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Talent management of state civil officers (ASN), bureaucratic digitalization era in Indonesia

Gestión de talentos de funcionarios civiles del Estado (ASN), era de la digitalización burocrática en indonesia

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Abstract
The purpose of this study is to discuss the substance of talent management and competency-related issues using concepts related to Industry 4.0. Talent management has an interest in the organization, because it gives an opportunity to recruit, support and develop the talent that is needed and then developed as a future player which is a combination of cyber-physical systems. This new technology will affect all crossdisciplines and even oppose human resources, how Industry 4.0 will change the landscape for talent development.
key words: industrial revolution 4.0; talent management; state civil officers; information and communication technology (ICT)

Resumen
El propósito de este estudio es discutir la sustancia de la gestión del talento y los problemas relacionados con la competencia utilizando conceptos relacionados con la Industria 4.0. La gestión del talento tiene interés en la organización porque brinda la oportunidad de reclutar, apoyar y desarrollar el talento que se necesita y luego se desarrolla como un jugador futuro que es una combinación de sistemas ciberfísicos. Esta nueva tecnología afectará a todas las disciplinas cruzadas e incluso se opondrá a los recursos humanos, ya que la Industria 4.0 cambiará el panorama para el desarrollo del talento.
palabras clave: revolución industrial 4.0; gestión del talento; oficiales civiles del estado; tecnología de la información y la comunicación (TIC)

1. Introduction

The new industrial revolution (IR) or the term Industry 4.0 is one of the most popular topics among industry and academia in the world nowadays. Industry 4.0 plays a key role in the strategy of taking the opportunity to digitize all stages of production and service systems. The fourth industrial revolution is realized by a combination of various physical and digital technologies such as artificial intelligence, cloud computing, adaptive robotics,

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augmented reality, manufacturing of additional materials and the Internet of Things (IoT). Apart from technology triggers, the main purpose of industrial transformation is to increase resource efficiency and productivity to increase organizational competitiveness. The era of transformation which we are living now is different from others in that it not only provides a change in business processes but also reveals the concept of service products in the smart and connected public sector by presenting a service-based business model.

The Fourth Industrial Revolution, that is, a new era of industrialization stemming from innovative forms of decentralization and complex production processes. Industry 4.0 has been used as a general description for this new production process that is fully automated through technology and devices communicate autonomously with each other along with the value chain activities. Real-time data exchange between machines and materials, more autonomous production systems, and additional manufacturing techniques has profoundly changed the dynamics of most industries and public services. This transformation resulted in the creation of new sectors such as data science, the creation of new business models such as platforms, the creation of new types of companies such as cloud computing providers; and the initiation of the role of new organizations in social media that interact with other socio-economic and demographic factors, significant changes in the business model causing large disruptions in the labor market. The ongoing shift towards a new knowledge-based economy that requires the development of digital skills sets for the workforce which will ultimately change the way, workplaces and where people work (Beechler and Woodward 2009; Guthridge et al. 2008).

Advancement in robotics, artificial intelligence, and machine learning channel a new phase of work process automation in which 'smart' and even 'smarter' machines are well suited or even outperform human performance in various activities. According to a recent report by the McKinsey Global Institute (2017) which originates from an evaluation of 2000 work activities in 800 jobs, by only adopting established technology, almost 5% of all jobs can be fully automated while 60% of all jobs have at least 30 % of modules that can be automated by current technology. Automation, of course, increases total productivity, in fact most outperform human performance by reducing human error, increasing quality, and maximizing process speed. However, the speed and degree of automation of all activities and work will not be the same due to differences in technical feasibility, potential economic benefits, and possible social costs of the adoption of technology required in and in various industries and services.

