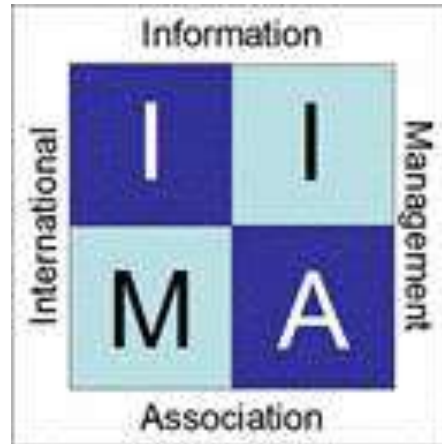


# **Proceedings of Abstracts of the International Information Management Association, Inc.**



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## **INTRODUCTION**

Welcome to this year's Proceedings of Abstracts of the International Information Management Association, IIMA2016. Abstract have become the method of choice for many conference because many academic journals now demand that any conference paper be changed 80% from the original conference paper before being submitted to their journal. Thus, if you submit an abstract and get feedback on your presentation from the conference participants, then you can make changes. Even then, the title and the abstract needs to be changed by at least 80% from what was published in any proceedings. This is a game changer from the past. The best way now is to submit an abstract only to the conference. Make your presentation at the conference and then write and update your paper based on conference feedback and submit your paper or article to the journal of your choice.

This year we have selected 39 abstracts to publish in our proceedings. You will note a wide variety of topics. You will find abstracts dealing with Cybersecurity in its various forms, Customer Relations Management (CRM), Social Media studies, Innovations in IT, the IoT, along with several abstracts on event predictions and health care issues.

Hope you enjoy the abstracts from all over the globe.

Editors

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## **AI REDUX: EMERGING DESIGN, SECURITY, PRIVACY AND POLICY ISSUES**

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### **ABSTRACT**

The last few years have witnessed disruptive developments in the applications of artificial intelligence. New intelligent, self-organizing and self-governing systems are becoming prevalent in today's business and society. Examples of these are social robots, driverless automobiles, autonomous flight systems, and software 'agents.' These systems are often varied and hybrid in nature and are not limited to specific hardware or software platforms. They are rooted in multiple disciplines such as electronics, networked and mobile computing, parallel processing, social networking, human computer interaction, and big data analytics. Their application areas are varied and numerous and span business, government and civil society. One thing in common is that they are all based on computers that are capable of intelligent and increasingly adaptive behaviors. The rapid growth of AI has implications on a wide variety of fields. It can prove to be a boon to disparate fields such as healthcare, education, global logistics and transportation, to name a few. However, these systems bring forth far-reaching changes in employment, economy and security. The US government has started to take notice. On May 3, 2016, the White House Office of Science and Technology Policy announced a series of four public workshops (<https://www.whitehouse.gov/blog/2016/05/03/preparing-future-artificial-intelligence>). Indeed, as these systems gain acceptance and become more commonplace, certain critical questions arise: What are the security and legal ramifications of the use of these new technologies? Who can use them, and under what circumstances? What is the safety of these systems? Should their commercialization be regulated? What are the privacy issues associated with the use of these technologies? What are the ethical considerations? Who has responsibility for the large amounts of data that is collected and manipulated by these systems? Could these systems fail? What is the recourse if there is a system failure? These questions are just a small subset of possible questions in this key emerging field. It would be impossible to address all of these questions in a single project or paper. Therefore, for this project, we limit our questions to those that relate to the security, privacy, ethical, and policy considerations that emerge from these types of technologies. The specific technologies that we consider are social robots, driverless cars, autonomous flight systems, and intelligent software agents that use algorithms to carry out a multitude of tasks. Through this research project we gain a deeper understanding of emerging AI technologies that are increasingly becoming prevalent in business, government and civil society. The study focused on the developments, ethical and legal issues emanating from the technologies. Specifically, the security and privacy aspects of these technologies, and then identify certain policy imperatives in order to make these developments economically as well as socially acceptable. The paper looks at history and origins of artificial intelligence, its emergence as a 'field,' its early successes and failures, and then move to the newer developments in the field. The decrease in computer costs, the increase in processing power, developments in software technologies, as well as people's attitudes towards autonomous systems have propelled new developments. The paper then gives examples of some of the newer developments in AI as well as its uses, and then takes a critical look at some of the issues and questions listed above, along with some of the advantages and disadvantages. Some technical challenges are also addressed. Finally, a look at the future as well as a modest proposal for addressing some of the challenges listed. The methodology used is a combination of historical and qualitative research. Policy statements made by analysts, lawyers as well as government officials in the US are also considered. The primary methods for acquiring the above "data" are library research and public policy statements that have appeared in white papers, media statements and research reports.

Keywords: AI, security, privacy, policy, ethics, history

## **FACTORY RESETS AND OBTAINING NOTIFICATIONS ON SAMSUNG ANDROID DEVICES**

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### **ABSTRACT**

We have identified software vulnerabilities present in two different system apps in multiple Samsung Android releases. The two vulnerabilities expose systemic problems with the inadequacy of testing for pre-loaded vendor applications. The vulnerable system apps are persistent and cannot be disabled or uninstalled by the user unless the user has root privileges on the device. The first vulnerability can be manipulated to programmatically initiate a factory reset of certain devices from a zero-permission Android app. During a factory reset, the user would most likely lose application data, photos, videos, text messages, and anything else that is not synced or backed up to a separate device. The attack is tested to be successful for certain Android 5.0.2 and 5.1.1 releases for the following Samsung Galaxy devices: S6, S6 Edge, S6 Edge+, and Note 5. The vulnerability is introduced by a system app declaring an application component twice in an app's manifest file, which causes the access requirements of the second declaration to overwrite those of the first declaration. The second vulnerability is the ability to obtain the text of notifications from a zero-permission Android app on 5.0.2 builds for the Samsung Galaxy S6 Edge. This vulnerability was introduced in the initial Android 5.0.2 builds for the Samsung Galaxy S6 Edge devices, but the vulnerability can persist on the device even after the device has been upgraded to an Android 5.1.1 or 6.0.1 build. The vulnerable system app gives a non-existent app the ability to read the notifications from the device, which a third-party app can utilize. This vulnerability allows an unprivileged third-party app to obtain the text of the user's notifications, which tend to contain personal data.

Keywords: Mobile Security, Android, Vulnerabilities, Permission, Leakage, Samsung

## **CYBER SECURITY VULNERABILITIES - SYSTEMS UNDER ATTACK: AN ANALYSIS**

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### **ABSTRACT**

The war on cyber security issues has exploded exponentially. Persistent attacks are in the rise routinely penetrating perimeter defenses and bypassing antivirus technologies to successfully launch attacks against endpoints and servers. The Internet of Things [IoTs] have motivated hackers to compromise networks but a massive data breach does not have to be. Businesses, hospitality, travel, healthcare, insurance, financial institutions, retails and other big enterprise systems succumbed to lingering, multistage attacks that siphoned sensitive, and valuable data out of the respective networks.

This study will generate next generation end-point security systems that will identify evil, or unusual and abnormal pattern in an intrusion scheme. The outcome will know abnormal by finding Evil. Recommendation for best practices will be provided.

