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doi: 10.1109/MVT.2018.2813532.
http://dx.doi.org/10.1109/MVT.2018.2813532.
ABSTRACT: The ten articles in this special section focus on new applications for fifth-generation (5G) wireless vehicular systems. 5G is a major transformation from the current cellular network to a network of everything that connects all people and machines in service-based architecture. Accordingly, the 5G network enforces different performance metrics based on the caller type and service requested. Researchers are aiming to improve the deliverables of enabling technologies such as new radio; massive multiple input, multiple output (mMIMO); mobile edge computing; network virtualization; and more.

https://doi.org/10.1016/j.jnca.2018.05.013.
ABSTRACT: User-centric communication in fifth generation (5G) network enables wireless peer-to-peer network interface between mobile users in order to improve the data rate and offload the traffic for improved QoE as compared to traditional legacy base station centric (network centric or eNB centric) architecture. In this paper, we introduce a user-centric performance based cooperative cellular communication architecture and device mobility management procedure for 5G networks. Due to the exponential growth of connected devices, the users are deployed very densely. It motivate the researcher for user-centric communication, and it is a feasible approach, where the user can communicate via a relay node with minimum network infrastructure support. The proposed approach is central to mode switching and supporting a high degree of user mobility during the communication. The mode switching techniques is depends on quality parameters (such as link utilization, delay, and energy consumption). When the network switches the communication link from traditional mode (network centric) to user-centric mode of communication, it resort to relays to sustained the quality parameters. The relay selection is a random process, the network selects an arbitrary node as a relay node without any negotiation on performance metrics and node mobility. In order to improve the network mobility management performance, a mobility management scheme is proposed, where the system computes the QoS/QoE and make a decision for mode switching between network-centric to user-centric or vice-versa. The proposed technique show better performance over the traditional cellular network and we compare our results with 4G/Long Term Evolution (LTE), with respect to link utilization, energy consumption, call-to-mobility ratio analysis and system scalability. The performance analysis and comparison demonstrates the superiority of proposed system in terms of QoE parameters as compared to LTE networks.

doi: 10.1109/MCOM.2017.1700268.
http://dx.doi.org/10.1109/MCOM.2017.1700268.
ABSTRACT: Network slicing is a fundamental capability for future Fifth Generation (5G) networks to facilitate the cost-effective deployment and operation of multiple logical networks over a common physical network infrastructure in a way that each logical network (i.e. network slice)
can be customized and dimensioned to best serve the needs of specific applications (e.g. mobile broadband, smart city, connected car, public safety, fixed wireless access) and users (e.g. general public, enterprise customers, virtual operators, content providers). The practical realization of such capability still raises numerous technical challenges, both in the Core and RAN parts of the 5G system. Through a comprehensive analysis of the impact that the realization of RAN slicing has on the different layers of the radio interface protocol architecture, this article proposes a framework for the support and specification of RAN slices based on the definition of a set of configuration descriptors that characterize the features, policies and resources to be put in place across the radio protocol layers of a next-generation RAN node.


ABSTRACT: The next generation of fifth generation (5G) network, which is implemented using Virtualized Multi-access Edge Computing (vMEC), Network Function Virtualization (NFV) and Software Defined Networking (SDN) technologies, is a flexible and resilient network that supports various Internet of Things (IoT) devices. While NFV provides flexibility by allowing network functions to be dynamically deployed and inter-connected, vMEC provides intelligence at the edge of the mobile network reduces latency and increases the available capacity. With the diverse development of networking applications, the proposed vMEC use of Container-based Virtualization Technology (CVT) as gateway with IoT devices for flow control mechanism in scheduling and analysis methods will effectively increase the application Quality of Service (QoS). In this work, the proposed IoT gateway is analyzed. The combined effect of simultaneously deploying Virtual Network Functions (VNFs) and vMEC applications on a single network infrastructure, and critically in effecting exhibits low latency, high bandwidth and agility that will be able to connect large scale of devices. The proposed platform efficiently exploiting resources from edge computing and cloud computing, and takes IoT applications that adapt to network conditions to degrade an average 30% of end to end network latency. ".


ABSTRACT: Under 5G use case scenarios latency is a main challenge that must be addressed, since mission critical environments are mostly delay sensitive. To achieve this goal, the service infrastructure placement optimization is needed in the interest of minimizing the delays in the service access layer. To solve this problem, this paper mathematically models the placement problem in a Fog Computing/NFV environment as a Mixed-Integer Linear Programming problem and proposes a heuristic-based solution considering 5G mobile network requirements. As a practical result, an application was developed to achieve usability and flexibility while ensuring operational applicability of the proposed methods. ".


ABSTRACT: Due to large peak-to-average power ratio (PAPR) at the time domain OFDM signal, various peak signal reduction methods for OFDM systems have been proposed. However, in a transmit OFDM beamforming, multiplication of the transmit signal using the weights causes transmit power imbalance between antennas and increases peak signal. We propose two approaches to mitigate these problems. Adding the pseudo-noise to covariance matrix at the process of weight calculation can alleviate the transmit power imbalance. Furthermore, the
A companding transform of time domain signal can reduce the peak signals. We show details of proposed methods and evaluate PAPR and BER performance.

https://doi.org/10.1007/s11277-017-5217-9.
ABSTRACT: The unprecedented growth in mobile data traffic has choked network capacity of existing IMT/IMT-A (3G/4G) networks. Work on next generation mobile communication system (5G) i.e. IMT 2020 is underway and likely to come in the year 2020. The 5G network envisages data speed of 1 Tbps and beyond. To realise the IMT 2020, radio spectrum is an essential element. Presently, mobile communications are operating between 700 and 3600 MHz. These spectrum bands do not have the capacity to carry such enormous data. Millimeter (mm) frequency band beyond 10 GHz is the most preferred band for 5G. Radiocommunication sector of ITU is in the process to identify the frequency bands for IMT 2020, which will be finalised in the WRC 2019. There are considerable differences in the spectrum bands currently in use and MM waves in terms of propagation characteristics, interference management and system design etc. In this paper, frequency bands under consideration for 5G services has been discussed.

ABSTRACT: A broadband dual-polarised antenna for 2G/3G/LTE/5G wireless communication is proposed. A new resonant mode is induced with parasitic resonator loaded inside the loop radiator. Wide impedance bandwidth of 72.2% for VSWR<;2 (1.69-3.6 GHz) is achieved with three controllable resonant modes. Stable gain and radiation patterns are obtained over the whole band.

doi: 10.1109/CC.2018.8357743.
Http://dx.doi.org/10.1109/CC.2018.8357743.
ABSTRACT: The fifth generation (5G) wireless communication is currently a hot research topic and wireless communication systems on high speed railways (HSR) are important applications of 5G technologies. Existing studies about 5G wireless systems on high speed railways (HSR) often utilize ideal channel parameters and are usually based on simple scenarios. In this paper, we evaluate the downlink throughput of 5G HSR communication systems on three typical scenarios including urban, cutting and viaduct with three different channel estimators. The channel parameters of each scenario are generated with tapped delay line (TDL) models through ray-tracing simulations, which can be considered as a good match to practical situations. The channel estimators including least square (LS), linear minimum mean square error (LMMSE), and our proposed historical information based basis expansion model (HiBEM). We analyze the performance of the HiBEM estimator in terms of mean square error (MSE) and evaluate the system throughputs with different channel estimates over each scenario. Simulation results are then provided to corroborate our proposed studies. It is shown that our HiBEM estimator outperforms other estimators and that the system throughput can reach the highest point in the viaduct scenario.
Bibliography on “accessibility and ICTs”

**ABSTRACT:** The purpose of this review article is to explore a new paradigm on healthcare assessment and intervention practices for students with learning, physical and/or sensory disabilities. The perspective presented here is regarded as patient centric and relies on ICTs, in order to address evidence-based treatment and care, meeting every individual’s health profile, with regard to his or her needs, preferences, goals and culture. Patient-centric ICTs based approach has an impact on healthcare systems, introducing a multi-disciplinary care planning that overcomes individual, professional and organizational barriers, reduces anxiety and establishes better understanding with the student at the center. Generally, results show the impact of the interoperability of healthcare information between patients’ healthcare record and information systems which facilitate healthcare systems to be lifesaving if available at the time of medical examination. When medical treatment is combined with ICTs based methods and applications such as Serious Games, Mobile Assistive Technologies applications, Telehealth Systems and Virtual Training, patients with learning, physical and/or sensory disabilities can benefit from a cost-effective and flexible network model while having their customized needs fully examined and resolved. The articles presented within this review demonstrate that ICTs based patient-centeredness for students with learning, physical and/or sensory disabilities is associated with better (functional) outcomes leading to quality of life and inclusion, improved quality of care, fewer problem behaviors, higher levels of health-related autonomy and greater patient satisfaction.

Bibliography on “big data”

**ABSTRACT:** The term “big data” has gotten increasing popular attention, and there is growing focus on how such data can be used to measure and improve health and healthcare. Analytic techniques for extracting information from these data have grown vastly more powerful, and they are now broadly available. But for these approaches to be most useful, large amounts of data must be available, and barriers to use should be low. We discuss how “smart cities” are beginning to invest in this area to improve the health of their populations; provide examples around model approaches for making large quantities of data available to researchers and clinicians among other stakeholders; discuss the current state of big data approaches to improve clinical care including specific examples, and then discuss some of the policy issues around and examples of successful regulatory approaches, including deidentification and privacy protection.

doi: 10.1109/ACCESS.2018.2821445.  
http://dx.doi.org/10.1109/ACCESS.2018.2821445.  
**ABSTRACT:** The emergence of new data handling technologies and analytics enabled the organization of big data in processes as an innovative aspect in wireless sensor networks (WSNs). Big data paradigm, combined with WSN technology, involves new challenges that are necessary to resolve in parallel. Data aggregation is a rapidly emerging research area. It represents one of the processing challenges of big sensor networks. This paper introduces the big data paradigm,
its main dimensions that represent one of the most challenging concepts, and its principle analytic tools which are more and more introduced in the WSNs technology. The paper also presents the big data challenges that must be overcome to efficiently manipulate the voluminous data, and proposes a new classification of these challenges based on the necessities and the challenges of WSNs. As the big data aggregation challenge represents the center of our interest, this paper surveys its proposed strategies in WSNs.

ABSTRACT: A theoretical framework for big data analytics-enabled customer agility and responsiveness was developed from extant IS research. In on-demand service environments, customer agility involves dynamic capabilities in sensing and responding to citizens. Using this framework, a case study examined a large city government's 311 on-demand services which had leveraged big data analytics. While we found the localized big data analytics use by some of the 22 departments for enhanced customer agility and on-demand 311 services, city-wide systemic change in on-demand service delivery through big data analytics use was not evident. From the case study we identified key institutional mechanisms for linking customer agility to public value creation through 311 services. We posit how systemic use of big data analytics embedded into critical processes enables the government to co-create public values with citizens through 311 on-demand services, indicating the importance of creating a culture of analytics driven by strong political leadership. ".

ABSTRACT: With the rapid development of the Internet of Things (IoT), Big Data technologies have emerged as a critical data analytics tool to bring the knowledge within IoT infrastructures to better meet the purpose of the IoT systems and support critical decision making. Although the topic of Big Data analytics itself is extensively researched, the disparity between IoT domains (such as healthcare, energy, transportation and others) has isolated the evolution of Big Data approaches in each IoT domain. Thus, the mutual understanding across IoT domains can possibly advance the evolution of Big Data research in IoT. In this work, we therefore conduct a survey on Big Data technologies in different IoT domains to facilitate and stimulate knowledge sharing across the IoT domains. Based on our review, this paper discusses the similarities and differences among Big Data technologies used in different IoT domains, suggests how certain Big Data technology used in one IoT domain can be re-used in another IoT domain, and develops a conceptual framework to outline the critical Big Data technologies across all the reviewed IoT domains.

https://doi.org/10.1016/j.scs.2018.05.008.
ABSTRACT: A smart city improves the quality of its citizens by providing access to ubiquitous services. Intelligent Transportation Systems (ITS) have a fundamental role in transforming a metropolitan area into a smart city. In the past two decades, many applications of ITS, e.g. city-wide traffic management and monitoring, smart parking, public transportation information services (bus, train, taxi, plane, etc.), logistics, real-time traffic, road speed limit monitoring and management etc., are deployed in smart cities. The sensors or mobile objects in ITS constantly generate mobility data and the scale at which this data is generated is witnessing an exponential increase in volumes. To store and subsequently analyze such massive data generated by sensors,
new architectures are needed which are primarily designed for working with big data. In this work, we propose a big data analytics architecture for ITS. The proposed architecture has a built-in storage and analysis capability to work with ITS data and is composed of four modules, namely (1) Big Data Acquisition and Preprocessing Unit (2) Big Data Processing Unit (3) Big Data Analytics Unit and (4) Data Visualization Unit. A detailed analysis of ITS big data for monitoring the average speed of a vehicle w.r.t. the time attribute is provided. The proposed architecture is evaluated using Hadoop thus validating the proof of concept. The empirical results are encouraging and open directions for future research. 

https://doi.org/10.1016/j.techfore.2018.03.024.

ABSTRACT: Big Data has significant impact in developing functional smart cities and supporting modern societies. In this paper, we investigate the importance of Big Data in modern life and economy, and discuss challenges arising from Big Data utilization. Different computational intelligence techniques have been considered as tools for Big Data analytics. We also explore the powerful combination of Big Data and Computational Intelligence (CI) and identify a number of areas, where novel applications in real world smart city problems can be developed by utilizing these powerful tools and techniques. We present a case study for intelligent transportation in the context of a smart city, and a novel data modelling methodology based on a biologically inspired universal generative modelling approach called Hierarchical Spatial–Temporal State Machine (HSTSM). We further discuss various implications of policy, protection, valuation and commercialization related to Big Data, its applications and deployment. 


ABSTRACT: Big data is an ascendant technological concepts and includes smart energy services, such as intelligent energy management, energy consumption prediction and exploitation of Internet of Things (IoT) solutions. As a result, big data technologies will have a significant impact in the energy sector. This paper proposes a high level architecture of a big data platform that can support the creation, development, maintenance and exploitation of smart energy services through the utilisation of cross-domain data. The proposed platform enables the simplification of the procedure followed for the information gathering by multiple sources, turning into actionable recommendations and meaningful operational insights for city authorities and local administrations, energy managers and consultants, energy service companies, utilities and energy providers. A web-based Decision Support System (DSS) has been developed according to the proposed architecture, exploiting multi-sourced data within a smart city context towards the creation of energy management action plans. The pilot application of the developed DSS in three European cities is presented and discussed. This "data-driven" DSS can support energy managers and city authorities for managing their building facilities’ energy performance.


ABSTRACT: Over the past decade and with the increasing use of the Internet, the assessment of health issues using online search traffic data has become an integral part of Health Informatics. Internet data in general and from Google Trends in particular have been shown to be valid and valuable in predictions, forecastings, and nowcastings; and in detecting, tracking, and monitoring diseases’ outbreaks and epidemics. Empirical relationships have been shown to exist between Google Trends’ data and official data in several health topics, with the science of infodemiology...
using the vast amount of information available online for the assessment of public health and policy matters. The aim of this study is to provide a method of forecasting AIDS prevalence in the US using online search traffic data from Google Trends on AIDS related terms. The results at first show that significant correlations between Google Trends’ data and official health data on AIDS prevalence (2004–2015) exist in several States, while the estimated forecasting models for AIDS prevalence show that official health data and Google Trends data on AIDS follow a logarithmic relationship. Overall, the results of this study support previous work on the subject suggesting that Google data are valid and valuable for the analysis and forecasting of human behavior towards health topics, and could further assist with Health Assessment in the US and in other countries and regions with valid available official health data.


https://doi.org/10.1016/j.future.2018.05.030.

ABSTRACT: In this paper, we present a new C++ API with a fluent interface called PiCo (Pipeline Composition). PiCo’s programming model aims at making easier the programming of data analytics applications while preserving or enhancing their performance. This is attained through three key design choices: (1) unifying batch and stream data access models, (2) decoupling processing from data layout, and (3) exploiting a stream-oriented, scalable, efficient C++ 11 runtime system. PiCo proposes a programming model based on pipelines and operators that are polymorphic with respect to data types in the sense that it is possible to reuse the same algorithms and pipelines on different data models (e.g., streams, lists, sets, etc.). Preliminary results show that PiCo, when compared to Spark and Flink, can attain better performances in terms of execution times and can hugely improve memory utilization, both for batch and stream processing.


http://doi.acm.org/10.1145/3158346.

ABSTRACT: While machine learning has proven to be promising in several application domains, our understanding of its behavior and limitations is still in its nascent stages. One such domain is that of cybersecurity, where machine learning models are replacing traditional rule based systems, owing to their ability to generalize and deal with large scale attacks which are not seen before. However, the naive transfer of machine learning principles to the domain of security needs to be taken with caution. Machine learning was not designed with security in mind and as such is prone to adversarial manipulation and reverse engineering. While most data based learning models rely on a static assumption of the world, the security landscape is one that is especially dynamic, with an ongoing never ending arms race between the system designer and the attackers. Any solution designed for such a domain needs to take into account an active adversary and needs to evolve over time, in the face of emerging threats. We term this as the "Dynamic Adversarial Mining" problem, and this paper provides motivation and foundation for this new interdisciplinary area of research, at the crossroads of machine learning, cybersecurity, and streaming data mining.

Bibliography on “broadband”


https://doi.org/10.1016/j.measurement.2018.05.070.

ABSTRACT: Thin magnetic films and multilayer structures are commonly used for the development of micromagnetic sensors, some of them operating at high frequencies, as it is the...
case of magnetoimpedance sensors. At the same time, high frequency characterization techniques as ferromagnetic resonance are extremely useful to investigate material properties. In this work, we analyze the microwave resonant absorption of magnetron sputtered Permalloy-based magnetic films suitable for magnetoimpedance sensor applications. The dispersion of values of the resonant frequencies obtained in broadband ferromagnetic resonance measurements is used to assess the quality and the repeatability of the samples. The thin-film structures under test are inserted in the measuring circuit, constituting itself a part of the microwave transmission line, i.e. they are characterized in a realistic magnetoimpedance configuration, in which the alternating current flows through the sample. The ferromagnetic resonance frequency as a function of the applied field is determined from the measurement of the transmission coefficient in a network analyzer. We also present the data reduction procedure, adapted to our particular measurement test-fixture, that allows determining the ferromagnetic resonance spectra accurately. The analysis of the resonance is performed among samples identically prepared, either in the same production batch or in different batches. The dispersion observed in the results is used to estimate the fluctuations that can be expected in this kind of measurements and the amount of repeatability of sample preparation. The investigation indicates that variations of the order of 10% can be expected in measurements that are usually considered to provide the same result.


ABSTRACT: In recent years, the preference for purely private funding and ownership of telecommunications networks has given way to a 'new wisdom' that some form of public funding is now likely necessary if faster and more capacious next generation access (NGA) networks are to be constructed in a timely fashion for the majority of the population. Policy-makers are charged with deciding how that public investment will take place. One approach is via Public-Private Partnerships (PPPs), where public and private actors collaborate in UFB (Ultrafast Fibre Broadband) investment, construction and operation. However, the body of analysis of PPPs in NGA networks to guide policy-makers is scant. By using the concept of regulatory commitment, the paper compares the experiences gained in a hold-up situation in PPPs in other infrastructures (e.g. roading) with the UFB context. A case study of New Zealand’s Ultrafast Fibre Broadband Initiative is used to draw new insights for government purchasers and regulatory agencies. In comparing the different forms of PPPs, the paper shows that UFB PPPs reverse the typical direction of financing and ownership observed in roading PPPs. Financing and asset ownership are separated in UFB PPPs, increasing the potential for misalignment of incentives and the likelihood that the public party can use its legislative powers to alter regulatory settings after the PPP contract is signed, and thereby hold up the private party once existing network assets are sunk. Whilst the government instigating the PPP may not be inclined to act opportunistically, a successive government facing different political priorities does not face the same incentives. To the extent that the private party can anticipate this risk, it should structure the initial agreement to ensure that the public party is penalised if such an event occurs (i.e. an automatic right to favourable renegotiation or payment of compensation). Such terms will discourage opportunism, so that the project benefits from time-consistent alignment of incentives and objectives.


