




Reengineering of Hotel Business Processes in the Context of Digitalization and Sustainability

Elena Lysoivanenko ^a, Natalia Makshakova ^b and Denis Udalov ^c
Moscow State University of Sport and Tourism, 43a Kronshtadsky Blvd, Moscow, Russia

Keywords: Reengineering, Business Processes, Hotel Enterprise, Digitalization.

Abstract: The purpose of the article is to form the organizational and managerial basis for the reengineering of hotel business processes in the digital economy. In an unstable environment, to optimize the financial and economic state of the hotel's business processes, it is necessary to use innovative technologies, in particular, reengineering technology. The system of hotel business processes is described, highlighting their main blocks. Three types of enterprises have been identified for which the use of reengineering is necessary and expedient. The main tools for reengineering business processes are identified and their content is described. The technologies of digitalization of the hotel business process reengineering base allow for the most individualized interaction, which leads to an increase in the level of customer satisfaction. To successfully create the organizational and managerial basis for reengineering the hotel's business processes, active adaptation and transformation to the requirements of digitalization are required. The process of reengineering the hotel's business processes based on the principles of digitalization means the introduction of innovative technologies into business processes and radical changes in management and corporate culture.

1 INTRODUCTION

Sustainable development of hotel enterprises includes the simultaneous solution of diverse and largely contradictory problems of economic growth, provided that the quality of the environment is preserved, assessed primarily in accordance with social, economic, environmental, institutional aspects and the aspect of information communication technologies.


Improving the sustainability of a hotel business is a way to protect it from the negative impact of internal and external factor sustainability s and to ensure stable profitable work. The introduction of a process approach in hotel management is one of the most relevant approaches in management. The implementation of this approach lies through the reengineering of business processes.


Assessing the sustainability of an enterprise is often reduced to assessing its financial sustainability. However, in our opinion, financial sustainability only indirectly reflects changes in the sustainability of an


enterprise due to the introduction of reengineering of business processes. In this case, organizational and structural changes occur at enterprises, changes in the thinking and responsibility of the enterprise personnel, as well as optimization of communications between business processes. In our opinion, these changes are most fully reflected in the organizational component of sustainability.

The main goal of business process reengineering is the qualitative improvement of specific areas of enterprise activity. The essence of the formation of business processes of an enterprise lies in the development and adaptation of an enterprise management system in accordance with modern challenges in the context of digitalization.

Despite a significant number of studies in the field of reengineering, in most works, insufficient attention is paid to the formation of organizational and managerial support for reengineering of business processes in an enterprise in the context of digitalization.

^a  <https://orcid.org/0000-0000-0000-0000>

^b  <https://orcid.org/0000-0000-0000-0000>

^c  <https://orcid.org/0000-0000-0000-0000>

The state of the management structure and the system of internal organizational and technological interactions of many Russian hotel enterprises does not correspond to the new business conditions. The state of their management as a business management system is one of the most important problems. Considering the most acute problems, we can distinguish both functional and systemic, the solution of which requires a radical restructuring of the enterprise. As a method of reconstructing existing enterprises, we see business reengineering as the most promising. This approach allows, on the basis of a radical redesign of business processes, to achieve sharp, abrupt improvements in the main indicators of activity: cost, quality, service and production rates. Unlike traditional management, the object of reengineering is the processes occurring in the internal and external environment of the company, while information technologies are its integral part and play a decisive role.

The use of information technology allows organizations to empower the reengineering of their business (Susanto et al., 2016, Susanto et al., 2016). The use of information technology expands the possibilities of business process reengineering at different stages of the life cycle of commercial enterprises (Sungau and Msanjila, 2011). Olalla (2000) emphasizes the importance of information technology in business process reengineering. His work has demonstrated that enterprises can make radical changes in the management system and production technologies, using, among other influences, information technology.

Reengineering involves “radical improvements,” not just small adjustments to the bottom line. Today it is obvious that it is practically impossible to make such profound changes in all enterprise systems without the support of information technologies. The development of information technology provides the emergence of various alternatives for the implementation of processes that were not available in the past. There is a relationship between business process reengineering and information technology. Hammer (1990) considers information technology to be an essential prerequisite for performing business process reengineering. Organizations that strive for high levels of innovation through reengineering cannot achieve their goals without relying on information technology (Najjar et al., 2012). Irani et al. (2002) argued that innovation in data management is an important segment of business process reengineering. It is becoming increasingly clear that reengineering and information technology are inextricably linked and interdependent (Kohli and

Hoadley, 2006). Information technology must have a number of important functions in the reengineering of business processes: motivation, impartiality, driving force, empowerment and proactivity. Their success in implementing these functions will be the key to successful reengineering of business processes.

