

Supply Chain Strategy Development for Business and Technological Institution in Developing Start-up Based on Creative Economy

Andi Desfiandi¹, M. Ariza Eka Yusendra¹, Niken Paramitasari¹, Hapzi Ali^{2*}

¹*Institut Informatika & Bisnis Darmajaya, Lampung, Indonesia*

²*Universitas Mercu Buana, Jakarta, Indonesia*

my.manuscript02@gmail.com

Abstract— This study aims to find a model based on the supply chain strategy, for the development of business incubator institutions and technology and operational work methods in the form of business incubation, case study at IIB Darmajaya. The method used to conduct this study is a combination of qualitative approaches such as in-depth interviews, participant observation, case studies, and grounded theory for the supply chain strategy. The activities are divided into several stages, starting from business, and technology incubator modeling, business competition creation, development of business incubation stages for students, to monitoring and evaluating business activities carried out by entrepreneurial students. The results of the study were a comprehensive and collaborative business and technology incubator in supply chain working model with various campus entrepreneurial stakeholders and six successful stages of entrepreneurial incubation.

Keywords— *Business and Technology Incubator, Darmajaya IIB, Technology, Supply chain strategy, Start-Up Business, Entrepreneurship.*

1. Introduction

Supply chain strategy is the crucial for the business development. Universities play an important role in the development of start-ups based on the creative economy [1]. Higher education must be understood as an intellectual resource where students will be formed into a reliable future entrepreneur of Indonesia [2]. Higher education in the process, which is manifested in the form of Three Principles of Higher Education, namely education, research and contribution to society must instill the values of entrepreneurship by utilizing information technology and the creative economy sector [3-10].

In Indonesia, efforts to instill an entrepreneurial spirit and spirit - as the main basis for the

development of start-up businesses, in higher education continue to be promoted and improved, of course with various methods and strategies that make students interested in entrepreneurship [11-15]. Ministry of Research and Higher Education Technology to spur the world of entrepreneurship in Indonesian universities to socialize and encourage several of its main programs, namely (1) Establishment of Campus Entrepreneurship Centers; (2) Implementation of Entrepreneurship Courses at PT; (3) Provision of Independent Entrepreneurial Programs for Students; (4) PMW Student Program Development and provision of several other grants, namely: Science and Technology for Entrepreneurship and Science and Technology for Campus Creativity and Innovation.

Therefore the aim of this study is to develop a start-up business development model by utilizing the 16 subsectors of the Creative Economy through an ideal, effective and sustainable business and technology incubator for universities to be implemented by Higher Education business incubators in Indonesia [16-19]. This paper has been compiled into several sections, first we will explain theoretical studies that illustrate the technological development conditions of technology-based start-up in Indonesia, then continue the important role of universities and business incubators and technologies to stimulate the development of start-ups, methods used in studies up to the results of the formation of operational models of business and technology incubators and discussions of models that have been derived.

2. Literature Review

2.1 Development of Creative Economy in supply chain strategy

In this millennium era, there has been a shift in the orientation of economic waves in the world [20-25]. Start from the change of the agricultural era to the era of industrialization, after that an information era was formed followed by discoveries in the field of advanced information technology [26-28]. Each wave plays their respective roles for the formation and support of improving the standard of human life. Because of these conditions, a new economy begins that prioritizes information and creativity, and is popularly known as the creative economy driven by the industrial sector which is referred to as the creative industry [29]. This wave pattern can be seen in Figure 1.



Figure 1. Evolution of the Production Economy

The creative economy will be important in the future because it comes from creativity which is a renewable resource [30]. Thus, every country that is abundant in the availability of creative actors does not have growth restrictions like the traditional sector, especially those based on non-renewable resources [31].