In the Public Sector, the right people are needed, reliable Human Resources (HR). Talent Management (TM) puts the right people in the right job positions to prepare human resources for the digitalization era of bureaucracy or industry 4.0 (Al Ariss, A., et al 2014). Effective Talent Management ensures that employees can use their HR to achieve the greatest success of an organization. Because public and private sector organizations consider TM as a new addition to the industry, most organizations have been observed to prioritize it because they want to make sure they are hiring the right people. The idea behind TM is built on the fact that businesses are run by people. It is people who create and provide value to organizations by using organizational assets to produce new products and services that people need. The real implication of this is that the efficiency of people in an organization is directly correlated with organizational performance. This is the reason behind TM to attract, develop, and utilize the greatest minds to get superior service business organization results (Vaiman, et al 2015). However, TM is a challenge for all organizations because competition for certain positions is too tight (Al Ariss, et al, 2014). Most studies agree that performance depends more on the way human capital is used rather than on physical capital. This is to say that having the right skills in place to be able to grow and perform in the future is increasingly unpredictable, but future challenges must be anticipated before attempting to make resolutions through talent programs that are largely from a psychological contract perspective (Festing, M. , & Schäfer, L. 2014).

Inadequate talent has become a dilemma for almost all organizations. This is because the skills possessed by available workers do not match the more advanced and more complex skills. Most studies in the field of human resources, propose that organizations must ensure that they have existing plans to meet the problem of talent shortages, especially near the IR 4.0 era (Festing, M., & Schäfer, L. 2014). Only a few issues contribute to challenges to IR 4.0 that have threatened the global business economy. As a reference, there was a survey involving 123 senior Human Resource managers, who revealed that 70% of the problem was due to lack of employee skills, 61% of pensions born during World War II and 51% were caused by the inability to retain key talent. Therefore, globalization and IR 4.0 problems have allowed talented employees not to limit their marketing skills in one area, but they can find work in companies around the world with digital skills. Therefore, experts are concerned with the possibility of intense global competition for talent that can draw attention to how talent is recruited, retained, developed and managed (Moayedi, Z. and Vaseghi, M., 2016.) However, the uncertainty of IR 4.0 Uncertainty can affect talent management practices and organizational performance. To fill the gap, this research tries to build a theoretical model of talent management for the development of HR bureaucracy facing the era of IR.4.0 or the era of digitalization.

1.1. Talent Management Concept

The ultimate goal of talent management (TM) is to develop skills and retain employees, which consists of a highly skilled and committed workforce. Talent management must start with a business strategy and what indicates talent to the organization. There are several elements of talent management that have been identified by Collings, DG, & Mellahi, K. (2013) namely resource strategy, attractiveness and retention programs, training and development, total rewards, performance management, career management, and creating a place environment best work. Employees as potential resources are sources of influence of an organization because employees move the organization. Vice versa, moving the organization means having to move employees with competitive strategies (Collings, 2015). Without a strategy, even if recruitment and selection are good, the organization will have a negative impact. Studies in this field show that recruitment and selection practices will influence organizational performance, but nevertheless look at the Human Resources (HR) system (Collings. 2015). The general objectives of the HR system or process include employee recruitment and selection in finding talented employees in the right position by providing effective training programs (Collings, 2015). Training is a process that aims to improve the skills of individual, new or existing employees. Staff training refers to strategies, methods and processes for increasing the capacity and abilities of employees in organizations. Other researchers state that training and development of active learning about the ability of employees to control their work and aim to improve the performance of each employee (Bukoye, 2017). By increasing their skills, knowledge, attributes, and behavior with good compensation results (Bukoye et al 2017). Compensation can be described as payment of salaries, wages, bonuses or reward systems that can be used by organizations to motivate their employees (Huang. 2016). This is a very large component of the impact on operating costs. No organization can hope to attract and retain qualified and motivated employees unless they pay fair compensation to them.