Digital transformation is characterized by the use of new and frequently updated digital technologies to solve specific problems. The role of Industry 4.0 in driving digital transformation was an area of intense research prior to COVID-19, but the pandemic has accelerated this process. The focus has shifted dramatically from digitizing data to digitizing business processes across many industries. The digitalization of production has made it possible to create new production processes within the framework of the key technological trends of Industry 4.0.

The main problems associated with the introduction of digital technologies in business processes can be described as a lack of readiness, when organizations do not yet perceive the benefits offered. At the moment, there is a low awareness and lack of knowledge related to specific digitalization and business process reengineering technologies.

Digitalization is having an increasing impact on processes in organizations, leading to significant changes in their existing work procedures (Legner et al., 2017). The emergence of new digital technologies allows organizations to accelerate the digitalization of business processes (Denner et al., 2018). Digital technologies are being introduced into the processes of interaction within the organization, as well as with customers and suppliers (Harmon, Wolf, 2016).

The application of the concept of business processes is widely described mainly for industries characterized by a high level of standardization, for example, in transport, industry, education. However, the number of studies on this issue in the service sector is very limited. In the work of Krstic, Kahrovic & Stanisic (2015) the system of business processes of the hospitality industry is presented. The authors identified different levels of processes: main processes, auxiliary processes and management processes. This approach has recently been adopted by many authors (Chalupa and Petricek, 2020; Xuhua et al., 2018).

The reengineering process was used to improve the efficiency of the hotel business (Nebel et al., 1994). During the reengineering procedure, the main (customer-oriented) processes for quality improvement were identified and analyzed. Through reengineering, hotel managers were able to measure

performance based on customer-centric criteria (Sinclair and Sinclair, 2009).

Ozdemir, Colak & Shmilli (2019) and Beldona, Beck & Ou (2001) propose the use of innovative technologies to optimize hotel business processes. The article by Aksu (2001) describes the use of modern technologies for the control of technological processes and their reengineering in the context of total quality management. Process management has played a crucial role in the management of service quality and human resources (Akoğlan Kozak and Acar Gürel, 2015).

2 METHODS

The methodological basis of the study is fundamental works, concepts, methodological and reference materials, developments and scientific recommendations in the field of reengineering of business processes and the practice of introducing changes in the business model of an organization.

The instrumental and methodological apparatus of the research includes general scientific methods: the method of comparison, generalization, analysis, synthesis and structuring, forecasting, grouping of statistical data, analysis of theoretical and factual materials, a systematic approach in relation to improving the tools for reengineering business processes.

3 RESULTS AND DISCUSSION

The purpose of the article is to develop a mechanism for organizational and management support for the reengineering of hotel business processes in the context of digitalization. Each business process in an enterprise is considered as a set of operations that transform material or information resources into appropriate flows in order to increase the level of enterprise development in the context of digitalization. The law of the rational functioning of business processes in an enterprise can be perceived as an organizational and logical connection between the solution of problems and the tasks associated with them. Accordingly, business processes have internal links between business tasks.

A business process is a set of interrelated activities (tasks to be solved, work performed) that take place in time and, according to a certain technology, form input and output parameters. The main business processes of the hotel (Figure 1):

- "Accounting and financial activities" - accounting, reporting to regulatory authorities, budgeting, etc.;
- "Engineering and technical support" - carrying out various types of repair work, monitoring the condition of premises and technical equipment, etc.;
- "Household support" - room fund maintenance: cleaning, linen change, etc.;
- "Staffing" - hiring, dismissal of employees, introduction of hotel personnel: briefing, trainings;
- "Ensuring the safety of life" - ensuring the safety of people living in hotels, taking measures to preserve their lives, health, property, etc.

Associated business processes include:

- "Provision of additional services" - for example, booking seats in restaurants, tickets for various types of transport, calling a taxi, ordering tickets to theaters, assistance in organizing excursions, etc.;
- "Laundry service" - laundry, dry cleaning, ironing and minor repairs of clothes;
- "Parking" - services for storing the car, it is possible to provide additional services for car washing, refueling, etc.