2.2 The Role of Higher Education Business & Technology Incubators

One of the strategic initiatives to be able to develop entrepreneurship in universities is to develop a Business Incubator that focuses on developing

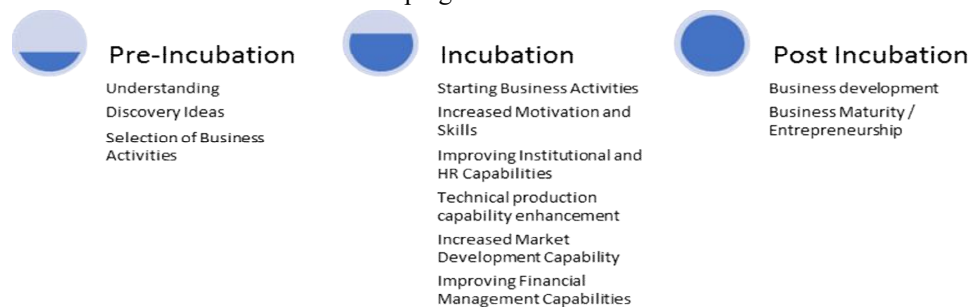


Figure 2. Incubation Process of Business Incubator

start-ups based on the creative economy, so as to facilitate student entrepreneurship practices until they are able to create their own companies and are also able to teach students how to distribute programs the entrepreneurial grant program he obtained [32-38]. Activities carried out by business incubators are start-up business incubation which is a coaching process for start-ups and/or new product development carried out by Business Incubators in terms of providing business facilities and infrastructure, business development and management and technology support.

Services provided by business incubators to entrepreneurs who take part in the incubation program must cover a scope of 7 S, namely [31]: (1) Space, namely the provision of space for tenant business activities; (2) Shared office facilities, namely the provision of office facilities that can be shared. For example fax facilities, telephone, photocopy, meeting room, computer, and secretary; (3) Service, that is to do management guidance and consultation: marketing, finance, production, technology, etc. ; (4) Support, namely providing assistance in research support and business development and access to the use of technology; (5) Skill Development, namely improving the tenant's HR capabilities through training, business plan preparation, management training and so on; (6) Seed capital, namely the provision of initial business funds and efforts to obtain capital access to financial institutions; and (7) Synergy, namely the creation of business networks both among businesses both local and international businesses. In general, the activities of a business incubator can be explained in Figure 8

This incubator is not only to develop entrepreneurship within the campus, but also can be a bridge for the growth of a business community

around the campus and the business world at large [23].



Figure 3. Interconnection of University Business Incubators

However, the development of university business incubators is not a problem, because until now there are still very few university business incubators that are able to operate in accordance with their expectations [2]. This is still related to the problem of the small number of universities that put entrepreneurship as an important part of education. Even if there are those operating, university business incubators still focus on the local realm and have not dared to go national, let alone prepare their tenants for international [30].

3. Methodology and Data

The research method used to develop operational models of business incubators and technologies is a combination of qualitative methods. There are several qualitative approaches applied to develop

models ranging from participatory observation, in-depth interviews, workshops, and training, to grounded theory through a case study on the Darmajaya IIB campus, one of the leading universities in Indonesia with its main mission is the development of student entrepreneurship.

The study activities were also carried out based on the 6 main stages of business start-up development which had been prepared based on participatory observation and in-depth interviews of entrepreneurial developer stakeholders both in Darmajaya IIB and external parties. This stage we refer to as the 6 Business Incubation Success Stages and focuses on developing start-up businesses so that they can be accepted by the market.