Performance management can be defined as a systematic process that requires the involvement of everyone in the organization to ensure an effective organization and achieve planned goals (Gerhart, B., & Fang, M. 2014). A well-known study in the area of HR related to performance management defines it as a prolonged process to identify, measure and shape individual performance and ensure their performance is consistent with organizational goals (Armstrong, M., & Taylor, S. 2014). Career development is a lifelong learning process that continues to add work experience. Through research conducted by Lehmann, A. C., & Kristensen, F. (2014), an organization that creates career development of staff workers is believed to have a positive relationship with job satisfaction and retaining employees, increasing organizational productivity and performance. This opinion is also supported by Armstrong, M., & Taylor, S. (2014) who show staff employees will be more attentive and committed if they are given the opportunity to develop their careers. Furthermore, reducing employee

compensation can be done effectively. If the work environment is not maintained effectively and correctly, it will increase the level of absence due to dissatisfaction with the work environment, and thus will reduce their level of productivity. Unpleasant working conditions will contribute directly to increasing the level of employee performance.

The definition of talent by the Chartered Institute of Personnel and Development, is where talent is the ability of someone who can make a change in organizational performance by expressing a high level of potential (Lehmann, 2014). While talent management is defined as a process to develop and advance the career of talented people in an organization using formal procedures, resources, and policies for the future of the organization (Pogrebnyakov, 2017). According to Lehmann (2014) talented people can produce something new and different in playing a leadership role in the future. The main cause is the lack of talented employees because of their busy lives and lack of balance allows people to make changes to their work performance (Armstrong, M., & Taylor, S. 2014) The main purpose of talent management is to develop skills and retain employees, which consists of a highly skilled and committed workforce. Talent management must start with a business strategy and what indicates talent to the organization. Several elements of talent management have been identified by well-known researchers (Gilmore, S., & Williams, S. 2007), those are: strategy resources, attractiveness and retention policies and programs, training and development, total prizes, career management and creating the best work environment to get the best performance management.

Performance management is a systematic process, which requires the involvement of everyone in the organization to ensure an effective organization and achieve planned goals (Vaiman, 2015) Each individual must be assessed based on what they do to determine their level of performance. According to them, performance management is a prolonged process to identify, measure and shape individual performance and ensure their performance is in line with career development goals.

Career development is a lifelong learning process that continues to add value to work experience. Through research conducted by Delaney, J. T., & Huselid, M. A. (1996), an organization that creates career development of staff workers is believed to have a positive relationship with job satisfaction and retaining employees, increasing organizational productivity and performance. This opinion is also supported by other researchers who show staff employees will be more attentive and committed if they are given the opportunity to develop their careers. Furthermore, reducing employee compensation can be done effectively in the existing work environment. In contrast to other researchers, the work environment can be a contribution for employees to continue working in the organization. The general atmosphere of work affects the well-being of workers under work relations and as a result of a prime quality work environment. If the work environment is not maintained properly, it will increase the level of absence due to dissatisfaction with the work environment, and thus will reduce their level of productivity. Unpleasant working conditions will contribute directly to increasing employee turnover rates.

1.2. Human Resources in Public Sector for Industrial Revolution 4.

The impact of technological innovation and automation on the labor market largely shows a decrease in employment in routine intensive work - that is, jobs consisting of tasks that follow detailed and specific actions so that they can be easily carried out by complex algorithms (Frey and Osborne 2013; Autor et al. 2003). McKinsey Global Institute Report (2017) shows that online transportation, office administration, production and restaurant jobs have a relatively higher potential for technical automation because their range of activities is mainly based on predictable physical activities and data administration. On the other hand jobs such as management, personal services, and sales whose activities regulate mostly involve the subdivision of training and staff development, who apply skills for decision making, planning, and creative tasks, interact with stakeholders, carry out physical activities by operating machines in a dictable environment have a lower potential for technical automation.

A former study by Frey and Osborne (2013) found similar findings, except for service work. According to Frey and Osborne (2013), service work is also at high risk to be automated with the increasing use of service robots in various sectors. it further stipulates that human workers still have a relative advantage in tasks that require creativity, perception, and social intelligence. Likewise, Brynjolfsson and McAfee (2011) argue that as a result of advanced pattern recognition capabilities through sophisticated algorithms on big data, non-routine cognitive tasks also become feasible for automation. They named the car without the driver Google and IBM Watson as proof of how far and how fast computers are advancing in the introduction of complex patterns and communication skills that have been regarded as mere human abilities. Different combinations of digital technology allow the creation of machine intelligence that computers use to perform cognitive tasks such as language and speech recognition that they could never do before. Recent developments in computing, robots, and artificial intelligence have enabled automation and digital systems to penetrate groups of tasks that have so far only been carried out by human power through cognitive abilities such as sensing, reasoning, and decision making.