ABSTRACT: The Internet has become an integral part of the everyday life for many Americans, yet a sizable gap still exists in household broadband adoption. Previous studies of the digital divide were restricted by the lack of sufficiently granular data on broadband availability and adoption. Recent efforts of NTIA and the FCC have made it possible for scholars to perform an
exhaustive analysis of broadband diffusion. This paper examines differences in fixed location broadband adoption rates among households of various demographic and socio-economic characteristics and in different geographic locations utilizing the FCC’s census tract level adoption data, demographic data from American Community Survey and the census block level broadband availability data from NTIA. Ordered probit models are estimated and used to conduct simulations in order to analyze the determinants of the broadband adoption rate. The results indicate that, although available in most tracts, the lack of broadband availability can still be a deterrent to its adoption. Furthermore, simulations indicate that, in non-metropolitan areas, policies targeting broadband availability would have a larger impact on adoption than policies targeting income or education, for instance. Additionally, where broadband is available, the census tracts with more educated, wealthy and older people who have more choices of broadband providers have higher fixed broadband subscription rates. The positive impact of older population on adoption rate contradicts the conventional belief that the older generation is left behind. Drawing from the previous literature, the older population may be more likely to have a home broadband subscription through traditional technologies, while their younger counterparts, who adapt to new technologies quicker, may be subscribing to mobile broadband. 


ABSTRACT: A broadband dual-polarised antenna for 2G/3G/LTE/5G wireless communication is proposed. A new resonant mode is induced with parasitic resonator loaded inside the loop radiator. Wide impedance bandwidth of 72.2% for VSWR<;2 (1.69-3.6 GHz) is achieved with three controllable resonant modes. Stable gain and radiation patterns are obtained over the whole band.

http://dx.doi.org/10.1109/TAP.2018.2810338.

ABSTRACT: A novel broadband horizontally polarized (HP) omnidirectional antenna is proposed for meteor-burst communication system in VHF. The proposed antenna is composed of three bowtie dipoles, which are concentrically placed to form a loop antenna. The bowtie dipole is shorted at the terminal by folded elements in order to reduce antenna size. The bowtie dipoles are fed by a three-way power divider. A slotted line balun is employed to achieve broadband impedance matching and realize balanced-to-unbalanced transformation. The designed HP omnidirectional antenna exhibits a fractional bandwidth of 24.7% with VSWR < 2 ranging from 39 to 50 MHz. Uniform omnidirectional radiation patterns in the azimuth plane with HP have been obtained. The loop antenna provides a relatively low gain of no more than 1.5 dBi. Therefore, a two-element HP antenna array is developed to enhance its gain. In order to reduce longitudinal dimension of the array, the two loop antenna elements are placed in reverse and employ differential feeding method to realize in-phase current. Both the simulation and measured results are used to verify the design approach.

Bibliography on “child online protection”

https://doi.org/10.1016/j.chb.2018.03.041.
ABSTRACT: Although many studies show that social support and Internet addiction are negatively correlated, others show a positive correlation. To address this controversy, we investigate the relation between social support and Internet addiction in mainland China with a meta-analysis of 76 articles comprising 47,899 teenagers and young adults. The results show a medium-sized negative correlation between social support and Internet addiction. Furthermore, this medium-sized link differed across measures of Internet addiction, gender, and geography. This negative correlation was smaller when measuring Internet addiction with the Internet Addiction Test (IAT) than when using other measures. In samples with more males, the negative correlation between social support and Internet addiction was larger. The size of the negative correlation coefficient was largest in Eastern China, smaller in Central China, and smallest in Western China. 


ABSTRACT: The expansion of ICT has contributed to the emergence of a new issue of increasing importance: problematic Internet use. Addressing this phenomenon comes with the understanding that it is not isolated from other online risky behaviors or other common problems in adolescence, such as substance use. This suggests the desirability in identifying common factors that can guide preventive work. This empirical study based on a sample of 3,772 Spanish adolescents aged between 12 and 17 years has allowed: a) to verify that the use of Internet and social networking sites is widespread; b) to demonstrate that problematic Internet use is associated with different online risky practices (contacting strangers, sexting, online gambling...), as well as substance use, and c) to identify personal variables related to problematic Internet use and online risky behaviors. The results obtained emphasize the relevance of relying on a transversal approach to prevention, based on values and life skills education.


ABSTRACT: Purpose Today’s world of digital and mobile media does not require actual physical contact, between the suitable target and the motivated offender, as with traditional crime. In fact, as Mesch (2009) contended that the internet is not merely an information channel but it creates a new space of activities for children, where they are exposed to motivated offenders and the actors of fourth party. Therefore, for the sake of children’s safety, the practice of parental mediation control is increasingly becoming more pertinent everyday. Thus, the purpose of this paper is to examine how parental mediation control in Sri Lanka is influenced by their internet self-efficacy, their experience as online victims and their trust in online users.

Design/methodology/approach This paper uses a unique data set of computer and internet users from Sri Lanka to examine parental intervention in their children’s online activities. Specifically, the data set contains 347 responses from computer and internet users. To analyze the data, the authors use a binary dependent (probit) model. Findings The results show that such factors alter the baseline probability of parental intervention. However, some differences are found between younger and older parents, with the latter group responding more to trust in online users and victimization experience while the former is mainly driven from computer self-efficacy. In particular, the older group is less likely to trust online internet users in terms of never adding unknown persons in the social media. Finally, being self-employed and an older parent has a positive effect on the likelihood of adopting parental controls, possibly because of the non-pecuniary attributes of self-employment. Originality/value This study adds to the emerging parental mediation control literature by looking at the likelihood of younger and older parents who were victims of cybercrimes, who have greater internet self-efficacy and lower online third-party trust to adopt parental mediation control behaviors. Also another contribution to the literature is the role of occupation type on parental monitoring behaviors. Purpose Today’s world of digital and mobile media does not require actual physical contact, between the suitable target
and the motivated offender, as with traditional crime. In fact, as Mesch (2009) contended that the internet is not merely an information channel but it creates a new space of activities for children, where they are exposed to motivated offenders and the actors of fourth party. Therefore, for the sake of children’s safety, the practice of parental mediation control is increasingly becoming more pertinent everyday. Thus, the purpose of this paper is to examine how parental mediation control in Sri Lanka is influenced by their internet self-efficacy, their experience as online victims and their trust in online users. Design/methodology/approach This paper uses a unique data set of computer and internet users from Sri Lanka to examine parental intervention in their children’s online activities. Specifically, the data set contains 347 responses from computer and internet users. To analyze the data, the authors use a binary dependent (probit) model. Findings The results show that such factors alter the baseline probability of parental intervention. However, some differences are found between younger and older parents, with the latter group responding more to trust in online users and victimization experience while the former is mainly driven from computer self-efficacy. In particular, the older group is less likely to trust online internet users in terms of never adding unknown persons in the social media. Finally, being self-employed and an older parent has a positive effect on the likelihood of adopting parental controls, possibly because of the non-pecuniary attributes of self-employment. Originality/value This study adds to the emerging parental mediation control literature by looking at the likelihood of younger and older parents who were victims of cybercrimes, who have greater internet self-efficacy and lower online third-party trust to adopt parental mediation control behaviors. Also another contribution to the literature is the role of occupation type on parental monitoring behaviors.

Bibliography on “climate change and ICTs”

"Blueprints for a Miracle Special Report]." IEEE Spectrum, 55, no. 6 (2018): 18-19
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ABSTRACT: DO YOU BELIEVE that climate change is a vast left-wing conspiracy that does little more than create jobs for scientists while crippling businesses with pointless regulation? Or, quite the contrary, are you convinced that climate change is the biggest crisis confronting the planet, uniquely capable of wreaking havoc on a scale not seen in recorded history? Many of you are probably in one camp or the other. No doubt some of you will tell us how disappointed/angry/outraged you are that we (a) gave credence to this nonsense or (b) failed to convey the true urgency of the situation. We welcome your thoughts.

doi: 10.1109/MCOM.2018.1601005.
http://dx.doi.org/10.1109/MCOM.2018.1601005.
ABSTRACT: With the explosive growth of machine-type communication devices (MTCDs), both academia and industry are paying more attention to M2M communications. In this article, we introduce mobile edge computing into virtualized cellular networks with M2M communications to decrease energy consumption and optimize computing resource allocation. Moreover, based on different functions and QoS requirements, the physical network can be virtualized into several virtual networks; then each MTCD selects the corresponding virtual network to access through the embedded subscriber identity module (eSIM) technology. Meanwhile, the random access process of MTCDs is formulated as a partially observable Markov decision process to minimize the system cost, which consists of both energy consumption and execution time of computing tasks. Furthermore, to facilitate the network architecture integration, software-defined networking is introduced to deal with the diverse protocols and standards in M2M networks. Extensive
simulation results with different system parameters reveal that the proposed scheme could significantly improve the system performance compared to the existing schemes.

https://doi.org/10.1016/j.rser.2018.05.041.

**ABSTRACT:** Decarbonizing world economies implies the deployment of “green technologies”, meaning a renovation of the energy sector towards using renewable sources and zero emission transport technologies. This renovation will require huge amounts of raw materials, some of them with high supply risks. To assess such risks a new methodology is proposed, identifying possible bottlenecks of future demand versus geological availability. This has been applied to the world development of wind power, solar photovoltaic, solar thermal power and passenger electric vehicles for the 2016–2050 time period under a business as usual scenario considering the impact on 31 different raw materials. As a result, 13 elements were identified to have very high or high risk, meaning that these could generate bottlenecks in the future: cadmium, chromium, cobalt, copper, gallium, indium, lithium, manganese, nickel, silver, tellurium, tin and zinc. Tellurium, which is mostly demanded to manufacture solar photovoltaic cells, presents the highest risk. To overcome these constraints, measures consisting on improving recycling rates from 0.1% to 4.6% per year could avoid material shortages or restrictions in green technologies. For instance, lithium recycling rate should increase from 1% to 4.8% in 2050. This study aims to serve as a guideline for developing eco-design and recycling strategies.

doi: 10.1109/MCOM.2018.8360864.
http://dx.doi.org/10.1109/MCOM.2018.8360864.

**ABSTRACT:** The three articles in this special section focus on the IEEE’s Environmental Engineering Initiative (IEEE EEI) that was presented at the United Nations Millennium meeting. To support global environmental sustainability, the IEEE EEI launched a flagship conference, the IEEE International Environmental Engineering Conference, with the first edition located in Milan, Italy, in March 2018, which allowed topics relevant to interactions of various IEEE fields to interact with the scientific and professional communities in other technical areas of environmental engineering,

doi: 10.1109/MCOM.2018.1700882.
http://dx.doi.org/10.1109/MCOM.2018.1700882.

**ABSTRACT:** IoT, a heterogeneous interconnection of smart devices, is a great platform to develop novel mobile applications. Resource constrained smart devices, however, often become the bottlenecks to fully realize such developments, especially when it comes to intensive-computation-oriented and low-latency-demanding applications. MEC is a promising approach to address such challenges. In this article, we focus on MEC applications for IoT, and address energy efficiency as well as offloading performance of such applications in terms of end-user experience. In this regard, we present a mobility-aware hierarchical MEC framework for green and low-latency IoT. We deploy a game theoretic approach for computation offloading in order to optimize the utility of the service providers while also reducing the energy cost and the task execution time of the smart devices. Numerical results indicate that the proposed scheme does bring significant enhancement in both energy efficiency and latency performance of MEC applications for IoT.
Bibliography on “cybersecurity”

doi: 10.1109/MCOM.2018.1700707.
http://dx.doi.org/10.1109/MCOM.2018.1700707.
ABSTRACT: IoT has been gaining a lot of attention in recent years. In fact, the number of connected devices has already surpassed the total population on Earth. Current developments in various technologies have paved the way for many IoT services that are now being deployed in different sectors. IoT can extend its scope and service provisioning capabilities with the integration of the cloud computing paradigm. Similarly, cloud cannot only access underlying IoT nodes and provide them with cloud services, but can also create further enhanced services based on the data collected from IoT nodes. However, IoT and sensor networks on the ground are often far from the cloud, which is normally accessible via the Internet. Some services require fast response and a great deal of pre-processing and filtering, and may also have security and privacy requirements. For all such cases, middleware, also known as fog, is required between the cloud and IoT devices. We present cloud-IoT integration issues followed by a comparison between fog and cloud computing. We evaluate the performance of fog computing using performance metrics such as processing delay, processing costs, and processing power, and derive the performance gains obtained in comparison to a cloud computing only approach. Finally, we identify some future research directions for fog computing.

https://doi.org/10.1016/j.chb.2018.04.003.
ABSTRACT: Cloud computing services (CCS) has altered information sharing and storage behavior. This study investigates this behavior and explores the paradox between industry reports and the academic CCS adoption literature. The majority of the academic literature shows that security and privacy beliefs are the major hindrances to wide adoption of CCS whilst multiple recent industrial reports state that security and privacy issues are no longer impediments to the use of CCS. The extensive sharing and storage of personal information among CCS regardless of any security and privacy concerns allows us to speculate about this paradox and provided insight for developing a cloud computing usage model. The posited model explores the influence of CCS main hindrances; that is, perceived security and perceived privacy, compared to the main determinants of technology adoption. The data was collected from 129 working professionals using a survey-based methodology. Contrary to the academic literature, the obtained results confirmed the hypotheses that cloud security and privacy concerns are not significant influences on information sharing and storage behavior. Peers influence was found a significant determinant of the behavior. The study contributes to the information systems and cloud computing literature and supports that the technology is perceived as able to protect user information. The analysis of the developed model provides multiple implications for researchers in academia and industry. ".

https://doi.org/10.1007/s11280-017-0475-8.
ABSTRACT: Attribute based proxy re-encryption (ABPRE) combines the merits of proxy re-encryption and attribute based encryption, which allows a delegator to re-encrypt the ciphertext according to the delegatesâ€™ attributes. The theoretical foundations of ABPRE has been well studied, yet to date there are still issues in schemes of ABPRE, among which time-bounded security and key exposure protection for the re-encryption keys are the most concerning ones. Within the current ABPRE framework, the re-encryption keys are generated independently of the system time segments and the forward security protection is not guaranteed when the usersâ€™ access privileges are altered. In this paper, we present a key-insulated ABPRE scheme for IoT.
scenario. We realize secure and fine-grained data sharing by utilizing attribute based encryption over the encrypted data, as well as adopting key-insulation mechanism to provide forward security for re-encryption keys and private keys of users. In particular, the lifetime of the system is divided into several time slices, and when system enters into a new slice, the user’s private keys need are required to be refreshed. Therefore, the access privileges in our system are time-bounded, and both re-encryption keys and private keys can be protected, which will enhance the security level during data re-encryption, especially in situations when key exposure or privilege alternation happens. Our scheme is proved to be secure under MDBDH hardness assumptions as well as against collusion attack. In addition, the public parameters do not have to be changed during the evolution of users’ private keys, which will require less computation resources brought by parameter synchronization in IoT.


ABSTRACT: Ever increasing fame and obsession for social networks has also coxswained a dramatic increase in the presence of malicious activities. As a result, various researchers have proposed different features and techniques to detect and reduce this menace. This paper presents an expository study of various state-of-the-art techniques to detect two most interlinked apprehensive problems on social networks namely, spam detection and detection-cum-analysis of compromised accounts. It is evident from the ongoing statistics that despite proficient awareness and some anti-spam policies and techniques being developed, to everyone’s surprise, the severity of spam has only increased. Moreover, with the growing smartness of spammers, existing techniques get bypassed and new features and techniques continuously keep on evolving. Therefore, in continuation to the ongoing research, a study comprising of a comprehensive analysis of different works is also required from time to time. The growing inclination of spammers to compromise the legitimate accounts has evolved as an evasive and more beneficial way to spread spam. Therefore, it has become highly relevant to review the techniques related to the detection of compromised accounts so as to track the spammers adhering to this behavior. In this work, we have performed a qualitative analysis of each paper discussing its pros and cons. In both the domains, the detection approaches have been placed under different categories and have been thoroughly reviewed stating their applicability. In conclusion, the paper carries a discussion of various gaps prevalent in the existing approaches and the corresponding actions to be taken to address them, providing a strong foundation for future researches to be carried out in this domain.


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

http://doi.acm.org/10.1145/3133324.
ABSTRACT: We address the problem of associating access policies with datasets and how to monitor compliance via policy-carrying data. Our contributions are a formal model in first-order logic inspired by normative multi-agent systems to regulate data access, and a computational model for the validation of specific use cases and the verification of policies against criteria. Existing work on access policy identifies roles as a key enabler, with which we concur, but much of the rest focuses on authentication and authorization technology. Our proposal aims to address the normative principles put forward in Berners-Lee’s bill of rights for the internet, through human-readable but machine-processable access control policies.

http://dx.doi.org/10.1016/S1361-3723(18)30042-3.
ABSTRACT: It’s often unclear to Internet users who it is that actually makes the decisions that make their connection work. This is because the Internet, by definition, is a complex system that is not managed by a single organisation. In order for your connection to be successful, you use hardware built by a hardware vendor, protocols developed by Internet engineers in loose technical groups such as the Internet Engineering Task Force (IETF), networks operated by a third party and a website operated by the organisation with which you’re actually interacting. That organisation probably uses a whole set of other vendors, such as content delivery networks or cloud providers, to provide the service. It’s often unclear to Internet users who actually runs it. This is because the Internet, by definition, is a complex system that is not managed by a single organisation. You use hardware and software from a variety of vendors, protocols developed by Internet engineers in loose technical groups and networks operated by third parties. Maarten Van Horenbeeck of the Forum of Incident Response and Security Teams examines how this mish-mash of organisations and standards fits together and what makes it work.

ABSTRACT: In the Internet of Things (IoT), identification and access control technologies provide essential infrastructure to link data between a user’s devices with unique identities, and provide seamless and linked up services. At the same time, profiling methods based on linked records can reveal unexpected details about users’ identity and private life, which can conflict with privacy rights and lead to economic, social, and other forms of discriminatory treatment. A balance must be struck between identification and access control required for the IoT to function and user rights to privacy and identity. Striking this balance is not an easy task because of weaknesses in cybersecurity and anonymisation techniques. The EU General Data Protection Regulation (GDPR), set to come into force in May 2018, may provide essential guidance to achieve a fair balance between the interests of IoT providers and users. Through a review of academic and policy literature, this paper maps the inherent tension between privacy and identifiability in the IoT. It focuses on four challenges: (1) profiling, inference, and discrimination; (2) control and context-sensitive sharing of identity; (3) consent and uncertainty; and (4) honesty, trust, and transparency. The paper will then examine the extent to which several standards defined in the GDPR will provide meaningful protection for privacy and control over identity for users of IoT. The paper concludes that in order to minimise the privacy impact of the conflicts between data
https://doi.org/10.1016/j.future.2018.04.035
ABSTRACT: With the popularization of mobile devices and the development of wireless networks, the use of mobile devices to access services is becoming more and more popular. It is becoming more and more popular for users to access servers by using mobile terminals to obtain services. At the same time, the server to obtain the user’s privacy information will also become more and more, and this privacy information is obtained without the user’s knowledge of the situation. Therefore, how to not only protect the confidentiality of sensitive data of users but also provide safe, reliable and convenient services is a hot issue for research. In this paper, the user privacy and security issues and solutions on the Internet are discussed. The issue generated by accessing the server to obtain the required information based on the mobile device has got in-depth study. The main work is as follows: Firstly, the common methods of privacy protection is introduced, and the methods of attribute-based encryption and homomorphic encryption are analyzed in detail. According to the existing homomorphic encryption scheme and base station knowledge applied to the mobile network model, a privacy protection scheme based on homomorphic encryption is proposed. Finally, this paper analyzes and summarizes the important problems that still exist in the interaction between mobile and access server, and points out the research direction in the next step.

https://doi.org/10.1016/j.telpol.2018.02.004
ABSTRACT: This paper uses a socio-technical analysis framework to examine the potential impact of the 2016 Cybersecurity Law on e-government services in China. Based on prior survey results in the literature, the factors that affect user responses to e-government portals are identified. It then reviews the provisions of the Cybersecurity Law and identifies the factors that are likely to affect e-government operations. Open-ended interviews with cybersecurity and e-government experts are used to assess the possible impacts of the law.