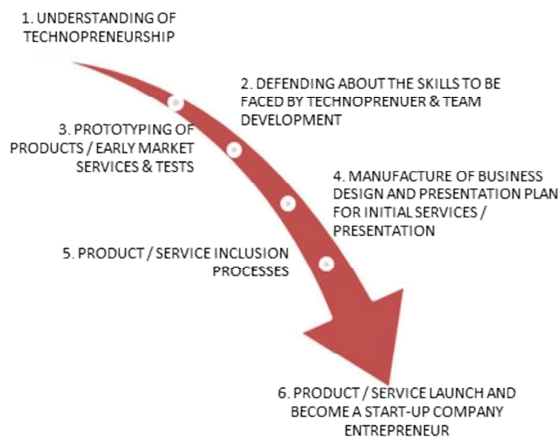


Figure 4. Successful Business Incubation Phase

In carrying out these 6 stages, researchers collaborate with several parties ranging from Darmajaya IIB Business and Technology Incubator, Darmajaya IIB Student Organization, Entrepreneurial Community, recipients of entrepreneurial grants and other related parties. This is done because, in the development of entrepreneurship, it is impossible to do individually, but it is the result of synergistic collaboration from entrepreneurial developer stakeholders to be able to succeed in the six stages that have been compiled.

4. Empirical results and discussion

Researchers are trying to develop a start-up development model by utilizing 16 creative industry sub-sectors by utilizing college business incubators. Based on a study with a qualitative approach - through forum group discussion and grounded theory on the perpetrators and organizers of business and technology incubators at IIB Darmajaya, discussions and interviews with the Entrepreneurial Community, the implementation of business assistance that implements six successful stages of business incubation that has been made, obtained an incubator work model comprehensive business and technology and can be collaboratively applied in university Table.

4.1 Creative Economy as a Start-up Business Base

In this model, the basis of start-up development is based on 16 creative economic sub-sectors - Architecture, Animation, Design, Fashion, Craft, Publishing & Printing, Television & Radio, Music, Film, Video & Photography, Advertising, Software, Market & Art Goods, Performing Arts, Research & Development (R & D), Interactive Games, and Culinary. Although this concept is simple, there are still many universities that do not realize how broad the creative industry is - especially in Indonesia, and only focus on one industry.

Whereas the above 16 creative economic subsectors can be developed into start-ups. For example, seekplan.com, founded by Fasco Ho and Faldo Andreas, is a start-up that utilizes one of the architectural creative economy sub-sectors. Seekplan.com itself is the first social media-based marketplace in the world specifically designed for

architects to accommodate their work and bring it to the buyers and is currently starting to get funding from angel investors. There is also a start-up model of nulisbuku.com, which is a self-publishing platform established by Aulia Halimatussadiah, enabling writers throughout Indonesia to publish their own books both physically and digitally. Nulisbuku.com in its business model certainly combines information technology from the Publishing and Printing subsectors. This is what must be realized by the university business incubator, where they must introduce and direct that the business theme can lead to the 16 creative economic sub-sectors strategically, no longer relying on one or two obsolete industries of the business model [26, 38].

4.2 Creating Collaboration between Stakeholders

In the Creative Economy Based Start-Up Business Development Model Trough Higher Education Business Incubators, there are 6 main stakeholders who must collaborate with Higher Education Incubators to carry out their ideal roles to develop start-up businesses. Each stakeholder has their respective roles in helping the Business Incubator, such as:

1) Academic Environment

The academic environment can also offer start-up businesses to obtain laboratory, computer, library and college expertise services [14]. In addition, research institutions through the results of their research can provide superior technology patents and ease of product prototyping.

2) Government environment

The role of government is very large to accelerate the development of a creative economy in the future [9]. Their role is important as a regulator, facilitator, consumer, investor, and hub agency. Therefore it is important for Higher Education Business Incubators to establish cooperation with the government.

3) Financial and Banking Institution Environment

Fundraising is the source of life for a start-up. The growth of start-ups and product development can be ascertained if there is a steady flow of funds from various sources.

4) Business Start-Up Entrepreneurial Community

Collaborating with this entrepreneurial community provides many benefits ranging from mentoring and coaching from senior entrepreneurs, joint utilization of market networks, strategy cooperation to possible exit in the form of mergers and acquisitions [8].

5) Private Company

Higher education business incubators also need to collaborate with private companies. Some of the advantages of having a partnership with a private company are the possibility of entrepreneurial grants from private corporate CSR in the form of capital or facilities - such as the creation of co-working space for incubators [12].

