing and launch of long-term evolution (LTE) in a region that attracts relatively little attention when treated as a whole because the emphasis is usually upon the very large individual markets (China, India and Japan) contained within it. The purpose is also to examine the role of international groups and the extent to which the licensing of LTE can make a difference to the structure of mobile markets in the region. Design/methodology/approach The initial step was to compile extensive databases with respect to the licensing and launch of high-speed networks in the region ? defined both narrowly and also to encompass countries that are often treated as part of the Middle East ? arranged so as to emphasise the status of dominant incumbents. There is a discussion of new entry and its potential to disrupt incumbents. Findings For historical reasons, the region contains countries that have strong differences whether defined in terms of economic, social or cultural characteristics, and hence it has not been easy for a network with international aspirations to expand outside its
Attempts to introduce competition via new licences has also been problematic because of the strong, and sometimes very large, incumbents already present. Attempts to introduce competition via new licences has also been problematic because of the strong, and sometimes very large, incumbents already present. Atte

Research limitations/implications This is necessarily an overview that uses selected data to describe the overall picture because of the substantial number of quite different markets surveyed. Practical implications It is possible to forecast how certain structural changes will occur ? primarily the withdrawal of international groups such as Millicom that prefer to concentrate upon other regions. Originality/value The databases that underpin the analysis are author-compiled and entirely original.; Purpose The purpose of this paper is to examine in a fully up-to-date manner the position in respect to the licensing and launch of long-term evolution (LTE) in a region that attracts relatively little attention when treated as a whole because the emphasis is usually upon the very large individual markets (China, India and Japan) contained within it. The purpose is also to examine the role of international groups and the extent to which the licensing of LTE can make a difference to the structure of mobile markets in the region. Design/methodology/approach The initial step was to compile extensive databases with respect to the licensing and launch of high-speed networks in the region ? defined both narrowly and also to encompass countries that are often treated as part of the Middle East ? arranged so as to emphasise the status of dominant incumbents. There is a discussion of new entry and its potential to disrupt incumbents. Findings For historical reasons, the region contains countries that have strong differences whether defined in terms of economic, social or cultural characteristics, and hence it has not been easy for a network with international aspirations to expand outside its home market nor for, say, European-based operators to gain a foothold. Attempts to introduce competition via new licences has also been problematic because of the strong, and sometimes very large, incumbents already present. Research limitations/implications This is necessarily an overview that uses selected data to describe the overall picture because of the substantial number of quite different markets surveyed. Practical implications It is possible to forecast how certain structural changes will occur ? primarily the withdrawal of international groups such as Millicom that prefer to concentrate upon other regions. Originality/value The databases that underpin the analysis are author-compiled and entirely original.


ABSTRACT: This paper investigates consumers' perceptions toward smartness characteristics of smartphones to understand the influence of product smartness on consumer satisfaction. Recent developments in information technology are accelerating the pace of change in products, particularly the emergence of smart products. Despite these technological advances, however, there is a lack of understanding about consumers who buy and use smart products. In this empirical study, five smartness dimensions of autonomy, adaptability, reactivity, multi-functionality, and ability to cooperate, are used to examine perceived product smartness which is also tested with consumer satisfaction. Based on their experiences with smartphones, 388 consumers, in their 20s, respond to the questionnaire. Among the five factors, adaptability and multi-functionality have significant influence on perceived product smartness and consumer satisfaction. However, the other three factors do not show a significant impact. In addition, the moderator effect of customer innovativeness on satisfaction has been proven to be significant. The results of this study provide a better understanding of the impact of product smartness on customer attitudes and provide managerial implications for new product development and market management.
Bibliography on “telecommunication/ICT policy and law”


**ABSTRACT:** The assumption that IPv6 will inevitably replace IPv4 as the dominant network layer protocol on the Internet is almost universal. A failure of IPv6 to diffuse is thought to have far-reaching and long-lasting economic and social consequences, yet there have been no prior analyses of the dual-stacking transition mechanism by which IPv6 diffusion is expected to be achieved in order to understand whether it is likely to succeed. Guided by economic theory, this paper presents such an analysis, and concludes that the dual-stacking transition strategy is unlikely to work, leaving the Internet with no workable means of achieving migration to IPv6. The paper concludes with a number of recommendations for regulatory and policy bodies, end-user organisations and network operators.

[https://doi.org/10.1016/j.giq.2018.06.002](https://doi.org/10.1016/j.giq.2018.06.002).

**ABSTRACT:** The adoption of new information and communication technologies (ICT) has been one of the main strategies used by organizations of the Brazilian Judiciary in the search for solutions to the major challenges they face, such as limited access to justice services, high levels of congestion in courts and delays in the adjudication of lawsuits. However, empirical studies showing the results of this strategy are limited. The present study seeks to fill this gap. The objective is to identify and explain the effects of investment in information and communication technologies on productivity of courts in Brazil. In addition to the direct relationship between technology and judicial performance, we investigate the mediating and moderating effects of technology on other drivers of judicial performance. Official data were collected from the Justice in Numbers database of the National Justice Council. Secondary data refer to all state, federal and labor courts in the country, and cover a seven-year period, from 2009 to 2015. Panel data were analyzed using hierarchical regression and conditional analysis. The results confirm four of the five hypotheses, indicating that ICT investment has a direct and positive effect on court productivity, as well as mediating and moderating the effect of other variables on productivity. However, contrary to expectations, investment in ICT does not moderate the relationship between court caseload and productivity; although weak, the observed relationship was negative. Explanations for the findings are presented in the article.