Bibliography on “digital divide”

https://doi.org/10.1016/j.telpol.2018.03.002
ABSTRACT: The diffusion and adoption of modern information technology provide new chance for China to close urban-rural income gap. This paper uses China’s provincial panel data from 2002 to 2013 to investigate the effect of computer penetration on rural residents’ income. A public program aiming to connect every village with broadband Internet and other rural facilities provides plausibly exogenous variation in rural residents’ availability and adoption of the broadband Internet, which is used to explore the instrument variable for rural computer penetration. The results show that rural computer penetration tends to increase rural residents’ income over time, but the average effect remains limited. The dynamic panel threshold effects model, which allows for both the threshold variable and other covariates to be endogenous, is further used to explore the constraints of the income-increase effect of rural computer.
penetration. It shows that the effect is at least doubled over the average effect estimated from instrument variables method, once the digital divide causes are removed. Our findings have important implications for the government to increase rural residents' income and reduce urban-rural income gap by encouraging rural computer usage and removing the digital divide.


ABSTRACT: This paper contributes to the existing literature on the macroeconomic impact of Internet development by investigating how, for a given country, the reduction of the gap between its intensity of Internet usage and the world average Internet usage intensity influences its public revenue mobilization. The analysis covers 164 countries (including both developed and developing countries) for the period 1995–2013, and uses non-resource tax revenue as the measure of public revenue. The analysis was undertaken for the full sample as well as for several sub-samples, using the Generalized Methods of Moments (GMM) approach. The empirical results for the full sample suggest that when a country reduces the aforementioned gap, it experiences, over the short to medium term, a rise in non-resource tax revenue. The results also show that low-income countries (LICs) obtain the biggest positive impact by reducing this gap.

doi: 10.23919/ICITST.2017.8356453
http://dx.doi.org/10.23919/ICITST.2017.8356453

ABSTRACT: It has been observed from last 16 years that to switch from the manual government processes to Electronic government can put a huge impact in regulating the government processes. The purpose of electronic government is to use Information and communication technologies in government sector, combined with organizational change and new skills to improve government sector service delivery, democratic processes and capacity building to give strength and support the government policies. Previously government servants always work through traditional channels like front desks or telephones to fulfill their requirements. The use of traditional channels was time consuming and was only fulfill the requirements of one user at a time. These consequences lead towards a digital divide dilemma in which people moved far away from the electronic process. This study is based upon filling the gaps between E-Government and digital divide by utilizing the multi-channel services governed by transformational leaders. The study will reveal new ways of switching to electronic government through digital channels. Transformational leadership will influence the adapting phase of this concept. Data gathered through questionnaires has shown that transformational leaders along with digital channels have put a positive effect in switching from manual to electronic government processes. These aspects have increased the transparency, efficiency, accountability and security in government processes.

Silva, Simone, Narine Badasyan, and Michael Busby. "Diversity and Digital Divide: Using the National Broadband Map to Identify the Non-Adopters of Broadband."

Telecommunications Policy, 42, no. 5 (2018): 361-373

ABSTRACT: The Internet has become an integral part of the everyday life for many Americans, yet a sizable gap still exists in household broadband adoption. Previous studies of the digital divide were restricted by the lack of sufficiently granular data on broadband availability and adoption. Recent efforts of NTIA and the FCC have made it possible for scholars to perform an exhaustive analysis of broadband diffusion. This paper examines differences in fixed location broadband adoption rates among households of various demographic and socio-economic characteristics and in different geographic locations utilizing the FCC’s census tract level adoption data, demographic data from American Community Survey and the census block level broadband availability data from NTIA. Ordered probit models are estimated and used to conduct simulations
in order to analyze the determinants of the broadband adoption rate. The results indicate that, although available in most tracts, the lack of broadband availability can still be a deterrent to its adoption. Furthermore, simulations indicate that, in non-metropolitan areas, policies targeting broadband availability would have a larger impact on adoption than policies targeting income or education, for instance. Additionally, where broadband is available, the census tracts with more educated, wealthy and older people who have more choices of broadband providers have higher fixed broadband subscription rates. The positive impact of older population on adoption rate contradicts the conventional belief that the older generation is left behind. Drawing from the previous literature, the older population may be more likely to have a home broadband subscription through traditional technologies, while their younger counterparts, who adapt to new technologies quicker, may be subscribing to mobile broadband.

Bibliography “digital economy”

ABSTRACT: Purpose The current era of globalization is dominated by the rise of investments in intangible capital rather than tangible capital ? the ascendance of creativity over plant and equipment. This brief paper is motivated by the possibility that emerging market economies such as Morocco might take greater advantage of new tools and policies designed for this new era. The paper aims to discuss these issues. Design/methodology/approach To begin, the author discusses the transformation of the global economy and the consequences of the transformed global economy for economic thinking and measurement. The author refers to both old and new literature on the measurement of intangible investment and capital. Findings Then, the author discusses the rising role of creativity and cultural difference in the development of these new economic forces, using the example of the Harry Potter book series. Originality/value The author then considers how cultural enhancement serves multiple purposes for a nation. Finally, the author turns to some of the possible implications of these economic forces for Morocco, stressing that these implications are speculative.

https://doi.org/10.1016/j.clsr.2017.11.001.
ABSTRACT: The article analyses the country of origin principle of information society services in the light of harmonisation and unification efforts undertaken by the European lawgiver. Although the country of origin principle remains the key element of the construction of freedom to provide
information society services, the principle itself suffers a number of both explicit and implicit restrictions which render its practical application a serious challenge. The difficulty is posed by the fact that the Electronic Commerce Directive fails to expressly specify both the scope of harmonisation as regards the principle, and the level of harmonisation of the directive itself. Furthermore, it is understood differently by private international lawyers. In the eDate Advertising case the ECJ ruled that the principle is not a conflict-of-laws rule, neither does it require implementation to the national legal systems in this shape. This is not to mean, however, that the debate over the function of the country of origin principle in private international law is over. Last but not least, there are many different types of country of origin principles applicable to various types of services provided via the Internet. This multitude of country of origin principles is perhaps the greatest weakness the regulatory approach adopted by the European lawmaker. ".

Bibliography on “e-Government”

doi: 10.23919/ICITST.2017.8356405
http://dx.doi.org/10.23919/ICITST.2017.8356405
ABSTRACT: On the inception of the third millennium, there is much evidence that cloud technologies have become the strategic trend for many governments, not only for developed countries (e.g. the UK, Japan and the USA), but also developing countries (e.g. Malaysia and countries in the Middle East region). These countries have launched cloud computing movements for enhanced standardization of IT resources, cost reduction and more efficient public services. Cloud-based e-government services are considered to be one of the high priorities for government agencies in Jordan. Although experiencing phenomenal evolution, government cloud-services are still suffering from the adoption challenges of e-government initiatives (e.g. technological, human, social and financial aspects) which need to be considered carefully by governments contemplating their implementation. While e-government adoption from the citizens' perspective has been extensively investigated using different theoretical models, these models have not paid adequate attention to security issues. This paper presents a pilot study to investigate citizens' perceptions of the extent to which these challenges inhibit the acceptance and use of cloud computing in the Jordanian public sector and examine the effect of these challenges on the security perceptions of citizens. Based on the analysis of data collected from online surveys, some important challenges were identified. The results can help to guide successful acceptance of cloud-based e-government services in Jordan.

ABSTRACT: The rapid evolution of Information and Communication Technologies (ICTs) has forced public administration authorities to adapt quickly and consider the most effective ways of communication, which has led to reforms in communication strategies, as they are accountable to citizens and the society at large. E-government and open government are the results of this adaptation. While E-government refers to the use of ICTs to improve government processes, connect citizens and build external interactions (egov4dev, 2008), open government is about opening up government data, documents, proceedings and processes for public involvement and scrutiny (OECD, 2016)...

ABSTRACT: In the last decade, governments around the world have created open government data (OGD) repositories to make government data more accessible and usable by the public, mostly motivated by values such as improved government transparency, citizen collaboration and participation, and spurring innovation. The basic assumption is that once data are more discoverable, accessible, available in alternative formats, and with licensing schemes that allow free re-use, diverse stakeholders will develop innovative data applications. Despite OGD's potential transformative value, there is limited evidence for such transformation, particularly due to scarce data use, which is partly attributable to the lack of technical skills and user training. To advance the dialogue around methods to increase awareness of OGD, improve users' skills to work with OGD, and encourage data use, the paper compares and contrasts how three training interventions in Spain, Italy, and the United States have sought to increase awareness of OGD, improve users' skills and potentially engage them in their use of OGD. We report three main findings. First, introduction and analysis skills are taught in combination to encourage use of open data. Being aware of OGD and its benefits is insufficient to promote use. Second, OGD training seems to be more effective when complemented with knowledge about context and interactions with government. Finally, embedding the training interventions in the specific contexts and considering the unique characteristics, interests, and expectations of different types of users is critical to success.


doi: 10.23919/ICITST.2017.8356453

ABSTRACT: It has been observed from last 16 years that to switch from the manual government processes to Electronic government can put a huge impact in regulating the government processes. The purpose of electronic government is to use Information and communication technologies in government sector, combined with organizational change and new skills to improve government sector service delivery, democratic processes and capacity building to give strength and support the government policies. Previously government servants always work through traditional channels like front desks or telephones to fulfill their requirements. The use of traditional channels was time consuming and was only fulfill the requirements of one user at a time. These consequences lead towards a digital divide dilemma in which people moved far away from the electronic process. This study is based upon filling the gaps between E-Government and digital divide by utilizing the multi-channel services governed by transformational leaders. The study will reveal new ways of switching to electronic government through digital channels. Transformational leadership will influence the adapting phase of this concept. Data gathered through questionnaires has shown that transformational leaders along with digital channels have put a positive effect in switching from manual to electronic government processes. These aspects have increased the transparency, efficiency, accountability and security in government processes.

OCDE. Digital Government Review of Colombia: Towards a Citizen-Driven Public Sector

Organisation for Economic Co-operation and Development, 2018

doi: dx.doi.org/10.1787/9789264291867-en

ABSTRACT: This review analyses the shift from e-government to digital government in Colombia. It looks at the governance framework for digital government, the use of digital platforms and open data to engage and collaborate with citizens, conditions for a data-driven public sector, and policy coherence in a context of significant regional disparities. It provides concrete policy recommendations on how digital technologies and data can be harnessed for citizen-driven policy making and public service delivery.
"The Implementation of e-Government through Social Media use in Local Government of Solo Raya."
doi: 10.1109/ICOIACT.2018.8350763
http://dx.doi.org/10.1109/ICOIACT.2018.8350763
ABSTRACT: E-Government is an electronic-based governance development through a communication establishing an interactive relation between citizen and its government. In E-government development, the presence of social media potentially strengthens public participation, transparency, and accountability. The objective of the research was to identify: 1) Types of social media used by local government in Solo Raya area; and 2) The implementation of E-Government through social media by local government in Solo Raya area. This study was a mixed methods research. The sampling technique used for data qualitative was purposive sampling one. Meanwhile, for quantitative data using convenience sampling technique. The result of the research shows that 1) Facebook and Twitter is a social media used most widely by local government in Solo Area, but society has not used social media widely to participate in governmental affairs; and 2) The use of social media is still minimal ineffectiveness, responsiveness and accountability aspects. Most social media accounts are still used for public information, program socialization, and APBD (Local Income and Expenditure Budget) transparency.

doi: 10.1016/j.giq.2018.03.004.
https://doi.org/10.1016/j.giq.2018.03.004.
ABSTRACT: The purpose of this study is to validate an integrated model of e-filing continuance usage. The model has its theoretical basis in the expectancy confirmation theory and the DeLone and McLean's IS Success model. The model is extended to include two additional constructs relevant to e-filing continuance usage: perceived risks and habit. The model is tested using data collected from a sample of 645 e-filing users in Mauritius. Structural equation modeling was used to test the hypotheses. Findings suggest that citizens' continuance usage intention of e-filing is influenced by system quality, user satisfaction and habit. User satisfaction had the strongest impact on e-filing continuance usage intention. This study makes a valuable contribution to knowledge through the extension and validation of the ECM and IS Success model to explore salient factors affecting e-filing continuance usage intention. The practical implications of the findings for tax collection agencies are discussed.

https://doi.org/10.1016/j.giq.2017.08.003.
ABSTRACT: The notion of adaptive governance was originally created to capture forms of collaboration in socio-ecological systems that can respond to rapid changes in the environment. However, such a notion also has a great potential to be transferred and understood in the digital government context, where there is an increasing need to establish forms of collaboration that can respond to swift changes in the environment related to technology and citizen demands. Drawing on the analysis of four cases of IT-related project collaboration, we put forward that the degree of sharing of decision-making power and of accountability between government and non-government actors is critical to developing different types of adaptive governance. Findings show that the distribution of decision-making power and of accountability can be decoupled, resulting in three types of adaptive governance – namely polycentric, agile, and organic governance. We contribute to research by detailing and empirically testing the notion of adaptive governance in a digital government context, and to practice by highlighting the role of the distribution of decision-making power and of accountability in devising adaptive governance strategies."
doi: 10.1016/j.elerap.2018.05.001.
https://doi.org/10.1016/j.elerap.2018.05.001.

ABSTRACT: Having the advantage of reaching massive audience, mainstream media can frequently influence public opinions and attitudes. However, recent statistical data shows that the average user stickiness of mainstream media websites is much lower, in comparison with other types of media websites in China. To gain insights into this phenomenon, we construct a model to examine the impacts of various website attributes and user influence on user stickiness. Our empirical analysis demonstrates that media website attributes and user characteristics have different effects on user stickiness. Our results shed fresh light on how to enhance mainstream media website user stickiness in a competitive and ever-evolving landscape. ".

Bibliography on e-Health


ABSTRACT: The term “big data” has gotten increasing popular attention, and there is growing focus on how such data can be used to measure and improve health and healthcare. Analytic techniques for extracting information from these data have grown vastly more powerful, and they are now broadly available. But for these approaches to be most useful, large amounts of data must be available, and barriers to use should be low. We discuss how “smart cities” are beginning to invest in this area to improve the health of their populations; provide examples around model approaches for making large quantities of data available to researchers and clinicians among other stakeholders; discuss the current state of big data approaches to improve clinical care including specific examples, and then discuss some of the policy issues around and examples of successful regulatory approaches, including deidentification and privacy protection. ".

https://doi.org/10.1016/j.imu.2018.05.002.

ABSTRACT: Internet of Things based approaches and frameworks hold significant potential in changing the way in which engineering activities are accomplished. The information centric revolution underway has served as a catalyst in the design of innovative methods and practices in several engineering and other domains. In this paper, an Internet of Medical Things based framework for surgical training is discussed in the broader context of Next Generation frameworks. The design and development of this Internet of Medical Things based framework involving adoption of Global Environment for Network Innovations based networking principles is elaborated. The Virtual Reality based simulation environments incorporate haptic based interfaces which support collaborative training and interactions among expert surgeons and residents in orthopedic surgery from distributed locations. The impact of using this Internet of Medical Things based framework for medical education has also been studied; the outcomes underscore the potential of adopting such Internet of Medical Things based approaches for medical education. ".


ABSTRACT: Voice-enabled devices have a potential to significantly improve the healthcare
systems as smart personal assistants. They usually come with a hands-free feature to add an extra level of usability and convenience to elderly, disabled people and patients. In this paper, we propose a privacy-preserving voice-based search scheme to enhance the privacy of in-home healthcare applications. We consider an application scenario where patients use the devices to communicate with their caregivers by recording and uploading their voices to the servers, where the caregivers can search the interested voices of their patients based on the voice content, mood, tone and background sounds. Our scheme preserves the richness and privacy of voice data and enables accurate and efficient voice-based search, while in current systems that use speech recognition, the richness and privacy of voice data are compromised. Specifically, our scheme achieves the privacy by employing a privacy-preserving voice feature matching technique and a novel category-based encryption; only encrypted voice data is uploaded to the server who is unable to access the original voice data. In addition, our scheme enables the server to selectively and accurately respond to caregivers' queries on the voice data based on voice similarities. We evaluate our scheme through real experiments and show that our scheme even with privacy preservation can successfully match similar voice data at an average accuracy of 80.8%.


ABSTRACT: A dramatic global increase in the pervasiveness of chronic illness has coincided with a reduction in the availability of healthcare resources, coupled with increased costs for care, forcing a fundamental reevaluation of care processes. These trends have driven interest in the use of advanced healthcare information systems and telematics applications to improve care availability while reducing overall costs, but such measures require taking an integrated approach to a range of interrelated social, economic, political and cultural impacts and challenges. Telecare technologies allow hospitals to continuously monitor biomedical indicators, while providing patients with online services such as clinical appointment scheduling, medical consulting, remote alerts, etc. Telecare has the potential to transform the healthcare industry by reducing costs, increasing quality, and enhancing patient satisfaction. The development of a real-time monitoring healthcare service model through the integration of information and communications technologies (ICT) has emerged as a research priority. This study explores the design, value creation, development and evaluation of Telecare systems and mobile health applications for autonomous health management to ensure appropriate home-based health monitoring and treatment while improving care performance. A well-defined methodology is needed to develop artifacts due to increasing disease complexity. This study develops an Android-based self-management application based on design science research methodology. The App assists users in collecting and monitoring indicators to prompt appropriate care services. This study uses individual home self-care as the basic Telecare unit to design a service model integrating six kinds of healthcare services. Usability testing is conducted to reflect five constructs: system usefulness, ease of learning, information quality, interface quality, and overall satisfaction. Experimental results support previous research findings regarding the Chronic Care Model and enhance the effectiveness of mobile-based services. Our work provides a useful reference to researchers and practitioners interested in understanding how hospitals can better facilitate more effective mobile-based technology adoption in today’s e-health environment."


ABSTRACT: Biomedical engineering has grown as a vast field of research that includes many areas of engineering and technology also. Personalized Medicine is an emerging approach in today’s medicare system. It bears a very strong potential to consolidate modern e-health
systems fundamentally. Scientists have already discovered some of the personalized drugs that can shift the whole medicare system into a new dimension. However, bringing the change in the whole medicare system is not an easy task. There are several factors that can affect the successful adoption of Personalized Medicine systems in the healthcare management sector. This paper aims at identifying the critical factors with the help of an empirical study. A questionnaire was distributed amongst some clinicians, clinical researchers, practitioners in pharmaceutical industries, regulatory board members, and a larger section of patients. The response data collected thereby were analyzed by using appropriate statistical methods. Based on the statistical analysis, an attempt is made to prepare a list of critical success factors in the adoption of personalized medicine in healthcare management. The study indicates that eight of the thirteen hypothesized factors have statistical relationship with "Success". The important success factors detected are: data management, team work and composition, privacy and confidentiality, mindset, return on investment, sufficient time, R&D and alignment. To the best of our knowledge, this is the first academic paper in which an attempt has been made to model the vital critical factors for the successful implementation of Personalized Medicine in healthcare management. The study bears the promise of important applications in healthcare engineering and technology.

ABSTRACT: The purpose of this review article is to explore a new paradigm on healthcare assessment and intervention practices for students with learning, physical and/or sensory disabilities. The perspective presented here is regarded as patient centric and relies on ICTs, in order to address evidence-based treatment and care, meeting every individual's health profile, with regard to his or her needs, preferences, goals and culture. Patient-centric ICTs based approach has an impact on healthcare systems, introducing a multi-disciplinary care planning that overcomes individual, professional and organizational barriers, reduces anxiety and establishes better understanding with the student at the center. Generally, results show the impact of the interoperability of healthcare information between patients' healthcare record and information systems which facilitate healthcare systems to be lifesaving if available at the time of medical examination. When medical treatment is combined with ICTs based methods and applications such as Serious Games, Mobile Assistive Technologies applications, Telehealth Systems and Virtual Training, patients with learning, physical and/or sensory disabilities can benefit from a cost-effective and flexible network model while having their customized needs fully examined and resolved. The articles presented within this review demonstrate that ICTs based patient-centeredness for students with learning, physical and/or sensory disabilities is associated with better (functional) outcomes leading to quality of life and inclusion, improved quality of care, fewer problem behaviors, higher levels of health-related autonomy and greater patient satisfaction. ".

