Decentralization and regional autonomy in the industrial revolution 4.0 era

Dewi Sartika
Center for Training and Development and Study of Decentralization and Regional Autonomy National Institute of Public Administration - Republic of Indonesia
Email: naurah10@yahoo.com

Abstract

The principle of decentralization of the which is operationalized in the concept of regional autonomy government aims at organizing the which is democratic and empowers people. The regional government as the executor of the delegation who was given the authority to implement it faced a number of problems and challenges in dealing with the Industrial Revolution 4.0 era. The following article is a literature study that reviews the problems and challenges of Local Governments in the digital era 4.0 - limited - in the economic, education and employment sectors. The method used is to examine some of the results of that study in the Industrial Revolution 4.0 era. The findings of this study inform the various challenges and problems due to the complexity of the affected dimensions of industry 4.0.

Keywords: Decentralization; regional autonomy; the industrial revolution 4.0; regional problems

INTRODUCTION

The world is constantly changing and developing, this is in line with the view expressed by Alvin Toffler in his book Future Shock "the third wave" (Toffler, 1970). Where there have been widespread changes in social development, the wave of change that began in the eighteenth century has caused many people to experience excessive depression and confusion because of Reviews their inability to adjust to strategic changes. This condition is termed "future shock" by Toffler to describe conditions that are similar toculture shock.

In Toffler's view, there are three waves of change in the history of civilization, starting from the First Wave, which is an episode of change that occurred related to the revolution in the field of agrarian, around 8,000 BC until around the 1700s. In this phase, people begin to Recognize agricultural technology, people begin to change, from previously only relying on natural resources directly and used to meet the needs of life, then change to maintain and produce Reviews their own food sources and fulfill Reviews their needs through the process of raising and farming.

The second wave of change Refers to the Industrial Revolution during the 1700s to the present. This period ended the dominance of agricultural civilization and Began the industrialization of society. Characterized by electromechanical engine-based technology with non-renewable fossil fuel drives, which has a wide-ranging impact on increasing people's productivity.

The third wave of change phase is the post-industrial era, which began in the mid/late 19650s until now, and is being experienced by countries that master of high technology such as the United States, Western European countries, and Japan. Electronic system-based technology that helps accelerate communication, calculation and, dissemination of information roommatesalso has an impact on changing the social characteristics of society, especially social behavior in the form of workforce organization, youth education and diversity in the form of family.

From this phenomenon, it can be seen that the development of science and technology has a major influence on changes in social development in society items, namely the political, economic, social and cultural dimensions of society. So that adaptive adjustments to the development of social change are absolutely necessary so as not to experience culture shock. This will indirectly have an impact ongovernance.

This text will review the relations of governance to the development of the Industrial Revolution 4.0, especially governance in the context of decentralization and regional autonomy. Similar studies related to the relationship of the industrial revolution and governance have been reviewed restaurants in a Nick von Tunzelmann paper (Tunzelmann, 2003), which discusses the historical pattern of coevolutionary relations between governance and technological development in the industrial revolution. The coevolution relationship is a process of evolutionary change that occursgradually between two aspects that occur reciprocally. In this case,Tunzelmann concludes that changes in governance that include control, structure and system processes in the industrial phase are Considered to have dominance/influence on the market,

In order to understand more deeply related to the correlation between governance with the industrial revolution 4.0, it's good for elaborating a conceptual terminology Decentralization, Regional Autonomy and the Industrial Revolution, to then be analyzed on the issues and challenges faced by localgovernments in an era of industrial revolution 4.0.

Decentralization and regional Autonomy

Formally, based on Law Number 32 of 2004 concerning Regional Government, decentralization is defined as the transfer of government authority by the Government to the Autonomous Region within the framework of the Unitary State of the Republic of Indonesia. While regional autonomy is defined as the rights, authority, andobligation of autonomous regions to regulate and manage Reviews their own government affairs and the interests of local communities in accordance with statutory regulations (Law Number 32 of 2004).

