International Journal Entrepreneurship and Management Inquiries

Journal EMI ISSN: 2602 – 3970

KONFERANS bildirisi

Cilt 4 - Sayı Özel Sayı 1 - Kasım 2020
SS. 116-125
Başvuru Tarihi/ Received Date: 09.07.2020
Kabul Tarihi/ Accepted Date: 27.07.2020

THE SMART CITY: SUGGESTION OF A SOFTWARE FOR SAFETY MODEL REPORT*

Nina AALAMİ
BewellTech, nina.aalami@bewelltech.com.tr
0000-0002-1071-8134

Asst. Prof. Dr, Savaş Selahattin ATEŞ
Eskisehir Technical University, ssates@eskisehir.edu.tr
(Corresponding author)
0000-0003-2462-0039

Sinan ÜNLÜ
Master Student, Eskisehir Technical University,
sinanunlu@eskisehir.edu.tr
0000-0001-6540-9016

Abstract

Humanity has started to see information and automation technologies as a need in public life areas, last decades, due to the 21st century industrial revolution has exposed humanity to more information. The developing technology has been integrated into public spaces, to people's private and social life easier. However, modern society faces new social risks with developing urbanism.

The research is based on the problem of the threats in the cities of modern society in the early stage. Within the scope of the research, a governance model has been developed for municipal local governments. A model that provides safety assurance for smart cities has been proposed.

In the first part of the research, literature review for smart cities is discussed within the scope of industry 4.0. In the second part of the research, the concepts and methods of text mining, visual processing, machine learning are examined at a basic level. As a result of the research, effective communication software has been developed with the competent institutions for the identification of threats that citizens notice in the early stages and for the solution of problems.

Keywords: Smart City, Machine Learning, Local Administrations

JEL Classifications: L93, R41, L98, C15

* This research has been prepared by the support of BewellTech Company.
This research is presented at 5 th International EMI Entrepreneurship, Communication & Social Sciences Congress, 29-30 June 2020, Gostivar

International Journal Entrepreneurship and Management Inquiries
Journal EMI ISSN: 2602 – 3970
KONFERANS bildirisi

Cilt 4 - Sayı Özel Sayı 1 - Kasım 2020
SS. 116-125
Başvuru Tarihi/ Received Date: 09.07.2020
Kabul Tarihi/ Accepted Date: 27.07.2020

AKILLI ŞEHİR: GÜVENLİK MODELİ RAPORU İÇİN YAZILIM ÖNERİSİ

Özet

Günümüzde insanlık toplu yaşam alanlarında bilgi ve otomasyon teknolojilerini bir ihtiyaç olarak görmeye başlamıştır. Çünkü 21.yy endüstri devrimi insanlığı daha fazla bilgiye maruz bırakmıştır. Gelişen teknoloji kamu alanlarına entegre edilerek insanların bireysel ve sosyal yaşamlarını kolaylaştırmıştır. Fakat modern toplum gelişen şehircilikle beraber yeni toplumsal risklerle karşı karşıyadır.

Araştırma modern toplumun şehirlerindeki tehditlerin erken evre fark edilememesi sorunu üzerine kurgulanmıştır. Araştırma kapsamında belediye yerel yönetimlerine yönelik bir yönetişim modeli geliştirilmiştir. Akıllı şehirler için emniyet güvence altına alıcı model önerisinde bulunulmuştur.

Araştırmanın birinci bölümünde akıllı şehirlere yönelik literatür taraması endüstri 4.0 kapsamında tartışılmıştır. Araştırmanın ikinci bölümünde metin madenciliği, görsel işleme, makine öğrenmesi kavramları ve yöntemleri temel düzeyde incelenmiştir. Araştırmanın sonucunda vatandaşların erken evrede fark ettiği tehditlerin belirlenmesi ve sorunların çözümüne yönelik yetkili kurumlar ile etkili iletişim yazılımı geliştirilmiştir.