ABSTRACT: Growing interest surrounds the use of information and communication technologies (ICTs) for mental-health-related purposes, yet little is known about rates of ICT use among the psychiatric population and those with severe mental illness. This study examines ICT accessibility among the psychiatric population, focusing on serious and non-serious mental illness (SMI and non-SMI). Patients (N = 427) from all service branches of the Psychiatry Department at Emek Medical Center were recruited orally or through advertisement. Responders completed a self-report survey regarding accessibility and use of ICTs (i.e., computer, internet, Facebook, mobile phone, smartphone). Results revealed that 59.3% of respondents used computers, 77.3% used the internet, 92.7% owned a mobile phone, 67.9% owned a
smartphone, and 63% used Facebook. Over half of participants who used ICTs reported doing so at least once per day. SMI and non-SMI respondents differed significantly in their use and access to a computer, the internet, Facebook, and smartphones. Results suggest that mental illness is not a barrier to using and accessing technology; however, when differentiating between SMI and non-SMI, illness severity is a barrier to potential ICT utilization. These results may encourage policymakers to design ICTs that suit the needs of individuals with SMI.


**ABSTRACT:** Enabling successful active ageing is an international priority to meet the challenges of increasing life expectancy. Digital strategies, such as telemedicine and e-health, offer the potential to deliver active ageing in a cost-effective manner at scale. This article aims to establish the extent to which the research literature considers e-health-based and telemedicine-based active ageing interventions. A systematic review was conducted according to PRISMA standards. Independently, two authors searched the Cochrane, EMBASE & CINAHL databases, with subsequent independent extraction and semi-quantitative analysis. We report a considerable breadth in digital active ageing research, which is truly international in its scope. There is a diverse range of both interventions and technologies, including a reassuring focus on community-based interventions. Whilst there are a number of quantitative studies, sample sizes are small, with a limited amount of statistical testing of the results. There is significant variation in the outcome measures reported and little consensus as to the most effective intervention strategies. Overall, whilst there is considerable breadth to the research published in the literature, there is a clear restriction in the depth of this research. There is little overall consensus. This lack of depth and consensus may be due to the need to recognize the important role of technical research elements alongside more traditional research methodologies, such as randomized controlled trials. Enabling both technical and clinical research methods to be recognized, in tandem, has enormous potential to support individuals, communities, clinicians and policy makers to make more informed decisions in relation to active ageing.

**Bibliography on “emergency communication”**


**ABSTRACT:** Digital technologies and big data are rapidly transforming humanitarian crisis response and changing the traditional roles and powers of its actors. This article looks at a particular aspect of this transformation—the appearance of digital volunteer networks—and explores their potential to act as a new source for media coverage, in addition to their already established role as emergency response supporters. I argue that digital humanitarians can offer a unique combination of speed and safe access, while escaping some of the traditional constraints of the aid-media relationship and exceeding the conventional conceptualizations of citizen journalism. Journalists can find both challenges and opportunities in the environment where multiple crisis actors are assuming some of the media roles. The article draws on interviews with humanitarian organizations, journalists, and digital volunteer networks about their understanding of digital humanitarian communication and its significance for media coverage of crises.
Bibliography on “gender”

https://doi.org/10.1016/j.ejor.2018.05.023.
ABSTRACT: The gender pay gap measures the differences in the wages earned by female workers when compared to male workers. Accurately measuring the gender pay gap is an important exercise in order to assess how far we are from the ideal of equal pay for work of equal value. Determining the different sources of the gender pay gap is also very important in order to design appropriate policies for eliminating this gap. We develop an enhanced method to measure and decompose the gender pay gap. This method is based on the Data Envelopment Analysis (DEA) technique and on the Malmquist Index (MI). We use DEA and the MI to construct an index reflecting an adjusted measure of the gender pay gap, taking into account multiple productive characteristics and multiple types of pay. Furthermore, we propose a decomposition of the gender pay gap into four components: same-gender pay gap; cross-gender frontier gap magnitude; productive characteristics bias; and pay package bias. The method is applied to data relative to 15712 men and 17175 women working as business and administration associate professionals in the finance and insurance industry in 20 countries. The results reveal the existence of a gender pay gap in all countries and that the value of the gap, and of its components, vary considerably between countries, requiring different policies to tackle it. 

http://dx.doi.org/10.1109/MIM.2018.8360911.
ABSTRACT: Despite women's relatively recent entrance into many male-dominated fields, women currently make up 17 percent of the engineering workforce, with as few as 8 percent in mechanical engineering and as many as 34 percent in environmental engineering 1]. Of the 17 percent of the engineering workforce that are women, 68 percent are White women 2]. Why does the male-domination of engineering persist? And, why do some fields within engineering remain more male-dominated than others? While there have not been enough systematic studies across engineering fields to determine why some are more male-dominated than others, there is a body of research examining how some STEM fields remain male-dominated (e.g., computer science, engineering, and physics) while other fields have become more gender-balanced (e.g., biology, chemistry, and math) (see 3] for a review). Essentially, the answer is that fields remain dominated by White men because the culture of the field is "masculinized" and excludes women 3]. In this article, I will discuss a few of the underlying assumptions that make up the masculinized culture that excludes women 3], 4]. I focus my review on scholarship focusing on beliefs about women's competence, commitment, and leadership. Next, I illustrate how individuals enact masculinized cultures in their everyday interactions and practices as well as how underlying assumptions of masculinized cultures are embedded in policies and procedures. Then, I discuss strategies for making changes to masculinized cultures. I conclude by providing examples of policy changes that facilitate culture changes and equitable work outcomes.

http://dx.doi.org/10.1109/EDUCON.2018.8363417
ABSTRACT: Gender inequality is a global problem present in all facets of life to a greater or lesser degree. In the fields of Sciences, Technology, Engineering and Mathematics, both in career and work contexts, the gender gap continues. The percentage of women who study or work in the technology sector is around 25% according to different international reports. The incorporation of
gender studies in the curricula is considered one of the main actions to close the gender gap in tertiary education. Education programs should approach conceptual mismatches between gender or sex and change its foundations to guarantee equal education for any person by limiting the influence of social stereotypes and dominant culture. There are few studies that aim at describing what is the main stream viewpoints among students from research instruments previously validated. This work describes the process to elaborate a questionnaire on gender perspectives and its validation in order to describe what students of Computer Engineering careers think and what changes can be implemented accordingly in future education programs to close the gender gap.

doi: 10.1109/EDUCON.2018.8363497
http://dx.doi.org/10.1109/EDUCON.2018.8363497

ABSTRACT: There is still a large gender gap across the technology, engineering and physical sciences disciplines despite a number of efforts over the past three decades to address this. Creating a more diverse workforce including a better gender balance is important in order to meet the skills need of the future. There is also increasing evidence that organizations with a more diverse workforce are more creative and innovative and ultimately perform better and are more successful. The aim of this paper is to explore how to address the gender gap by exploring our own notions of trust and unconscious bias. The paper draws on the perspectives of four women at different stages of their career and their lived experiences of being female in the engineering sector. Together they provide an insight into this important issue, and how we can work together as a collective community across the sector to address it and provide environments that are welcoming and value each and every one of us.

doi: 10.1016/j.landusepol.2018.05.033.
https://doi.org/10.1016/j.landusepol.2018.05.033.

ABSTRACT: Women’s empowerment is considered vital for successful natural resource management. However, owing to the problem of reverse causality, previous empirical studies have uncovered little evidence that enhancing women’s presence in community institutions for natural resource management leads to resource preservation. This study explores the causal impact of women’s participation in farmland management governance in Japan on farmland preservation. In 2010, municipal agricultural committees managing farmland in Japan set the goal of having at least two women members in the executive committee (EC), the principal decision-making body. We use the timing of the election of EC members as an instrumental variable. Using panel data on agricultural committees from 2011 to 2015, the results show that agricultural committees with a high proportion of women members show significantly greater improvements in farmland preservation. This beneficial impact of women’s participation is likely attributable to not only the increased role of women in decision making, but also the increase in the meetings of EC members for in-house training.


ABSTRACT: Purpose The purpose of this paper is to provide a systematic literature review of available research evidence on marginal participation of women in ICT-related jobs (ICT ? information and communication technology). In this study, it has been attempted to identify gaps in these literature studies according to the Global Index of Gender dimensions and briefly has been explained guidelines for policymakers to improve the participation of women in this area.
ABSTRACT: Purpose Although microblogs have become an important information source, the credibility of their postings is still a critical concern due to the open and unregulated nature. To understand the antecedents of microblog information credibility, the purpose of this paper is to investigate the dual-role of cognitive heuristics (i.e. the additivity and bias roles) and the effect of gender differences. Design/methodology/approach This study collected data via an online field survey of active microblog users, and a total of 204 valid responses was received. Findings This study demonstrates the dual-role of source credibility and vividness, the additivity role of
microblog platform credibility, and the bias role of social endorsement. Furthermore, this study also found out gender difference that the additivity role of cognitive heuristics was stronger for men while bias role was stronger for women. Research limitations/implications This research enriches the microblog literature by examining the cognitive heuristic determinants as key predictors of microblog information credibility, and contributes to the information credibility literature by identifying and analyzing the dual-role effect of cognitive heuristics and corresponding gender differences. Practical implications This study can help organizations better manage their reputation, especially during the reputation crises, and also serves as a reminder to microblog platform operators of the importance of their microblog platform credibility. Social implications This study can help organizations better manage their reputation, especially during the reputation crises, and serves as a reminder to the microblog platform operators of the importance of their microblog platform credibility. Originality/value This study investigates the dual-role effect of cognitive heuristics (i.e. the additivity role and bias role) and corresponding gender differences that are less touched on before, and thus provides a more nuanced understanding of the more complex effects of cognitive heuristics.

https://doi.org/10.1016/j.leaqua.2018.04.001.

ABSTRACT: A wealth of literature documents that women leaders can face simultaneous and yet conflictual demands for both agency and communion, due to the incongruence of their leader role and gender role demands. However, we still know little about why some women cope with the tensions between agency and communion better than others and what implications are involved. Using a paradox perspective, we develop a theoretical model to explain how women leaders experience and respond to agency-communion tensions, which impacts their intrapersonal and interpersonal outcomes. Specifically, we propose that in response to experiencing tensions fueled by the dual demands for agency and communion, women leaders can adopt a paradox mindset that simultaneously embraces agency and communion, or a dilemma mindset that dichotomizes agency and communion. The paradox mindset helps women leaders build psychological resilience, identity coexistence, and leadership effectiveness, whereas those who adopt a dilemma mindset experience depleted resilience, identity separation, and lowered leadership effectiveness. Further, our model highlights individual, interpersonal, and organizational
conditions that shape women’s experience and stimulate a paradox mindset versus a dilemma mindset. We conclude by discussing theoretical and practical implications of our model.

Bibliography on “ICT for development (ICT4D)”

doi: 10.1016/j.techfore.2018.05.009.
https://doi.org/10.1016/j.techfore.2018.05.009.

ABSTRACT: Technology upgrading plays a crucial role in the catching-up process of emerging economy firms (EEFs) that aim to develop technological capabilities and move from imitation to innovation. The literature on emerging economies has mainly focused on how EEFs overcome the lack of technological knowledge at initial stages of catching-up while neglecting organisational issues that arise at later stages. The purpose of this study was to explore organisational activities performed by EEFs that are innovating at advanced stages of catching-up. Two Brazilian firms, namely Petrobras and WEG, were selected to be studied and to provide evidence for the research. The results indicate that both firms have systematically monitored their environments to look for windows of opportunity and have consistently invested in learning mechanisms to overcome shortcomings in knowledge. Furthermore, an activity for aligning strategy and technology was found to be key for optimising the technology upgrading process and for maximising its results.

https://doi.org/10.1016/j.techfore.2018.05.011.

ABSTRACT: The use of various forms of ICTs (information communication technology) such as mobile telephones can foster the socio-economic progression of developing countries. Contextually appropriate design and use are needed for ICTs to deliver value to various parties within the socio-economic spheres of developing countries who have different needs and wants compared to those of the developed world. There is however scant empirical evidence of how various stakeholders symbiotically interact and create value in developing countries where large multinationals have limited access and engagement. Drawing on the theoretical lens of co-creation of value our paper examines how technology upgrading is achieved in the context of the Bangladeshi mobile telephone industry. In doing so this paper suggests technology upgrading can be achieved even without some of the key prerequisites such as financial, institutional, infrastructural facilities cited in existing literature. The findings offer useful theoretical and policy implications by providing deeper understanding of the interactions and inter-relationships of those who have involvement in the value creation for mobile telephony and contribute to the development of effective business models and technological innovations for these marketplaces.

https://doi.org/10.1016/j.telpol.2018.03.002.

ABSTRACT: The diffusion and adoption of modern information technology provide new chance for China to close urban-rural income gap. This paper uses China’s provincial panel data from 2002 to 2013 to investigate the effect of computer penetration on rural residents’ income. A public program aiming to connect every village with broadband Internet and other rural facilities provides plausibly exogenous variation in rural residents’ availability and adoption of the
broadband Internet, which is used to explore the instrument variable for rural computer penetration. The results show that rural computer penetration tends to increase rural residents' income over time, but the average effect remains limited. The dynamic panel threshold effects model, which allows for both the threshold variable and other covariates to be endogenous, is further used to explore the constraints of the income-increase effect of rural computer penetration. It shows that the effect is at least doubled over the average effect estimated from instrument variables method, once the digital divide causes are removed. Our findings have important implications for the government to increase rural residents' income and reduce urban-rural income gap by encouraging rural computer usage and removing the digital divide."


https://doi.org/10.1016/j.tepol.2018.03.010.

**ABSTRACT:** This research empirically analyzed the impact of mobile phone and the Internet on per capita income of Sub-Saharan Africa (SSA) for the period of 2006–2015 using a panel data of 40 countries. We have employed the robust two-step system GMM. Results showed that growth in mobile phone penetration has contributed significantly to the GDP per capita of the region after controlling for a number of other variables. A 10% increase in mobile phone penetration results in a 1.2% change in GDP per capita. Therefore, improving access to mobile phones will play a critical role in reducing the poverty level of the region through raising the per capita income of the population. However, the Internet has not contributed to the per capita GDP during the study period. The insignificant impact of the Internet could be due to low penetration of the technology, low ICT skill of Internet users, lack of or insufficient local content on the global network, and the relatively immature state of the technology in the region. Therefore, governments and other stakeholders should design policies that encourage expansion of the Internet. In addition to improving Internet access, policies which focus on ICT skill development and local content creation should also be designed and implemented.


**ABSTRACT:** Purpose The purpose of this paper is to outline the S&T and innovation policy challenges that Rwanda is experiencing in building a knowledge-based economy and draw some more general lessons for African countries. Design/methodology/approach The approach is based on methodological framework of country reviews used by international organizations in the field of science, technology and innovation policies. Findings The paper presents government policies that have been decisive for the good performance of the country in rebuilding its economy and society since the genocide (1994). It highlights the policy measures that have been taken in the fields of education, information and communication technologies, industry, science and so on with a view to put the country on a knowledge-driven development process. It pinpoints the need for more proactive policies to stimulate the diffusion of new technologies and innovation throughout the economy and the different sectors, including agriculture which employs still 80 percent of the population. Research limitations/implications The paper is based on a short field mission (conducted for an international organization) and the collection of published data, in focusing on important messages that should be given to the government, without an in-depth empirical and detailed research. Practical implications The paper is a kind of summary of a 80-page report to be published in the course of 2017. It is expected that the analysis will be clear enough to stimulate appropriate action by the Government of Rwanda. Social implications There is no direct social implications, but one may expect that the ideas if adopted by the government will help improving the living conditions in the country. Originality/value Such country reviews performed by international organizations are unique. They provide key insights on the innovation climate and policy of the nation that is studied, while they offer useful perspectives for countries at similar level of development.; Purpose The purpose of this paper is to outline the S&T and innovation policy challenges that Rwanda is experiencing in building a knowledge-based economy and draw
some more general lessons for African countries. Design/methodology/approach The approach is based on methodological framework of country reviews used by international organizations in the field of science, technology and innovation policies. Findings The paper presents government policies that have been decisive for the good performance of the country in rebuilding its economy and society since the genocide (1994). It highlights the policy measures that have been taken in the fields of education, information and communication technologies, industry, science and so on with a view to put the country on a knowledge-driven development process. It pinpoints the need for more proactive policies to stimulate the diffusion of new technologies and innovation throughout the economy and the different sectors, including agriculture which employs still 80 percent of the population. Research limitations/implications The paper is based on a short field mission (conducted for an international organization) and the collection of published data, in focusing on important messages that should be given to the government, without an in-depth empirical and detailed research. Practical implications The paper is a kind of summary of a 80-page report to be published in the course of 2017. It is expected that the analysis will be clear enough to stimulate appropriate action by the Government of Rwanda. Social implications There is no direct social implications, but one may expect that the ideas if adopted by the government will help improving the living conditions in the country. Originality/value Such country reviews performed by international organizations are unique. They provide key insights on the innovation climate and policy of the nation that is studied, while they offer useful perspectives for countries at similar level of development.


ABSTRACT: Purpose The current era of globalization is dominated by the rise of investments in intangible capital rather than tangible capital - the ascendance of creativity over plant and equipment. This brief paper is motivated by the possibility that emerging market economies such as Morocco might take greater advantage of new tools and policies designed for this new era. The paper aims to discuss these issues. Design/methodology/approach To begin, the author discusses the transformation of the global economy and the consequences of the transformed global economy for economic thinking and measurement. The author refers to both old and new literature on the measurement of intangible investment and capital. Findings Then, the author discusses the rising role of creativity and cultural difference in the development of these new economic forces, using the example of the Harry Potter book series. Originality/value The author then considers how cultural enhancement serves multiple purposes for a nation. Finally, the author turns to some of the possible implications of these economic forces for Morocco, stressing that these implications are speculative.