Keywords: Internet of Things, hackers, intrusion, vulnerability, cyber security

## **EVALUATION OF R-TREE FAMILY BASED CLUSTERING FOR TRAJECTORY ANONYMIZATION**

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### **ABSTRACT**

Trajectory  $k$ -anonymity, which anonymizes each trajectory with  $k - 1$  other trajectories is used to protect the privacy of mobile users. The main challenge of trajectory  $k$ -anonymity is clustering  $k$  trajectories used for anonymization throughout the trajectory database. The benefit of using R-tree is that it clusters trajectories in a way that their bounding spatiotemporal extension is minimized, thus achieving better quality in the anonymized database. Anonymization performance in terms of QoS may be further improved using R-tree family such as R+-tree and R\*-tree. R+-tree is a good candidate to implement clustering of trajectories because overlapping of two leaf nodes is minimized, thus resulting better QoS than that of R-Tree. Similarly, R\*-tree improved the performance of R-tree by using forced reinsertion of objects which may lead to better QoS than that of other R-tree variants. This paper evaluates the performance of R-tree family in terms of QoS for anonymization.

Keywords:  $k$ -anonymity. Location privacy, LBS, trajectory anonymization

## **A STUDY OF IOT DYNAMIC TOPOLOGY BASED ON THE DELAUNAY TRIANGULATIONS**

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### **ABSTRACT**

IOT is one of the important events which occur in this century right now. The motivation of the relative technique and application is fast and definite. Therefore, this study focus on the dynamic IOT topology to propose a solution based on the Delaunay triangulation to build the network linking relationship between nodes. At the same time, by using the communication matrix is to record the communication status peer-to-peer. To assure a mobile device entering into an existed network or the sensor node failure happening in any work environment can dynamically reconfigure the network topology and quickly response and recover normal. While the amount of sensor nodes in IOT is huge, the communication matrix needs to maintain also large. In this paper, exception the Incremental building algorithm of Delaunay Triangulations is used because it only affects the neighbor triangulation linking, the 2-Dimension communication matrix is also reduced into 1-Dimension linear data structure to low down the storage requirement and speed up the performance. After then, the dynamic IOT reconfiguration is feasible and efficient.

Keywords: IoT, sensors, network topology, Delaunay Triangulations, Dynamic Reconfiguration



## **BIG DATA ENTERPRISE RELATIONSHIP MANAGEMENT**

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### **ABSTRACT**

Competitive strategies in business for the 21st century have shifted from the internal operational focus to exploiting relationship and knowledge assets across the business ecosystem. Enterprise relationship management (ERM) is a business strategy that optimizes the relationships between a firm and its customers, partners and suppliers in order to maximize opportunities. The knowledge asset has been impacted by the Big Data phenomenon, which emerges as a result of multiple trends that include the exponential growth of processing power, social networks, mobile and cloud computing.

Business in the modern era is challenged by its capability of managing enterprise relationships and exploiting business insights from the explosion of Big Data. As more data with high volume, velocity and variety is collected through the enterprise operational processes, companies need to store, process, and analyze them. Companies that could turn these mountains of Big Data into actionable insight would have immense advantage over their competitors. The other dimension for value creation is the capability of building relationships with a firm's customers, partners, suppliers and other stakeholders. This paper adopts an extended model of the St. Gallen customer knowledge management model in defining the operational processes in enterprise relationship management (ERM), which consists of customer relationship management (CRM), partner relationship management (PRM), and supplier relationship management (SRM). It examines each dimension of the ERM processes in marketing, sales, purchasing and service, across CRM, PRM and SRM, as they are impacted by Big Data characteristics that include high volume transactional data, data generated by social media, M2M and geospatial communications. A conceptual framework is presented, which includes the traditional business intelligence (BI) component, Hadoop for massively distributed storage and processing of Big Data via the Hadoop distributed file system (HDFS) and MapReduce, and real-time NoSQL databases for real-time processing. Analytics running on these platforms generate business intelligence and actionable insights to enhance the ERM operational processes.

This paper explores the impact of Big Data on ERM. A conceptual framework for Big Data ERM is presented. The paper is as divided into the following sections: a general definition of ERM, the ERM process model, definition of Big Data, description of ERM in the era of Big Data, and the presentation of a conceptual framework for Big Data enterprise relationship management.

Keywords: Big Data, social media, M2M, geospatial, Enterprise Relationship Management

## **A STUDY OF CUSTOMER RELATIONSHIP MANAGEMENT (CRM) AND SOCIAL NETWORKS**

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### **ABSTRACT**

The purpose of this paper is to study the issues of integrating social networking features in customer relationship management (CRM) software. While businesses recognize the potential sales and marketing benefits in integrating social network information into customer relationship management systems, customers using these social networks may be skeptical of their own gains when companies attempt to use this network information for business purposes. Thus, this paper has two goals. First, it examines potential social networking features that can be integrated into customer relationship management (CRM) software and how they can benefit the firm. Second, it surveys customer opinion about social networking features in customer relationship management software. We hope that this work can help firms better understand customer behavior on a variety of social networking features that can exist inside a CRM implementation.

Keywords: social networks, CRM software, social media, customer relationship management

## **LEARNING BY DEVELOPING USING AN ONLINE PLATFORM: A CASE STUDY OF EUROPE**

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### **ABSTRACT**

Research has supported the important role of education and training to tackle youth unemployment and achieve self-fulfilment as well as society's benefits such as future growth, long-term competition and cohesion (cf Liu et al, 2015; Fletcher-Brown et al, 2015; Gash, 2015; Baxter et al, 2014. Thus, the development of new pedagogies for learning is of great interest to academics, governments and researchers (cf Overton and Lemanski, 2016; Sandström et al. 2016; Pretorius et al, 2016). One of such pedagogies is Learning by Developing (LbD) developed in Finland by Laurea University of Applied Science. That institution used the methodology with success within tertiary education. The success was in developing a partnership with industry and promoting creativity, competitiveness, employability and the growth of an entrepreneurial spirit for university level students. However, this methodology had not been experimented with non-university students until from 1 November 2013 to 31 October 2015; and for the first time using an online platform. The project was sponsored by the European Commission and nicknamed LeTeEm (coined from Lecturers, Teachers and Employers).

The paper reports on this experiment which involved 28 institutions in 5 European countries. 413 pupils aged between 11 and 18 years were involved in projects that involved industries. Pre and post experiment questionnaires were applied. A 6-point Likert scale was used to collect quantitative data and the opened ended part of the questionnaires provided rich qualitative data to back up the quantitative data. To provide a tight comparison, the t-test paired analysis was carried out. The analysis exhibited significance in all the core areas of the methodology (pedagogy) namely: creativity, research, teamwork and experience. The paper reports on positive views of not only students but teachers and employers.

This initial pilot suggests that the methodology could be adapted for secondary school level. The project team has already developed a website with the adapted methodology, pedagogic guides and videos along with best practice guides and use case scenarios. Further research should continue to monitor the performance of students using a wider sample as they use this methodology. In addition, further research should be undertaken to future explore both the teacher and employer perspectives with the adapted methodology.

Keywords: LbD, e-learning, pedagogy, creativity, research, teamwork

**FORMAL AND INFORMAL COMMUNICATION CHALLENGES OF  
GLOBAL PROJECT MANAGEMENT: LESSONS LEARNT FROM A  
SOLOMON ISLANDS FEASIBILITY STUDY**

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**ABSTRACT**

ICT and globalization of international trade and business relationships allow individuals, teams and organizations to interact, communicate, collaborate and work with their counterparts from around the world. Online activities can be performed 24 hours, 7 days a week. These professional services need to be properly organized in order to achieve the desired results. Global Project Management (GPM) can be perceived as an emerging business practice and research domain. One of the most important and yet not adequately researched areas of GPM is communication and related issues. Communication and associated with it collaboration can be perceived as a persistent phenomenon occurring throughout the whole process of GPM. Moreover it can occur by formal, but also informal way. Both of them can have an impact on the whole process of GPM. This study will fill the gap in knowledge, by investigating in detail both formal and informal types of communication and their impact on GPM. It will discuss challenges to both types of communication, which arise from three main “distances” of GPM: geographic, temporal and socio-cultural. Various tools and techniques of formal and informal communication for the purposes of GPM will be discussed and critically reviewed. Top-down and bottom-up approaches to communication and collaboration will be evaluated in terms of set-up, cost, benefits and potential problems. Theory will be enriched with an insight based on practice with lessons learnt from a Solomon Islands Feasibility Study.