6) Press & Mass Media Environment

The press and mass media support the development of start-up businesses by exploring more potential in the creative economy sector and disseminating it to the public [33].

4.3 Redefining the Role of Higher Education Business Incubators

Business incubators are essentially an innovative model, which places selected entrepreneurs or prospective entrepreneurs, to be fostered in a special place. In its implementation, entrepreneurs and prospective entrepreneurs are given workspace facilities that can be used together, workspace, consulting services, technical training, information provision, as well as providing assistance in

marketing and management [32]. Therefore the Higher Education Business Incubator must be able to redefine the function as a vehicle for the production of start-up business entrepreneurs. Some functions attached to the College Business Incubator can be known as 7S, namely: Space, Shared, Services, Support, Skill development, Seed capital, and Synergy.

The incubator needs to train operational technical handling to deal with the development of the start-up business based on the creative economy in the future so that it needs to be directed towards anticipating future business developments. In addition, the incubator also needs to train the start-up movement to be willing to cooperate in one system to increase economies of scope and economies of scale [17]. This collaboration can form greater synergy and efficiency so that it can be used as the spearhead of strategies to connect with other economic actors, both globally and locally for the benefit of start-up businesses and the public. Within a certain period of time (one semester, one year, two or three years), it is expected that entrepreneurs and prospective start-up business entrepreneurs who have become entrepreneurs can be able to grow and develop.

4.4 A step of Start-Up Incubation Based on Creative Economy

Broadly speaking, the stages in the incubation program are divided into five stages, namely the Pre-Incubation-stages, the Initial Phase, the Development Phase, the Advanced and Post-Incubation Phase, the activities of each Stage and sub-program can be explained in table 2.

Table 1. Activities of Higher Education Incubator Business Incubation Stages

No	Stages	Program	Activity
1	Pre-Incubation Stage	Preparation	1. Inter Stakeholder Coordination
			2. Determining Program Objectives, Targets, and Implementation
		Socialization	1. Entrepreneurship workshop
			2. Socialization Through Campus Media
2	Early stage	Team formation	1. Carry out Brief Activities (Motivation for entrepreneurs by inviting start-up business people)
			2. Team formation
			3. Establishment of the Company Organizational

			Structure Start-up
			4. Human Resource Recruitment
		Management Training	1. Management Technical Training (Operations, Finance, Marketing etc.)
			2. Business Legality
			3. Business Plan Making Training
3	Development Phase	Product Development & Creation	1. Design Thinking Training
			2. Workshop on Lean Start-up Model
			3. Business Model Canvas Workshop
			4. Prototyping Product / Services
		Patent Making	1. Patent Registration
			2. Brand Registration
4	Advanced Stage	Product marketing	1. Product Marketing Workshop
			2. Start-ups start marketing products
			Social Media
			Words of mouth
			crowdfunding etc.
		Development of Financing Strategies	1. Perform a Start-Up Festival
			2. Pitching with Venture capital
			3. Pitching with banks
			4. Pitching with private
			5. Following Business Competition
5	Post Incubation	Formation of Exit Strategy	1. Run by yourself
			2. IPO
			3. Merger & Acquisition

The time for the incubation program has different variations for each sector, but the time range is between 1-3 years. Start-up businesses can become established companies that are ready to compete in the business arena nationally and internationally.

4.5 Higher Education Business Incubator Crowdfunding as an Alternative for Capital

There are several ways to get funding for university business incubators, namely by (1) relying on grants, both from the government and from private

CSR, (2) by borrowing from low-interest capital institutions. (3) Using crowdfunding each has their strengths and weaknesses. The first two strategies mentioned are the generic strategies of each college business incubator, but for a third funding strategy it is still new in the world of business incubators - usually used by start-up companies [21]. Crowdfunding is a fundraising method that collects a small amount of money from many users (supporters) to achieve the desired amount of money [6]. Of course, a business incubator can use this method to get its operating funds.