ABSTRACT: The purpose of this study is to assess the effect of technological, organizational and environmental factors on innovation ambidexterity and its influence on the performance of manufacturing small- and medium-sized enterprises (SMEs) as well as the moderating effect environmental dynamism on this relationship. Design/methodology/approach Drawing on the Technology?Organization?Environment theory and the Knowledge-Based View, this paper develops an integrative research model, which analyzes the network of relations using covariance-based structural equation modeling on a data set of 429 Spanish SMEs. Findings The results show that information technology capability, knowledge management capability and environmental dynamism are positively associated with innovation ambidexterity. In addition, environmental dynamism is found to strengthen the positive effect of innovation ambidexterity on firm performance. Practical implications The study findings support the idea that innovation can be developed in an ambidextrous manner within a single SME as long as the firm is capable of creating a suitable organizational context and giving a prompt response to changes in the business environment. Originality/value Although many studies have highlighted that being ambidextrous is more challenging for SMEs than for their larger counterparts, the vast majority of studies has been conducted in large companies. This paper extends prior literature by analyzing antecedents and outcomes of innovation ambidexterity in manufacturing SMEs.; Purpose The purpose of this study is to assess the effect of technological, organizational and environmental factors on innovation ambidexterity and its influence on the performance of manufacturing small- and medium-sized enterprises (SMEs) as well as the moderating effect environmental dynamism on this relationship. Design/methodology/approach Drawing on the Technology?Organization?Environment theory and the Knowledge-Based View, this paper develops an integrative research model, which analyzes the network of relations using covariance-based structural equation modeling on a data set of 429 Spanish SMEs. Findings The results show that information technology capability, knowledge management capability and environmental dynamism are positively associated with innovation ambidexterity. In addition, environmental dynamism is found to strengthen the positive effect of innovation ambidexterity on firm performance. Practical implications The study findings support the idea that innovation can be developed in an ambidextrous manner within a single SME as long as the firm is capable of creating a suitable organizational context and giving a prompt response to changes in the business environment. Originality/value Although many studies have highlighted that being ambidextrous is more challenging for SMEs than for their larger counterparts, the vast majority of studies has been conducted in large companies. This paper extends prior literature by analyzing antecedents and outcomes of innovation ambidexterity in manufacturing SMEs.

doi: 10.1016/j.chb.2018.03.029.
https://doi.org/10.1016/j.chb.2018.03.029.
ABSTRACT: There are a number of challenges facing the low-income urban communities living in slums in most of the developing countries such as the Mathare slum. Provision of essential public basic services in the Nairobi slums is lower compared to what is offered to the rest of the City. But, services such as the garbage removal also requires participation of the residents for successful service delivery. The objective of this study was to investigate whether use of Facebook, as a Web 2.0 technology, can support the residents of Mathare slum to actively participate in civic environmental initiatives and to foster community activeness towards civic environmental protection. The study employed a mixed methods approach to investigate the problem. This was achieved through a preliminary survey (700 respondents) to collect data on use of Web 2.0 among the residents of Mathare slum, an experiment with 175 residents, who participated in a community civic environmental initiative using Facebook and a survey to measure continuance intentions on use of Web 2.0 technologies for collective community Web 2.0-mediated activities towards protecting the environment among low-income urban communities. The study constructed and successfully tested a model of Web 2.0 use and online environmental protection initiatives. Use of Web 2.0 technologies for environmental protection emerged as a significant predictor of online social capital, community environmental activeness
and continuance intentions to participate in environmental initiatives, while perceived cost negatively moderates the relationship between Web 2.0 use and continuance intentions. Implications and recommendations for policy, practice and research are provided. "

Bibliography on “intelligent transportation systems (ITS)”


ABSTRACT: Multimedia oriented Internet of Things (IoT) enables pervasive and real-time communication of video, audio and image data among devices in an immediate surroundings. Today's vehicles have the capability of supporting real time multimedia acquisition. Vehicles with high illuminating infrared cameras and customized sensors can communicate with other on-road devices using dedicated short-range communication (DSRC) and 5G enabled communication technologies. Real time incidence of both urban and highway vehicular traffic can be captured and transmitted using vehicle-to-vehicle and vehicle-to-infrastructure communication modes. Video streaming in vehicular IoT (VSV-IoT) environments is in growing stage with several challenges that need to be addressed ranging from limited resources in IoT devices, intermittent connection in vehicular networks, heterogeneous devices, dynamism and scalability in video encoding, bandwidth underutilization in video delivery, and attaining application-precise quality of service in video streaming. In this context, this paper presents a comprehensive review on video streaming in IoT environments focusing on vehicular communication perspective. Specifically, significance of video streaming in vehicular IoT environments is highlighted focusing on integration of vehicular communication with 5G enabled IoT technologies, and smart city oriented application areas for VSV-IoT. A taxonomy is presented for the classification of related literature on video streaming in vehicular network environments. Following the taxonomy, critical review of literature is performed focusing on major functional model, strengths and weaknesses. Metrics for video streaming in vehicular IoT environments are derived and comparatively analyzed in terms of their usage and evaluation capabilities. Open research challenges in VSV-IoT are identified as future directions of research in the area. The survey would benefit both IoT and vehicle industry practitioners and researchers, in terms of augmenting understanding of vehicular video streaming and its IoT related trends and issues. "


ABSTRACT: Video streaming is considered as one of the best compelling sources of information for several applications ranging from vehicular technology, security systems, biomedical systems to aerospace applications. Video streaming using wireless network is quite challenging and a lot of research is in progress. In this paper, design and development of a low-cost real-time wireless video streaming mote is proposed which is an outcome of a funded project. Three different variants of the proposed system are designed, tested and their performances are evaluated. The first prototype uses an Arduino YUN board, second prototype uses a Raspberry PI board and the third prototype uses an Arducam ESP8266 Uno Module. The proposed wireless video streaming mote is aimed at moving around an area under surveillance, gathering images and transferring the same to control station. The proposed system has potential applications including assistance to vehicle drivers during reversing, parking, autonomous driving of the vehicles, driving vehicles using mobile application etc. The proposed system designed has a myriad of real-time applications for domestic requirements with social cause too.
ABSTRACT: As the delta-v-based injury models used to evaluate intelligent driving systems are always fitted with European or American crash database, they cannot achieve wide application in those countries where limited in-depth analysed crash data are recorded. An injury model which is based on easily accessible information, is urgently needed. In this study, a deformation depth based injury risk model is proposed to overcome the limitation of delta-v. First, a correlation between the vehicle deformation depth and occupant injury risk is verified from the aspects of retrospective safety assessment and stiffness cluster analysis using German in-depth accident study and national automotive sampling system-crashworthiness data system. Furthermore, injury risk-deformation functions are regressed for different stiffness clusters using the crash data. The fitting accuracy reaches 97%, higher than the existing literature. A novel safety benefit assessment simulation platform is built with the regressed injury risk model. Based on this platform, an autonomous emergency braking system is evaluated. Only 1% error of the safety benefit exists between the proposed model and the delta-v based one.

doi: 10.1016/j.scs.2018.05.008.
https://doi.org/10.1016/j.scs.2018.05.008.
ABSTRACT: A smart city improves the quality of its citizens by providing access to ubiquitous services. Intelligent Transportation Systems (ITS) have a fundamental role in transforming a metropolitan area into a smart city. In the past two decades, many applications of ITS, e.g. city-wide traffic management and monitoring, smart parking, public transportation information services (bus, train, taxi, plane, etc.), logistics, real-time traffic, road speed limit monitoring and management etc., are deployed in smart cities. The sensors or mobile objects in ITS constantly generate mobility data and the scale at which this data is generated is witnessing an exponential increase in volumes. To store and subsequently analyze such massive data generated by sensors, new architectures are needed which are primarily designed for working with big data. In this work, we propose a big data analytics architecture for ITS. The proposed architecture has a built-in storage and analysis capability to work with ITS data and is composed of four modules, namely (1) Big Data Acquisition and Preprocessing Unit (2) Big Data Processing Unit (3) Big Data Analytics Unit and (4) Data Visualization Unit. A detailed analysis of ITS big data for monitoring the average speed of a vehicle at w.r.t. the time attribute is provided. The proposed architecture is evaluated using Hadoop thus validating the proof of concept. The empirical results are encouraging and open directions for future research. ".

ABSTRACT: Vehicular ad hoc networks (VANETs) are a key technology for intelligent transportation system providing different services in safety and entertainment applications. Routing in VANET encounters high mobility of nodes, heterogeneous node distribution and dynamic network topology. These characteristics of the VANET demand a routing protocol capable of inhibiting intermittent connectivity due to network fragmentation. The proposed work is a connectivity-aware intersection-based shortest path routing protocol (CISRP) for VANETs in an urban environment. The CISRP has been designed to look into the prevailing road conditions and route the packets in a less congestion and less link breakage path to avoid intermittent connectivity. The results evaluated show the enhanced performance of the CISRP protocol.
doi: 10.1109/MSPEC.2018.8362227.
http://dx.doi.org/10.1109/MSPEC.2018.8362227.
ABSTRACT: IN 10 YEARS, electric vehicles will become more energy efficient, and more important, they will begin to supplant fuel-burning cars, which will save even more energy. Thomas Bradley, Zachary Asher, and David Trinko of Colorado State University ran some simulations for *IEEE Spectrum*. They found that if the 2028 EV's batteries offer equal performance for half the weight of those in the 2018 Tesla 3, and if lightweight materials shave off another 500 kilograms, the car would get 12 percent more energy efficiency in the city and 18.5 percent more on the highway. But if the Ford F-150 pickup (today's best-selling U.S. vehicle) were merely to become a plug-in hybrid while shedding 10 percent of its weight, then its fuel efficiency would triple, going from 20 miles per gallon equivalent to 90 mpge in the city and from 26 to 79 mpge on the highway.

doi: 10.1016/j.techfore.2018.05.003.
https://doi.org/10.1016/j.techfore.2018.05.003.
ABSTRACT: By 2020, the EU road transport sector is poised to deploy a host of advanced Intelligent Transport Systems (ITS), including connected and autonomous vehicles (AVs), that are expected to significantly disrupt the automotive sector. This vision of the future is fuelling a virtual 'arms race' among automakers (OEMs), who are forging unconventional alliances and investing heavily in R&D, in anticipation of a radically changed industry. Car travel seems set to undergo a paradigm shift, evolving from a privately-owned asset into mobility as a service; a metamorphosis that will have significant implications for policymakers and industry stakeholders alike. This paper therefore seeks to address existing gaps in knowledge, by using primary qualitative interview data from industry experts and policymakers to examine the early-stages of the AV transition within the EU automotive industry. This paper also assesses the major policy challenges that face industry regulators tasked with underwriting this radical and dynamic transition to autonomous driving. This paper's focus is on the sociotechnical transition to AVs, which contributes to better understandings about the future role and regulation of Intelligent Transport Systems in society.

ABSTRACT: A tandem intersection is an unconventional intersection design that possesses the important property of increasing the traffic capacity using pre-signals and sorting areas. However, the operational efficiency of the lanes in the sorting areas may be affected by driver unfamiliarity and confusion. This study evaluates the effect of the tandem control on the saturation flow rate using field data. Statistical analyses were conducted to identify the difference in the saturation flow rate of the approach lanes when the tandem control was open and closed. A saturation flow rate adjustment model for tandem control was established in accordance with three factors: unequal distribution of traffic, red light violations at the pre-signal, and incomplete discharge of vehicles at the sorting area. The results indicate that the tandem control decreases the saturation flow rate of the approach lanes in the sorting area. Most of the observed reductions are caused by the first factor, i.e. the unequal distribution of traffic. The other two factors, red light violations and incomplete discharge, can be controlled by using appropriate traffic signs, markings, and signal timing design.
Bibliography on “internet governance”

http://dx.doi.org/10.1016/S1361-3723(18)30042-3.
ABSTRACT: It's often unclear to Internet users who it is that actually makes the decisions that make their connection work. This is because the Internet, by definition, is a complex system that is not managed by a single organisation. In order for your connection to be successful, you use hardware built by a hardware vendor, protocols developed by Internet engineers in loose technical groups such as the Internet Engineering Task Force (IETF), networks operated by a third party and a website operated by the organisation with which you’re actually interacting. That organisation probably uses a whole set of other vendors, such as content delivery networks or cloud providers, to provide the service. It’s often unclear to Internet users who actually runs it. This is because the Internet, by definition, is a complex system that is not managed by a single organisation. You use hardware and software from a variety of vendors, protocols developed by Internet engineers in loose technical groups and networks operated by third parties. Maarten Van Horenbeeck of the Forum of Incident Response and Security Teams examines how this mishmash of organisations and standards fits together and what makes it work.

Bibliography on “internet of things”

ABSTRACT: The traditional supply chains faces several challenges such as uncertainty, cost, complexity and vulnerable problems. To overcome these problems the supply chains must be more smarter. For establishing a large-scale of smart infrastructure to merge data, information, products, physical objects and all processes of supply chain, we applies the internet of things (IOT) in supply chain management (SCM) through building a smart and secure system of SCM. We have prepared a website for suppliers and managers. We tracked the flow of products at each stage in supply chain management through the Radio Frequency Identification (RFID) technology. Each product attached with RFID tag and scanned through RFID reader and ESP8266 at each phase of supply chain management. After scanning the tag we stores tag id in the database. All information about products will be entered by suppliers and then uploaded to managers. In our system the supplier and manager gets perfect information of the entire life cycle of goods, and this will achieve transparency of supply chain management. For assessing security criteria of proposed system of supply chain management, we also proposed a framework which integrates neutrosophic Decision Making Trial and Evaluation Laboratory (N-DEMATEL) technique with analytic hierarchy process (AHP). The neutrosophic Decision Making Trial and Evaluation Laboratory (N-DEMATEL) technique is utilized to infer cause and effect interrelationships among criteria of smart supply chain security requirements. Depending on obtained information from (N-DEMATEL) the neutrosophic AHP is utilized to calculate weight of criteria and sub-criteria. Then the integrated framework will help researchers and practitioners to design secure system of supply chains. We presented DEMATEL and AHP in neutrosophic environment to deal effectively with vague, uncertain and incomplete information. So the proposed system of supply chain management will be able to overcome all challenges of traditional SCM and provide secure environment of SCM processes.

ABSTRACT: Multimedia oriented Internet of Things (IoT) enables pervasive and real-time communication of video, audio and image data among devices in an immediate surroundings. Today's vehicles have the capability of supporting real time multimedia acquisition. Vehicles with high illuminating infrared cameras and customized sensors can communicate with other on-road devices using dedicated short-range communication (DSRC) and 5G enabled communication technologies. Real time incidence of both urban and highway vehicular traffic environment can be captured and transmitted using vehicle-to-vehicle and vehicle-to-infrastructure communication modes. Video streaming in vehicular IoT (VSV-IoT) environments is in growing stage with several challenges that need to be addressed ranging from limited resources in IoT devices, intermittent connection in vehicular networks, heterogeneous devices, dynamism and scalability in video encoding, bandwidth underutilization in video delivery, and attaining application-precise quality of service in video streaming. In this context, this paper presents a comprehensive review on video streaming in IoT environments focusing on vehicular communication perspective. Specifically, significance of video streaming in vehicular IoT environments is highlighted focusing on integration of vehicular communication with 5G enabled IoT technologies, and smart city oriented application areas for VSV-IoT. A taxonomy is presented for the classification of related literature on video streaming in vehicular network environments. Following the taxonomy, critical review of literature is performed focusing on major functional model, strengths and weaknesses. Metrics for video streaming in vehicular IoT environments are derived and comparatively analyzed in terms of their usage and evaluation capabilities. Open research challenges in VSV-IoT are identified as future directions of research in the area. The survey would benefit both IoT and vehicle industry practitioners and researchers, in terms of augmenting understanding of vehicular video streaming and its IoT related trends and issues.


ABSTRACT: Internet of Things based approaches and frameworks hold significant potential in changing the way in which engineering activities are accomplished. The information centric revolution underway has served as a catalyst in the design of innovative methods and practices in several engineering and other domains. In this paper, an Internet of Medical Things based framework for surgical training is discussed in the broader context of Next Generation frameworks. The design and development of this Internet of Medical Things based framework involving adoption of Global Environment for Network Innovations based networking principles is elaborated. The Virtual Reality based simulation environments incorporate haptic based interfaces which support collaborative training and interactions among expert surgeons and residents in orthopedic surgery from distributed locations. The impact of using this Internet of Medical Things based framework for medical education has also been studied; the outcomes underscore the potential of adopting such Internet of Medical Things based approaches for medical education.


ABSTRACT: With Rapid progress of wireless technology, the daily life of the citizens has undergone drastic change. They are using sophisticated devices based on latest technology for their daily usage at homes. This lucrative facility is available especially to the citizens of modern cities of the world. India is also not lagging. Government of India has announced for creation of 100 Smart Cities where the citizens are expected to use Information and Communication Technology with the help of internet. More use of internet by the citizens would enhance more internet penetration and here Internet of Things (IoT) plays a crucial role. However, tapping into...
the IoT is mere a part of the story. It is necessary to combine IoT with Artificial Intelligence (AI) in 'Smart Machines' to simulate intelligent behavior to arrive at an accurate and reliable decision without human intervention. Now combining AI and IoT information systems has become an essential precondition for achieving information system success. For information system success, it is essential to identify the factors affecting it. The purpose of this study is to identify those factors affecting successful implementation of information system enabling IoT coupled with Artificial Intelligence in the proposed Smart Cities of India (SCI).


ABSTRACT: With Rapid progress of wireless technology, the daily life of the citizens has undergone drastic change. They are using sophisticated devices based on latest technology for their daily usage at homes. This lucrative facility is available especially to the citizens of modern cities of the world. India is also not lagging. Government of India has announced for creation of 100 Smart Cities where the citizens are expected to use Information and Communication Technology with the help of internet. More use of internet by the citizens would enhance more internet penetration and here Internet of Things (IoT) plays a crucial role. However, tapping into the IoT is mere a part of the story. It is necessary to combine IoT with Artificial Intelligence (AI) in 'Smart Machines' to simulate intelligent behavior to arrive at an accurate and reliable decision without human intervention. Now combining AI and IoT information systems has become an essential precondition for achieving information system success. For information system success, it is essential to identify the factors affecting it. The purpose of this study is to identify those factors affecting successful implementation of information system enabling IoT coupled with Artificial Intelligence in the proposed Smart Cities of India (SCI).


ABSTRACT: In the smart industry philosophy, continuous monitoring of the machinery condition is crucial to follow up the decision-making strategy. In this context, the purpose of the paper is to elaborate a simple procedure aimed at rotating machine condition monitoring and prognosis. The general assessment of the machine operating condition goodness is indeed crucial for a smart and efficient industrial processes running. Any incipient defect manifests itself in an alteration of the component vibratory status. The proposed procedure is based on the continuous monitoring of the energetic features of the vibration signals acquired from the equipment under analysis. The considered parameter is the vibration velocity RMS value. It is representative of the amount of the fatigue stress affecting the machine. By means of a continuous monitoring of such energetic features, the user is able to plan the maintenance of the equipment, prior to impeding failures. The case study provided in this paper, can illustrate how the data from a monitored process can lead to the machine system self-awareness and, eventually, self-maintenance. Such an approach allows for a self-assessment of health and degradation status of the machine system, in the framework of the Industry 4.0 scenario, one of the pillars of the Smart City.


ABSTRACT: With the rapid development of the Internet of Things (IoT), Big Data technologies have emerged as a critical data analytics tool to bring the knowledge within IoT infrastructures to better meet the purpose of the IoT systems and support critical decision making. Although the topic of Big Data analytics itself is extensively researched, the disparity between IoT domains (such as healthcare, energy, transportation and others) has isolated the evolution of Big Data approaches in each IoT domain. Thus, the mutual understanding across IoT domains can possibly
advance the evolution of Big Data research in IoT. In this work, we therefore conduct a survey on Big Data technologies in different IoT domains to facilitate and stimulate knowledge sharing across the IoT domains. Based on our review, this paper discusses the similarities and differences among Big Data technologies used in different IoT domains, suggests how certain Big Data technology used in one IoT domain can be re-used in another IoT domain, and develops a conceptual framework to outline the critical Big Data technologies across all the reviewed IoT domains.

ABSTRACT: Voice-enabled devices have a potential to significantly improve the healthcare systems as smart personal assistants. They usually come with a hands-free feature to add an extra level of usability and convenience to elderly, disabled people and patients. In this paper, we propose a privacy-preserving voice-based search scheme to enhance the privacy of in-home healthcare applications. We consider an application scenario where patients use the devices to communicate with their caregivers by recording and uploading their voices to the servers, where the caregivers can search the interested voices of their patients based on the voice content, mood, tone and background sounds. Our scheme preserves the richness and privacy of voice data and enables accurate and efficient voice-based search, while in current systems that use speech recognition, the richness and privacy of voice data are compromised. Specifically, our scheme achieves the privacy by employing a privacy-preserving voice feature matching technique and a novel category-based encryption; only encrypted voice data is uploaded to the server who is unable to access the original voice data. In addition, our scheme enables the server to selectively and accurately respond to caregivers' queries on the voice data based on voice similarities. We evaluate our scheme through real experiments and show that our scheme even with privacy preservation can successfully match similar voice data at an average accuracy of 80.8%.