Brynjolfsson and McAfee (2011) argue that computer cognitive abilities grow exponentially even faster than Moore's law, which is an allegation by Intel microprocessor architect Gordon Moore in 1965 about the number of transistors multiplying in integrated circuits at a minimum cost every 12 months, and continuation of the same level of improvement in the future. The rapid and significant development in computer skills and abilities not only makes automation more feasible to replace the human workforce in a wider variety of jobs, but also changes the nature and scope of work across industries and occupations. As machine intelligence capacity develops further, applications of artificial intelligence such as machine learning, 3D printers, driverless cars, and others tend to eliminate more work currently done by humans, not only in manufacturing but also in the service industry, starting with low-skilled tasks such as home delivery to high-skilled professional tasks such as buying and selling shares on the stock market. While some researchers and experts claim that automation will eventually replace most of the human workforce, some others claim that it is not possible to massively replace human labor by means of automation, so digital systems will only be used to help human labor even on platforms digital technology (Autor 2015; Autor and Handel 2013; Frey and Osborne 2013).

Ongoing progress in sensor technology and radio frequency identification (RFID) makes tracking real-time data easier, and facilitates the expansive growth of the "Internet of Things". It is projected that by 2020 nearly 50 billion items will be connected to each other (Cisco 2011). As a result, more and more systems can be digitized more efficiently. In this context, sooner or later more work will be automated; but at the same time new jobs and jobs will emerge and hybrid configurations will be formed through human-machine integration. As digital transformation increases and becomes far more feasible, they will produce a new business model. By interacting with other socio-economic factors, significant changes in business models trigger disruptions in the labor market by creating new job descriptions and new job roles. Some possible future job roles include; robot coordinator, digital product manager, digital business developer, data protection officer, web project manager, web integrator, digital communication planner, digital copywriter, user experience designer, crowd innovation facilitator, social media manager, content curator, digital work experience expert, and design learning manager etc. (e.g. World Economic Forum 2016b). Therefore, although recent advances in digital technology can bring some potential job transfers and job losses mostly in industries where automation can easily move the tasks and activities traditionally carried out by humans, increasing digitalization will also have a considerable positive impact big on jobs by creating new jobs and roles in various industries.

By the time technology increases and automation becomes more feasible to replace human labor, workers who will lose their jobs due to digital systems need to be moved to tasks that are not at risk of being automated - that is, tasks that require high tech and social intelligence. Studies by Autor and colleagues (2003) and Berger and Frey (2016) show that workers who have jobs that previously involved routine tasks progressively do more

analytic and interactive work once their industry experiences rapid digitalization. Automation of extensive routine activities will reduce the demand for low-skill and intensive intensive work, while it will increase the need for high-skilled workers with new skills. With increased automation, workers must focus more on activities that are not easily achieved by machines, such as those that require cognitive abilities.

Industry 4.0 has brought massive and transformational change in all layers of the industrial structure, including those just beginning in the employment landscape. The shift in labor dynamics will be extraordinary when full adjustment occurs. Meeting the needs of developing the workforce of the future brings several requirements to companies, business leaders, and government. While current employees need to be skilled again for the requirements of the digital economy, prospective employees who are the youngest generation at the moment, need to be educated according to job and skill requirements in the future. To prepare for these imminent changes, and ensure their productivity and competitiveness in the Industrial 4.0 era, organizations need to develop their future workforce while adopting new business models and organizational structures. Creating a future workforce includes not only attracting, recruiting, and developing the new talent needed, but also retraining current employees through training programs and redesigning work processes to reduce skills mismatch between work and employees. This chapter discusses talent development in Industry 4.0, which has emerged as one of the most pressing needs for organizations in line with recent transformational technology advancements.