Whereas Regional Autonomy is the right, authority and obligation of autonomous regions to regulate and manage Reviews their own government affairs and the interests of local communities in accordance with statutory regulations. This Law Also states that an autonomous region is a legal community unit that has territorial boundaries that are authorized to regulate and manage government

affairs and the interests of the local community According to Reviews their own initiatives based on the aspirations of the people in the system of the Unitary State of the Republic of Indonesia.

This shows that the basic meaning of autonomy is the existence of authority for the Regional Government to Determine its own policies aimed at the implementation of the wheels of the regional government in accordance with the aspirations of the people.

The transfer of governmental authority by the central government to an autonomous region means a, commonly called a delegation of authority. Thus, the delegator loses that authority, all turning to the recipient of the delegation. In contrast, when the mandate is delegated, the mandate or mandatory does not lose the intended authority. Mandataries act for and on behalf of the mandator. As a consequence, the central government lost its authority. All turn to the responsibility of the autonomous region, except governmental affairs of the which by law are stated as the central government affairs (Mungkasa, 2012).

Decentralization is a means of Achieving better public service delivery goals and creating more democratic decision-making processes. According to Kelvin (2005), the philosophy of regional autonomy is (i) the existence of local government is to create prosperity democratically; (Ii) every authority delegated to the region must be able to create prosperity and democracy; (Iii) is Achieved through public welfare services; (Iv) public services can be basic services or the development of leading sectors.

Refer to 3 (three) objectives of decentralization items, namely (i) political objectives, to create a democratic political infrastructure and superstructure based on popular sovereignty. Manifests in the form of regional head elections, and direct legislatures by the people; (ii) administrative objectives, so that regional Governments led by regional heads and in partnership with the Council can carry out their functions to maximize the value of 4E namely effectiveness, efficiency, equity (equality), and economy; (Iii) Socioeconomic objectives, utilizing social capital, intellectual capital and financial capital of the community to Realize the welfare of society at large (Partnership for Governance Reform, 2010)

Pratikno in (Nadir, 2013) states that authorities Reviews These refer to the authority of decision-makers in the regions in Determining the types and levels of services provided to the community, and how Reviews These services are provided and funded. The authority granted is real, broad and responsible so as to provide opportunities for regions to be able to regulate and implement regional Reviews their authority based on their own initiatives in accordance with the interests, conditions, and potential of the community in each region. The existence of Regional Autonomy is expected to Strengthen the community to increase the capacity of democracy or in other words that the Regional Government Law has a democratic vision.

The success of the implementation of Regional Autonomy will be determined by many things. RiswandhaImawanin (Nadir, 2013) states that the success of the implementation of Regional Autonomy is determined by; First, thelevellowerof dependency ofthe regional government to the central government is, not only in planning but also in the provision of funds. Because a development plan will only be effective if it is made and Carried out by the local government itself. Second, theability of regions to increase of Reviews their economic growth (growth from inside) and external factors that directly affect the growth rate of regional development (growth from outside). Shifts in development from the top down to bottom-up suggests that the development goal is to spur the growth of the (growthfrominside).

Based on Law No. 23 of 2014, the classification of government affairs consists of three functions namely absolute government affairs, concurrent government affairs, and general government affairs. Absolute government affairs government are matters that are fully the authority of the Central Government. Concurrent government affairs are Government Affairs that are shared between the Central Government and Provincial Regions and Regency/City Regions. Public government affairs are roommateswho become Government Affairs the authority of the President as head of government.

Concurrent affairs or government affairs roommates are divided between the Central Government and Provincial Regions and Regency / City Regions are divided into compulsory optional governmental affairs and governmental affairs. Mandatory Government Affairs Government Affairs are that must be held by all Regions. While the Choice of Government Affairs Government Affairs is that must be held by the Region in accordance with the potential of the Region. Obligatory government

affairs Carried out byLocal Governments aredivided into Government Affairs Relating to Basic Services and Government Affairs that are not related to Basic Services.