Anahtar Kelimeler: Akıllı Şehir, Makine Öğrenmesi, Yerel Yönetimler

Jel Kodları: L93, R41, L98, C15

International Journal Entrepreneurship and Management Inquiries
Journal EMI ISSN: 2602 – 3970
KONFERANS bildirisi
Cilt 4 - Sayı Özel Sayı 1 - Kasım 2020
SS. 116-125
Başvuru Tarihi/ Received Date: 09.07.2020
Kabul Tarihi/ Accepted Date: 27.07.2020

INTRODUCTION

In the early stages of history, the settled life has begun to leave the nomadic lives of humanity. In the evolution of civilization, there has been a transition from traditional society to industrial society and finally to information society structures. While history of these transitions was sometimes subject to a kind of revolutionary developments, and sometimes it was like the stagnant process (Yalçınkaya & Özsoy, 2003). From the hunter-gathering society to the agricultural society, radical changes occurred in human life. They have developed various production industries according to their geographical features. Three industrial revolutions were experienced until today's world. Among these revolutions, steam machines were started to be used in the first industrial revolution called Industry 1.0 and production increase was aimed. With the second industrial revolution (Industry 2.0), electrical energy was used. With the third industrial revolution (Industry 3.0), production systems changed from analog to digital systems. Finally, with Industry 4.0, the world has come to the brink of a new industrial revolution. With this revolution, it is foreseen to provide high efficiency in production by increasing the tendency of computerization with high technology (Atalık, Akan, & Bakır, 2019).

Local governments are the first step of state administration. Local government should respond to the needs of citizens. Citizen participation is a way for citizens' needs to be appropriately met by government services. (Chen, Huang, & Hsiao, 2004). Community preferences should be introduced to ensure that service quality is satisfactory. Local governments; are institutions that provide public service to the local community to effectively meet the needs of the settled people. Municipalities are administrative, political and social institutions chosen by local people (Heden & Heden, 2005). Involving citizens in policy development is widely regarded as a key element of good governance (Chen, Huang, & Hsiao, 2004)

The application of information and communication technologies (ICT) in the context of future cities is often shown by the concept of smart city. Compared to the concept of digital city or smart city, its main focus is not limited to the role of ICT infrastructure, but mainly covers human capital / education, social and relational capital and environmental issues (Lombardia, Giordano, Farouh, & Yousef, 2012).

The research was prepared by adapting the proactive safety management system application to the municipalities from the aviation field. The research question is based on the problem of early stage threats in the cities of the modern society.

1.LITERATURE REVIEW AND THEORETICAL FRAMEWORK

1.1. Modern Society

Urbanization is widespread in economic societies (Abbott, 2013), because that the modern production techniques in these societies require coexistence. Thus, technology can be used intensely in market oriented production (Kılıç S. , 2006). Not only the private sector, but also the governmental state needs to be restructured by reviewing themselves within the scope of public services. The most important thing to do in order not to be left behind in competition today is to collect innovative ideas (Heden & Heden, 2005). Public participation is central to the search for peace, social justice and democracy. Because, community participation is the fundamental to effective and meaningful the security of the individual or state in today's fast-paced world of change (Abbott, 2013).

Local governments that have the closest contact with the public in public administration (Heden & Heden, 2005). How to participate in local government is not conceptual. Because there is

International Journal Entrepreneurship and Management Inquiries
Journal EMI ISSN: 2602 – 3970
KONFERANS bildirisi
Cilt 4 - Sayı Özel Sayı 1 - Kasım 2020
SS. 116-125
Başvuru Tarihi/ Received Date: 09.07.2020
Kabul Tarihi/ Accepted Date: 27.07.2020

not always a compatible structure in which academic management practices can be placed. Instead, the process of learning community participation was organic, based on extensive experience. This creates an empirical basis for local government participation practices (Abbott, 2013). Empirically derived systems are assumed to be true, because of them operate in a harmonious framework that allows the collation of data, systematic evidence, the production, and dissemination (Abbott, 2013). 21 centuries local government has to be a structure that is "democratic, respectful to human rights, acting legitimately while performing its basic functions, decentralized, localized as much as possible, leaving some of its business to the private sector, largely privatized, civilized, determines policies in line with the demands and expectations of the people" (Doğan, 2016). Local government is an employer of different cultures and disciplines, as anthropologists, political scientists, sociologists, social workers, architects, planners, engineers and etc. (Abbott, 2013).