Higginbotham, S. "How to IoT Internet of Everything]." IEEE Spectrum, 55, no. 5 (2018): 23-23
doi: 10.1109/MSPEC.2018.8352568.
http://dx.doi.org/10.1109/MSPEC.2018.8352568.
ABSTRACT: IN A HOME or on a manufacturing floor, there's no point in connecting something just so it's online. You must have a reason. Andy Rhodes, the former vice president and general manager for Dell's Internet of Things (IoT) commercial sales division, once told me that he no longer takes phone calls from companies asking for "some IoT." If the company doesn't know what it wants to do with connected devices, it isn't ready for a sales talk.

https://doi.org/10.1007/s11280-017-0475-8.
ABSTRACT: Attribute based proxy re-encryption (ABPRE) combines the merits of proxy re-encryption and attribute based encryption, which allows a delegator to re-encrypt the ciphertext according to the delegates’s attributes. The theoretical foundations of ABPRE has been well studied, yet to date there are still issues in schemes of ABPRE, among which time-bounded security and key exposure protection for the re-encryption keys are the most concerning ones. Within the current ABPRE framework, the re-encryption keys are generated independently of the system time segments and the forward security protection is not guaranteed when the users’s access privileges are altered. In this paper, we present a key-insulated ABPRE scheme for IoT scenario. We realize secure and fine-grained data sharing by utilizing attribute based encryption over the encrypted data, as well as adopting key-insulation mechanism to provide forward security for re-encryption keys and private keys of users. In particular, the lifetime of the system is divided into several time slices, and when system enters into a new slice, the user’s’s private keys need are required to be refreshed. Therefore, the users’s access privileges in our system
are time-bounded, and both re-encryption keys and private keys can be protected, which will enhance the security level during data re-encryption, especially in situations when key exposure or privilege alternation happens. Our scheme is proved to be secure under MBDH hardness assumptions as well as against collusion attack. In addition, the public parameters do not have to be changed during the evolution of users’ private keys, which will require less computation resources brought by parameter synchronization in IoT.

doi: 10.1016/j.jnca.2018.05.001.
https://doi.org/10.1016/j.jnca.2018.05.001.
ABSTRACT: The next generation of fifth generation (5G) network, which is implemented using Virtualized Multi-access Edge Computing (vMEC), Network Function Virtualization (NFV) and Software Defined Networking (SDN) technologies, is a flexible and resilient network that supports various Internet of Things (IoT) devices. While NFV provides flexibility by allowing network functions to be dynamically deployed and inter-connected, vMEC provides intelligence at the edge of the mobile network reduces latency and increases the available capacity. With the diverse development of networking applications, the proposed vMEC use of Container-based Virtualization Technology (CVT) as gateway with IoT devices for flow control mechanism in scheduling and analysis methods will effectively increase the application Quality of Service (QoS). In this work, the proposed IoT gateway is analyzed. The combined effect of simultaneously deploying Virtual Network Functions (VNFs) and vMEC applications on a single network infrastructure, and critically in effecting exhibits low latency, high bandwidth and agility that will be able to connect large scale of devices. The proposed platform efficiently exploiting resources from edge computing and cloud computing, and takes IoT applications that adapt to network conditions to degrade an average 30% of end to end network latency. ".

doi: 10.1016/j.compeleceng.2018.05.007.
https://doi.org/10.1016/j.compeleceng.2018.05.007.
ABSTRACT: Internet of Things (IoT) devices have gained more prevalence in ambient assisted living (AAL) systems. Reliability of AAL systems is critical especially in assuring the safety and well-being of elderly people. Runtime verification (RV) is described as checking whether the observed behavior of a system conforms to its expected behavior. RV techniques generally involve heavy formal methods; thus, it is poorly utilized in the industry. Therefore, we propose a democratization of RV for IoT systems by presenting a model-based testing (MBT) approach. To enable modeling expected behaviors of an IoT system, we first describe an extension to a UML profile. Then, we capture the expected behavior of an interaction that is modeled on a Sequence Diagram (SD). Later, the expected behaviors are translated into runtime monitor statements expressed in Event-Processing Language (EPL), which are executed at the edge of the IoT network. We further demonstrate our contributions on a sample AAL system. ".

doi: 10.1016/j.pmcj.2018.05.006.
https://doi.org/10.1016/j.pmcj.2018.05.006.
ABSTRACT: The paper presents a model for the characterization of Machine-to-machine (M2M) traffic and the performance evaluation of LTE access to support M2M communication, embedded into a web-based application. The application enables the study of the traffic produced by realistic M2M elements in the context of smart cities. Packet generation for each machine is modelled by means of three mathematical distributions (Poisson, Beta, and Deterministic), which makes it possible to represent a wide variety of M2M applications. A case study was constructed based on the city of Montreal. Real data on the position of machines were retrieved from public datasets.
The case study includes a realistic representation of the LTE infrastructure that allows the estimation of traffic load at each eNodeB, as well as other performance indexes, such as collision probability and access delay. The use of real geographic information enables visual analyses aiming at identifying bottlenecks and possible roadblocks to the M2M integration in the LTE infrastructure.

https://doi.org/10.1007/s11277-017-5218-8.
ABSTRACT: In this paper, a new prediction based dynamic scheduling mechanism is proposed to ensure quality of service especially in internet of things (IoT) by dynamically allocating bandwidth. The scheduling scheme is analyzed for two different applications: (1) to accommodate various streaming data of IoT applications or for medical applications. Traffic is segregated based on different traffic characteristics such as bit rate, packet loss rate and tolerable delay into different classes and they are prioritized based on these characteristics; and (2) to consider continuous long time data from all lightweight devices like sensors. The algorithm allocates bandwidth such that its utilization can be optimized for different applications. The scheduler decision is divided into two steps: (1) calculating average increase in queue length of high priority and medium priority services at current time slot from the previous time slot and, (2) adding these values to previous weight values for corresponding services and multiplying with a coefficient. The performance is carried out under different system loading and scenarios. The results illustrate the improvement of the advised scheduler with respect to end to end delay distributions, packet drop and end to end jitter values.

ABSTRACT: In the Internet of Things (IoT), identification and access control technologies provide essential infrastructure to link data between a user’s devices with unique identities, and provide seamless and linked up services. At the same time, profiling methods based on linked records can reveal unexpected details about users’ identity and private life, which can conflict with privacy rights and lead to economic, social, and other forms of discriminatory treatment. A balance must be struck between identification and access control required for the IoT to function and user rights to privacy and identity. Striking this balance is not an easy task because of weaknesses in cybersecurity and anonymisation techniques. The EU General Data Protection Regulation (GDPR), set to come into force in May 2018, may provide essential guidance to achieve a fair balance between the interests of IoT providers and users. Through a review of academic and policy literature, this paper maps the inherent tension between privacy and identifiability in the IoT. It focuses on four challenges: (1) profiling, inference, and discrimination; (2) control and context-sensitive sharing of identity; (3) consent and uncertainty; and (4) honesty, trust, and transparency. The paper will then examine the extent to which several standards defined in the GDPR will provide meaningful protection for privacy and control over identity for users of IoT. The paper concludes that in order to minimise the privacy impact of the conflicts between data protection principles and identification in the IoT, GDPR standards urgently require further specification and implementation into the design and deployment of IoT technologies.

ABSTRACT: With the popularization of mobile devices and the development of wireless networks, the use of mobile devices to access services is becoming more and more popular. It is becoming
more and more popular for users to access servers by using mobile terminals to obtain services. At the same time, the server to obtain the user’s privacy information will also become more and more, and this privacy information is obtained without the user’s knowledge of the situation. Therefore, how to not only protect the confidentiality of sensitive data of users but also provide safe, reliable and convenient services is a hot issue for research. In this paper, the user privacy and security issues and solutions on the Internet are discussed. The issue generated by accessing the server to obtain the required information based on the mobile device has got in-depth study. The main work is as follows: Firstly, the common methods of privacy protection is introduced, and the methods of attribute-based encryption and homomorphic encryption are analyzed in detail. According to the existing homomorphic encryption scheme and base station knowledge applied to the mobile network model, a privacy protection scheme based on homomorphic encryption is proposed. Finally, this paper analyzes and summarizes the important problems that still exist in the interaction between mobile and access server, and points out the research direction in the next step.

ABSTRACT: This paper takes a longitudinal view of literature to explain the current period as disruptive technology drives an evolutionary adaptation of the construction industry in a historical socio-technological process. The authors argue the way Internet of Things (IoT) solutions are conceived as singularly focused “point solutions” undermine future opportunities. An evolutionary view is overlooked because extant literature describes technology in a particular epoch. An ecosystem perspective needs to influence IT strategy as an emerging “digital layer” transcends a smart city and continues to function long after a traditional construction project completes. We describe innovation as a succession of transformational waves in an evolutionary process that is currently manifesting as "Industry 4.0” and changing expectations for the construction industry. The paper concludes by listing emerging trends and warns existing UK construction companies must understand the transformational process they are in and learn how to adapt with a stronger drive for R&D.

ABSTRACT: IoT, a heterogeneous interconnection of smart devices, is a great platform to develop novel mobile applications. Resource constrained smart devices, however, often become the bottlenecks to fully realize such developments, especially when it comes to intensive-computation-oriented and low-latency-demanding applications. MEC is a promising approach to address such challenges. In this article, we focus on MEC applications for IoT, and address energy efficiency as well as offloading performance of such applications in terms of end-user experience. In this regard, we present a mobility-aware hierarchical MEC framework for green and low-latency IoT. We deploy a game theoretic approach for computation offloading in order to optimize the utility of the service providers while also reducing the energy cost and the task execution time of the smart devices. Numerical results indicate that the proposed scheme does brings significant enhancement in both energy efficiency and latency performance of MEC applications for IoT.

Bibliography on “regulatory/statistical report”

ABSTRACT: IT spending in Australia is forecast to record steady growth over the medium term through the adoption of new technologies in the public and private sector, principally those built on cloud, internet of things and mobile technologies that offer cost savings and/or new capabilities. This will benefit the domestic IT industry that specialises in localised software and services provision and research, and has very few hardware operations where the Australian market is served through imports from low-wage assembly centres in East Asia.

https://search.proquest.com/docview/2042393692?accountid=41838
ABSTRACT: The consolidation trend in the Bulgarian market continues, as the competition in the mobile market is due to undergo some changes. The country's second largest operator Telenor sold its Bulgarian assets, along with mobile assets in Hungary, Montenegro and Serbia, to Czech PPF Group for EUR2.8bn. This follows Mobitel, the mobile market leader’s acquisition of broadband and pay-TV player Blizoo in 2016. Meanwhile, five local fixed-line operators have expressed their desire to launch Bulgaria's first MVNO. Despite changing competition, mobile market growth will remain limited. Growth prospects in the mobile market will be driven by uptake of advanced 3G/4G services as carriers expand their nationwide high-speed data coverage.

https://search.proquest.com/docview/2031083421?accountid=41838
ABSTRACT: In this quarter's update we extend our coverage out by one year, to 2022. We continue to maintain a favourable outlook for the Cameroon and Gabon market over our five-year forecast period. However, further discounting of inactive SIM connections poses a downside risk to our forecast. Consolidation is underway in Gabon's saturated mobile market, and with limited organic growth opportunity, price competition will continue to intensify, and operators will continually focus on the range and price of their services to retain customers. In Cameroon, regulator ART is actively encouraging investment in backbone fibre, a move that will allow operators to lower costs and invest in more advanced services. Inorganic growth prospects still exist in Cameroon's mobile market over the medium term. Despite these opportunities in the voice segment, we believe advanced mobile content, notably data and data-centric value-added services (VAS), will be the main driver of growth in the mobile sector over the next few years.

https://search.proquest.com/docview/2038398636?accountid=41838
ABSTRACT: A number of developments within the market will pose upside risks to our Caribbean outlook and this will affect our approach to amending our forecasts in the coming quarters. In the Dominican Republic, we are anticipating the entrance of low cost player Viettel to unlock further growth opportunities in the mobile market. In Trinidad and Tobago as well as Haiti, we are closely watching the regulators in both markets, where 4G licences are to be issued.

https://search.proquest.com/docview/2029898394?accountid=41838
ABSTRACT: Colombia's mobile market has become more competitive with MVNOs, to the detriment of network operators' subscriber figures. With a heavily prepaid saturated market, operators are increasingly focusing on non-voice services for revenue growth and thus compete to expand their 4G LTE networks. 3G/4G uptake will support growth in the overall mobile market. A new converged regulator would streamline licencing processes and attract greater investment. This will help with consolidation efforts in the wireline segment, eventually leading to more competitive country-wide operators. As fibre expands, fixed and mobile network operators will be looking to offer bundles as a way to retain and upsell customers. Untapped demand and
Colombia’s improving economic conditions will contribute to the uptake of these services, but expansion to the rich Bogotá market will be key for a successful converged services strategy in the country.

https://search.proquest.com/docview/2042395964?accountid=41838
ABSTRACT: We retain the view that mobile broadband services and cellular innovation will continue to drive the Czech telecoms market. New bundle combinations and bigger data allowances will boost mobile growth, especially LTE take-up. Operators are preparing for the evolution towards 5G and four companies won spectrum which can be used in future 5G deployments in a mid-2017 auction. Wireline investments in VDSL and fibre are on the rise and demand for high-speed services, including LTE-based fixed wireless broadband, should generate some growth in the fixed broadband sector. Competition in the high-speed fixed broadband market will increase in 2018 with the launch of VDSL services from Digi and fixed wireless from Nordic Telecom, which is replacing its CDMA network with LTE. The first half of 2018 has seen developments in the IoT market.

https://search.proquest.com/docview/2043938474?accountid=41838
ABSTRACT: The Hungarian mobile market is highly saturated and has very little organic growth left and operators are trying to maximise their revenues from from selling premium services and high-speed data packages to existing clients. Consolidation has been the key trend in the Hungarian market over the last years, as operators are looking to optimise their portfolios to align with strategic goals. Digi's acquisition of Invitel creates a much-needed strong third national converged services provider and the expansion will boost consumer choice as well as the digital economy. Early in 2018, the country’s second-largest mobile operator, Telenor, sold its assets to Czech telecoms firm PPF.

https://search.proquest.com/docview/2029117180?accountid=41838
ABSTRACT: Consolidation has been the key word for the Indian mobile market. The merger of Aircel and Reliance (RCom) fell through last year and, consequently, RCom decided to exit the Indian mobile market. Reliance Jio Infocomm Limited (Jio) has agreed to snap up RCom's towers, spectrum and fibre optic cable. Meanwhile, Maxis is aiming to invest up to USD1.1bn in Aircel in an effort to make the company more attractive to other suitors; this leads us to believe that consolidation is set to accelerate and we believe Airtel is best placed to snap up Aircel's mobile business. We believe that there is still plenty of room for organic mobile subscriber growth, as advanced mobile and data services uptake, including 3G/4G, have been relatively slow and will provide significant opportunities for upselling out to 2022.

https://search.proquest.com/docview/2041878453?accountid=41838
ABSTRACT: Indonesia is one of a group of frontier markets in APAC where we expect IT spending growth to outperform over the medium term based on strong economic performance and the potential for convergence towards developed and emerging market levels of public and private sector digitisation. Rising incomes and population growth will see the middle class expand, and so fuel investments by firms looking to grow and modernise in an evolving competitive landscape. There are, however, still major challenges presented by low incomes, operational risks, the low tech intensity of economic activity and political/economic risks.

ABSTRACT: Israel is the regional leader both in terms of its domestic IT industry and the advanced status of the domestic market where there is demand for sophisticated IT solutions. Growth will be supported by economic expansion and private demand for the latest technologies offering cost savings and new capabilities, while the local industry is positioned to continue to be at the forefront of global innovation over 2018-2022.

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

ABSTRACT: Israel has the advantage of having a leading domestic market which is spending heavily in the IT space. It is also the regional leader of the domestic IT industry. Growth will be supported by economic expansion and private demand for the latest technologies offering cost savings and new capabilities, while the local industry is positioned to continue to be at the forefront of global innovation over 2018-2022.


ABSTRACT: The short- and medium-term outlook for the Lebanese IT market remains positive with both macroeconomic GDP growth and private final consumption levels supporting IT level up-tick over the medium-term. Strengthening real GDP growth and private final consumption levels will bolster consumer and investor confidence and sustain a healthy growth trajectory. IT software and services growth will be strongest owing to low levels of penetration but hardware will underperform due to unfavorable product trends in the consumer segment. We forecast total IT spending will increase at a CAGR of 5.9% over 2018-2022 and jump from a value of LBP622bn in 2018 to over LBP783.9bn by the end of our forecast period.


ABSTRACT: The Netherlands is an important market in a European context because of its position as a regional trade hub through which a high share of IT hardware imports and exports are routed. It also stands out as one of the highest spending markets for IT products and solutions in per capita terms, but the growth outlook is relatively subdued because of a drag from hardware that will leave vendors to rely on sustained enterprise investment on software and services. The key downside risk is external, because of the orientation of the economy, most likely through a slowdown in European growth, or a financial crisis in China or the US.


ABSTRACT: Convergence has brought new life to an otherwise saturated Dutch telecoms market. The joint venture between Vodafone and Ziggo marks the importance of convergence, as traditional growth opportunities are limited. KPN has also embraced convergence. T-Mobile also acquired some of Vodafone’s fixed network as part of the Ziggo deal, while Tele2 had some B2B infrastructure, and the combination of the two will give the company far greater scale to compete with the current duopoly. Meanwhile, a proposed legislation that could prohibit or reverse takeovers in the telecoms industry, under the guise of national security and the protection of key infrastructure, could block any further M&A activity in the market. The development of 5G and the Internet of Things are future drivers of market development.


ABSTRACT: In this quarter's update, we extend our coverage out to 2022. The Nigerian markets continue to perform in line with our forecasts. Overall market growth has been weighed down by the poor performances of Globacom, 9mobile (Etisalat) and MTN, with the market shedding 17.327mn subscribers in 2017. Despite this, we believe there is still room for operators to expand organically, but that will entail expanding networks beyond core urban markets where returns on network investments will be limited as a result of low customer spending power. We expect that...
competition will heat up further in the 3G/4G segment as Airtel launched its 4G service with ntel also expanding to Port Harcourt. In the fixed voice market, we expect the combination of mobile substitution, as well as CDMA and inactive fixed voice disconnection, to continue decreasing fixed voice access. We are sceptical that more spectrum will have a positive impact on the broadband market, as a previous auction was not very popular among operators because, of its high price.

https://search.proquest.com/docview/2029117211?accountid=41838
ABSTRACT: Following impressive growth recorded by the operators in 2016 and 2017, we have upgraded our mobile growth view for Pakistan. It is evident that the SIM deactivating in 2014/15 has had little impact on the market, which has plenty of scope for organic growth left, especially in the rural areas. Nevertheless, we note that constricted spending powers and low disposable incomes in Pakistan limit growth prospects in the premium services segment. As such, operators must compete on the basis of low-cost and high-value to maintain their revenue streams. 3G/4G LTE uptake remains healthy with quarterly net additions in the advanced mobile services segment suggesting a positive upselling rate. Jazz (Mobilink) and Telenor have recently spent significant sums of money to procure new LTE compatible spectrum and the market is gearing up for intensified competition in the advanced data segment.

https://search.proquest.com/docview/2043938486?accountid=41838
ABSTRACT: 2017 saw slower growth than previous years, and we forecast this slowdown to continue as the market approaches saturation. Growth will be driven by increasing adoption of voice-and-data packages and mobile broadband, as operators leverage their expanded 4G LTE networks. However, the entry of new MVNOs in 2018 will intensify competition, driving ARPs down. Telefónica stands to lose the most, as its market share is steadily eroded by Entel and Bitel. The wireline sector, still very underdeveloped, will see limited growth from investments into fibre and wireline broadband services, although fixed voice will continue on its decline.

https://search.proquest.com/docview/2043938369?accountid=41838
ABSTRACT: Service improvements by incumbent operators to dampen the impact of the entrance of a potential third operator will drive growth in the mobile and wireline broadband market. Several local and foreign telecoms players have expressed interest in entering the Philippines market, although we expect services to be launched only in 2019, with the successful candidate needing deep pockets and consistent regulatory support in order to thrive. While Globe and PLDT have been competing on price, driving down industry-wide ARPs, we expect operators to shift the focus to improving service quality. We estimate mobile penetration to be at 100.5% by 2027.

https://search.proquest.com/docview/2031083312?accountid=41838
ABSTRACT: We have made only minor forecast adjustments this quarter as the telecoms market continues to perform in line with BMI forecasts. The disconnection of over 2.4mn inactive SIMs in 2017 reflects the saturated nature of the Russian mobile market. However, this should not deter operators from investing in 4G and LTE-Advanced as there are ample opportunities for them in terms of premium data service upselling. While operators are focused on upgrading networks, they are doing so with a long-term view to monetising demand for non-voice services, particularly video-based content. However, restricted access to foreign-made equipment and internationally hosted applications will impede these long-term expansion initiatives.

"Sub-Saharan Africa Telecommunications Report - Q2 2018." London, United Kingdom: Business Monitor International, 2018 https://search.proquest.com/docview/2030438171?accountid=41838 ABSTRACT: Customer deepening strategies will be operators' new focus in Sub-Saharan Africa (SSA), with mobile being the only viable alternative to wireline broadband. Mobile financial services (MFS) will secure loyalty at the lower end of the market, while e-commerce, music and gaming will secure the middle tier. A newly emerging downside risk is increased regulatory intervention in MFS, which will lead to higher operating costs that will have to be passed on to end-users.


"Taiwan Telecommunications Report - Q2 2018." London, United Kingdom: Business Monitor International, 2018 https://search.proquest.com/docview/2030438629?accountid=41838 ABSTRACT: The latest spectrum auction, which saw 12 lots of 2100MHz frequencies and one lot of 1800MHz bandwidth allocated to Chunghwa, Taiwan Mobile (TWM), FarEasTone and Taiwan Star Telecom is positive for the development and proliferation of 4G services. Taiwan is also looking to ratify new telecoms market legislation, which stipulates the allocation of 5G bandwidth in June 2019. This strengthens our view that operators are looking to convert existing customers to higher value data-driven subscriptions, considering that in H217 operators shed all their existing 2G subscriptions.