Industrial revolution 4.0

Terminology Industrial Revolution 4.0 According to SlametRosyadi (2018), was originally Introduced by Prof. Klaus Schwab, a world-renowned economist from Germany, Founder and Executive Chair of the World Economic Forum (WEF), as stated in his book entitled "The Fourth Industrial Revolution", Prof. Schwab (2017) explains the 4.0 industrial revolution has fundamentally changed the life and work of human beings. The Industrial Revolution 4.0 is Characterized by integrating the physical, digital and biological worlds affect roommates all scientific, economic, industrial and government disciplines.

Lee et al (2013) in (Yahya, 2018) explained, industry 4.0 was marked by an increase in digitalization of manufacturing which was driven by four factors: 1) an increase in data volume, computational power, and connectivity; 2) the emergence of analysis, capabilities, and business intelligence; 3) the occurrence of new forms of interaction between humans and machines; and 4) improvement of digital transfer instructions to the physical world, such as robotics and 3D printing. Lifter and Tschiener (2013) added the basic principle of Industry 4.0 is the integration of machines, workflows, and systems, by implementing intelligent networks along the chain and production process to control each other Independently.

Furthermore in John (Yahya, 2018) explained that there are four principles of industrial design 4.0. First, interconnection (connection) items, namely the ability of machines, devices, sensors, and people to connect and to communicate with each other through the Internet of Things (IoT) or the Internet of People (IOP). This principle requires collaboration, security, and standards. Second, information transparency is the ability of information systems to create virtual copies of the physical world by digital models Enriching Including the data sensor with the data analysis and information provision. Third, the which includes technical assistance; (A) the ability of an aid system to support people by consciously combining and evaluating information to the make the right decisions and solve urgent problems in a short time; (B) the ability of the system to support humans by performing various tasks that are unpleasant, too tiring, or unsafe; (C) includes visual and physical assistance. Fourth, decentralized decisions roommates are the ability of virtual physical systems to make their own decisions and carry out tasks as Effectively as possible.

The digital revolution and the era of technological disruption are other terms of industry 4.0. called the digital revolution because of the proliferation of computers and the automation of record-keeping in all fields. Industry 4.0 is said to be the era of technological disruption Because automation and connectivity in a field will make the movement of the industrial world and job competition Become non-linear. One of the unique characteristics of Industry 4.0 is the application of artificial intelligence (Tjandrawinata, 2016). One form of application is the use of robots to replace human labor so that they are cheaper, more effective and efficient.

Technological advancements in the make automation possible in almost all fields. New technologies and approaches that combine the physical, digital and biological world will fundamentally change the pattern of life and human interaction (Tjandrawinata, 2016). Industry 4.0 as a phase of the technological revolution changes the way in which human activities take place in the scale, scope, complexity, and transformation from previous life experiences. Humans will even live inuncertaintyglobal, therefore humans must have the ability to predict the future of fast-changing.

Each country must respond to Reviews These changes in an integrated and comprehensive manner. The global political response Involved all stakeholders, ranging from the public sector, private sector, academia, civil society to industry challenges so that 4.0 can be managed into opportunities. Wolter identified the challenges of the industry 4.0 as follows; 1) information technology security issues; 2) the reliability and stability of the production machine; 3) lack of adequate skills; 4) unwillingness to change by the stakeholders; and 5) the loss of a lot of work Because it turns into automation.