Keywords: Global Project Management, Communication, Collaboration, Feasibility Study

## **STUDY ON THE ORIENTATION OF SMART SERVICES FOR CHINA ELDERLY PATIENTS WITH CHRONIC DISEASES**

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### **ABSTRACT**

China has a huge elderly population, most of them have a wide range of chronic diseases. However, the elderly chronic patients are a neglected group in China's current social conditions. With the development of the Internet in Chinese, there has been an improvement for receiving information, especially with the advancement of the Chinese "Internet plus." Internet Plus is a developmental model, a kind of new model of elderly chronic disease care. Elderly chronic disease care is gradually being put on the nation's agenda. Because of the current situation of China's social situation, people are generally giving high hopes for this model. But as with any such model there are many questions and concerns. First, how we approach this strategic orientation? Second, what do we can know already? Third, what we should do if the model works? Fourth, how can the model implemented on a national stage? Finally, how can the development goals be achieved in accordance with the needs of society? Understanding these questions, leads to the following, what is the strategic planning of smart services for the elderly with chronic disease? This includes the following aspects:

- What is it? Is it a kind of new mode or is it a kind of innovation of the original mode.
- What do it need to do? Smart services should meet the needs of the elderly patients with chronic disease from the three levels which include body/physical/psychological.
- What might it do? It can not replace the traditional interpersonal care, only help to care the elderly patients with chronic disease.
- What can it do? It can integrate the supply of fragmented services, enhance the ability of community service and enhance convenience, effectiveness and pertinence etc..
- What should it do? It should run according the characteristics of the elderly community and China cultural.
- How to do it? It should be supported not only by economic and business, but also it should be supported mainly from government and society.

Keywords: China, Elderly, chronic illness, health care, Internet Plus

## **IMPACT OF STEM ATTITUDE ON BUSINESS ANALYTICS PREPAREDNESS**

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### **ABSTRACT**

This research tries to study the impact of science, technology, engineering, and mathematics (STEM) attitude on business analytics preparedness via a survey research on three universities with a total of 501 usable responses. Business analytics makes extensive use of data, statistical and quantitative analysis, and explanatory, including data mining and predictive analytics, to help make actionable decisions and to improve business operations. According to McKinsey & Company, the projected demand for deep business analytical positions could exceed the supply produced with the current trend by 140,000 to 190,000 positions, in addition to the projected need of 1.5 million managers and analysts in dealing with big data business analytics in the United States. Increasingly, top thinkers in academia and business believe that analytics, especially analytics connected with big data, is going to be a driving force in our economy and society in the next 10 to 20 years. Recruiting and keeping students in STEM areas has attracted a large body of attention in pedagogical studies. An effective way of achieving such goal is to show them how rewarding, and self-fulfilling STEM careers can be toward perspective students. One example of the abundance of STEM careers is the rapid growth of business analytics positions on the job market – which serves as a motivational scenario of this study. Business analytics makes extensive use of data, including data mining, statistical analysis, quantitative modeling, and explanatory and predictive analytics, to help make actionable decisions and to improve business operations. We found that there is a statistically significant positive correlation between STEM interests and critical skills in big data business analytics, which is natural step forward to fill in the talent gap.

**Keywords:** Business Analytics, STEM Attitude, Empirical Research, Statistical Analysis

## INNOVATIVE USES OF DOMAIN SPECIFIC MODELS AND DOMAIN SPECIFIC LANGUAGES IN EDUCATION

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### ABSTRACT

Domain specific models (DSM) and domain specific languages (DSL) are software tools that are built to solve problems in a specific, narrowly-defined problem domain. They usually depend upon meta-models with graphical components that are defined by domain experts to represent the key concepts of the environment to be modeled. Utilizing DSMs and DSLs can significantly increase programmer productivity by raising the level of abstraction from the code level to the application level. This allows the domain expert, in consultation with the end user, to directly specify the problem solution using familiar domain-specific concepts. Once built, a DSM can be used to automatically generate running computer code, much in the same way that a 3<sup>rd</sup> generation programming language automatically generates executable machine code from the source language. Subsequent modifications to the model are automatically reflected in the implementation code, thus ensuring a tight coupling between the model and the running system. This has the advantage of maintaining the synchronization between the model and the resulting system which in turn allows the software designer to continue to use the model for future maintenance. It also provides documentation of the system that is continuously current without extra effort. The benefits of this system development approach can be remarkable. Research has shown real-world increases in productivity of 400% to 2000% when DSM tools are used on applicable system development projects.

The recent development of DSM workbenches has given DSM/DSL system development a new opportunity for widespread success. These workbench tools allow the design and development of DSMs in a much shorter timeframe. In addition, the resulting model is easier to maintain and capable of managing far larger object sets than previous implementations. The end result of this is a flexible environment where changes in the design model are automatically reflected in the end-product language. Consequently, DSM/DSL workbenches are a promising “new” technology that is likely to influence program development and software engineering for the foreseeable future. Numerous examples already exist in the literature of successful implementations of DSM/DSL generated projects.

As educators, we need to prepare our students for the environment and challenges they will face after graduation. Given the success of DSM/DSL workbench developed software projects to date, it is likely that the tools and system development methodology they support will become more common in industry. In recognition of this, this presentation will discuss the basic philosophy behind DSM/DSL workbench software development and will demonstrate how the tools can be incorporated into an undergraduate projects course for Computer Information Systems or Software Engineering students. The demonstration component is intended to deliver sufficient information and illustrations to generate lively discussion and also provide new insights into innovative ways to integrate DSM/DSL workbench tools into the curriculum.

**Keywords:** domain specific modeling, domain specific languages, meta-modeling, software development

## **INNOVATIVE IT FIRMS AND THE INFORMATION CONTENT OF EARNINGS**

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Evaluating the success of a company's information systems (IS) has been the subject of much discussion among IS researchers. One of multiple measures of IS success that has been suggested is information quality (DeLone and McLea, 2003). In the context of the financial market, perception of information quality is as important as actual information quality. The focus of the current study is the perceived quality of information produced by firms based on the innovativeness in involvement and investment in IT. It is predicted that information reported by companies known for developing and employing sophisticated IT systems is weighed more heavily by investors.

Seminal accounting research has shown that investors perceive earnings announcements to possess informational value (information content) (Beaver, 1968). As a result, stock prices tend to respond to positive or negative surprises in earnings announcements. To measure perceived information quality, we conduct an analysis of stock price before and after earnings announcement surprises. Results provide direct support for our hypothesis, indicating that the market reacts more strongly to earnings surprises (both positive and negative) reported by innovative users of IT as compared to less innovative users of IT. These results contribute to a richer perspective on the impact of investment in advanced information systems.

Keywords: IS success, event study, innovative IT firms,



## **HEPARIN RECALL: QUALITY CONTROL MISSTEPS AT THE FDA AND BAXTER HEALTHCARE INTERNATIONAL**

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### **ABSTRACT**

The 2008 Heparin pharmaceutical recall was the result of quality control (QC) missteps at the USA FDA and Baxter Healthcare. This study identifies these QC procedural mistakes to determine whether the FDA was negligent in performing its oversight task of ensuring safe and effective drugs. Similarly this study examines QC mistakes at Baxter Healthcare, the dominant manufacturer of the Heparin drug in the USA, and its principal Heparin ingredient supplier the Chinese corporation SPL.