1.2. Industry 4.0

The Industrial Revolution has revealed many developments in production and service systems, due to the noticeable and rapid changes technologies (Pamuk & Soysal, 2018).

The first industrial revolution began at the end of the 18th century and was represented by mechanical production facilities based on water and steam power. The second industrial revolution begins at the beginning of the 20th century with a labor-intensive mass production symbol based on electrical energy. The third industrial revolution started in the 1970s with automatic production based on electronic and internet technology (Lu, 2017). All these industrial revolutions have had many political, economic, social and technological effects on societies (Pamuk & Soysal, 2018). The fourth industrial revolution, Industry 4.0, continues with the production characteristics of cyber physical systems (CPS) based on heterogeneous data and information integration. The main roles of CPS are to meet the agile and dynamic requirements of production and increase the efficiency and effectiveness of the industries (Lu, 2017). The use of modern information technologies such as cyber-physical systems, internet of things (IoT) and the processing of large amounts of data (Big Data) forms the basis of a concept known as Industry 4.0. (Zawadzki & Żywicki, 2016).

Industry 4.0 assumes that it guarantees the preparation of a computerized, intelligent production environment, production flexibility and high efficiency, integration of different activities and effective communication between the customer and the manufacturer, and between the manufacturer and the suppliers. The concept of Industry 4.0 provides an environment where a real world is connected with a virtual world. It creates the vision of smart and automated production systems that enable the current information to be used more efficiently (Lu, 2017). Utilizing digital technologies to adapt the digital market environment and improve operations are important goals for today's businesses (Kane, Palmer, Phillips, Kiron, & Buckley, 2017). The great progress has been made in related areas such as the Industrial Internet of Things (IIoT) and industrial wireless networks (IWNs), big data and cloud computing, after 2000's. (Wan, Tang, Shu, Li, & Wang, 2016). Technologies such as 3D printing, logistics services, medical service, and online ordering services have been developed. The results of this will have a significant impact in the near future in large, small and medium enterprises (Roblek, Maja, & Krapež, 2016). In this new process called Industry 4.0, it includes a structure that will completely change the relations of production and consumption. On the one hand, it defines the production systems that instantly adapt to the changing needs of the consumer, and on the other, the automation systems that are in continuous communication and coordination with each other (Yıldız, 2018).

International Journal Entrepreneurship and Management Inquiries
Journal EMI ISSN: 2602 – 3970
KONFERANS bildirisi
Cilt 4 - Sayı Özel Sayı 1 - Kasım 2020
SS. 116-125
Başvuru Tarihi/ Received Date: 09.07.2020
Kabul Tarihi/ Accepted Date: 27.07.2020

Local government governance refers to the increase in the social, economic and democratic space in traditional rules and institutions at the stage of government or policy making, which is widely implemented in a country (Doğan, 2016). The paradigm shift has started in both the city and governance areas with the Industry 4.0 (Lu, 2017). Management concepts change and this brings new values with IT systems. These new values can be summarized as improving product quality for the customer (citizen) which in cycle time, costs, lean services and etc. (Heden & Heden, 2005).