Irianto (2017) 4.0 simplifies industry challenges namely; (1) industry readiness; (2) the trusted workforce; (3) ease of socio-cultural regulation; and (4) diversification and job creation opportunities

and industry 4.0 namely; (1) innovation ecosystem; (2) competitive industrial base; (3) investment in technology; and (4) integration of Small and Medium Enterprises (SMEs) and entrepreneurship. Mapping the challenges and opportunities of the industry 4.0 to Prevent various impacts on people's lives, one of which is the problem of unemployment. Work Trend Employment and Social Outlook 2017 Predicts the number of unemployed people globally in 2018 is expected to reach 204 million with an additional increase is of 2.7 million. Almost the same as the conditions experienced by western countries, Indonesian IS ALSO predicted to experience the same thing. Unemployment isalso still a challenge and even tends to be a threat. Indonesia's open unemployment rate in February 2017 was 5:33 or 7:01 million% of the total 131.55 million workforces (Source: BPS 2017).

Table 1. Factors, designs, and challenges of the Industrial Revolution 4.0

Irianto (2017)	Lee et al (2013)	Lifter &Tschiener (2013)	Irianto (2017)
Industry readiness	Volume data, computing power, connectivity	Interconnection through the Internet of Things and the Internet of People	Innovations ecosystem
Trusted workforce	Analysis, capability and business intelligence	information transparency	Competitive industry base
Ease of social-cultural arrangements	New interactions of machines and people	Technical assistance for decision making, performing various tasks and visual and physical assistance	Investment in technology
Diversification and job creation and industrial opportunities	Improvement of digital transfer instructions to the physical world such as robotics and 3D printing	Decentralized decisions (the ability of virtual physical systems to make decisions and the effectiveness of tasks)	Integration of MSMEs and entrepreneurship

METHODS

Methods to explore the problems and challenges of decentralization and regional autonomy in the region of Industry 4.0 era, the first stage is the publication of the data collection using the services of Elsevier (Science Direct) and GoogleScholar from manyservices database of well-knownsuch as Scopus, DOAJ and so on. Elsevier is a service that contains citations from various databases abstractand Including scientific literature journals, books, and proceedings. According to its website (ScienceDirect.com), Elsevier has open access to approximately 250,000journals Including in various fields of physical sciences and engineering, life sciences, health sciences,and social sciences and humanities. While Google Scholar is a text search service in various formats of publications and online journals from scientific publications, from all fields of science and references, where the most relevant results will always appear on the first page. This paper uses Elsevier and GoogleScholar to find publications based on the title "Industrial Revolution 4.0".

The search results are then filtered only in the form of review articles in proceedings or journals. The collection of filtered publications is then sorted According to the context of the writing. Sorting is done by reading and understanding abstracts. Sorting based on this method uses references from Kothari (2004) in (Prasetyo&Sutopo, 2018). In this paper, sorting by sectors affected by the Industrial Revolution is limited to the economic, education and employment sectors. The results of sorting are then studied Analyzed based on aspects related to decentralization and regional autonomy as well as the industrial revolution 4.0.

The impact of the industrial revolution 4.0 on the government

Progress of digital information technology today has forced Governments around the world to reposition Reviews their roles and functions to be Able to Compete. Bureaucracy as the backbone of the government must automatically adjust Reviews These changes so as not to Become a Burden on the government. Advances in technology and information have reduced the dimensions of space and time, where the concept of distance, space and time feels Increasingly narrow and shorter with the penetration of technology. Things that occur in other parts of the world can be known directly available through various application platforms. This is supported by the development of smartphones, the internet, social media, and an increase in users.

Reflecting on the survival of business organization, it is fitting for government organizations to be sensitive and conduct a self-introspection, so as to be able to detect its position in the Midst of the development of Civilization Industrial Revolution 4.0 in order tosurvive in carrying out its the main tasks and functions more efficiently and Effectively as responsive to the increasing demands for public accountability and transparency.

