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untuk mendapatkan hasil-hasil riset yang dapat dimanfaatkan untuk pengembangan R&D perusahaan mereka secara cepat dan mudah

4. Menyediakan tempat bagi akademisi untuk menguji paper sebelum masuk publkasi jurnal karena pada *joint conference of the 2nd IConISE* 2020 dan 7th *ACISE* 2020 dihadiri oleh sejumlah profesor dan doktor dari universitas-universitas ternama diluar negeri dan mereka akan berpartisipasi sebagai pendengar pada saat suatu paper dipresentasikan

5. Menyediakan tempat bagi para akademisi untuk bertemu langsung dengan tokoh-tokoh penting dalam bidang penelitian yang dilakukannya

6. Membuka kesempatan kepada dunia akademisi dan juga praktisi untuk mengenal lebih jauh analitik data besar dah kaitannya dengan industri.

Manfaat dari diadakannya *joint conference of the 2nd IConISE* 2020 dan 7th *ACISE* 2020 adalah:

1. Akademisi dan praktisi dapat memperluas wawasan mereka tentang *tren* terbaru dari penelitian-penelitian di bidang ke-teknik industri-an, industri 4.0, dan rekayasa risiko

2. Akademisi dapat memperluas *networking,* baik dengan sesama akademisi maupun dengan praktisi

3. Akademisi dan praktisi dapat memperoleh ilmu baru dari para profesor, pembicara, praktisi, dan juga akademisi lainnya yang mengikuti dan mempresentasikan papernya dalam *joint conference of the 2nd IConISE* 2020 dan 7th *ACISE* 2020

4. Akademisi dapat menigkatkan kualitas penelitian yang dilakukannya karena adanya memperoleh masukan langsung dari para profesor, pembicara, praktisi, dan juga akademisi lainnya yang mengikuti *joint conference of the 2nd IConISE* 2020 dan 7th *ACISE* 2020

5. Praktisi dapat memperoleh hasil-hasil riset terbaru dengan mudah dan biaya yang lebih murah

6. Akademisi dan praktisi mendapatkan kesempatan untuk meningkatkan pengetahuan dan ketrampilannya dalam menganalisis data besar.

Terdapat beberapa *Keynote Speaker* dalam konfereni internasional *joint conference of the 2nd IConISE* 2020 *and 7th ACISE* 2020. *Keynote Speaker* pertama adalah Chair Professor (Lektor Kepala) dari Universitas Shanghai Jia Tong, China, Prof. Weijia Jia. Beliau juga

merupakan Wakil Direktur Utama dari Laboratorium *Internet Things for Smart City* di Universitas Macau, China.

"SOME THINKS OF AI FOR SMART CITY"

Keynote speaker kedua adalah Prof. Dr. Ing. Hendro Wicaksono dari University Jacobs, Jerman.

"THE ROLE OF DATA MANAGEMENT AND ANALYTICS IN INDUSTRY 4.0 ECOSYSTEMS"

Keynote speaker ketiga adalah Assoc. Prof. Ferry Jie merupakan Associate Professor pada bidang studi *Supply Chain* dan *Logistics Management* di *School of Business and Law*, Universitas Edith Cowan, Australia.

"SUPPLY CHAIN BIG DATA – AN OPPORTUNITY FOR FUTURE RESEARCH"

Keynote speaker keempat adalah Doan Lingga, merupakan Kepala dari *Data Analytics Group* dari perusahaan travel terkemuka di Asia Tenggara, Traveloka.

"BIG DATA ANALYTICS – A COMPETITIVE TOOLS TOWARD SMART INDUSTRIAL SYSTEM"

Keynote speaker kelima adalah Dr. Rer. Nat. Fal Sadikin, seorang *scientist* (IoT *Security*) dari Phillips Eindhoven, Belanda.

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Design of therapy equipment for osteoarthritis patients based on static bikes using QFD and human centre design method

H Prastawa[1,2], A A S M Mahachandra[1], R Salsabila[1] and D Sanu[1]

[1]Industrial Engineering Department, Faculty of Engineering, Diponegoro University, Jl. Prof. Soedarto, SH, Kampus Undip Tembalang, Semarang, Indonesia 50275

Email: [2]heru.prastawa@gmail.com

Abstract. The most frequently affected by Osteoarthritis (OA) is the knee joint (genu osteoarthritis). Therapeutic exercises for sufferers of knee OA are divided into 6 (six) programs, including strengthening to increase the strength of muscle contraction. The design to develop is based on the existing tools and input from users so that it is easily accessed widely for OA sufferers or doctors or therapists. The best choices for knee OA therapy are aerobics and strengthening of the thigh muscles by training the quadriceps muscles. There are several methods used to train quadriceps muscles, including straightening the legs when sitting and bending the legs while lying on his stomach. Meanwhile, aerobics training requires technology in the form of a static bicycle. This study was conducted based on the product development process, it has several stages that start with making a mission statement. The stages are: identify customer's needs, establish target specifications, generate product concepts, select product concept(s), test product concept(s), and the last is set the final specifications. This stage of the study resulted in 3 alternative designs and 1 design selective, that have been synthesized from the expectation and desires of the stakeholders and will continue with the design details until the prototype is presented.