1.3. Smart Cities

Although the rate of urbanization has increased significantly over the past 20 years, the capacity of governments to support this urban growth has declined. Various attempts have been made to address this dilemma, but in many countries, this has not been successful. There is no consensus on solving this problem (Abbott, 2013). The application of information and communication technology (ICT) in the context of future cities is often defined by the concept of smart city. Although there is no agreement on the precise definition of a smart city, some of the main dimensions of a smart city are defined by the literature. Accordingly, the main dimensions of smart cities are smart economy, smart mobility, smart environment, smart people, smart life, and smart governance (Lombardia, Giordano, Farouh, & Yousef, 2012). Local governments are institutions created to meet the demands and needs of the local people (Heden & Heden, 2005). Local governments are public entities that "provide public services to a local community". One of the areas where the concept of governance finds application is in the local governments. As a matter of fact, the local governments are public institutions where public services are offered in relations with citizens (Doğan, 2016). Because the involvement of citizens in policy development is widely accepted as a key element of good governance. Democratization mean is more citizens who consent to the actions of the state through participation (Chen, Huang, & Hsiao, 2004). Lack of a theoretical basis for citizen participation in the local government is the biggest problem. The first reason for this problem is that the role of the municipality and the government in the state differs in the world. This difference raises the question of the relationship between participation and democracy in the state administration. The second is the mix between public and private services that make up modern local governments. The participatory process that fits public services may not be suitable for private business services. The third one is the geographical spread that occurs when defining communities and their borders and its difficulties (Abbott, 2013). It is argued that it is smart cities to overcome all these difficulties. This concept has been very important in the field of politics in recent years (Lombardia, Giordano, Farouh, & Yousef, 2012). However, if the more citizens join the municipal administration, management cost is the also more expensive. In a democratic system, it is possible for municipalities to manage the system well by establishing the citizen complaints system. But citizen complaints systems need to contain more resources (Heden & Heden, 2005). On the other hand, the participation is supported with projects in the developing countries to support community (Abbott, 2013). In recent years, these project supports have turned towards smart city projects. Compared with the concept of the smart city, the main focus is not limited to the role of the ICT infrastructure, but mainly the role of human capital / education, social and relational capital and environmental issues. These are considered to be important drivers of urban growth (Lombardia, Giordano, Farouh, & Yousef, 2012). To measure the extent to which the satisfaction of the public can be achieved in the realization of the local public services and to develop a corrective-preventive activity and to provide a citizen-oriented service. (Heden & Heden, 2005). In this sense, the term "smart city" is also used to discuss the use of modern

International Journal Entrepreneurship and Management Inquiries
Journal EMI ISSN: 2602 – 3970
KONFERANS bildirisi
Cilt 4 - Sayı Özel Sayı 1 - Kasım 2020
SS. 116-125
Başvuru Tarihi/ Received Date: 09.07.2020
Kabul Tarihi/ Accepted Date: 27.07.2020

technology in daily urban life. This includes not only ICT, but also modern urban transportation technologies (Lombardia, Giordano, Farouh, & Yousef, 2012).Public involvement in the local governments concerns every sector of development, such as education, health, protection, agriculture or water and sanitation. When successfully implemented, it transforms municipal programs and provides the critical component that can promote sustainable development (Abbott, 2013). Problems such as rough road, clogged sewer line are very common and if not corrected in time, it will be difficult to solve later (Islam, Haque, & Haven, 2019). E-government is one of the uses of information communication technologies to improve public services in cities. (Kontokosta & Hong, 2017).

2. RESEARCH METHOD

In the research, modern society, industry 4.0 and smart cities were identified by literature review. Case studies in local governments were selected from secondary data with ease and judicial method. The society faces different problems every day such as broken roads, clogged sewer lines, power line damage. An application model algorithm has been created to collect complaints about problems of citizens about local government. A mobile that name is CenteReport application software idea has been developed that will inform the responsible local authority to resolve it at the right time.

3. FINDINGS

3.1. Problem Case Study

In daily life, citizens use services originating from the municipality. Disruptions and irregularities experienced in these services decrease the quality, moreover the results can be more severe sometimes. The maintenance and repair services of underground infrastructures such as manhole covers are carried out by the municipalities. Some of the manhole cover accidents in the world cause material damage, some are Hospitalized injury, some may have fatal consequences.

Case Study 1- Art teacher killed by an exploding manhole cover after it crashed through her windshield on Boston highway.