Adjusting to the development of the industrial revolution requires the organization to transform into an ideal form, assessing the strengths and weaknesses of the organization to Realize excellent public service. Technological innovation plays an important role on organizational performance (Sartika, 2015) as well as the disruption phenomenon of the Industrial Revolution 4.0 the which leads to the condition of the technological revolution the which fundamentally changes the way of life, work and organizational relations (Cahyono, 2018) the which requires government organizations to be responsive to change. Call it among others, digitizing technology leadership on the dashboard so that it can control from the planning stages of the implementation of supervision and reporting.

In the context of organizational transformation, the concept of Enterprise 4.0 is known as a model of approach to a accommodate the digitalization of technology and renewal in handling organizational business process improvement in 3 (three) layers of the framework (Moreira, Ferreira, &Seruca, 2018) namely (i) the creation, sharing and documentation of information and knowledge in and out of an improvised organization of organizational processes based on information and knowledge, (ii) the education and training of organizational workers and (iii) an ad-hoc discussion.

The Industrial Revolution 4.0 actually Provides great opportunities in streamlining the functions and roles of government organizations in carrying out their daily tasks, the rapid development of IT can be an opportunity in accelerating the application ofe-governance, as digitizing the data and information such ase-budgeting, e-projects planning, delivery systems, administration, e-controlling, e-reportingto andapplicationscustomother e-monitoring.

The strategic choice of utilizing IT in various government organizations is very necessaryfor building mentalself-driving, self-power, creativity, and innovation when machines are made smarter than humans, smarts are not enough. It is necessary to build teamwork that promotes collaboration and synergy rather than competition, besides an understanding that is needed in the mindset and way of acting in the face of the digitalization era of technology on all fronts.

Some of the impacts of the Industrial Revolution 4.0 on local Governments include (LAN, 2018) Including, first, a change in the mindset of working alone, owning, controlling as amindsetbureaucratic, under the pretext of risk mitigation orcompliance, needs to be transformed towardssharing the economyin various work units in the internal scope of the organization and different ministries/institutions, working together not working together, resource efficiencyis needed without reducing the KPI of each K / L.Remove the competing paradigms but collaborate to cover each other's gaps and Anticipate rapid changes. Concretely, this can be Tirrenus by buildingan integrated system so that each work unit within the internal government organization and different line ministries can Contribute in updating and utilizing it, as well as the control and outputs and outcomes of government organizations can be integrated by promoting synergy between ministries and agencies in one platform puts forward the efficiency and speed.

Second, human roles are replaced by machines, robots, artificial intelligence, and other computing devices. Not to mention, 4:37 million ASN / PNS with a demographic level that is still not ideal is reflected in as many as 43 percent of Civil Servants who are general administrative functional groups with a mode of age in the range of 51 years as much as 20:36 percent and the low competency and performance of High Management Officials as much as 34.5 percent, while the trend of employee spending is increasing every year but the outcome is unclear. Plus, our Government's Effectiveness Index roommates tend to stagnate still ranks fifth in ASEAN, while in the world ranking of 95th is a sign that our bureaucratic machinery is still slow. This challenge was answered by the exercise and redistribution of the ASN to expand access to services throughout the country and even distribution of development outcomes. ASN Strengthening governance and management, implementation of integrated e-government, and quality and innovation of public services, and strengthening of accountability and internal control systems.

Table 2. The impact of the industrial revolution 4.0 on government

	Today	The coming
mindset	Changes in the mindset of working alone, owning, mastering,	*Sharing economy*
Working patterns of working	together, competing	Working together, resource efficiency, collaborating
Working processes of	human	machines, robots, artificial intelligence, computing devices
ASN HR	Low competence and performance leadership High Officials, ASN ratios and demographics not yet ideal, the dominant general KJF	*exercise* and ASN redistribution, strengthening and management of ASN management, education and training based on competency standards competency
funding	Employee spending trends increases are not directly proportional to the clear outcome	Strengthening accountability and internal supervision systems
Effectiveness of bureaucracy	Still stagnant in ASEAN and 95th rank fifth in the world	One-govt Implementation of integrated, quality and innovation of public services

Governance with all the authority and financing need professional managers, in addition to the demands of bureaucratic reform Also to answer the needs of competitive human resources, which leads to the achievement of civil service competency standards (knowledge, expertise, and behavior). This is because there is still a gap between the implementation of education and training normatively (infrastructure and substance) after completing the training with the competencies that should be achieved by the training in supporting positions or duties, so that the impact on the implementation of regional autonomy and decentralization can be implemented a both by local Governments (Bratakusumah, 2002). Prerequisites The human resources needed in facing the Industrial 4.0 era Also changed a lot. The development of technology has an impact on education.