The analysis of the FDA was done in stages, as the researchers looked at its 2002- 2012 performance, including supervision and enforcement. Since one of the strongest indicators of government supervision is the number and type of FDA inspections, the FDA's weak oversight in China provides insight into the Heparin recall. To determine Baxter's and SPL's responsibilities, our research reviewed the FDA issued inspection reports, warning letters, as well as the corporations' history of recalls, and civil lawsuits. The research also looked into their manufacturing supply chain. The pharmaceutical industry (PI) is global, where drugs and components are manufactured and sold worldwide. The industry now estimates that the USA pharmaceutical market imports more than 50% of its active ingredients, fillers, and final products. The FDA has the mandate to monitor this global production and assure the quality and efficacy of the bio-pharm products. Yet monitoring overseas production has difficulties, and makes foreign inspections more time-consuming and costly, less rigorous and less frequent than domestic inspections. For instance, monitoring Chinese manufacturing is fraught with language translation issues, travel and visa problems, as well as having to deal with questionable downstream secondary suppliers. Baxter also faces similar supervisory and supply chain issues. In the 2008 timeframe Baxter imported contaminated ingredients from the Chinese firm SPL. Both Baxter and SPL failed to test for contaminated ingredients. In particular, both corporations failed to secure their individual supply chain so that their product had contaminants introduced somewhere along the chain. This means that neither Baxter nor SPL could attest for all their suppliers, and consequently could not guarantee the integrity of their suppliers' ingredients.

In utilizing cGMP, the FDA matches best practices with risk management. This is important since more complicated manufacturing processes have a higher risk of variance than simpler ones. Similarly some drugs, like blood thinners, have an inherently higher risk factor per dose than common over-the-counter products. Therefore it makes sense that the FDA concentrates its inspections on those sites with the greatest potential hazard to public safety. Heparin falls into the high risk category on both counts, complicated manufacturing process, and danger to the patient. Consequently in theory and in practice, the FDA should be focusing its limited inspection resources on the necessary corrective and preventive (CAPA) tasks such as inspection of Heparin suppliers and manufacturers. This is particularly true since CAPA is central to risk management.

CAPA is critical for Baxter and its supplier SPL. Heparin as a blood thinner is administered tens of thousands of times a day, and any adulteration has significant medical consequences, including violent death. Baxter's active ingredient was manufactured in China, a country during this period that was known for its pollution and more recent scandals such as milk laced with melamine. Its supplier, SPL further outsourced the unrefined constituents of the drug downstream to dozens of unidentified smaller manufacturers.

Keywords: FDA, CAPA, cGMP, pharmaceutical industry, Heparin recall

## **A CALL FOR A REVIEW OF SOFTWARE QUALITY ISSUES IN HEALTHCARE IT SYSTEMS**

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### **ABSTRACT**

Information technologies and information systems are increasingly being used in all aspects of modern healthcare and electronic medical record (EMR) systems from diagnosing to treatment, prevention and managing patient care. These systems are also enabling and encouraging patients to participate in their own healthcare—all to improve healthcare delivery quality, safety and patient care.

But as with most software and hardware system unforeseen and unintended side effects, consequences, bugs, errors, defects and quality issues are present that can affect the safety and quality of care. Adverse events have the potential to seriously affect patients. Research is needed about the types of IT-related software and hardware quality issues, how and when they manifest themselves, and how to prevent or mitigate them. There is also a need for improving approaches to designing and implementing safer systems for all users.

In this paper we review and analyze reports and system reports that may indicate the presence of serious software defects, system usability issues and inadequate testing and training in EMR systems and technologies. We suggest models and methodologies to improve the design, implementation, use, evaluation and surveillance of safer healthcare IT systems.

Keywords: healthcare, software quality, EMR

## **BUSINESS PROCESS MANAGEMENT IN HEALTHCARE: A COMPARISON OF 2 CASE STUDIES**

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### **ABSTRACT**

Today many hospitals are increasingly challenged by issues such as the aging population, rising costs and increasingly complex care pathways. Furthermore there are a rising number of specializations and therapies and simultaneously patients demand services of higher quality and expect shorter waiting times (Øvretveit, 2000). Also hospitals must response to requirements imposed by the government and accreditation bodies. As a result hospitals must increase their grip on processes and integrate their information systems to better coordinate these healthcare processes. Both information systems in the hospital sector as business process management are underdeveloped when compared to other sectors (Helfert, 2009; Mens and Ravesteyn, 2016), particularly in terms of low technological sophistication and integration sophistication.

BPM is an important discipline for organizations that desire to increase their quality. BPM maturity can be assessed, improved and benchmarked using Business Process Maturity Models (BPMMs) (De Bruin et al., 2005). A BPMM usually defines a number of maturity levels, with specific capabilities for each level. These capabilities tell us how well the organization performs a certain competence in relation to business process management. There are many BPMM models (Plattfaut et al., 2011; Dijkman et al., 2015). In this study we analyze the BPM maturity at two hospitals in the Netherlands. The first is a small regional hospital (RH) and the second is a large academical hospital (AH). The research project consisted of three phases 1) workshop sessions at both hospitals, 2) a survey was conducted to measure BPM maturity and 3) analysis and comparison between the hospitals and to the Dutch benchmark study as performed in 2015. During the workshops the current situation regarding process management at the hospitals was discussed (for instance if and how the plan-do-check-act cycle is implemented). Each workshop lasted a day and respectively 6 (RH) and 8 (AH) people were present with diverse roles (management, IT, quality, healthcare professional). After the workshop people were asked to fill out a questionnaire that measures the perceived BPM maturity of an organization and how respondents perceive the performance of the processes within the organization. At RH 13 people participated while at AH we had 8 respondents. Finally the outcomes of the surveys are plotted in respectively a spider diagram showing the maturity dimensions and a graph that shows the process performance. In these figures the average scores of a Dutch benchmark study (performed in 2015) are also shown.

From our analysis we find that both hospitals score considerably lower on BPM maturity than the average of the organizations in the Netherlands and also have a lower score on the performance of their processes. Furthermore it is remarkable to see that although AH scores higher on most of the BPM maturity dimensions than RH, it scores lower on most of the variables measuring the process performance.

Keywords: healthcare, BPM, BPM maturity, process performance

## KEY SUCCESS FACTORS OF PHARMACY CUSTOMER RELATIONSHIP MANAGEMENT

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The purpose of this paper is to explore the success factors for pharmacies through Customer Relationship Management (CRM) concept. CRM is a framework widely used study and manage customer relationships. Efficient customer relationship management is essential success factor in dynamic business environments that include pharmacy industry in Taiwan today. This paper presents a case study on Taiwan pharmacy industry and CRM that follows Kalakota and Robinson (2001) using three phases of CRM: Acquire, Enhance, and Retain. Based on the three phases, we define nine dimensions to approach customer relationship success factors. We formulated a questionnaire from these nine dimensions to screen out key success factors that for the future direction for pharmacies on CRM.

Keywords: Pharmacy, Customer Relationship Management (CRM), Key Success Factors

## **THE MISSION AND CHALLENGES OF THE RED TEAM IN CYBER DEFENSE COMPETITIONS**

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The use of red teams in cyber defense competitions are an important component of the event and can be a key factor in determining the outcome of the competitions. In order for the outcomes of the competition to be a function of the skills and abilities of the blue teams, the red teams must operate in a manner that ensures fairness and balance in the execution of their attacks. This paper analyzes the mission of the red team, the challenges they face in fulfilling this mission and a methodology that will be in keeping with the mission. Statistical models and formulas will be proposed that can be used to analyze the red team's activities to assess their impact on the outcomes of the event.