- Location: Boston, USA
- Date: February 12, 2016
- Cause: Manhole cover accident
- Effect: 1 woman dead
- Information source: Newspaper

Figure 1. Manhole Cover Accident

Source: (Nilson, 2016)

Case Study 2- A huge pothole on I-77 is causing drivers thousands of dollars in damage

- Location: Columbia, S.C. (WIS), USA
- Date: January 30, 2020
- Cause: Pothole accident
- Effect: Thousands of dollars in damage
- Information source: Newspaper

Figure 2. Pothole Accident

Source: (Coleburn, 2020)

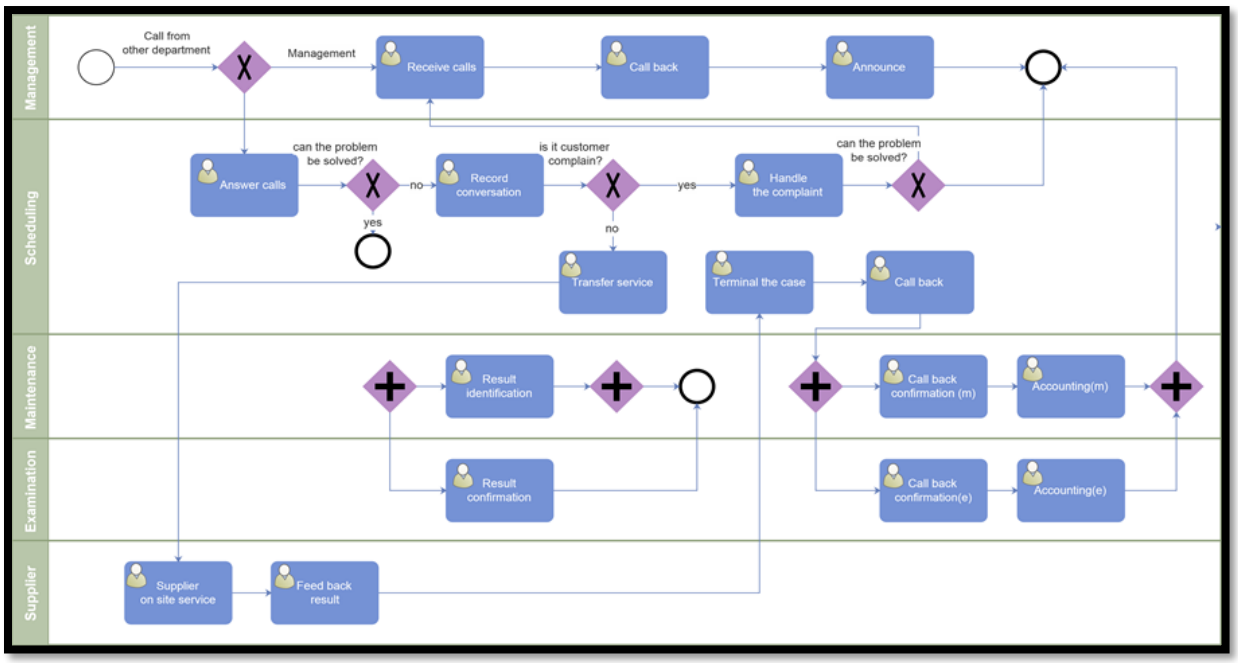
International Journal Entrepreneurship and Management Inquiries
Journal EMI ISSN: 2602 – 3970
KONFERANS bildirisi
Cilt 4 - Sayı Özel Sayı 1 - Kasım 2020
SS. 116-125
Başvuru Tarihi/ Received Date: 09.07.2020
Kabul Tarihi/ Accepted Date: 27.07.2020

3.2. Conventional Model

The citizen hand on disruptions regarding the municipality to the traditional call centers by telephone. The municipality's call center employee first tries to understand the purpose of the call. Then, the complaint is received and directed to the relevant department, if the subject of complaint cannot be resolved directly by the call center employee. After the problem is maintenance, a call back is made to the citizen who is the source of the complaint. A complaints procedure by calling a traditional help desk is as follows.

.

Figure 3. BPMN of an call of complaint



Source: (Edraw, 2020)

3.3. Suggestion Model

To avoid this extra time, money, manpower and resource waste, a mobile application software idea has been developed that will inform the responsible local authority to resolve it at the right time

The developed software is an easy-to-access platform for citizens to communicate municipal service disruptions to local governments. They will forward the complaint and send feedback to the complaints. These notifications will inform local government officials to resolve the issue.