2. Methodology

2.1. Research location

This research is located in 3 (three) provinces in Indonesia, namely DKI Jakarta, South Sulawesi and Gorontalo Province. The location determination is based on the consideration that the three locations are representatives of the Central Government and Regional Government. This study needs to find out the readiness of the Human Resources of the State Civil Officers both in the central government and in the sensation of entering the industrial revolution 4.0

2.2. Types of research

The type of research used is qualitative. This type is to uncover and explain Talent Management (TM) in Human Resource Management (HRM). The approach used is a case study. This approach is very suitable with this research, which is an explorative case study because it explores 3 (three) cases of human resource development in central and regional governments in Indonesia.

2.3. Informant

The informants in this study are ASN and institutions as stakeholders in the development of talent management and Human Resources in the Central Government and Regional Government. Namely (a) Governor; (b) the Regent; (c) Regional Secretary (d) State Civil Officers.

2.4 Types and sources of data

In this study, data collection techniques used were observation, in-depth interviews, Focus Group Discussions,(FGDs), and documentation. Observations were carried out mainly on tangible objects, such as activities related to human resource development, Training, Training and Technical Training. In-depth interviews were conducted with the informant, while documentation techniques were documents related to this study.

2.5. Data processing and analysis techniques

Determination of data analysis is based on research objectives which want to see talent management in human resources using data processing techniques, namely data reduction, data presentation, and drawing conclusions / verification (Miles and Huberman, 1992) and data analysis using descriptive case analysis, analysis the data uses pattern matching techniques and time series analysis.

3. Results

3.1. Human resources needed in the digital world

The technology that alters everything into digitalization continues to develop and will continue to grow in the future, adoption of technology for digital systems will become cheaper and more feasible for a wider area. As a result, there will be more opportunities for computer-based automation and robotic systems to replace and equip human workers in both the production and service industries. To drive the transformational opportunities promised by Industry 4.0 and create value from automation, organizations need to consider developing their future workforce with competencies that are tailored to industry specific requirements. Rapid and extensive business process automation along with the emergence of new business models imposes new skills requirements for the workforce. Indeed, further adoption of digital systems together with the successful implementation of Industry 4.0 requires even more employee skills due to the increasing complexity of the work environment with new operational and organizational structures. As a result, the role of employees will change in terms of content and work processes, and these changes will require a significant transformation in the work and employee skills profiles.

The Future of Jobs Report reveals that by 2020, more than one-third of the set of skills desired from most jobs will consist of skills that are not yet considered important at this time (World Economic Forum 2016a). Even more surprising, 65% of children will now do undeveloped work (OECD 2016a). According to World Economic Forum (WEF) predictions (WEF 2016a 2020a) in 2020, the future workforce is expected to have the most cognitive abilities (52%), system skills (42%), and complicated problem-solving skills (40%). Referring to the WEF standard on the table 1 shows, the cognitive abilities of ASNs in Indonesia are already included in the standard, although there are still a number of ASNs that have sub-standard abilities. Cognitive abilities are needed to think, connect, assess, consider an event or events in carrying out their duties in the public sector. While in Technical Skills Ability, DKI Jakarta ASN has a presentation that is in accordance with WEF standards, this is because DKI Jakarta ASN, is often assigned or included in technical skills training, and they are located in the center of government, so there is no need to incur aircraft transportation costs. While in the ability to solve complex problems, ASN when the Province was still below the WEF standard, this happened because the organizational structure, responsibilities and chain of command were still held by the top leaders of the organization, so the ASNs were still waiting for the command and orders of superiors for the problem found in the delivery of services in the public sector.