1. Introduction

Osteoarthritis (OA) is a degenerative disease in the joints that often occurs in the hands, hips, and knees involving cartilages, joint layers, ligaments, and bones, causing pain and stiffness in the joints [1]. The most frequent part affected by OA in the knee joint (genu osteoarthritis). In this joint, OA classification can be grouped into five levels 0-4, where the knee joint can function properly and there is no pain or can be said to be healthy. Level 4 of experiencing severe osteoarthritis is indicated by extreme pain and discomfort to walk even to move the joints in the knee due to reduced joint space and the cartilage is almost completely gone [2],[3].

As a result of OA for the elderly, especially in the knees, namely the disruption of daily life activities due to limited movement in the capsular pattern of the knee joint, impaired joint stability, and decreased functional knee to walk and as a buffer of body weight. Pain becomes the main symptom in joints that experience OA. Knee pain that is felt by people with OA causes a person to be afraid of making movements so that it reduces the quality of life [4].

Therapeutic exercises for sufferers of knee OA are divided into 6 (six) programs, including strengthening to increase the strength of muscle contraction (lifting), aerobics to increase cardiorespiratory endurance (swimming, running), flexibility exercises to increase range of motion and flexibility of joint muscles (stretching hamstring), neuromotor training to improve balance and

A safety-first portfolio selection framework: Estimating returns of exchange traded funds through regression analysis

M N Young[1]

School of Industrial Engineering and Engineering Management, Mapúa University, Manila, Phillippines

E-mail: [1]mnyoung@mapua.edu.ph

Abstract. This research provides a possible variant of the basic framework of portfolio selection. First, for the return estimation, considering Asian exchange-traded funds as the selection pool for the investment, regression analysis is applied to generate future return scenarios. Second, for the assignment of weights, the likelihood of these scenarios are assumed to be equally likely. Third, for the portfolio selection model, the safety-first model is utilized with consideration of 5 different diversification factors. The proposed procedure is modeled as a linear programming model into AIMMS optimization software where the resulting portfolios show that safety-first portfolios can outperform the benchmark. These observations can pave the way to a new generic portfolio selection framework that can possibly help investors and may lead to alternative investment instruments.

1. Introduction

the basic framework of portfolio selection is composed of 3 parts namely return estimation, assignment of weights, and portfolio selection model. In the first part, this is where investment pools are identified and future returns are estimated based on the individual perception of investors on future performances of the market. Typically, one can use the historical returns as rough estimates for future returns or they can use sophisticated models to generate return scenarios e.g. regression equations and other technical forecasting techniques. After having these return estimates, the second part of portfolio selection is to provide appropriate weights to these future returns or return scenarios. This is still based on the individual perception of the investor where he/she provides the appropriate weights to the corresponding return scenarios. Commonly, equal weights can be given to returning scenarios or the SP/A (security, potential, and aspiration) theory of [9] can be applied wherein hopeful (fearful) investors will give more weights to favorable (unfavorable) scenarios. There are also other weighting schemes like prospect theory [10], cumulative prospect theory [11], etc. Now that we have the return estimates and corresponding probability weights, the chosen portfolio selection model can now be applied. Normally, the 2 most frequent models utilized are the mean-variance (MV) model [12] and safety-first (SF) model [13]. The basic idea in the MV model is that investors are assumed to be rational such that they will always choose the investment with the highest return (lowest risk) among choices with similar risk (return). In the MV model portfolio return is maximized and risk is minimized considering a risk-return trade-off parameter of the investor. SF model on the other hand is based on the logic that individuals will have their own risk level for corresponding mental frames of the investments [14] as such for each investment investor will have a different loss threshold and the loss probability threshold depending on the source of the invested capital. Thus, in the SF model portfolio return is maximized while limiting the probability of losing a certain percentage of the investment to a specified probability threshold. Thus, this research provides a simple variation of 3 parts of portfolio selection.

In today's investment world, an exchange-traded fund (ETF) is a relatively new investment instrument that aims to track a specific index. It is similar to a mutual fund (MF) in that regard but ETF can be traded multiple times within a trading day like stocks while MF can only be traded once a day. Moreover, the transaction costs for ETF is relatively cheaper than stocks and MFs.

Analysis on acquisition of Philippine Civil Registry Documents and inclination towards paperless e-government

L E A Villena[1,4], R A C Robielos[2,5] and Wei-Jung Shiang[3,6]

[1] School of Graduate Studies, Mapua University, 658 Muralla St., Intramuros, Manila, 1002 Metro Manila, Philippines
[2] School of Industrial Engineering & Engineering Management, Mapua University, 658 Muralla St., Intramuros, Manila, 1002 Metro Manila, Philippines
[3] Department of Industrial and Systems Engineering, Chung Yuan Christian University, No. 200, Zhongbei Road, Zhongli District, Taoyuan City, Taiwan

E-mail: [4]lizetteerinvillena@gmail.com, [5]racrobielos@mapua.edu.ph, [6]wjs001@cycu.edu.tw