Management business processes include:

- "Strategic planning" - determining the direction of the organization's development and decisions taken to achieve development goals (target indicators: percentage of room stock, rating in the booking system, etc.);
- "Budget planning" - drawing up short-term, operational and tactical plans for the organization's activities, estimates of income and expenses;
- "Risk management" - identification of risks (what risks the hotel business may face), assessment and analysis of risks (determination of the likelihood of risks and the amount of potential damage from adverse events), prevention of risks (development of measures that reduce the likelihood of occurrence or minimize the possible consequences of occurrence of adverse events events), monitoring and control of risks;
- "Quality management of hotel services" - management of requirements for services, development of regulations for their provision, monitoring of service delivery processes and the removal of process metrics to obtain feedback on the compliance of services with requirements and regulations, quality audit procedures, for example, "secret client";

- "Personnel management" - the development of incentive programs, the introduction of indicators of efficiency and effectiveness of employees and their target values, management of personal career paths of employees.

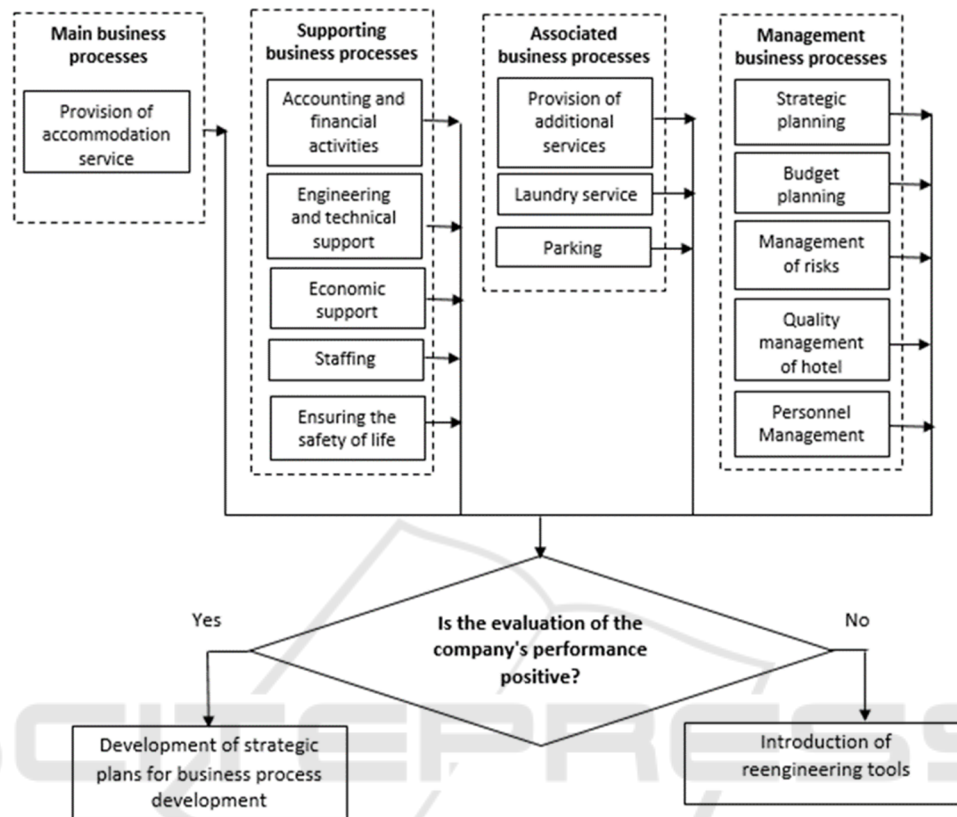


Figure 1: The main directions of development of business processes of the hotel

With a positive assessment of the activity of business processes at the enterprise, strategic plans for the development of business processes are developed. In case of a negative assessment of the activity of business processes, reengineering tools are introduced to reorganize and improve the activities of the enterprise (Table 1).

Table 1: Implementation of the main reengineering tools for the reorganization and improvement of the enterprise.