Table 1
State Civil Officer's Ability

No	Ability	Province/City		
		DKI Jakarta	Makassar	Gorontalo
1	Cognitive Ability	51%	51%	50%
2	Technical Skill	42%	40%	39%
3	Ability to solve complex problems	37%	33%	31%

In addition to these skills, workers are required to have basic skills for information and communication technology (ICT). In line with increased automation and digitization of work processes, organizations are more dependent on employees with ICT specializations who can analyze Big Data, make coding, develop applications, and manage complex database networks. Indeed, ICT skills not only support the infrastructure that companies rely on for their business, but also enable innovation in the developing digital economy (OECD 2016b; Quintini 2014). ICT skills are a necessity for all employees even for workers who have jobs with low skills. For example, in a restaurant, waiters must take orders on the iPad, or bureaucrats must work in public services with an automated system; and as such, these employees need basic ICT skills to be able to do their work within this digitalized business structure.

Table 2 shows that ASN DKI Jakarta has the Jakarta Smart City (JSC) Big Data Portal Application which is a website to display data and information that can be accessed by the public. The existence of this portal is one of the government's efforts to realize verified transparency by centralizing and integrating all data in one container. The Smart City Portal, which is located at smartcity.jakarta.go.id, contains information about the JSC concept, event information, articles related to JSC, and a map that is completed with the presentation of data that has been processed from the Regional Work Unit (SKPD), local offices in the Province of Jakarta, and other related parties. This map was created with a geospatial display format to facilitate the public accessing the Smart City Portal in understanding the data displayed. JSC provides a new space for people to participate in the construction of New Jakarta through applications and websites that can be accessed even through mobile phones. Through the Qlue application, the public can report problems that can be directly followed up by the relevant apparatuses and agencies. The public can also monitor the performance of government employees through the website performance.jakarta.go.id or report directly via the governor's SMS. The governor's SMS feature has been modified so that it can be managed using a computer so that incoming reports can be followed up more effectively because it can involve more people in checking and handling. In addition to applications that provide reporting services to the public, JSC also creates a forum for the government to manage all forms of community participation called Citizen Relationship Management (CRM). The purpose of making CRM is to accelerate the response to every public complaint that comes from various complaint channels. These various applications and websites are mediators that are expected to increase interaction and communication between the community and government. While the Gorontalo Province made the Gorontalo City Portal application, which contained general data without being able to carry out two-way communication, or the development of applications which included several problems faced by citizens. Likewise, Makassar Province, represented by Makassar City ASN, shows that basic ICT skills are still far from expectations. The ASN employed does not manage or create a BIG DATA application that covers service interactions in the public sector. The application of the Smart City Sombere program tends to fail, even though some Makassar City ASNs consider this program to be the program of the Makassar mayor to prepare community services using technology, but there is still human interaction.

When automation and digitization of work processes are increased especially in the public sector, ASN will be asked to take responsibility for less automated and more complex tasks, the completion of which requires solid literacy, numeracy, problem-solving, and ICT skills along with soft autonomy skills, coordination and collaboration (Grundke et al. 2017). Overall, there will be a higher demand placed on all ASNs in terms of managing complexity, problem-solving and a higher level of abstraction to get a simplified representation of a larger whole. In addition, there will be a need to coordinate between virtual and real machines as well as between manual and robot systems, so ASN will be expected to act more on their own initiative, have excellent communication skills and can manage their own work. As a result, the Industry 4.0 environment will enable ASN to have more opportunities for individual responsibility, decentralized leadership, and involvement in decision making, all of which trigger changes in organizing work assignments from the Taylorist approach to more holistic and socio-technical methods that embrace interaction between humans and technology. As further shifts in

organizational structure continue to occur from command-and-control to more digitalization, interpersonal and communication skills along with other social skills such as emotional intelligence and persuasion will be much more desirable as future workforce skills. With the advent of the organization's network system, interactions with customers, suppliers and other stakeholders have become far more diffuse, as a result of aligning different strategic objectives and building consensus among various parties has become more difficult than before. In addition, this network organization system unites various organizations from various regions, not always physically but digitally, in accordance with cultural intelligence, the ability to adapt and understand different cultural needs, emerging as important skills. Given that, in today's digital world hard-skills as technical knowledge and expertise of certain professions need to be supplemented with social skills.