Keywords: Cyber security, red team, cyber defense competition, CCDC

## **TOWARDS AN INSTRUCTIONAL DESIGN MODEL THAT MEETS THE NEEDS OF CYBERSECURITY**

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### **Abstract**

Cyber security is a field of study that is in high demand and continually changing. These conditions make designing and developing timely and relevant curriculum difficult. A significant amount of change in technology can take place in the in the space of time it take to go from the start of the design of a course to the time that it is delivered. And once that course is delivered by the time the student has graduated yet again, more time will have passed to make even more of what was learned, obsolete. To address this issue a new methodology of instructional design is proposed that combines the simplicity elements of a backward design with rapid prototyping. A description of this model and the processes necessary for implementing the model is discussed. In addition its application in the development of curriculum and content will be explained as it is being used for both the classroom and for NICE Challenges Project.

**Keywords:** cybersecurity, cybersecurity education, rapid proto-typing, instructional design, backward design model

## **DRONE TECHNOLOGY, TERRORISM, AND POLICY**

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Advancements in drone technology continue to push the boundaries of innovation, complexity, and sophistication. The increasing innovation, complexity, and sophistication of drone systems often leads to a misunderstanding of the full policy implications of drone technology as it pertains to terrorism and the formation of public policy. Discussion amongst scholars, professionals, and congressmen over the United States drone policy continues to focus on drone devices that use drone technology instead of assessing policy initiatives for drone technology as a whole. Looking at drone devices rather than drone technology as when assessing drone technology creates a reactionary policy framework that suffers problems of identification, consistency, and accountability. Understanding drone technology as a whole, its current capabilities and limitations, will provide scholars, professionals, and congressmen with the resources to create and maintain drone policy as it pertains to terrorism and public policy.

Keywords: drones, policy, terrorism, composition, public policy, drone technology

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**DISCUSSION ON THE FUTURE DIRECTION OF RESEARCH IN  
SMART CITY: SMART HOME FOR THE ELDERLY**

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**Abstract**

Progression of technology and communication brought high amount of information that requires filtering in order to understand them. As such, this study was done to analyze and understand the current development of a smart home for the elderly in respect to the development of smart city. Various studies have been made in an attempt to create a smart city from the academics to the governments. However, there have been surprisingly little studies done in respect to development of smart city towards the elderly. Patents analysis was used in order to understand the current patent development towards the elderly.

Keywords: Smart city; elderly; smart home



## **TO STUDY THE CLOUD CUSTOMER RELATIONSHIP MANAGEMENT BUILD PLANNING - CASE NANOTECH INTERNATIONAL CO., LTD.**

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### **ABSTRACT**

Customers are an important part of a business, and customer relationships are an integral and critical component of a company's operations. Along with the fast of the information age, the adoption of the cloud application services to manage a company's various operations is also rising rapidly. This study will be focusing on the cloud customer relationship management applications and services to understand the needs of customers, to enhance the customer-business two-way communication, and to improve a company's operational efficiency.

By incorporating the customer relationship management system and using information technology to automate processes, a business can now collect more and different kinds of data about its customers rapidly. The use of analytical tools allows an enterprise to better understand its customers' needs, increase its customer base, improve its customer satisfaction, and generate more revenue. Build and use of the cloud application service platform for Nanotech International Co., Ltd., for example, have dramatically improved its customer communication and interaction channels. The cloud customer relationship management application service platform facilitates and makes real-time interaction easy: convenient to save the query results, flexible in message classification, and easy to set share target audience. The company and its customers become good interaction partners, and together contribute to the growth of the company. The cloud application service platform not only improves the efficiency of the traditional way of doing things, it also creates new ways of doing things and provides new opportunities. The enhanced interactions between a company and its customers increase values and lead to innovations.

**Keywords:** Cloud, Customer Relationship Management, Cloud Customer Relationship Management

## **MIND THE GAP: ADDRESSING THE EMPLOYMENT ISSUES IN UK COMPUTING GRADUATES**

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Graduate employability has been a topic of research for many decades (Homeyer, 1977; Silva et al., 2015). There has been much discussion over how best to both conceptualise and realise the constituent elements of employability and how to establish a satisfactory framework that will meet the needs of industry for employable graduates (Tomlinson, 2012). It has also long been the subject of debate as to where responsibility for graduate employability should lie (Sin and Amaral, 2016). Is the primary purpose of higher education to produce intellectually enlightened individuals who may or may not be work ready or work capable, or is it rather to serve, in essence, as a production line that fulfils the needs of industry and the economy by providing graduates who are deemed suitably employable (Rae, 2010)? Gordon Brown, in his role as Chancellor of the Exchequer (Finance Minister) provided the then UK Government's position on this by stating that "Given the substantial public investment in university students, it is particularly important that they are employable upon graduation" (HEFCE, 1999 cited in Holmes, 2013, p. 541).

One of the most commonly cited definitions of graduate employability is provided by Yorke (2004, p. 8) who defines the term as a "set of achievements – skills, understandings and personal attributes – that make graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy". There is no clear consensus in the literature on what should fully constitute the set of achievements to which Yorke refers and likewise, little consensus on how higher education institutions can best engender employability in undergraduate and postgraduate students. Yorke's definition would certainly indicate that employability has a pre-employment focus. This is echoed by the Bologna Process which afforded graduate employability a supra-national status and placed responsibility for providing 'employable' graduates on the agenda of every higher education institution in Europe.

The UK Government has recently published a review of the employment prospects of graduates from Computing programmes in universities across the country (known as the Shadbolt Review). The review was triggered by the apparent discrepancy between the actual employment levels and the perceived demand for skilled workers.

Employment levels are evidenced from annual first destination leavers statistics produced by the Higher Education Statistics Agency by way of an annual survey known as the DHLE survey (HESA, 2016). This survey requests employment status information from graduates of higher education institutions six months after graduation and is viewed as a key indicator of graduate employability.

Computing graduates appear to have one of the worst employment statistics and yet there is a constant refrain from employers and other sources that would appear to evidence an increasing demand for skills by organisations. For example, the UK's digital sector was estimated to be growing 32% faster than the rest of the UK economy (Tech City, 2016). The growing skills need results from the increasing volume of opportunities in the digital era, both in ensuring organisations are digitally savvy and more fundamentally to drive the implementation of the new technologies such as mobile and cloud-based systems, secure connected organisations and environments, and an increasingly smarter, data-driven world.

The Shadbolt Review actually found that the data was more complex than first perceived, with contradictory messages. The performance of Computer Science graduates from English HEIs is outstanding with many employed in important roles, thus contributing significantly to the economy. There were though a number of recommendations for university and national level action.

**Keywords:** UK, computing graduates, jobs, organisations, Shadbolt Review

**PREDICTING THE OUTCOMES OF THE 2016 NCAA  
MARCH MADNESS MEN'S TOURNAMENT BRACKETS:  
A STUDY OF FAN TWITTER  
SENTIMENT**

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**ABSTRACT**

Can the choice of words and tone used by Twitter users be used to predict the outcomes of the 2016 NCAA March Madness Men's Division I Basketball Tournament? If so, is it a better predictor than the experts? We investigate these questions by creating the UT Tyler March Madness System and pairing it with OpinionFinder, a sentiment analysis tool. Through our analysis, we find that fan sentiment predicts the winner 54.00% of the time which is slightly better than flipping a coin. The combined average of five experts was 56.80%. Fan sentiment is slightly less accurate than expert predictions. The experts chose most of the higher seeded teams in contrast to fan sentiment which chose the lower seeded teams.