Tools	Content
Eliminate unnecessary or long streams	Reengineering eliminates unnecessary work. Most of the verification, reconciliation, anticipation and tracking measures are counterproductive work that arises from the fragmentation of business processes and must be eliminated as a result of rework

Troubleshooting business processes	Reengineering allows you to eliminate problems in business processes that quite often occur in enterprises with a spontaneous organization of activities
Reducing the amount of resources involved in the business process	In every job that creates business processes, you need to reduce as many resources as possible, for example, by combining tasks in such a way that the employee performs them most efficiently. The key challenge here is firing employees and combining different functions, as a result of which entire departments are removed from the process
Execution of business processes by a customer or supplier	Key parts of the business process that were previously performed in the enterprise can be transferred to another enterprise, which can radically change the business process

Multiple versions of complex processes are created	Traditional business processes tend to rule out many different situations. The processes in the enterprise must have many variations, that is, they must be varied. It is possible to create a multidimensional process, since each option is intended only for certain types of situations. The required process variant is determined by pre-sorting based on predefined procedures
Combination of several developments into one	The main feature of the redesigned business processes is the integration of many different or work tasks. In this case, different designs can be combined into one
Simplification of work	Traditionally, in an enterprise, workers have few skills and insufficient time or training opportunities. Therefore, their tasks are simplified. However, this requires complex business processes

	to link work tasks. Businesses have to experience the inconvenience, inefficiency and significant cost of complex processes to take advantage of such simplified tasks
--	--

An enterprise is a complex system that implements many dynamic business processes. It is quite obvious that the efficiency of an enterprise, its profitability, competitiveness and cost are largely determined by the efficiency of the implementation of business processes at this enterprise. It turns out that even in the "best of the best" enterprises, many business processes are implemented so ineffectively that the time and resources spent can be reduced tenfold without compromising the quality of the task performed by this business process. There are three types of enterprises for which the use of reengineering is necessary and advisable (Figure 2).