Table 2

Data and information that can be accessed from JSC/Jakarta, Makassar y Gorontalo

No	ICT	Province/City								
		DKI Jakarta			Makassar			Gorontalo		
		Technology	Implementation	Monitoring	Technology	Implementation	Monitoring	Technology	Implementation	Monitoring
1	Big data application	Smart City Portal for monitoring flood monitoring, garbage trucks, heavy machinery and more Application to involve KPI Lurah, SMS Governor, CRM Data digitization manages and transforms all data into digital data to be integrated into the smart city portal Collaboration with parties, Go-food, Zomato, traffic, google transit	Technical guidance for the application of information and communication technology and management of public complaints Helping the village and SKPD to solve technical problems Promote Jakarta's top programs	Data analysis for policy making and monitoring Manage public complaints Field Investigation Reviewing the results of technology and policy implementation	Smart Governance Smart Branding Smart Economy Smart Living Smart Society	None	None	None	None	None
2	Encoding Making	Yes, based on duties and responsibilities			Yes, based on duties and responsibilities			Yes, based on duties and responsibilities		
3	Application Development	Yes. Smart City Jakarta application			Makassar Portal Makassar Sombere			Gorontalo city Portal		
4	Complex Data Network Management	YES			NO			NO		

In the context of the current public sector, innovation at its core still requires a strong knowledge base in science, technology, engineering, and mathematics, to obtain economic value from each innovation requires the development of applications and usage systems that are tailored to meet critical individual and social needs (Hill 2007). For example, the Gojek Application in Indonesia is a good example to understand the economic value of product innovation. As a product innovation, Gojek's application success is based on a strong foundation in science, mathematics and technical knowledge, but most of the added value comes from Gojek's creative marketing and business innovation in responding to the needs and expectations of global consumers. The success of these new products becomes possible when consumers evaluate them as having a value that is worth paying for. Product innovation exploits market value whenever consumers feel they are meeting one of their needs, even those they have not been aware of before. Therefore, in today's business environment for successful innovation, the most important is never only proficiency in scientific knowledge, but what makes the difference largely comes from having an understanding of basic human needs and expectations.

The changing nature of innovation today also leads to a broader set of skills requirements for the workforce today. Explicitly, the skill requirements for working in Industry 4.0 require more than hard skills including soft skills such as communication, coordination and autonomy. Therefore, not only developing a "digital ASN for the future but also being able to develop a future ASN that is able to see the 'big picture' by realizing their organization as a whole, together with identifying the dynamics of their organization. According to World

Economic Forum projections, shifts in employee skills requirements are likely to continue in the future (2016a). In the Future of Jobs Report (2016a), it is projected that by 2020, there will be changes in employee skill requirements, and the top ten skills in order of importance are as follows: (1) complex problem solving, (2) critical thinking, (3)) creativity, (4) people management, (5) coordinating with others, (6) emotional intelligence, (7) judgment and decision making, (8) service orientation, (9) negotiation, and (10) cognitive flexibility. According to predictions of the World Economic Forum based on data obtained that soft-skills including human management, coordinating with others, emotional intelligence, and negotiations will be very important both for the success of the company and individual employees

3.2. Talent Management for 4.0 Industry

In general, 'talent' mainly refers to individuals who have the skills, intelligence, and abilities in several professions that make certain actions possible at a higher level. However, as a concept, talent combines various meanings, and as such, it seems reasonable enough to have a less consistent definition of talent in the current talent management literature. Among the various definitions of talent in the literature, which by Ulrich and Smallwood (2015) stand out with a broader scope, namely: "Talent = competence [knowledge, skills and values needed for today's work and tomorrow; appropriate skills , the right place, the right job, the right time] commitment [willing to do the job] contribution [find meaning and purpose in their work] "(p. 60). On the other hand, the talent management process involves the act of identifying, attracting , develops, rewards and retains employees with a critical attitude with which these employees will contribute to the continued success of the organization and organizational development (Collings and Mellahi 2009). Talent management practices enable companies to utilize, develop and manage talented employees. this also requires talented ASN to achieve organizational performance superior and competitiveness; however, the identification of strategic competencies that characterize 'who is gifted ASN' has changed along with a new work model derived from digitalization by Industry 4.0.