**ABSTRACT:** This article analyses government deployment of information security sensor systems from primarily a European human rights perspective. Sensor systems are designed to detect attacks against information networks by analysing network traffic and comparing this traffic to known attack-vectors, suspicious traffic profiles or content, while also recording attacks and providing information for the prevention of future attacks. The article examines how these sensor systems may be one way of ensuring the necessary protection of personal data stored in government IT-systems, helping governments fulfil positive obligations with regards to data protection under the European Convention on Human Rights (ECHR), the EU Charter of Fundamental Rights (The Charter), as well as data protection and IT-security requirements established in EU-secondary law. It concludes that the implementation of sensor systems illustrates the need to balance data protection against the negative privacy obligations of the state under the ECHR and the Charter and the accompanying need to ensure that surveillance of communications and associated metadata reach established principles of legality and...
proportionality. The article highlights the difficulty in balancing these positive and negative obligations, makes recommendations on the scope of such sensor systems and the legal safeguards surrounding them to ensure compliance with European human rights law and concludes that there is a risk of privatised policymaking in this field barring further guidance in EU-secondary law or case law.


ABSTRACT: Purpose Public policy requires effective identification of the current and emerging issues being faced in industry and beyond. This paper aims to identify a set of key issues currently facing digital communications and reviews their relevance for the strategic provision of infrastructure, particularly within the UK context. Design/methodology/approach The methodology focuses on taking a horizon-scanning approach to obtaining current information from a range of authoritative decision makers across industry, government and academia. After structuring the issues identified, these areas are explored by a multi-disciplinary research team covering engineering, economics and computer science. Findings Five key categories were identified including future demand; coverage and capacity; policy and regulation; economics and business models; and technology. The results are reported for both fixed and wireless networks. Shared issues affecting the wider digital ecosystem are also identified including Brexit, connecting remote areas and the degree to which the economics of infrastructure allows for building multiple overlapping infrastructures. The authors find that future demand uncertainty is one of the major issues affecting the digital communications sector driven by rigid willingness-to-pay, weak revenue and an increasing shift from fixed to wireless technologies. Policy must create the market conditions that encourage the entry of new competitors with innovative thinking and disruptive business models. Research limitations/implications A limitation of the analysis is that it is quite UK-focussed; hence, further research could broaden this analysis to assessing issues at a continental or global scale. Originality/value The value of this paper originates from the breadth of the expert elicitation exercise carried out to gather the initial set of issues, followed by the analysis of this data by a multi-disciplinary team of researchers. The results direct a future research agenda, as many issues are indicative of a lack of existing evidence to support effective decision-making.; Purpose Public policy requires effective identification of the current and emerging issues being faced in industry and beyond. This paper aims to identify a set of key issues currently facing digital communications and reviews their relevance for the strategic provision of infrastructure, particularly within the UK context. Design/methodology/approach The methodology focuses on taking a horizon-scanning approach to obtaining current information from a range of authoritative decision makers across industry, government and academia. After structuring the issues identified, these areas are explored by a multi-disciplinary research team covering engineering, economics and computer science. Findings Five key categories were identified including future demand; coverage and capacity; policy and regulation; economics and business models; and technology. The results are reported for both fixed and wireless networks. Shared issues affecting the wider digital ecosystem are also identified including Brexit, connecting remote areas and the degree to which the economics of infrastructure allows for building multiple overlapping infrastructures. The authors find that future demand uncertainty is one of the major issues affecting the digital communications sector driven by rigid willingness-to-pay, weak revenue and an increasing shift from fixed to wireless technologies. Policy must create the market conditions that encourage the entry of new competitors with innovative thinking and disruptive business models. Research limitations/implications A limitation of the analysis is that it is quite UK-focussed; hence, further research could broaden this analysis to assessing issues at a continental or global scale. Originality/value The value of this paper originates from the breadth of the expert elicitation exercise carried out to gather the initial set of issues, followed by the analysis of this data by a multi-disciplinary team of researchers. The results direct a future research agenda, as many issues are indicative of a lack of existing evidence to support effective decision-making.
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**ABSTRACT:** Big data systems have been instrumental in solving computational problems for business intelligence and predictive analysis. Despite this, they exhibit serious concerns for user privacy. The authors provide an overview of privacy in the context of big data, categorizing four types of existing privacy violations in big data systems and assessing the strengths and weaknesses of their protection techniques. They also provide measures that can be taken to strengthen users privacy.

**ABSTRACT:** Purpose This paper aims to examine issues of bribery, cronyism and nepotism in one of the most corrupt countries in Africa. Design/methodology/approach This is a single-country case study, drawing on material dating from the mid-1970s, including court cases. Findings The corruption is pervasive and systemic, showing severe problems with governance in general, in the sector and against corruption. Nonetheless, two operators, one South African and one Nigerian, have delivered extensive access to mobile networks. Practical implications The system of governance requires significant structural reforms, if the burden of corruption is to be reduced. Originality/value This paper sheds new and explicit light on the complex history of telecommunications in Nigeria. It adds to the small base of material on corruption in the telecommunications sector. It identifies issues that could usefully be taken up by institutions in Nigeria.