The impact of the industrial revolution 4.0 on regional problems

Implementation of decentralization and regional autonomy requires acceleration in its implementation. McKinsey research (Pratt, 2018) explained that Indonesia has the potential to Obtain an additional GDP of US $ 121 billion in 2025 through the application of industry 4.0, Including the retail sector of US $ 25 billion, transportation of US $ 16 billion, mining of US $ 15 billion, US agriculture $ 11 billion, US $ 8 billion in communication and information technology, US $ 7 billion in health facilities, US $ 5 billion in the public sector, US $ 2 billion in the financial sector. This can be overcome with the cooperation of the government, industry players and other stakeholders.

The government is only responsible for building healthy ecosystems and encouraging investment in human resource development. Then identify priority sectors both potential and influence that can be generated through the application of industry 4.0.

There are three sectors that will play at least have the most significant impact on the adoption of the Industrial Revolution 4.0 items, namely the Economy, Education and Labor sectors. When we refer to Law 23 of 2014 concerning the Regional Government, it appears that the affected sectors are concurrent government affairs, which are proportionally the domain of local government. Therefore, basically reviews those who will feel the direct impact of the implementation of the Industrial Revolution 4.0 is the regional Governments. The following describes the sectors affected by the Industrial Revolution 4.0, including:

The economic sector

The impact of economic growth is increasing in the industrial revolution 4.0 seen by many business people and entrepreneurs utilizing the development of information technology so that the basic principles of industrial design 4.0, known as the digital revolution because of the proliferation of computers and automation and connectivity in a field. With the Industrial Revolution 4.0, it has had an increasing effect on the economy, where sectors opened up opportunities for entrepreneurship and MSMEs Increased rapidly, Thus giving an impact on entrepreneurship for the sake of economic independence (Hamdan, 2018).

In the macro and micro sectors, the impact of utilizing digital technology and the industrial revolution 4.0 is huge. In the micro sector, the role of the village government is very significant in supporting and assisting the community of micro and small industry entrepreneurs, in addition to community organizations, non-government organizations, Village-Owned Enterprises, and other institution's empowerment. One of them can be done by working with higher education by brainstorming knowledge entrepreneur in the era of digitalization, the transfer of knowledge capitalization for SMEs, transfer of knowledge about institutions and financial organization, mapping of potential rural communities, the statement and the full support of the village administration and system design micro-scale financial institutions. (Arifianto, Sulistyarini, Hima, &Cahyawati)

One of the disruption changes from the retail side was the start-up roommates Contributed to the decline in mall turnover and the closing of small Shanties in shopping centers, this Proves that the fast can eat the slow ones, not the big ones, eat the small ones. The majority of businesses Including logistics companies are committed to implementing the product, technical, technological and organizational innovations (Witkowski, 2017). The use of the Internet of Things, Big Data and Industry 4.0 has shaped opportunities and solutions to meet customer needs and contribute to the development of logistics and supply chain management.