"Thailand Telecommunications Report - Q2 2018." London, United Kingdom: Business Monitor International, 2018 https://search.proquest.com/docview/2029117208?accountid=41838 ABSTRACT: We have made minor forecast corrections in the latest Q218 Thailand telecoms update as the wireline voice market showed a greater than expected decline while broadband outperformed our expectations slightly. We maintain that competition will continue to be strong as operators compete to migrate 2G subscribers to 3G and 4G, incurring higher costs from marketing expenses and handset subsidies. The mobile market has grown largely in line with our forecasts, and we view upcoming spectrum auctions as positive for operators to develop 4G coverage to audiences in rural areas.

"Turkey Telecommunications Report - Q2 2018." London, United Kingdom: Business Monitor International, 2018 https://search.proquest.com/docview/2029897558?accountid=41838 ABSTRACT: Turkish mobile market is approaching a saturation point, with mobile growth decelerating to 1.15% over the next four years. Considering the size of the market, this will still equate to approximately 3.5mn new subscribers. Meanwhile mobile ARPU's will fall to EUR6, despite the additions. Broadband growth will also decelerate, but with forecast penetration at just 20%, there is still scope for latent demand.

"United Arab Emirates Information Technology Report - Q2 2018." London, United Kingdom: Business Monitor International, 2018 https://search.proquest.com/docview/2042395974?accountid=41838 ABSTRACT: The enterprise IT market in the United Arab Emirates benefits from the greater economic diversification of the country compared to most GCC peers whereas sustained efforts to foster new economic segments are yielding fruitful dividend for market growth. There are
medium-term opportunities such as premium PCs, data analytics, cybersecurity, cloud computing and Internet of Things solutions that will be tapped as the economy records steady growth and the commercial and enterprise segment gains further traction.


ABSTRACT: The UK is both a high-value market for IT products and services, and home to an advanced industry. The market and industry are weighted towards software and services, especially consulting and programming services, for which there was strong growth during the review period, as well as semiconductor research and design. We anticipate steady IT market growth over the forecast period 2018-2022, with the short-term outlook underpinned by the certainty of single market and customs union access granted by the Brexit transition agreement, but the IT market, like the economy, will underperform its potential trajectory because of the uncertainty surrounding the regulatory and policy environment later in the forecast period.


Bibliography on “satellite communications”


ABSTRACT: In the past decade Europe has been facing rising security threats, ranging from climate change, migrations, nearby conflicts and crises, to terrorism. The demand to tackle these critical challenges is increasing in Member States. Space is already contributing, and could further contribute with already existing systems and future ones. The increasing need for security in Europe and for safety and security of Europe’s space activities has led to a growing number of activities in ESA in various domains. It has also driven new and strengthened partnerships with security stakeholders in Europe. At the European level, ESA is collaborating closely with the main European institutions dealing with space security. In addition, as an organisation ESA has evolved to conduct security-related projects and programmes and to address the threats to its own activities, thereby securing the investments of the Member States. Over the past years the Agency has set up a comprehensive regulatory framework in order to be able to cope with security related requirements. Over the past years, ESA has increased its exchanges with its Member States. The paper presents main elements of the ESA’s policy on space and security. It introduces the current European context for space and security, the European goals in this domain and the specific objectives to which the Agency intends to contribute. Space and security in the ESA context is set out under two components: a) security from space and b) security in space, including the security of ESA’s own activities (corporate security and the security of ESA’s space missions). Subsequently, ESA’s activities are elaborated around these two pillars, composed of different activities conducted in the most appropriate frameworks and in coordination with the relevant stakeholders and shareholders. ".

ABSTRACT: AS I DRIVE THROUGH THE VINEYARD-COVERED HILLS OF SAN LUIS OBISPO, CALIF.,

ABSTRACT: Central and Eastern European (CEE) countries have been facing different cooperation models in the last fifty years regarding space policy and industrial activities. The period before the 1990s provided these countries with a strong heritage of expertise in space engagement which after the fall of the ‘Eastern Block’ offered the basis for cooperation with the other European countries and organisations. The way space policy in the CEE region was shaped during the early period and the way collaboration is conducted today have not been fully analysed. The objective of this paper is to provide a holistic analysis of the evolution of past and present developments of the CEE countries in space activities. The main focus of this paper is given to the Intercosmos period before the 1990s and following that, the integration process of these countries to the European Space Agency (ESA). Additionally, the CEE countries have been engaging in cooperation with other space agencies in Europe and outside. The countries also participate through the EU and its two flagship programmes Galileo and Copernicus amongst others. Furthermore, this paper provides an overview of the ESA accession process established in the early 2000s as ESA responded to the increasing interest of the CEE countries to engage in cooperation in the field of space. The comparison of both, historical and recent developments on CEE countries in space activities, indicates that CEE region has the basis for integrating in the European space sector. Participation in ESA and collaboration with other space faring nations is needed to ensure successful transformation of both their scientific and industrial basis as well as their governance, to the evolving space sector while utilizing the heritage obtained through the past engagements. ".


ABSTRACT: The idea of establishing a South American Space Agency (SASA) is not new. There have been many discussions about this topic for a couple of decades, including an agreement by the Union of South American Nations to create such a space agency. Roughly 10 years ago, Argentina was the first to propose this collaboration with a military orientation. As the ideas progressed, Brazil was proposed to host its headquarters. However, not much support from the South American region has been given, either financially or logistically. To this day, a South American Space Agency or a similar concept has not yet been established in the region. The Space Generation Advisory Council (SGAC) hosted the first South American Space Generation Workshop in Argentina in 2015, where one of the working groups was tasked to further investigate the feasibility, advantages and challenges of implementing SASA. This paper presents an extension of the main findings from this working group where South American students and young professionals study and present a rationale in favor of SASA, outlining possible solutions and a structure that could be taken into account for its implementation. This paper pays particular attention to the question: Is it possible for countries in South America to establish the kind of cooperation necessary to stimulate the development and application of capabilities in the space sector, which would then enable undertaking missions far beyond the scope of what any single country in South America could do on its own? The existence of SASA would allow access to a common representative agency, which would lower costs, be accessible to all participating countries, and allow engagement with other emerging and established space agencies around the world. ".

ABSTRACT: In the near future robotic systems will be playing an increasingly important role in space applications such as repairing, refueling, re-orbiting spacecraft and cleaning up the increasing amount of space debris. Space Manipulator Systems (SMSs) are robotic systems made of a bus (which has its own actuators such as thrusters and reaction wheels) equipped with one or more deployable arms. The present paper focuses on the issue of maintaining a stable first contact between the arms terminal parts (i.e. the end-effectors) and a non-cooperative target satellite, before the actual grasp is performed. The selected approach is a modified version of the Impedance Control algorithm in which the end-effector is controlled in order to make it behave like a mass-spring-damper system regardless of the reaction motion of the base, so to absorb the impact energy. The effects of non-modeled dynamics in control determination such as the structural flexibility of the manipulator and the target satellite are considered as well, and their impact on control effectiveness is analyzed. The performance of the proposed control architecture and a parametric analysis are studied by means of a co-simulation involving the MSC Adams multibody code (for describing the dynamics of the space robot and target) together with Simulink (for the determination of the control actions). The results show that the first contact phase of the grasping operation of a large satellite requires careful tuning of the control gains and a proper selection of the end-effector dimensions; otherwise, the large geometric and inertia characteristics of the target could lead to a failure with serious consequences. Both successful and underperforming cases are presented and commented in the paper.

http://dx.doi.org/10.1109/MAES.2017.180230.
ABSTRACT: The satellite design industry has successfully accepted systems engineering (SE) since its inception, taking advantage of its methodologies and techniques to harness underlying complexities. In traditional SE approach, it becomes difficult to assess the completeness and consistency of information spread across tools and documents. In particular, it is difficult to perform traceability and assess the change impacts of certain design parameters.

Bibliography on “smart cities”

https://doi.org/10.1016/j.suscom.2018.05.005.
ABSTRACT: As the gap between digital and physical worlds getting dwindled as a result of the dramatic advance getting achieved in information and communication technology (ICT), feasible, efficient, reliable, and secure smart cities are becoming a reality. Future smart cities will be characterized by their high distribution, openness, heterogeneity, complexity, unpredictable/uncertain/dynamic work environments, and their large-scale nature. These challenging characteristics require a transition from the traditional parts thinking paradigm which studies systems by breaking them down into their separate elements to the emerging systems thinking paradigm which represents a holistic approach focuses on the way that a system’s constituent parts interrelate and how systems work over time and within the context of larger systems. In this article, we first study smart cities from systems thinking perspective and then introduce self-regulating agent systems and fog computing as promising technological paradigms for developing future large-scale complex smart cities applications. Preliminary simulation results to test the performance of the proposed framework are provided. The results show that self-regulated agent systems can give high performance if an appropriate self-regulation model is used. A complete architecture for building future complex smart cities based on the systems
thinking paradigm and using self-regulating MAS integrated with fog computing for implementation is currently under preparation."

https://doi.org/10.1016/j.giq.2018.05.002.
ABSTRACT: With Rapid progress of wireless technology, the daily life of the citizens has undergone drastic change. They are using sophisticated devices based on latest technology for their daily usage at homes. This lucrative facility is available especially to the citizens of modern cities of the world. India is also not lagging. Government of India has announced for creation of 100 Smart Cities where the citizens are expected to use Information and Communication Technology with the help of internet. More use of internet by the citizens would enhance more internet penetration and here Internet of Things (IoT) plays a crucial role. However, tapping into the IoT is mere a part of the story. It is necessary to combine IoT with Artificial Intelligence (AI) in 'Smart Machines' to simulate intelligent behavior to arrive at an accurate and reliable decision without human intervention. Now combining AI and IoT information systems has become an essential precondition for achieving information system success. For information system success, it is essential to identify the factors affecting it. The purpose of this study is to identify those factors affecting successful implementation of information system enabling IoT coupled with Artificial Intelligence in the proposed Smart Cities of India (SCI).

ABSTRACT: Smart cities are a new vision for urban development. They integrate information and communication technology infrastructures - in the domains of artificial intelligence, distributed and cloud computing, and sensor networks - into a city, to facilitate quality of life for its citizens and sustainable growth. This book explores various concepts for the development of these new technologies (including agent-oriented programming, broadband infrastructures, wireless sensor networks, Internet-based networked applications, open data and open platforms), and how they can provide smart services and enablers in a range of public domains. The most significant research, both established and emerging, is brought together to enable academics and practitioners to investigate the possibilities of smart cities, and to generate the knowledge and solutions required to develop and maintain them.
ABSTRACT: With the rapid development of the Internet of Things (IoT), Big Data technologies have emerged as a critical data analytics tool to bring the knowledge within IoT infrastructures to better meet the purpose of the IoT systems and support critical decision making. Although the topic of Big Data analytics itself is extensively researched, the disparity between IoT domains (such as healthcare, energy, transportation and others) has isolated the evolution of Big Data approaches in each IoT domain. Thus, the mutual understanding across IoT domains can possibly advance the evolution of Big Data research in IoT. In this work, we therefore conduct a survey on Big Data technologies in different IoT domains to facilitate and stimulate knowledge sharing across the IoT domains. Based on our review, this paper discusses the similarities and differences among Big Data technologies used in different IoT domains, suggests how certain Big Data technology used in one IoT domain can be re-used in another IoT domain, and develops a conceptual framework to outline the critical Big Data technologies across all the reviewed IoT domains.

ABSTRACT: A smart city improves the quality of its citizens by providing access to ubiquitous services. Intelligent Transportation Systems (ITS) have a fundamental role in transforming a metropolitan area into a smart city. In the past two decades, many applications of ITS, e.g. city-wide traffic management and monitoring, smart parking, public transportation information services (bus, train, taxi, plane, etc.), logistics, real-time traffic, road speed limit monitoring and management etc., are deployed in smart cities. The sensors or mobile objects in ITS constantly generate mobility data and the scale at which this data is generated is witnessing an exponential increase in volumes. To store and subsequently analyze such massive data generated by sensors, new architectures are needed which are primarily designed for working with big data. In this work, we propose a big data analytics architecture for ITS. The proposed architecture has a built-in storage and analysis capability to work with ITS data and is composed of four modules, namely (1) Big Data Acquisition and Preprocessing Unit (2) Big Data Processing Unit (3) Big Data Analytics Unit and (4) Data Visualization Unit. A detailed analysis of ITS big data for monitoring the average speed of a vehicle at w.r.t. the time attribute is provided. The proposed architecture is evaluated using Hadoop thus validating the proof of concept. The empirical results are encouraging and open directions for future research.

ABSTRACT: The paper presents a model for the characterization of Machine-to-machine (M2M) traffic and the performance evaluation of LTE access to support M2M communication, embedded into a web-based application. The application enables the study of the traffic produced by realistic M2M elements in the context of smart cities. Packet generation for each machine is modelled by means of three mathematical distributions (Poisson, Beta, and Deterministic), which makes it possible to represent a wide variety of M2M applications. A case study was constructed based on the city of Montreal. Real data on the position of machines were retrieved from public datasets. The case study includes a realistic representation of the LTE infrastructure that allows the estimation of traffic load at each eNodeB, as well as other performance indexes, such as collision probability and access delay. The use of real geographic information enables visual analyses
aiming at identifying bottlenecks and possible roadblocks to the M2M integration in the LTE infrastructure.


ABSTRACT: Big data is an ascendant technological concepts and includes smart energy services, such as intelligent energy management, energy consumption prediction and exploitation of Internet of Things (IoT) solutions. As a result, big data technologies will have a significant impact in the energy sector. This paper proposes a high level architecture of a big data platform that can support the creation, development, maintenance and exploitation of smart energy services through the utilisation of cross-domain data. The proposed platform enables the simplification of the procedure followed for the information gathering by multiple sources, turning into actionable recommendations and meaningful operational insights for city authorities and local administrations, energy managers and consultants, energy service companies, utilities and energy providers. A web-based Decision Support System (DSS) has been developed according to the proposed architecture, exploiting multi-sourced data within a smart city context towards the creation of energy management action plans. The pilot application of the developed DSS in three European cities is presented and discussed. This “data-driven” DSS can support energy managers and city authorities for managing their building facilities’ energy performance.


ABSTRACT: As cities compete globally, the Smart City has been touted as the important new strategic driver for regeneration and growth. Smart Cities are employing information and communication technologies in the quest for sustainable economic development and the fostering of new forms of collective life. This has made the Smart City an essential focus for engineers, architects, urban designers, urban planners, and politicians, as well as businesses such as CISCO, IBM and Siemens. Despite its broad appeal, few comprehensive books have been devoted to the subject so far, and even fewer have tried to relate it to cultural issues and to assume a truly critical stance by trying to decipher its consequences on urban space and experience. This cultural and critical lens is all the more important as the Smart City is as much an ideal permeated by Utopian beliefs as a concrete process of urban transformation. This ideal possesses a strong self-fulfilling character: our cities will become 'Smart' because we want them to. This book opens with an examination of the technological reality on which Smart Cities are built, from the chips and sensors that enable us to monitor what happens within the infrastructure to the smartphones that connect individuals. Through these technologies, the urban space appears as activated, almost sentient. This activation generates two contrasting visions: on the one hand, a neo-cybernetic ambition to steer the city in the most efficient way; and on the other, a more bottom-up, participative approach in which empowered individuals invent new modes of cooperation. A thorough analysis of these two trends reveals them to be complementary. The Smart City of the near future will result from their mutual adjustment. In this process, urban space plays a decisive role. Smart Cities are contemporary with a 'spatial turn' of the digital. Based on key technological developments like geo-localisation and augmented reality, the rising importance of space explains the strategic role of mapping in the evolution of the urban experience. Throughout this exploration of some of the key dimensions of the Smart City, this book constantly moves from the technological to the spatial as well as from a critical assessment of existing experiments to speculations on the rise of a new form of collective intelligence. In the future, cities will become smarter in a much more literal way than what is often currently assumed.

ABSTRACT: We propose a fog-cloud hybrid architecture that can support a massive ad hoc crowd composed of a massive social network and distributed IoT nodes around a smart city environment. The fog computing framework is introduced to support energy efficiency by incorporating IoT nodes that act as an interface to the ad hoc crowd, is aware of user contexts within its vicinity, can do real-time processing of user requests, supports a constrained amount of data offloading, and pass the geo-tagged multimedia data available from the subset of the ad hoc crowd to the big data repository in the cloud. The framework leverages a sustainable crowdsourcing incentive model for both the ad hoc crowd and the IoT infrastructure provider. The proposed sustainable framework can potentially support context-aware smart city services such as finding a lost person within the crowd, showing green and health risk prone zones, semantic and location-aware notifications of events of interest, semantic IoT-based routing, and dealing with emergency situations. We present a communication architecture between mobile users and fog nodes, and between fog nodes and the cloud, a sustainability and energy efficiency model, and massive geo-tagged, multimedia big data architecture.

Bibliography on “social media”


ABSTRACT: This paper deepens in the study of the appropriateness of virtual learning environments through the use and value of social networks by college students, considering the reliability, confidence and experience of the Internet. The study develop a comprehensive structural equation model conducted among 381 college students of different Social Sciences degrees of the University of A Coruna (Spain). The results show that both topical social network and the Internet have a significant influence on college students’ virtual learning environment assessment, regardless the area of study. The analysis also discloses the potential utility of the above interactions on virtual learning environments in terms of downloading of material, improvement in learning efficiency and usefulness of contents, functions and supplement of other learning ICT tools. Findings reveal that the implementation of educational policies that allow adapting virtual learning environments to college students’ preferences are required.


ABSTRACT: Purpose This study aims to deepen the current understanding of social media advertising by using the Ducoffe? advertising value model. The purpose of this paper is to examine the antecedents of advertising value and its consequences on consumers? attitude and behavior in the specific context of tourism advertising on Facebook. Design/methodology/approach Survey was conducted on a quota sample of 352 Tunisian Facebook users. Web-based questionnaires were used to collect the data which was analyzed using exploratory factor analysis and structural equation modeling. Findings Findings indicate that there is a significant relationship between informativeness, entertainment, credibility and social media advertising value. This positive value will affect favorably consumers? attitude toward social media advertising and their behavioral responses. The moderator effect of corporate reputation was also confirmed in this relationship. Practical implications Tourism marketers
should focus not only on developing information-rich and entertaining social media advertisements but also a credible content of the ads. Furthermore, Facebook should be systematically integrated by tourism practitioners in their communication strategy as it affects the attitude and consequently the behavior of the consumers especially when the company using social media advertising has a good corporate reputation. Originality/value In the tourism context, the effectiveness of social media advertising remains little known to practitioners and scholars despite the frequent use of social media by tourism customers and companies in recent years. So, this research study contributes to a better understanding of the use of social media advertising on Facebook regarding tourism products and services.; Purpose This study aims to deepen the current understanding of social media advertising by using the Ducoffe’s advertising value model. The purpose of this paper is to examine the antecedents of advertising value and its consequences on consumers’ attitude and behavior in the specific context of tourism advertising on Facebook. Design/methodology/approach Survey was conducted on a quota sample of 352 Tunisian Facebook users. Web-based questionnaires were used to collect the data which was analyzed using exploratory factor analysis and structural equation modeling. Findings Findings indicate that there is a significant relationship between informativeness, entertainment, credibility and social media advertising value. This positive value will affect favorably consumers’ attitude toward social media advertising and their behavioral responses. The moderator effect of corporate reputation was also confirmed in this relationship. Practical implications Tourism marketers should focus not only on developing information-rich and entertaining social media advertisements but also a credible content of the ads. Furthermore, Facebook should be systematically integrated by tourism practitioners in their communication strategy as it affects the attitude and consequently the behavior of the consumers especially when the company using social media advertising has a good corporate reputation. Originality/value In the tourism context, the effectiveness of social media advertising remains little known to practitioners and scholars despite the frequent use of social media by tourism customers and companies in recent years. So, this research study contributes to a better understanding of the use of social media advertising on Facebook regarding tourism products and services.


ABSTRACT: Purpose Social network sites (SNSs) have been common applications attracting a large number of users in Qatar. Current literature remains inconclusive about the relationship between SNS usage and users' academic performance. While one stream confirms that SNS usage may lead to addiction and seriously affect individuals’ academic performance, other studies refer to SNS as learning enablers. The purpose of this paper is twofold: first, it investigates the SNS usage profiles among the young generation in the Gulf Cooperation Council (GCC) represented by Qatar; second, it examines the relationship between the identified SNS usage profiles and their respective users’ academic performance.