Business Process Model and Notation is lean model. 3 basic step:

- Citizen will download application of municipal services (CenteReport)

International Journal Entrepreneurship and Management Inquiries
Journal EMI ISSN: 2602 – 3970
KONFERANS bildirisi
Cilt 4 - Sayı Özel Sayı 1 - Kasım 2020
SS. 116-125
Başvuru Tarihi/ Received Date: 09.07.2020
Kabul Tarihi/ Accepted Date: 27.07.2020

- It will take a photo of the problems it has encountered with the complaint system CenteReport
- The software will open a work order with the complaint notification to the relevant local government department.
- The accuracy of the work order will be checked
- If correct, the problem will be solved
- Feedback will be sent to the citizen who made the complaint

Figure 4. Example of CeneReport

CONCLUTION

The research is based on the problem of threats in modern community cities at an early stage. For research purposes, it is for a governance model for municipal local governments. Security model for smart cities. The research question is based on the problem of early-stage threats in modern community cities.

The developing technology was more easily integrated into public spaces, people's private and social life. Together, the modern community meeting faces new social risks with urbanism. People of modern society require the management and effectiveness of resources such as energy, environment, communication and transportation. As part of Industry 4.0, living centers need to change. The fact of sharing information integrates smart city concepts into human life. The information shows the risks in the social life areas, it provides anxiety in the interaction areas and ensures the feeling of security.

The application of ICT in the future cities is generally shown with the concept of smart city. Compared with the concept of digital city or smart city, its main focus is not limited to the role of ICT infrastructure, it mainly covers human capital / education, social and relational capital and environmental issues.

The research was offered adapting the proactive safety management system application that name is CenteReport to the municipalities from the aviation field.

In future research, Artificial Intelligent system and image processing with city camera system can be adapted the program. Automatic detection may send the disruptions of municipal services with AI, after that there isn't necessary to send a complaint from citizens.

REFERENCES

Abbott, J. (2013). Sharing the City. London: Routledge. doi:https://doi.org/10.4324/9781315070759

Atalık, Ö., Akan, Ş., & Bakır, M. (2019). Havacılık 4.0: Havayolu Ve Havaalanı Endüstrisinde Güncel Endüstri 4.0 Uygulamaları. II. International Conference on Emprical Economics and Social Science (ICEESS' 19). Bandırma: Bandırma Onyedi Eylül Üniversitesi. doi:10.6084/m9.figshare.10316303

Chen, D.-y., Huang, T.-y., & Hsiao, N. (2004). Citizen Participation, E-government, and Public Management: A Case of Taipei City Mayor's E-mail Box. International Symposium of Digital Divide and Digital Opportunity, (s. 157-176).

International Journal Entrepreneurship and Management Inquiries
Journal EMI ISSN: 2602 – 3970
KONFERANS bildirisi
Cilt 4 - Sayı Özel Sayı 1 - Kasım 2020
SS. 116-125
Başvuru Tarihi/ Received Date: 09.07.2020
Kabul Tarihi/ Accepted Date: 27.07.2020

Coleburn, C. (2020, January 30). A huge pothole on I-77 is causing drivers thousands of dollars in damage. Retrieved from https://www.wistv.com/2020/01/31/huge-pothole-i-is-causing-drivers-thousands-dollars-damage/

Doğan, K. C. (2016). Postmodern Kamu Yönetimi, Yerel Yönetimler ve Katılım: Yerel Yönetişim Odaklı Bir Yaklaşım. İstanbul Gelişim Üniversitesi Sosyal Bilimler Dergisi, 3(2), 73-99. doi:10.17336/igusbd.14844

Edraw. (2020, Jaunary 25). Call Camplaint BPMN. Retrieved from Edraw Viewer: https://viewer.edrawsoft.com/app/?id=52&obj=Y2FsbC1jb21wbGFpbnQtYnBtbi5lZGR4&_ga=2.140825906.1454982691.1580783079-1407224919.1580783079

Heden, H., & Heden, R. (2005). Yerel Yönetimlerin Hizmet Sunumlarindaki Değişim ve E-Belediyecilik. Elektronik Sosyal Bilimler Dergisi, 4(14), 48-66. retrieved from https://dergipark.org.tr/tr/pub/esosder/issue/6128/82192

Islam, M. A., Haque, M. A., & Haven, M. F. (2019). City Corporation Complain Portal. retrieved from http://hdl.handle.net/123456789/3419

Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2017). Achieving Digital Maturity. Cambridge: MIT Sloan Management Review Deloitte University Press.