Abstract. In the Philippines, the Civil Registry Documents (CRD) acquired from Philippine Statistics Authority (PSA) such as Birth Certificate, Marriage Certificate, Certificate of No Marriage and Death Certificate are being used as one of the requirements in different transactions in academics, government, travel, employment, religious matters and other transactions (e.g. proof of identification, Title/Career advancement, etc.). The current acquisition ways of these Civil Registry Documents are through online, PSA Office, Travel Agency/Courier Company and Satellite/Mobile PSA Office. In this study, the different acquisition ways of Civil Registry Documents are analyzed through service blueprint. Furthermore, a survey was conducted to determine the satisfaction rate and preferences of the CRD acquirers and was analyzed through crosstabulations. With the help of the analyzed Service Blueprints, the possible problems that arises on each process of acquisition were identified. This paper proposed an instant, electronic (involves bar coding/QR code/Reference number), paperless and less time-consuming substitute to the existing ways of acquiring Civil Registry Documents.

1. Introduction

1.1. Background

The power of the internet and web technologies has been clearly established in business, as epitomized by the enormous success of electronic commerce [1]. Technology lets people reap beneficial things interdependently. E-government as one of the subcategory of information technology, made it possible for the governments to provide the information and services efficiently as quickly and as less costly as possible through the use of modern information technology [2]. E-government is a strong and strategic tool for governance policy, as well as for improving the efficiency and effectiveness of government functions and to propel regularizations. All agencies must manage the challenges and tensions they encounter [3]. E-government also offers improved quality of information supply and fewer administrative burdens [4].

In Taiwan, every administrative agency or unit has its own website. Taiwanese people's lives currently appear to have been more convenient than before due to these well-developed web services. While, in South Korea the government is improving to a partnership-based framework whereas the government together with its citizens are working beyond bilateral participation. This was deemed necessary since demands are also increasing for e-government services to comply with the constant influences in the interactive services on social networks [5].

The utilization of Information and Communication Technology (ICT) by the government units has generated valuable improvements in the offer of public services being provided by the different levels

Tensile properties of epoxy/1 wt% graphene nanocomposites prepared with ethanol

M S Saharudin[1,5], S Hasbi[2,6], C Okolo[3,7] and F Inam[4,8]

[1]Universiti Kuala Lumpur Malaysia Italy Design Institute (UniKL MIDI), 119 Jalan 7/91, Taman Shamelin Perkasa, 56100, Kuala Lumpur, Malaysia
[2]Department of Mechanical Engineering, Faculty of Engineering, National Defence, University of Malaysia (NDUM), Kem Sungai Besi, 57000, Kuala Lumpur, Malaysia
[3]Department of Mechanical and Construction Engineering, Northumbria University, Newcastle upon Tyne NE1 8ST, UK
[4]University of East London, Docklands Campus, 4-6 University Way, London E16 2RD, United Kingdom

E-mail: [5]mshahneel@unikl.edu.my, [6]syafawati@upnm.edu.my, [7]chinyere.okolo@northumbria.ac.uk, [8]f.Inam@uel.ac.uk

Abstract. In this research, solution casting technique was applied to produce four types of nanocomposites. Different ethanol dosages; 0g, 1g, 3g, and 5g were used to disperse graphene in the epoxy matrix. It was observed that 1g dosage of ethanol was the most effective concentration to disperse 1wt% graphene in the epoxy matrix. At 1 g dosage of ethanol used, the Young's modulus, tensile strength, and toughness were increased by 130% ,76%, and 187% respectively. SEM images illustrated that the graphene was able to inhibit the advancing cracks and detoured cracks propagation. It is observed that the ethanol needs to be removed completely during processing to ensure its effectiveness, otherwise, the remaining ethanol can cause porosity which is undesirable to the tensile properties of the nanocomposites.

1. Introduction

Composites are materials which are comprising at least two or more phases that are chemically and physically bonded. Composite materials have a number of advantages, such as good resistance to corrosion, high fatigue strength and very low weight. In industry, composite materials have been widely used in aerospace, automotive, military, biomedical and sports leisure goods [1].

Because of their excellent thermal, chemical stability and mechanical properties when combined with fillers. Epoxy resin are used in numerous industrial applications particularly in aerospace, automotive and construction industries [2][3][4]. In recent years, epoxy resins have gained research interest in engineering applications due to their unique balance of chemical and mechanical and advantages of ease of processing [4][5]. However, due to the crosslinking structures which make the epoxy prone to crack and brittleness, the applications of epoxy resins remain limited.

Various studies have been carried out to increase the epoxy toughness. One of the popular methods is by adding Nano-filler such as graphene in the epoxy. Graphene-based polymer composite has attained great attention since the explosion of graphene research in 2004 due to its excellent performance in terms of thermal, mechanical and gas barrier [6]. Graphene-based materials have been extensively used in various fields such as composites, coatings, electronic devices, energy storage, sensors and biomedical [6]. Asif et al in their previous research have established that the Young's modulus and micro hardness of multi-layer graphene/epoxy have improved by 26% and 18% respectively [7]. In addition, the glass transition temperature (T_g) and storage modulus also improved in comparison to unreinforced epoxy.