Globalization together with digital transformation causes progressive loss of boundaries between countries, economies, and organizations, where employees have begun to develop 'careers without borders', which implies less structured employment opportunities beyond borders and structures (Byrch.2007) employee mobility generated which becomes possible not only across organizations but also across jobs, industry, geography and work contracts brings different employment opportunities to employees, while also challenging organizations by expanding the scope of their competition for talent. A more flexible organizational structure along with increased employee mobility has led to a gradual loss of a well-defined career ladder. The focus of talent development practices has gradually shifted from just being internal to integrating external and internal sources (Piore 2002). As competition for talent increases due to the widespread global talent shortage by increasing skills mismatch between skill supply and demand in the labor market , the ability to attract, motivate and retain talent, gradually becomes more important for the continued success of the organization. In this new competitive talent landscape, there is uncertainty in talent demand and supply (Cappelli 2008).

Talent development planning must be made in the guideline with comprehensive data analysis of job design and performance results so that they will verify which work makes a difference to organizational success. In other words, for 'strategic work', that is, work that is more important for organizational performance than others, companies must devote more resources to them where individual performance has the greatest potential to influence company performance (Huselid et al. 2005) . Increasing employee mobility through globalization and digitalization, attracting and retaining high talent becomes very challenging for the organization. As a result of demographic changes in the labor market around the world which are largely shaped by new entrants to the talent pool of Millennial and Gen Z generations, a new set of principles emerges to attract and retain talent. In less than a decade, Millennials along with Gen Z will dominate the workforce in the future, and unlike previous

generations, they would rather have more flexibility and autonomy than permanent employment contracts. According to a World Economic Forum survey, career advancement (48%), corporate culture (38%) and training/development opportunities (32%) are what millennial generation seek from their employers.

4. Conclusions

In the public sector, an indispensable success factor for economic sustainability and an organization's competitive advantage is their capacity to adapt to change. The automation of the public sector with the advent of the digitization service model caused by recent digital technology innovations has changed the dynamics of most organizations intensely. In line with this transformation, the 'way of doing' work also changed, and the new work system and design imposed new skills requirements for ASN.

Together with a talent market that is already tight, develops a workforce in the future and is ready to face changes in the labor landscape that is increasingly in the priorities of the organization's strategic planning. For strategic workforce planning, organizations must begin by understanding the changing scope and content of work requirements and workforce skills needs. Next, they need to evaluate the availability of talented ASNs with the right skills and abilities needed for the future in the public sector organization content. At the same time, they need to know how to attract and recruit new talent with the necessary skills.

Industrial Era 4.0 requires all ASNs, even ASNs with low-skilled jobs to have a collection of ICT skills. However, Industry 4.0 requires an important set of ASN skills to cover more than core skills; indeed, for the successful implementation of hard skills, ASN must have Soft Skills like collaboration, communication, and autonomy to be able to carry out their work in the digitization system. In today's complex work world, the ability to adapt becomes the most important ability for ASN, therefore, to be successful in its work, ASN needs to get used to learning continuously, not only in their own profession but in a wider perspective through an interdisciplinary perspective. In addition, innovative capacity is crucial for an organization's competitive advantage, and for facilitating successful innovation even though proficiency in scientific knowledge is a basic requirement, but what makes the difference largely comes from having a composition of consumer expectations that is only possible by understanding basic human needs. In view of that, not only developing a 'digital workforce' for the future but also being able to develop a future ASN that is able to see the 'big picture' by recognizing the relationships between various stakeholders including customers, the public sector. as different value chains develop in Industry 4.0. As a result, developing a future workforce for Industry 4.0 not only requires attracting and recruiting new talent needed, but also retraining current employees through training programs, and, if necessary, redesigning work processes to eliminate skills mismatch between work and employees. As a result, organizations must strive to offer new learning experiences, create new development opportunities, and build strong engagement systems to be used in their talent development practices.

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