ABSTRACT: Ever increasing fame and obsession for social networks has also coxswained a dramatic increase in the presence of malicious activities. As a result, various researchers have proposed different features and techniques to detect and reduce this menace. This paper presents an expository study of various state-of-the-art techniques to detect two most interlinked apprehensive problems on social networks namely, spam detection and detection-cum-analysis of compromised accounts. It is evident from the ongoing statistics that despite profuse awareness and some anti-spam policies and techniques being developed, to everyone’s surprise, the severity of spam has only increased. Moreover, with the growing smartness of spammers, existing
techniques get bypassed and new features and techniques continuously keep on evolving. Therefore, in continuation to the ongoing research, a study comprising of a comprehensive analysis of different works is also required from time to time. The growing inclination of spammers to compromise the legitimate accounts has evolved as an evasive and more beneficial way to spread spam. Therefore, it has become highly relevant to review the techniques related to the detection of compromised accounts so as to track the spammers adhering to this behavior. In this work, we have performed a qualitative analysis of each paper discussing its pros and cons. In both the domains, the detection approaches have been placed under different categories and have been thoroughly reviewed stating their applicability. In conclusion, the paper carries a discussion of various gaps prevalent in the existing approaches and the corresponding actions to be taken to address them, providing a strong foundation for future researches to be carried out in this domain.

http://doi.acm.org/10.1145/3158373.

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

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https://doi.org/10.1016/j.jbusres.2018.05.005.

ABSTRACT: Social technologies can provide a potent means for organizations to manage their information flows and thus induce changes in their knowledge management (KM) systems, which can then be linked to performance improvements. This paper examines the growth of social media within organizations, considering the impact this may have upon knowledge sharing in a particular type of KM system - Community of Practice - (CoP) based discussion groups (KMDG). We focus on this KM tool because it provides employees with an opportunity to strategically reach out to different groups of people within their CoP, and engage in information exchange and communication. Using a content analysis method, we investigate two intermediate information mechanisms (information richness and informal communication) that social media KMDGs are theorized to generate, and quantify their effects on labor productivity and return on assets. Our findings provide evidence of KMDG positively affecting organizational performance through embedded information and social communication.

ABSTRACT: Growing interest surrounds the use of information and communication technologies (ICTs) for mental-health-related purposes, yet little is known about rates of ICT use among the psychiatric population and those with severe mental illness. This study examines ICT accessibility among the psychiatric population, focusing on serious and non-serious mental illness (SMI and non-SMI). Patients (N= 427) from all service branches of the Psychiatry Department at Emek Medical Center were recruited orally or through advertisement. Responders completed a self-report survey regarding accessibility and use of ICTs (i.e., computer, internet, Facebook, mobile phone, smartphone). Results revealed that 59.3% of respondents used computers, 77.3% used the internet, 92.7% owned a mobile phone, 67.9% owned a smartphone, and 63% used Facebook. Over half of participants who used ICTs reported doing so at least once per day. SMI and non-SMI respondents differed significantly in their use and access to a computer, the internet, Facebook, and smartphones. Results suggest that mental illness is not a barrier to using and accessing technology; however, when differentiating between SMI and non-SMI, illness severity is a barrier to potential ICT utilization. These results may encourage policymakers to design ICTs that suit the needs of individuals with SMI.


ABSTRACT: Social media platforms are an increasingly dominant medium through which people encounter news in everyday life. Yet while we know more-about-more about frequency of use and sharing, content preferences and network configurations around news use on social media, the social experiences associated with such practices remain relatively unexplored. This paper addresses this gap to consider if and how news facilitates conversations in everyday contexts where social media play a communicative role. It investigates how people engage with current affairs collectively in different social formations and their associated following, sharing and discussion practices. Specifically, it studies the role of news in six focus groups consisting of people who know each other offline and simultaneously communicate regularly through private Facebook or WhatsApp groups, and who interact primarily in relation to their membership in a particular (1) location-based (2) work-related or (3) leisure-oriented community. It finds that communication within social media communities whose members consider their ties as weak generally tended to be more news-centred. Even more significant was perceived control over privacy and presence of clear norms and community boundaries, which alongside the communicative aims of the group proved important considerations when it came to deciding whether to share news within the community.


ABSTRACT: Social media platforms are turning into important news sources since they provide real-time information from different perspectives. However, high volume, dynamism, noise, and redundancy exhibited by social media data make it difficult to comprehend the entire content. Recent works emphasize on summarizing the content of either a single social media platform or of a single modality (either textual or visual). However, each platform has its own unique characteristics and user base, which brings to light different aspects of real-world events. This makes it critical as well as challenging to combine textual and visual data from different platforms. In this article, we propose summarization of real-world events with data stemming from different platforms and multiple modalities. We present the use of a Markov Random Fields based similarity measure to link content across multiple platforms. This measure also enables the linking of content across time, which is useful for tracking the evolution of long-running events. For the final content selection, summarization is modeled as a subset selection problem. To handle the complexity of the optimal subset selection, we propose the use of submodular...
objectives. Facets such as coverage, novelty, and significance are modeled as submodular objectives in a multimodal social media setting. We conduct a series of quantitative and qualitative experiments to illustrate the effectiveness of our approach compared to alternative methods.

ABSTRACT: Having the advantage of reaching massive audience, mainstream media can frequently influence public opinions and attitudes. However, recent statistical data shows that the average user stickiness of mainstream media websites is much lower, in comparison with other types of media websites in China. To gain insights into this phenomenon, we construct a model to examine the impacts of various website attributes and user influence on user stickiness. Our empirical analysis demonstrates that media website attributes and user characteristics have different effects on user stickiness. Our results shed fresh light on how to enhance mainstream media website user stickiness in a competitive and ever-evolving landscape. 

Bibliography on “telecommunication/ICT markets”

ABSTRACT: An influential literature argues that dispersed patent ownership may lead to royalty stacking and excessive running royalties, thus increasing the long-run marginal cost of manufacturing phones and their prices. One set of estimates claims that the royalty stack is on the order of 20–40 percent of the value of the average phone. In order to assess this claim, we estimate the average cumulative royalty yield—the sum total of patent royalty payments earned by licensors, divided by the total value of mobile phones shipped— in the world mobile phone industry between 2007 and 2016. We "follow the money" and identify, with varying accuracy, 39 potential licensors in the smartphone value chain. We find that, of these, only 29 charged royalties in 2016, running from a low of $1.6 million to a high of $7.7 billion, summing to $14.2 billion in total, which compares with $425.1 billion in mobile phone sales. The average cumulative royalty yield in 2016 was 3.3 percent or $7.20 per phone. If we restrict this only to smartphones, the result would be $9.60 per phone, roughly 3.4 percent of the average selling price. A sensitivity analysis shows that even under a very restrictive set of assumptions, the average cumulative royalty yield on a smartphone would not exceed 5.6 percent. 

ABSTRACT: The effects of a 90% reduction in mobile termination rates (MTRs) are evaluated over the period between 2009 and 2017 in South Africa. Prepaid prices and quality-adjusted postpaid prices declined by over 40%. However, only approximately 30% of the decline in prepaid prices and 60% of the reduction in quality-adjusted postpaid prices can be explained by lower MTR costs. On-net and off-net prepaid prices converged as MTR costs dropped. Regulators concerned about high retail prices and differences between on-net and off-net prices should reduce MTRs. 

ABSTRACT: This paper argues that a paradigmatic change in competition policy is needed and empirically under way to cope with the challenges posed by economically strong online platforms and their big-data-based business models. Competition policy needs to move further away from its traditional price-oriented emphasis and increasingly focus on non-price competition, on attention markets and zero prices, and on big user data, which has become a new asset class in digital economies. "

ABSTRACT: The article examines the factors that affect efficiency of enterprises in telecommunication industry in Russian Federation over the past decade on the example of three major telecommunication companies, MTS, MegaFon, and VimpelCom that control more than 80% of the market. The paper describes main characteristics of the companies and builds multiple regression models. The study is based on data from the State Statistics Committee of Russia, annual reports and websites of telecommunication companies, market surveys, for the period 2005-2013. Our results suggest that the success of the Russian telecommunications companies is primarily associated with the size of investment in fixed assets, the expenditures on advertising, the dynamics of the average cost of cellular communication services, as well as the growth of the national telecommunications market and the level of inflation in the country. Our results are in accord with the idea that success of the operators in the current conditions is largely dependent on investment and technology opportunities for early coverage area (population) new networks 3G/3.5G/4G, and successful marketing strategies to promote mobile services data (mobile internet) on the basis of these networks in the context of growing competition in this segment of the market.

Bibliography on “telecommunication/ICT policy and law”

https://doi.org/10.1016/j.clsr.2018.01.005.
ABSTRACT: This article argues that Australia's recently-passed data breach notification legislation, the Privacy Amendment (Notifiable Data Breaches) Act 2017 (Cth), and its coming into force in 2018, makes an internationally important, yet imperfect, contribution to data breach notification law. Against the backdrop of data breach legislation in the United States and European Union, a comparative analysis is undertaken between these jurisdictions and the Australian scheme to elucidate this argument. Firstly, some context to data breach notification provisions is offered, which are designed to address some of the problems data breaches cause for data privacy and information security. There have been various prominent data breaches affecting Australians over the last few years, which have led to discussion of what can be done to deal with their negative effects. The international context of data breach notification legislation will be discussed, with a focus on the United States and European Union jurisdictions, which have already adopted similar laws. The background to the adoption of the Australia legislation will be examined, including the general context of data privacy and security protection in Australia. The reform itself will then be considered, along with the extent to which this law is fit for purpose and some outstanding concerns about its application. While data breach notification requirements are likely to be a positive step for data security, further reform is probably necessary to ensure strong cybersecurity. However, such reform should be cognisant of the international trends
towards the adoption of data security measures including data breach notification, but lack of alignment in standards, which may be burdensome for entities operating in the transnational data economy.

https://doi.org/10.1016/j.actaastro.2018.02.044.

ABSTRACT: In the past decade Europe has been facing rising security threats, ranging from climate change, migrations, nearby conflicts and crises, to terrorism. The demand to tackle these critical challenges is increasing in Member States. Space is already contributing, and could further contribute with already existing systems and future ones. The increasing need for security in Europe and for safety and security of Europe’s space activities has led to a growing number of activities in ESA in various domains. It has also driven new and strengthened partnerships with security stakeholders in Europe. At the European level, ESA is collaborating closely with the main European institutions dealing with space security. In addition, as an organisation ESA has evolved to conduct security-related projects and programmes and to address the threats to its own activities, thereby securing the investments of the Member States. Over the past years the Agency has set up a comprehensive regulatory framework in order to be able to cope with security related requirements. Over the past years, ESA has increased its exchanges with its Member States. The paper presents main elements of the ESA’s policy on space and security. It introduces the current European context for space and security, the European goals in this domain and the specific objectives to which the Agency intends to contribute. Space and security in the ESA context is set out under two components: a) security from space and b) security in space, including the security of ESA’s own activities (corporate security and the security of ESA’s space missions). Subsequently, ESA’s activities are elaborated around these two pillars, composed of different activities conducted in the most appropriate frameworks and in coordination with the relevant stakeholders and shareholders.

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

ABSTRACT: In recent years, the preference for purely private funding and ownership of telecommunications networks has given way to a ‘new wisdom’ that some form of public funding is now likely necessary if faster and more capacious next generation access (NGA) networks are to be constructed in a timely fashion for the majority of the population. Policy-makers are charged with deciding how that public investment will take place. One approach is via Public-Private Partnerships (PPPs), where public and private actors collaborate in UFB (Ultrafast Fibre Broadband) investment, construction and operation. However, the body of analysis of PPPs in NGA networks to guide policy-makers is scant. By using the concept of regulatory commitment, the paper compares the experiences gained in a hold-up situation in PPPs in other infrastructures (e.g. roading) with the UFB context. A case study of New Zealand's Ultrafast Fibre Broadband Initiative is used to draw new insights for government purchasers and regulatory agencies. In comparing the different forms of PPPs, the paper shows that UFB PPPs reverse the typical direction of financing and ownership observed in roading PPPs. Financing and asset ownership are separated in UFB PPPs, increasing the potential for misalignment of incentives and the likelihood that the public party can use its legislative powers to alter regulatory settings after the PPP contract is signed, and thereby hold up the private party once existing network assets are sunk. Whilst the government instigating the PPP may not be inclined to act opportunistically, a successive government facing different political priorities does not face the same incentives. To the extent that the private party can anticipate this risk, it should structure the initial agreement to ensure that the public party is penalised if such an event occurs (i.e. an automatic right to favourable renegotiation or payment of compensation). Such terms will discourage opportunism, so that the project benefits from time-consistent alignment of incentives and objectives.
Kindt, E. J. "Having Yes, using no? about the New Legal Regime for Biometric Data."
https://doi.org/10.1016/j.clsr.2017.11.004.
ABSTRACT: The rise of biometric data use in personal consumer objects and governmental (surveillance) applications is irreversible. This article analyses the latest attempt by the General Data Protection Regulation (EU) 2016/679 and the Directive (EU) 2016/680 to regulate biometric data use in the European Union. We argue that the new Regulation fails to provide clear rules and protection which is much needed out of respect of fundamental rights and freedoms by making an artificial distinction between various categories of biometric data. This distinction neglects the case law of the European Court of Human Rights and serves the interests of large (governmental) databases. While we support regulating the use and the general prohibition in the GDPR of using biometric data for identification, we regret this limited subjective and use based approach. We argue that the collection, storage and retention of biometric images in databases should be tackled (objective approach). We further argue that based on the distinctions made in the GDPR, several categories of personal data relating to physical, physiological or behavioural characteristics are made to which different regimes apply. Member States are left to adopt or modify their more specific national rules which are eagerly awaited. We contend that the complex legal framework risks posing headaches to bona fide companies deploying biometric data for multifactor authentication and that the new legal regime is not reaching its goal of finding a balance between the free movement of such data and protecting citizens. Law enforcement authorities also need clear guidance. It is questioned whether Directive (EU) 2016/680 provides this. ".

Marelli, Luca and Giuseppe Testa. "Scrutinizing the EU General Data Protection Regulation."
*Science*, 360, no. 6388 (2018): 496
http://science.sciencemag.org/content/360/6388/496.
ABSTRACT: On 25 May 2018, the European Union (EU) regulation 2016/679 on data protection, also known as the General Data Protection Regulation (GDPR), will take effect. The GDPR, which repeals previous European legislation on data protection (Directive 95/46/EC) (1), is bound to have major effects on biomedical research and digital health technologies, in Europe and beyond, given the global reach of EU-based research and the prominence of international research networks requiring interoperability of standards. Here we describe ways in which the GDPR will become a critical tool to structure flexible governance for data protection. As a timely forecast for its potential impact, we analyze the implications of the GDPR in an ongoing paradigmatic legal controversy involving the database originally assembled by one of the world's first genomic biobanks, Shardna.

https://doi.org/10.1016/j.clsr.2017.11.001.
ABSTRACT: The article analyses the country of origin principle of information society services in the light of harmonisation and unification efforts undertaken by the European lawgiver. Although the country of origin principle remains the key element of the construction of freedom to provide information society services, the principle itself suffers a number of both explicit and implicit restrictions which render its practical application a serious challenge. The difficulty is posed by the fact that the Electronic Commerce Directive fails to expressly specify both the scope of harmonisation as regards the principle, and the level of harmonisation of the directive itself. Furthermore, it is understood differently by private international lawyers. In the eDate Advertising case the ECJ ruled that the principle is not a conflict-of-laws rule, neither does it require implementation to the national legal systems in this shape. This is not to mean, however, that the debate over the function of the country of origin principle in private international law is over. Last but not least, there are many different types of country of origin principles applicable to various types of services provided via the Internet. This multitude of country of origin
principles is perhaps the greatest weakness the regulatory approach adopted by the European lawmaker.

ABSTRACT: The paper focuses on various legal-related aspects of the application of blockchain technologies in the copyright sphere. Specifically, it outlines the existing challenges for distribution of copyrighted works in the digital environment, how they can be solved with blockchain, and what associated issues need to be addressed in this regard. It is argued that blockchain can introduce long-awaited transparency in matters of copyright ownership chain; substantially mitigate risks of online piracy by enabling control over digital copy and creating a civilized market for “used” digital content. It also allows to combine the simplicity of application of creative commons/open source type of licenses with revenue streams, and thus facilitate fair compensation of authors by means of cryptocurrency payments and Smart contracts. However, these benefits do not come without a price: many new issues will need to be resolved to enable the potential of blockchain technologies. Among them are: where to store copyrighted content (on blockchain or “off-chain”) and the associated need to adjust the legal status of online intermediaries; how to find a right balance between immutable nature of blockchain records and the necessity to adjust them due to the very nature of copyright law, which assigns ownership based on a set of informal facts, not visible to the public. Blockchain as a kind of time stamping service cannot itself ensure the trustworthiness of facts, which originate “off-chain”. More work needs to be done on the legal side: special provisions aimed at facilitating user’s trust in blockchain records and their good faith usage of copyrighted works based on them need to be introduced and transactions with cryptocurrencies have to be legalized as well as the status of Smart contracts and their legal consequences. Finally, the economics of blockchain copyright management systems need to be carefully considered in order to ensure that they will have necessary network effects. If those issues are resolved in a satisfactory way, blockchain has the potential to rewrite how the copyright industry functions and digital content is distributed.

ABSTRACT: In the Internet of Things (IoT), identification and access control technologies provide essential infrastructure to link data between a user's devices with unique identities, and provide seamless and linked up services. At the same time, profiling methods based on linked records can reveal unexpected details about users’ identity and private life, which can conflict with privacy rights and lead to economic, social, and other forms of discriminatory treatment. A balance must be struck between identification and access control required for the IoT to function and user rights to privacy and identity. Striking this balance is not an easy task because of weaknesses in cybersecurity and anonymisation techniques. The EU General Data Protection Regulation (GDPR), set to come into force in May 2018, may provide essential guidance to achieve a fair balance between the interests of IoT providers and users. Through a review of academic and policy literature, this paper maps the inherent tension between privacy and identifiability in the IoT. It focuses on four challenges: (1) profiling, inference, and discrimination; (2) control and context-sensitive sharing of identity; (3) consent and uncertainty; and (4) honesty, trust, and transparency. The paper will then examine the extent to which several standards defined in the GDPR will provide meaningful protection for privacy and control over identity for users of IoT. The paper concludes that in order to minimise the privacy impact of the conflicts between data protection principles and identification in the IoT, GDPR standards urgently require further specification and implementation into the design and deployment of IoT technologies.
https://doi.org/10.1016/j.telpol.2018.02.004.
ABSTRACT: This paper uses a socio-technical analysis framework to examine the potential impact of the 2016 Cybersecurity Law on e-government services in China. Based on prior survey results in the literature, the factors that affect user responses to e-government portals are identified. It then reviews the provisions of the Cybersecurity Law and identifies the factors that are likely to affect e-government operations. Open-ended interviews with cybersecurity and e-government experts are used to assess the possible impacts of the law. ".

ABSTRACT: This paper presents an analysis of Russian data retention regulations. The most controversial point of the Russian data retention requirements is an obligation to keep the content of communications that is untypical for legislation of European and other countries. These regulations that oblige telecom operators and Internet communication services to store the content of communications should come into force on July 1, 2018. The article describes in detail the main components of the data retention mechanism: the triggers for its application, its scope, exemptions and barriers to its enforcement. Attention is paid to specific principles for implementation of content retention requirements based on the concepts of proportionality, reasonableness and effectiveness. Particular consideration is given to the comparative aspects of the Russian data retention legislation and those applying in different countries (mainly EU member states). The article focuses on the differences between the Russian and EU approaches to the question of how to strike a balance between public security interests and privacy. While the EU model of data retention is developing in the context of profound disputes on human rights protection, the Russian model is mostly concentrated on security interests and addresses mainly economic, technological aspects of its implementation. The paper stresses that a range of factors (legal, economic and technological) needs to be taken into account for developing an optimal data retention system. Human rights guarantees play the key role in legitimization of such intrusive measures as data retention. Great attention should be paid to the procedures, precise definitions, specification of entitled authorities and the grounds for access to data, providing legal immunities and privileges, etc. Only this extensive range of legal guarantees can balance intervention effect of state surveillance and justify data retention practices. ".