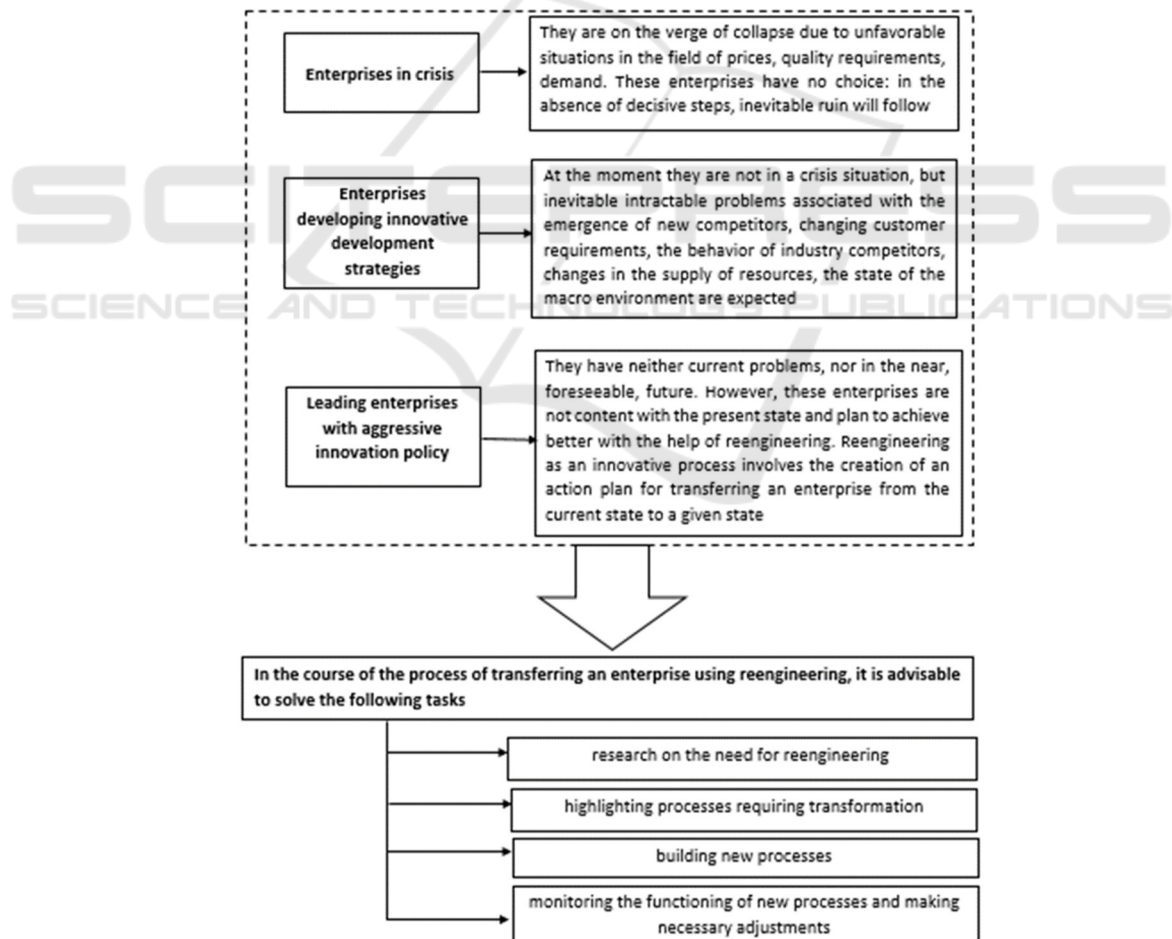


Figure 2: Types of enterprises for which reengineering is necessary and advisable.

The concept of reengineering business processes in enterprises is based on the following provisions:

- an enterprise or business is a system of sequentially-parallel interconnected business processes;
- business processes have an incoming flow of potential resources;
- each business process functions according to its own internal rules, algorithms, laws and has its own transformation technology;
- each business process has at least one connection with other business processes;
- the business process runs in time, repeats cyclically;
- a business process consists of a variety of tasks to be solved with organizational-logical, time and flow schemes of relationships.

Principles of separation of business processes in an enterprise:

- the principle of completeness of the composition of business processes at the enterprise;
- the principle of non-implementation of business processes at the enterprise (no intersection of the tasks of business processes);
- the principle of determinism of business processes at the enterprise (certainty);
- the principle of interconnectedness of business processes in an enterprise (a business process has at least one connection with other business processes);
- the principle of autonomy of business processes at an enterprise (logical completeness of business processes);
- the principle of resource intensity of business processes at the enterprise;
- the principle of productivity of business processes in the enterprise (availability of the initial product);
- principle of dynamism (variability of input resources, internal rules, algorithms, laws and initial products in time).

For the effective formation of organizational and management support for the reengineering of business processes at the enterprise, it is necessary to actively adapt and transform to the requirements of digitalization. The process of ensuring the reengineering of business processes at an enterprise on the principles of digitalization includes the introduction of modern technologies into business processes and means not only the installation of modern hardware or software, but also fundamental changes in the approach to management, corporate culture and external communication. As a result, the

company gains a reputation for being a progressive and modern system. Digitalization technologies for ensuring the reengineering of business processes in an enterprise allow organizing the most personalized interaction, which is preferred by most of the customers. Digital communication channels, artificial intelligence, robotization - all this must be implemented by an enterprise in order to achieve success. You need to act quickly and flexibly: change not when you can, but when you need to. The digital transformation of business processes at an enterprise is designed to provide conditions for making effective management decisions, quickly adapt its work to modern requirements and meet the needs of consumers. Cloud technology allows multiple teams to work simultaneously on the same project and efficiently use enterprise resources. Ready-made solutions save time on problem solving. Various programs and extensions optimize the operation of the enterprise and require a minimum amount of time for their implementation and adaptation.

4 CONCLUSION

According to the results of the study, it was revealed that in the turbulent conditions of management at hotel enterprises, in order to improve the financial and economic state of business processes, there is a need to use innovative and progressive technologies, one of which is reengineering technology. The main goal of business process reengineering is the qualitative improvement of specific areas of enterprise activity. The essence of the formation of business processes of an enterprise lies in the development and adaptation of an enterprise management system in accordance with modern challenges in the context of digitalization. For each business process, a set of input resources, operating rules and expected results are formed. The process of ensuring the reengineering of business processes in an enterprise based on the principles of digitalization has opportunities for innovative ways of their development, which is effective due to a large number of tools.

REFERENCES

- Akođlan Kozak, M., and Acar Gürel, D. (2015). Service design in hotels: A conceptual review. *Turizam: međunarodni znanstveno-stručni časopis*, 63(2): 225-240.