Kılıç, S. (2006). Modern Topluma Ekolojik Bir Yaklaşım. Kocaeli Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 12(2), 108-127.

Kılıç, T., & Tuncer, T. (2017). Smart city application: Android based smart parking system. International Artificial Intelligence and Data Processing Symposium (IDAP). Malatya: IEEE.

Kontokosta, C., & Hong, B. (2017). Equity in 311 Reporting: Understanding Socio-Spatial. Bloomberg Data for Good Exchange Conference (s. 1-7). New York University: the Data For Good Exchange.

Lombardia, P., Giordano, S., Farouh, H., & Yousef, W. (2012). Modelling the smart city performance. Innovation The European Journal of Social Science Research, 25(2), 137-149. doi:10.1080/13511610.2012.660325

Lu, Y. (2017). Industry 4.0: A survey on technologies, applications and open research issues. 1-10. doi:https://doi.org/10.1016/j.jii.2017.04.005

Maurer, C., & Schaich, S. (tarih yok). Online Customer Reviews Used as Complaint. Department of Tourism and Leisure Management .

Nam, T., & Pardo, T. A. (2011). Smart city as urban innovation: focusing on management, policy, and context. ICEGOV '11: Proceedings of the 5th International Conference on Theory and Practice of Electronic Governance (s. 185-194). New York: ICEGOV. doi:https://doi.org/10.1145/2072069.2072100

Nilson, A. (2016, February 12). Art teacher killed by an exploding manhole cover after it crashed through her windshield on Boston

ighway. Daily Mail. Retrieved Jaunary 8, 2019, from https://www.dailymail.co.uk/news/article-3444336/Manhole-cover-crashes-windshield-killing-Boston-driver.html

Pamuk, N. S., & Soysal, M. (2018). Yeni Sanayi Devrimi Endüstri 4.0 Ürezine Bir İnceleme. Verimlilik Dergisi, 66(1), 41-66.

Pamuk, N. S., & Soysal, M. (2018). Yeni Sanayi Devrimi Endüstri 4.0 Ürezine Bir İnceleme. Verimlilik Dergisi, 66(1), 41-66.

Cilt 4 - Sayı Özel Sayı 1 - Kasım 2020
SS. 116-125
Başvuru Tarihi/ Received Date: 09.07.2020
Kabul Tarihi/ Accepted Date: 27.07.2020

Roblek, V., M. M., & Krapež, A. (2016). A Complex View of Industry 4.0. Sage Journal, 1-11. doi:10.1177/2158244016653987

Wan, J., Tang, S., Shu, Z., Li, D., & Wang, S. (2016). Software-Defined Industrial Internet of Things in the Context of Industry 4.0. IEEE Sensors Journal, 16(20), 7373 - 7380. doi:10.1109/JSEN.2016.2565621

Yalçınkaya, T., & Özsoy, E. (2003). Risk toplumu: Bilgi toplumunun evriminde yeni boyut. II. Uluslararası Bilgi, Ekonomi ve Yönetim Kongresi. Kocaeli: Kocaeli Üniversitesi İİBF.

Yıldız, A. (2018). Endüstri 4.0 ve Akıllı Fabrikalar. Sakarya Üniversitesi Fen Bilimleri Dergisi.

Zawadzki, P., & Żywicki, K. (2016). Smart Product Desıgn and Productıon Control For Effectıve Mass Customızatıon in The Industry 4.0 Concept. Management and Production Engineering Review, 7(3), 105-112. doi:DOI: 10.1515/mper-2016-0030

Araştırma ve Yayın Etiği: Bu çalışmada araştırma ve yayın etiği kurallarına uyulduğu yazarlar tarafından taahhüt edilmektedir.

Research and Publication Ethics: In this study, the rules of research and publication ethics were fully followed by author/s.

Special
Issue EMI