Keywords: Fan sentiment, experts, sentiment analysis

## **ELECTRONIC HEALTH RECORDS ADOPTION: ANALYSIS USING LINKED ADMINISTRATIVE DATA**

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### **ABSTRACT**

For many years, the United States Federal Government has pushed the adoption of electronic health records (EHRs), which is a key to spur large-scale innovation in the healthcare delivery that would provide continuous improvements for lower costs and better healthcare quality. The American Recovery and Reinvestment Act, passed by the US Congress in 2009, included enactment of the Health Information Technology for Economic and Clinical Health Act (HITECH Act). The HITECH Act budgeted \$19.2 billion for health information technology investments and incentive payments for healthcare providers to adopt EHRs. Despite the tremendous effort, financial incentives, and evidences associating hospital information technology (HIT) adoption with positive quality outcomes, recent reports showed that the adoption of EHR aspects of HIT in hospitals was not as fast as one would have expected. The factors impacting HIT adoption has been discussed within the related literature while previous works have provided their analysis specifically about the adoption of EHRs and the acceptance of various technologies (such as electronic signature and radio frequency identification) supporting the use of EHRs. To the best of our knowledge, no prior work has studied the topic of EHRs adoption using an integrated dataset linking data from the federal government medicare.org website, which helps in reducing social desirability bias that possibly exist in survey research. In this study, we propose a model to examine the factors impacting EHRs adoption in hospitals. We carry out our analysis by using a unique dataset linked from two US administrative sources: (a) data reported to the Healthcare Cost Report Information System (HCRIS) and (b) Hospital Compare data downloaded from the Medicare.gov website. The HCRIS database, maintained by the Centers for Medicare and Medicaid Services (CMS), provides official annual utilization and financial data of all hospitals receiving reimbursement from either program. The Hospital Compare tracks data about the quality of care provided at over 4,000 Medicare-certified hospitals. This data also reports hospital's status of EHRs adoption such as the hospital's ability to track patients' records between visits and receiving lab test results electronically. Moreover, it captures technology measures reflecting crucial components of the infrastructure in which providers care for patients. Using past literature as a starting point, the proposed model will investigate the relationship between EHRs adoption and several identified variables based on data available in the linked dataset. Included among the variables are numbers of beds, inpatient/outpatient discharges, Medicare/Medicaid discharges, and quality of medical imaging tests. Previous studies have acknowledged that HIT adoption tends to be influenced by the organizational, environmental, and technological characteristics of hospitals.

From the organizational aspect, we have identified the number of beds and the showing of inpatient/outpatient charges to describe the size and the nature of provided services, respectively. Further, public health policies (such as Medicaid eligibility expansion for pregnant women during the 1980s and 1990s) can potentially impact hospitals' decisions to adopt technology from the environmental aspect. The efficiency of medical imaging tests is used to represent the technology effectiveness of hospitals from the technological aspect. The model will be tested using the linked administrative data. The knowledge derived from this study will, hopefully, enable policy makers and researchers to gain objective and comprehensive insights into EHRs implementation by a variety of healthcare providers as well as different needs for incentives and support for its widespread adoption.

Keywords: Electronic Health Record, Information Technology Adoption, Administrative Data, Medicare, Medicaid

## **SOCIAL MEDIA AS COMMUNICATION AND PROMOTION MEANS FOR AMERICAN UNIVERSITIES: A PILOT STUDY ON THEIR USAGE BY UNIVERSITIES IN BOTH UC SYSTEM AND CSU SYSTEM**

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### **ABSTRACT**

Social Media as Internet-based applications have been used by more and more people, companies and organizations to share and exchange information and ideas using texts, pictures, and videos via virtual communities and social networks. Throughout the years, many studies have been conducted the usage of social media by individuals, companies and organizations. For example, use of social media by college students (Forbush, & Foucault-Welles, 2016; Hartshorne, et al., 2016); social media usage by Fortune 500 companies and CEOs (Gomez et al., 2016; Malhotra & Malhotra, 2016; Tsai & Men, 2016 ); organizational use of social media (Carlson et al., 2016; Niedermeier et al., 2016; Weber et al., 2016 ). Yet, very little attention has been paid to finding out how social media are used by American universities as promotion and communication means and, their availability, popularity, and effectiveness for the present and future students, students' families, alumni, and visitors, and so on.

The purpose of this pilot study was to examine the use of social media as Communication and promotion means by all the ten universities in the University of California system and all the 23 universities in the Californian State University system. In this study, all the information on social media usage is first collected from the websites of the universities and the relevant social media and, then analyzed with comparison and contrast between and among the universities in both UC system and CSU system, trying to answer five research questions as follows:

- How many types of the social media are used by universities in UC system vs. universities in CSU system?
- What are the most and least popular social media used by universities in UC system vs. universities in CSU system?
- What are the similarities and differences of social media usage between or among universities in UC system vs. universities in CSU system?
- How effective are the social media used as communication and promotion means by universities in UC system vs. universities in CSU system?
- Is there a relationship between the ranks of the universities and their use of social media?

The significance of this pilot study is two-fold: it not only reveals the first-hand findings on the use of social media as communication and promotion means by ten universities in UC System and twenty three universities in CSU System with detailed answers to the research questions, but also lays the foundation for our future larger scale studies on social media as communication and promotion means used by the top 50 private universities and the top 50 public universities, focusing on their similarities as well as differences.

Keywords: Social Media, Social Networks, American Universities, UC System, CSU System

## **PREDICTING OPENING WEEKEND BOX OFFICE SUCCESS: USING SOCIAL MEDIA SENTIMENT AND YOUTUBE DATA**

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### **ABSTRACT**

Can pre-release audience attention predict a film's opening weekend success? This study approached this problem using the Box Office Prediction System (BOPS) with data collected from Twitter and YouTube. OpinionFinder was used to determine the sentiment of movie related tweets for each of the 18 films studied. BOPS uses multiple linear regression to model the relationship between pre-release Twitter sentiment and opening weekend box office success as well as the relationship between pre-release YouTube sentiment and opening weekend box office success. We further modeled both Twitter and YouTube sentiment combined to determine if a stronger relationship exists than with the individual models. The results of our study showed that YouTube sentiment was not as good a predictor as Twitter and when combined there was no stronger a relationship than the individual models.

Predicting box office success is an interesting business problem that has been the focus of numerous research studies and can be classified into one of three categories: quantitative, sentiment-based, or hybrid strategies (Hennig-Thurau et. al., 2006). The data used in quantitative box office prediction techniques include numerical values such as film production budget and box office revenue. Many sentiment-based prediction techniques classify audience content such as tweets or online blogs as positive, negative, or neutral using either a machine learning or lexical approach. Hybrid strategies contain both quantitative and sentiment-based data. We explore each of these techniques in further detail.

This study sought to determine the effects of pre-release social media sentiment on opening weekend box office success and whether certain data was predictive of opening weekend results. By analyzing the sentiment of Twitter content in combination with data collected from YouTube trailer views prior to release, we determined that pre-release data has some effect on a film's opening weekend box office success.

This study concentrated solely on the opening weekend results using pre-release data from Twitter and YouTube. In the future, it would be interesting to apply this method to a film's total box office success and test whether pre-release data alone can predict how successful a film will be at the end of its box office run. Perhaps expanding on the criteria for film consideration within the experimental dataset.