This research conducted in university supported by previous research, namely ; Pajjan [20]. And one thing that can develop Start-up Based on Creative Economy is motivation supported by previous research, namely; Prayetno, Aima, Riyanto and Suharyono [1, 22, 24, 27, 34].

5. Conclusion and Suggestion

5.1 Conclusion

The research team examines there are many contributions that can be given to models for the development of entrepreneurship in Indonesia, namely the model that has been formed can be a reference for universities to enable business incubator operations and technology clearly. So as to create a creative economy-based atmosphere of atmosphere by involving students, graduate, student associations and other extracurricular activities to the start-up business world. This model also provides reference stages, specific programs, and activities on how to develop a start-up business based on the creative economy for business & technology incubators in Indonesia. So that by realizing this, business and technology incubators will get many partners not only internally on campus but also be able to work with start-up entrepreneurial communities, government, private companies, financial institutions, the press, and the media to produce reliable start-ups.

5.2 Suggestion

Finally, after the establishment of a business incubator and technology operational model is completed, academic researchers can continue to explore models related to how much influence each model element has on-campus entrepreneurship development. This needs to be done to find out which processes have the biggest and most significant influence on entrepreneurship development so that later universities and incubators can analyze which processes need to be given more attention and focus. Model exploitation can also be done by conducting studies that focus more on one of the creative economic sub-sectors to find out whether the model works better in certain sub-sectors.

References

[1] Aima, H., Adam, R., & Ali, H. Model of Employee Performance: Competence

Analysis and Motivation (Case Study at PT. Bank Bukopin, Tbk Center). *Quest Journals- Journal of Research in Business and Management*, 4(11), 49-59, 2017.

- [2] Ajie, F. T., & Cahyadi, E. R. Incubator Management Model in Indonesia. *Jurnal Aplikasi Manajemen*, 15(3), 463-471, 2017.
- [3] Bujor, A., & Avasilcai, S. The Creative Entrepreneur: A Framework of Analysis. *Procedia - Social and Behavioral Sciences*, 221. No. 3, 21-28, 2016. doi:10.1016/j.sbspro.2016.05.086
- [4] Clark, B. R. The entrepreneurial university: Demand and response. *Tertiary Education and Management*, 4(1), 5-16, 2010. doi:10.1080/13583883.1998.9966941
- [5] Daubaraitė, U., & Startienė, G.. Creative Industries Impact on National Economy in Regard to Sub-sectors. *Procedia - Social and Behavioral Sciences*, 213. No. 22. 129-134, 2015. doi:10.1016/j.sbspro.2015.11.415
- [6] Gelfond, S., & Eren, B. SEC adopts “crowdfunding” rules for start-up businesses: an easy way to bet on the next Google? *Journal of Investment Compliance*, 17(1), 2016, 117-121. doi:10.1108/joic-01-2016-0002
- [7] Hong, J., Yang, Y., Wang, H., Zhou, Y., & Deng, P. Incubator interdependence and incubation performance in China’s transition economy: the moderating roles of incubator ownership and strategy. *Technology Analysis & Strategic Management*, Volume 31, 2019 - Issue 1. Pages 96-110, 2018. doi:10.1080/09537325.2018.1487551
- [8] Huynh, K. P., Petrunia, R. J., & Voia, M. Duration of new firms: The role of startup financial conditions, industry and aggregate factors. *Structural Change and Economic Dynamics*, 23(4), 354-362, 2012. doi:10.1016/j.strueco.2012.03.008
- [9] Jung, K., Eun, J.-H., & Lee, S.-H. Exploring competing perspectives on government-driven entrepreneurial ecosystems: lessons from Centres for Creative Economy and Innovation (CCEI) of South Korea. *European Planning Studies*, 25(5), 827-847, 2017. doi:10.1080/09654313.2017.1282083
- [10] Kadir, N. Analysis of entrepreneurship perception and business developmental strategy of silk in Wajo Regency, South Sulawesi, Indonesia. *International Journal of Law and Management*, 60(1), 102-113, 2018. doi:10.1108/ijlma-11-2016-0114
- [11] Kim, K., Baek, C., & Lee, J.-D. Creative destruction of the sharing economy in action: The case of Uber. *Transportation Research Part A: Policy and Practice*, 110. No. 10, 118-127, 2018. doi:10.1016/j.tra.2018.01.014