- Aksu, A. A. (2001). Re-engineering revisited: a simulation approach. *Business Process Management Journal*, 7(2): 131-138.
- Albalade, D., Campos, J., and Jimenez, J.L. (2017). Tourism and high-speed rail in Spain: Does the AVE increase local visitors, *Annals of Tourism Research*, 65: 71-82.
- Beldona, S., Beck, J., and Qu, H. (2001). Implementing enterprise resource planning in a hotel: Toward theory building, *International Journal of Hospitality Information Technology*, 2(1): 9-22.
- Chalupa, S. and Petricek, M. (2020). The Application of Business Process Management in the Hospitality Industry: A Case Study, *IBIMA Business Review*, 301930.
- Deenihan, G. and Caulfield, B. (2015). Do tourists value different levels of cycling infrastructure? *Tourism Management*, 46: 91-101
- Denner M-S, Püschel L, and Röglinger M. (2018). How to Exploit the Digitalization Potential of Business Processes, *Business & Information Systems Engineering*, 60: 331-349.
- Hammer, M. (1990). Reengineering Work: Don't Automate, Obliterate, *Harvard Bus. Rev.*, 68 (4): 104-112
- Harmon P. and Wolf, C. (2016). The State of Business Process Management 2016: BPTrends Report, <http://www.bptrends.com/bpt/wp-content/uploads/2015-BPT-Survey-Report.pdf>.
- Irani, Z., Hlupic, V., and Giaglis, G. (2002). Guest Editorial: Business Process Reengineering: An Analysis Perspective, *Int. J. Flexible Manuf. Syst.*, 14(1): 5-10.
- Kohli, R. and Hoadley, E. (2006). Towards Developing a Framework for Measuring Organisational Impact of IT-Enabled BPR: Case Studies of Three Firms, *Database Adv. Inform. Syst.*, 37(1): 232-254.
- Krstić, B., Kahrović, E., and Stanišić, T. (2015). Business process management in hotel industry: A proposed framework for operating processes, *Ekonomika*, 61(4): 21-34.
- Legner C., Eymann T., Hess T., Matt C., Böhm T., Drews P., Mädche A., Urbach N., and Ahlemann F. (2017). Digitalization: Opportunity and Challenge for the Business and Information Systems Engineering Community, *Business & Information Systems Engineering*, 59: 301-308.
- Murphy, P., Pritchard, M.P., and Smith, B. (2000). The destination product and its impact on traveller perceptions, *Tourism Management*, 21(1): 43-52
- Najjar, L., Huq, Z., Aghazadeh, S., and Hafeznezami, S. (2012). Impact of IT on Process Improvement, *J. Emerging Trends Comput. Inform. Sci.*, 3(1).
- Nebel III, E. C., Rutherford, D., and Schaffer, J. D. (1994). Reengineering the hotel organization, *Cornell Hotel and Restaurant Administration Quarterly*, 35(5): 88-95.
- Olalla, M. F. (2000). Information Technology in Business Process Reengineering, *International Advances in Economic Research*, 6(3): 581-589.
- Özdemir, A. İ., Çolak, A., and Shmilli, J. (2019). Business process management in hotels: with a focus on delivering quality guest service, *Quality & Quantity*, 53(5): 2305-2322.
- Rehman Khan, S.A., Qianli, D., SongBo, W., Zaman, K., and Zhang, Y. (2017). Travel and tourism competitiveness index: The impact of air transportation, railways transportation, travel and transport services on international inbound and outbound tourism, *Journal of Air Transport Management*, 58: 125-134
- Rosemann, M. and Vom Brocke, J. (2015). The Six Core Elements of Business Process Management, *Handbook on Business Process Management 1: Introduction, Methods, and Information Systems*, 2nd Ed. Springer, Berlin, Heidelberg, pages 105-122
- Sakai, M. (2006). Public sector investment in tourism infrastructure, *International Handbook on the Economics of Tourism*, Cheltenham, UK, Northampton, USA, Edward Elgar, pages 266-279.
- Sinclair, M. and Sinclair, C. (2009). Improving hotel efficiency through integration of service and project management cultures, *International Journal of Hospitality & Tourism Administration*, 10(4): 344-360.
- Sungau, J. and Msanjila, S. S. (2011). On IT Enabling of Business Process Reengineering in Organizations, *Adv. Mater. Res.*, 403-408: 5177-5181.
- Susanto, H., Almunawar, M. N., Leu, F. Y., and Chen, C. K. (2016). Android vs iOS or Others? SMD-OS Security Issues: Generation Y Perception, *Int. J. Technol. Diffus. (IJTD)*, 7 (2): 1-18.
- Susanto, H., Kang, C., and Leu, F. (2016). Revealing the Role of ICT for Business Core Redesign, *J. Syst. Inf. Technol.*
- Xuhua, H., Spio-Kwofie, A., Udimal, T. B., and Addai, M. (2018). Entrepreneurial innovation strategies; an option for small hotels' growth in Ghana, *Journal of Global Entrepreneurship Research*, 8(1): 30.