Keywords: Prediction, pre-release movies, success, social media

## **PREDICTION FROM FANBASE OPINIONS: A STUDY OF THE LEAGUE OF LEGENDS COMMUNITY ON TWITTER**

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### **ABSTRACT**

We study the relationship between social media output and League of Legends (LoL) matches, using a dataset containing messages from Twitter and LoL game statistics. Specifically, we consider tweets pertaining to specific teams and games during the LoL Spring Split (season) and use them alongside statistical game data to build a predictive model for future game outcomes. Twitter has been a notable data source for predictive modeling using sentiment on various domains such as the stock market or sports outcomes. However, eSports is mostly an unexplored field. The purpose of this research is to study whether eSports is equally as predictive using sentiment data. We experimented with several feature sets and given the data collected; our methods highlighted that if we measure the percentage of positive tweets a team receives, while observing how many wins and losses they have, and then compare them to the other teams, then the team's performance can be predicted for the Split.

Keywords: prediction, sentiment analysis, eSports, Twitter

## **COMPARISON OF STUDENTS' EXPECTATIONS OF INTERNSHIPS WITH STATED BENEFITS**

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### **ABSTRACT**

Students, employers, parents, and university faculty all believe that internships are beneficial. Internships are considered to be a way for students to achieve meaningful, out-of-classroom experiential learning. Given the almost universal acceptance of this assumption, it is surprising to learn that little research exists to support or contradict the notion.

This paper compares the expectations of students participating in a college sponsored internship program with the benefits of internships noted by universities and business organizations. The paper utilizes materials from university career services, published benefits materials from business organizations, and survey results of students within the Computer Information Systems and Software Engineering fields to perform gap analysis of the groups.

The materials from career services and university departments highlight learning objectives and expectations related to internship participation. Likewise, business organizations typically publish materials promoting internships as real world learning experiences and mention the possibility of full-time employment if successful as an intern. There is not significant differences between the university and business organizations as to benefits even though such may be stated in different terminology.

Analysis of the student surveys uncover interesting aspects of what the students' expect. The paper notes the areas of agreement with university and business organizations when compared to the students' expectation. Discussion within the paper focuses on the differences in the expectations of students when compared to the other groups and concludes with recommendations as to how to mitigate these differences. With this knowledge, it should be possible for colleges to design internship programs that better align student expectations with the experiences they are likely to encounter during their internship.

Keywords: student internships, internship expectations, college internships



## **THE RELATIONSHIP OF LONG TERM ORIENTATION WITH KNOWLEDGE SHARING IN VIRTUAL COMMUNITY**

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### **ABSTRACT**

Some studies have looked at how people from different countries share knowledge, information and ideas but the research is still limited. Therefore, this research takes up the challenge to find out the relationship of societal culture and knowledge sharing in multi-national and cross-cultural virtual community.

The purpose of this paper is to quantitatively assess the relationship of Long term orientation which influences sharing of knowledge, ideas and information in virtual community among different cultural groups. Data were collected from a World's second largest PC multinational company that serves customers across 160 countries. The analysis from five different countries will find out the relationship of Long term orientation with knowledge sharing in virtual community context and will benefit multicultural corporations and managers when interacting with other individuals from other countries.

**Keywords:** Long term orientation, Knowledge management, Knowledge sharing in virtual community

## **THEORETICAL RECONCEPTUALIZATION OF THE DYNAMICS OF TRUST WITHIN AND BETWEEN ORGANIZATIONS**

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### **ABSTRACT**

Today's business and commercial undertaking have taken on a dimension that defies the traditional rules of conducting business. Information Communication Technologies have been influential in changing the pattern of work in organisational strategising. Issues of complexity and uncertainty are increasingly becoming the norm both within and between organisational interactions. In this regard trust is crucially needed to strengthen the bond of relationships between a firm's employees and a company's strategic partners to realise the maximum possible cooperation in a mutually fulfilling manner.

The challenge therefore lies on organisations on how to formulate policies and put in structural mechanisms to sustain the relationships that go a long way to engender trust both within and between an organisation's trading partners. The intranet and extranet constitute one such technological invention that is spearheading intraorganisational and interorganisational networks. The impersonal nature of these networks implies many inherent risks and complicated issues which demand an appreciable degree of trust to reduce opportunistic behaviour, conflict of interests and other negative tendencies that are likely to suffocate the effective use of the system.

This paper looks at trust from various theoretical standpoints and discusses the many implications of its presence, inadequacy or absence in both intraorganisational and interorganisational networks.

**Key Words:** Trust, electronic trust, Inter and Intraorganisation, Familiarity

## **BANKRUPTCY: INFORMATION MANAGEMENT FAILURES IN A RURAL HOSPITAL**

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### **ABSTRACT**

Bankruptcy is never the goal. It may be, however, a viable option in times of imminent business failure. The complexity of the current US healthcare system, combined with the poor information management and business decisions of one rural Texas hospital led to bankruptcy. Between the billing and coding, regulation and rules, and information technology adoption, this trifecta of non-clinical care led one rural hospital deep into the unknown of Chapter 9 bankruptcy. Information management failures contributed to the downfall of an administration, the restructuring of debt, redesign of the information technology infrastructure with little interruption to clinical care.

Vast quantities of information: technical, clinical and financial, flow in any hospital setting. Proper information management is paramount to a successful hospital. Data entry begins the information management process: from registration, to the Emergency Room, Lab/X ray services, Physical Therapy, and outpatient to inpatient settings. Clinical data flows from each setting as well. This information combined with financial and billing data can lead to an information overload without proper comprehension and technological tools to manage and assess such data. Proper IT infrastructure and tools matter.

Rural markets are inherently isolated. This creates a number of unique challenges, such as finding qualified individuals or proper training for those who are unqualified. The road to bankruptcy is lined with well-intentioned employees, consultants and policy makers. The secret is to find those who share the same organizational goals, and build a foundation, to educate and train them in their respective duties. Assuming that each employee has been properly trained and educated in a rural setting is a dangerous and false assumption. People matter.

Core business values that will build a solid foundation in the modern healthcare era are honesty, integrity and patient safety. All too often healthcare is treated as a business, with focus on profits, IT infrastructure, and bloated bureaucratic policies. The process of adopting core values of honesty and integrity will always place the patient first, making them the focus of the modern healthcare chaos, and bypass the bureaucracy. Patients want to feel as though they are supported, listened to and special. By focusing on the patient experience, profit margins and policies become mute. By refocusing on the patient experience, bankruptcy took a back seat to clinical care and a solid foundation for emerging from bankruptcy was prepared. Processes and policies matter.

There are ultimately three key components to successful handling of information in a healthcare business: the people, the processes and the technology. Failure to understand the information management flow any of these components will lead to failure, as in the case of Chapter 9 bankruptcy for one rural hospital.