- [12] Kitagawa, F., & Robertson, S. High-Tech Entrepreneurial 'Soft Starters' in a University-Based Business Incubator: Space for Entrepreneurial Capital Formation and Emerging Business Models. *11, No. 3*, 97-114, 2015. doi:10.1108/s1876-022820150000011013
- [13] Kostoglou, V., & Siakas, E. Investigating higher education graduates' entrepreneurship in Greece. *Annals of Innovation & Entrepreneurship*, 3(1), 17291, 2017. doi:10.3402/aie.v3i0.16742
- [14] Lacap, J. P. G., Mulyaningsih, H. D., & Ramadani, V. The mediating effects of social entrepreneurial antecedents on the relationship between prior experience and social entrepreneurial intent. *Journal of Science and Technology Policy Management*, 2018. doi:10.1108/jstpm-03-2018-0028
- [15] Liu, Y. Does entrepreneurial university really exist in China? *Journal of Knowledge-based Innovation in China*, 4(2), 88-103, 2012. doi:10.1108/17561411211235703
- [16] Marques, L., & Borba, C. Co-creating the city: Digital technology and creative tourism. *Tourism Management Perspectives*, 24, 86-93 2017. doi:10.1016/j.tmp.2017.07.007
- [17] Mrkajic, B. Business incubation models and institutionally void environments. *Technovation*, 68, 44-55, 2017. doi:10.1016/j.technovation.2017.09.001
- [18] Munro, E. Illuminating the practice of Knowledge Exchange as a 'pathway to impact' within an Arts and Humanities Research Council 'Creative Economy Knowledge Exchange' project. *Geoforum*, 71, 44-51, 2016. doi:10.1016/j.geoforum.2016.03.002
- [19] Nirwan, M. D., & Dhewanto, W. Barriers in Implementing the Lean Startup Methodology in Indonesia – Case Study of B2B Startup. *Procedia - Social and Behavioral Sciences*, 169, 23-30, 2015. doi:10.1016/j.sbspro.2015.01.282
- [20] Paijan, P., Ali, H. Pengaruh Gaya Kepemimpinan Transformasional, Pelatihan Terhadap Motivasi Kerja Serta Implikasi Kinerja Tenaga Kependidikan Di Universitas Mercu Buana Jakarta. *Jurnal Ekonomi* 21 (3), 2017.
- [21] Paschen, J. Choose wisely: Crowdfunding through the stages of the startup life cycle. *Business Horizons*, 60(2), 179-188, 2017. doi:10.1016/j.bushor.2016.11.003
- [22] Prayetno, S., Ali, H. Analysis of Advocates Organizational Commitment and Advocates Work Motivation to Advocates Performance And its Impact on Performance Advocates Office. *International Journal of Economic Research*, ISSN: 0972-9380, 2017.
- [23] Rakicevic, Z., Omerbegovic-Bijelovic, J., & Lecic-Cvetkovic, D. A model for effective planning of SME support services. *Eval Program Plann*, 54, 30-40, 2016. doi:10.1016/j.evalprogplan.2015.09.004
- [24] Riyanto, S., Sutrisno, A., Ali, H. The Impact of Working Motivation and Working Environment on Employees Performance in Indonesia Stock Exchange. *International Review of Management and Marketing*, 7 (3), 342-348, 2017. Retrieved from <http://dergipark.org.tr/irmm/issue/32110/356036>
- [25] Rodríguez-Gulías, M. J., Fernández-López, S., & Rodeiro-Pazos, D. Innovation in cultural and creative industries firms with an academic origin (CCI-USOs): The role of regional context. *Technovation*, 2018. doi:10.1016/j.technovation.2018.06.007
- [26] Saha, K., Kumar, R., Dutta, S. K., & Dutta, T. A content adequate five-dimensional Entrepreneurial Orientation scale. *Journal of Business Venturing Insights*, 8, 41-49, 2017. doi:10.1016/j.jbvi.2017.05.006
- [27] Suharyono, S., Ali, H. Pengaruh Motivasi, Kedisiplinan dan Gaya Kepemimpinan terhadap Prestasi Kerja Pegawai pada Dinas Sosial Tenaga Kerja dan Transmigrasi Kabupaten Batang Hari. *Jurnal Ilmiah Universitas Batanghari Jambi* 15 (2), 78-86, 2017.
- [28] Sung, T. K. The creative economy in global competition. *Technological Forecasting and Social Change*, 96, 89-91, 2015. doi:10.1016/j.techfore.2015.04.003
- [29] Suprobo, F. P., & Araújo, G. C. Design thinking as a medium of professionalism and learning: A case of business incubator. *Cogent Arts & Humanities*, 5(1), 2018. doi:10.1080/23311983.2018.1458457
- [30] Trivedi, R. Does university play significant role in shaping entrepreneurial intention? A cross-country comparative analysis. *Journal of Small Business and Enterprise Development*, 23(3), 790-811, 2016. doi:10.1108/JSBED-10-2015-0149
- [31] Wonglimpiyarat, J. The innovation incubator, university business incubator and technology transfer strategy: The case of Thailand. *Technology in Society*, 46, 18-27, 2016. doi:10.1016/j.techsoc.2016.04.002
- [32] Yarahmadi, F., & Magd, H. A. E. Entrepreneurship Infrastructure and Education in Oman. *Procedia - Social and Behavioral Sciences*, 219, 792-797, 2016. doi:10.1016/j.sbspro.2016.05.079
- [33] Yu, Y., Li, M., Li, X., Zhao, J. L., & Zhao, D. Effects of entrepreneurship and IT fashion on SMEs' transformation toward cloud service through mediation of trust. *Information &*