Keywords: Clinical informatics, health IT; business; failures, bankruptcy, hospital, Chapter 9 bankruptcy

## **APPLYING AUTOPOIETIC ORGANIZATIONAL SYSTEMS THEORY TO INVESTIGATE THE EVOLVING REPORTING ORGANIZATIONAL STRUCTURE FOR THE CHIEF INFORMATION SECURITY OFFICER (CISO) FUNCTION**

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The ideal reporting structure for the Chief Information Security Officer (CISO) function is not yet settled. Should the CISO report to the Chief Information Officer, Chief Operations Officer, Chief Financial Officer, Chief Internal Auditor, General Counsel, or Chief Executive Officer? Although existing literature provides recommended reporting structures of the CISO position, most practitioners and researchers discourage the adoption of a “one size fits all”. This study evaluates five of the recommended reporting structures and applies autopoietic organizational systems theory to conceptualize the evolution and optimal reporting structure for the CISO function in the organization from a constructionist perspective. This perspective is based on the notion that any emerging CISO reporting structure should be formed based on both formal and informal temporal and contextual interactive processes of the organization’s actors (Dissanayake. & Takahashi, 2006). Autopoietic organizational systems theory posits that organizational structures “assemble, disassemble, and reorder themselves constantly” for self-renewal depending on their interactions with the internal and external environments (Hernes & Bakken, 2013). This implies that ideal reporting structures of the information security organization will inevitably vary according to the organization’s industry, mission, maturity, culture, risk exposure, resources, capabilities, and prevailing decision making and governance infrastructure. This study recommends best practices for evolving an effective reporting structure for the CISO function.

**Keywords:** Chief Information Security Office, CISO, Autopoietic Organizational Systems Theory, Constructionist

## **FACTORS INFLUENCING DIGITAL LEARNING FOR SKILL ENHANCEMENT PROGRAMMES IN INDIA**

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### **ABSTRACT**

Digital activities are required to be included in institutions providing online education. The educational institutes and universities lack digital strategy and skills to plan the responses of customer queries. Digital activities are an increasingly important part of any marketing and sales strategy. The strong inclination of digital platforms for delivering courses online can not be denied. The organization has to be focused on simple act of providing digital course and innovative strategies through which they interact with students and create learning environment. A robust skill development programme needs to be framed for providing meaningful employment in the form of both wage and self-employment.

Keywords: digital, online, skill, India

## **STRATEGIC ANALYSIS OF THE ROLE OF INFORMATION TECHNOLOGY IN HIGHER EDUCATION: A KPI-CENTRIC MODEL**

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### **ABSTRACT**

The KPI-centric Strategic Model regarding the Role of Information Technology developed in this research is based on specific details from the University of La Verne's participation in the 2014 EducauseCenter for Analysis and Research (ECAR) Study of Undergraduate Students and Information Technology as a benchmarking participant. It also draws on the experience and directions of other institutions such as California State University, University of California. As one of the participating 213 institutions, the University of La Verne's undergraduate student responses generally mirror the majority view of students enrolled in all institutions of higher education in the United States surveyed as to preferences for the use of technology in the delivery of courses.

This case study examines key data points from the ECAR Study of Undergraduate Students and Information Technology published in 2015, comparing and contrasting all U.S. institution findings with those that are case specific to the University of La Verne. The authors then provide a model for utilizing key performance indicators (KPIs) measuring subjective, descriptive outcomes such as student expectations and student satisfaction with the use of Information Technology in course delivery. The model is presented within the framework of a Balanced Scorecard in order to achieve data-driven continuous improvement toward institutional strategic vision, mission, goals and objectives. This case study may serve as a template for other institutions of Higher Education to develop their own Key Performance Indicators and Balanced Scorecards to not only improve their own institutional performance to goals and objectives, but to provide opportunities for institutional benchmarking in the utilization of Information Technology.

**Keywords:** Information Technology; Higher Education; Strategic analysis; KPI

## **USER EXPERIENCE ENHANCEMENT IN ECONOMY HOTEL CHAINS**

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**TAIWAN**

### **ABSTRACT**

The purpose of this research is to solve the transformation issue faced by economy hotel chains via service engineering methods. Economy hotel chains struggle to find a niche market and to develop an effective branding strategy under the financial competition from the high-end hotel brands. According to the research result of Victorino, Verma, Plaschka, & Dev in 2005, the factor of innovation services influences travelers' decisions between the economy hotels. We choose an economy hotel chain in Taiwan to apply the service engineering methods and the self-service system solution to design an innovative user experience. The research utilizes service engineering methods and considers reality and business at the same time. We enhance the hotel service through implementing information technology and kiosk systems in the service system. The target hotel not only saves the cost of human resource but also enhances the value of customer experience. Furthermore, the system can also be adapted and applied in other categories of service industry, for example guesthouse.

Keywords: user experience, service engineering, economy hotel chain, kiosk system, guesthouse

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**THE FUTURE PROSPECTS OF TAIWAN'S  
NON-SPECIALIZED RETAIL**

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**ABSTRACT**

In the consumer-centric era, the intense competition forced retailers have to expand their product offering and deepen their services to satisfy consumers. In respond the customer demands, retailers have devoted in Omni-channel integration, IOT applications and supporting diversified payment tools. In aspect of Nonspecialized-Retailers' product offering, more and more horizontal alliances are formed in order to provide a one-stop service, in addition, many shopping centers and department stores in Taiwan invested in remodeling projects to attract international brand to station in.

Key words: Taiwan, Retail, Omni-Channel, IOT



## **STUDY ON THE IS CORE IN MBA CURRICULUM: AN INTEGRATED FRAMEWORK**

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### **ABSTRACT**

Although information systems (IS) are an integral part of every digital organization, IS educators often struggle to provide MBA students the value of the core IS course in the MBA curriculum. Pedagogical research on IS core course in MBA curriculum has been made from different perspectives in the past decades. A variety of efforts have been made on teaching the IS core of MBA curriculum in perspective of information literacy. Classical MBA courses often use case analyses to provide MBA students opportunities to apply conceptual materials, but it does not necessarily need to be applied to IS core for MBA curriculum. Lack of exposure, visualization and hands-on experience on actual business information systems, it is hard for students to learn the knowledge and skills to manage business information systems. This study will propose an integrated framework for the IS core for MBA curriculum in with hands-on experience on ERP technology in the enterprise environment. Learning by doing is important in teaching the next generation digital leaders. This study will identify and investigate the primary areas of the IS core in the AACSB accredited MBA programs and develop an integrated framework for teaching the course based on the identified specific areas. Content analysis will be performed to identify occurrence of these areas as keywords in the AACSB accredited MBA programs. Statistical analysis will be conducted on the results of this content analysis. The integrated framework for teaching the IS core in the MBA curriculum will be developed on these identified primary IS areas in the study. Finally the appropriate ERP technology components will be incorporated to each of the identified primary areas in the integrated framework to be proposed. This study will provide guidelines for IS educators to teach IS Core in MBA curriculum and create great impacts on MBA student career development in the future.

Keywords: MBA, IS, Information Systems, ERP

## **ROLE OF ORGANISATION IN MANAGEMENT OF STRESS AMONG NURSES WORKING IN CIVIL HOSPITAL, JHAJJAR**

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### **ABSTRACT**

Stress is a very common issue with healthcare professionals, including doctors and nurses. Stress in nurses can result in multiple negative results. Detecting stress levels at early stage can yield positive outcomes for nurses, their families and the patients they care for. There is growing concern about stress in healthcare professionals working in public hospitals, still there is lack of studies on stress among these healthcare professionals in India. A Descriptive study using a self-administered, standardized questionnaire was conducted among nurses working in civil hospital, Jhajjar, Haryana. The research questionnaire was distributed and returned anonymously to ensure confidentiality. The results concluded that of the 50 nurses in the study, most of the nurses generally satisfied in their day to day dealing with doctors but most of the nurses have problems with supervisors. The work load is another major cause of un- satisfaction. The nurses who are working in critical care areas have problems with excessive paperwork because they were constantly busy with serious patients. Irregular working hours are also the cause of stress among nurses. Majority of the nurses were satisfied as regards interpersonal relations. However the study revealed large Number of them was not satisfied with the organization's policy of recognition for good work. The hospitals have very less opportunity of advancement.

Keywords: Nurses, stress, healthcare, civil hospital, Jhajjar, organization, role