- Management, 55(2), 245-257, 2018.
doi:10.1016/j.im.2017.07.001
- [34] Rasooli, M., & Abedini, M. The Relationship between Organizational Support and Job Satisfaction of Experts and Managers of Islamic Azad University of Qeshm and Subsidiaries (International Units, Medical, Sama, Hormuz and Khamir). *Dutch Journal of Finance and Management*, 1(2), 42, 2017.
<https://doi.org/10.29333/djfm/5818>
- [35] Chaves, L. G., & de Carvalho, R. B. Application Integration and Portals : A Brief Survey and a Roadmap. *Journal of Information Systems Engineering & Management*, 1(3), 158-166, 2016.
<https://doi.org/10.20897/lectito.201631>
- [36] Bazzi, A., & Naimi Nezamabad, M. Investigating the relationship between vendor reputation and customer loyalty with the role of mediator of value added components based on customer experience in Internet service centers of Golestan province. *UCT Journal of Management and Accounting Studies*, 7(1), 22-29, 2019.
- [37] Etcuban, J. O., & Pantinople, L. D. The Effects of Mobile Application in Teaching High School Mathematics. *International Electronic Journal of Mathematics Education*, 13(3), 249-259, 2018.
<https://doi.org/10.12973/iejme/3906>
- [38] Jun, T. Y., Jambek, A. B., & Hashim, U. Performance analysis of low-complexity welch power spectral density for automatic frequency analyser. *Bulletin of Electrical Engineering and Informatics*, 8(1), 99-104, 2019.