Table 3. Industrial revolution 4.0 and the economic sector

Hamdan (2018)	Arifianto, Sulistyarini, Hima, &Cahyawati (2018)	Witkowski (2017)
Economic growth increases from the digital benefit of business people and entrepreneurs and MSMEs	The micro sector,the village government in collaboration with higher education assists MSMEs, CSOs, NGOs, BUMDes, etc. The	use of the Internet of Things, Big Data, and Industry 4.0 in demand-supply of logistics and supply chain management
Computer proliferation and automation and connectivity in a field of	*brainstorming* entrepreneurial scientific in the digital era	Commitment to product innovation implementation, technical, technological and organizational
	Capitalization of knowledge transfer to SMEs	Retail disruption with a start-up business
	Transfer of knowledge about institutions and financial organizations	
	Mapping the potential of rural communities	
	Design of the system of micro-scale financial institutions	

Education sector

Keywords higher education and dialogue saw the industrial revolution of character education in college Indonesia (Kemenristekdikti, 2017): 1) express the synergy of research and education related to economic growth and awareness of the changing context of culture (culture change); 2) challenge the role of robotics and education versus employment that maximize the role of information technology; 3) discusses educational model with the correct characters, 4) attention to the trap of middle-income economy, competitiveness index, the ability of innovation, change agents with a cargo of character, international publications as an expression of the development of science and usher college graduates knowledgeable, entered the pool of leaders, 4) create an atmosphere of learning and the learning process to reach learners who have religious-spiritual strength,

This is in line with the opinions Hinchcliffe (Moreira et al., 2018) "because of the very intangible digital ... often more difficult to understand the diverse needs, perspectives and skills gaps people have to change along with the technology". Industry 4.0 emphasizes the inter-connection and computerization in the goal of achieving operational efficiency and productivity levels are higher for organizations in any form can not be separated from information systems to support internal operations and external interaction with the environment.

(Tvenge&Martinsen, 2018) found the presence of life-long learning and formal education gap and ICT-based learning practices in the workplace. There are at least; increase in learning as a result of

access to more data and knowledge; learning more efficient; learning activities that focus on the learner; new learning environment with the level of collaboration/cooperation; and more opportunities for critical thinking and analytical approach. Although the needs of the learner rather than on the technology itself.

Table 4. Industrial revolution 4.0 and the education sector

Kemenristekdikti (2017)	Tvenge&Martinsen (2018)	Hinchcliffe in Moreira et.al (2018)
Keasadaran on the context of cultural change (culture change)	Approach to the future of learning activities, including:	Inter-connection and computerization
Education that maximizes the role of information technology	Virtual learning space, teaching unsynchronized	The goal of achieving operational efficiency and productivity levels higher
The charge character, international publications and talent pool of leaders	Systematic analysis and visualization of real data from formal and informal learning methods	Operation of information systems to support internal and external interaction with
An attitude of the learning environment and learning to achieve learning targets	Paradigm cross-formal and informal learning	
	Bag use time	
	Active learning and learning pathways	
	The individually designed evaluation step	
	Active career management planning and sustainable	
	Learning factors synchronized	

Sector labor

Industry 4.0 refers to the digitization of industrial production. Vision 4.0 illustrates the realization of the industrial revolution of the Internet of Things in the context of the manufacturing flexibility and the ability to realize the high adaptability of the production system. This impact has been assessed by the McKinsey Global Institute and conclusion utilization of robotics and machine broad impact on labor in particular because it creates efficiency and effectiveness of the work, so it is expected to eliminate 800 million jobs that currently exist in the world (Marsudi&Widjaja, 2019).

The positive impact study (Pfeiffer 2016) in (Marsudi&Widjaja, 2019) is the use of smart assistance systems that help workers to determine what work will be done, boosting productivity, maintaining performance and the ability to not diminishing thereby enabling the utilization of manpower already old and extend the working life. The combination of technology with work, daily activities, and sustainable development employees will encourage a balance between work and life (Kagerman et al. 2013) in (Marsudi&Widjaja, 2019). Different characteristics are accompanied by the generation of technology-laden mix the use of computer and data networks will drive the need for labor is expected to compete in the future.

In (Duran et al., 2016) in (Ibrahim, Taufiq, Susilo, Subekt, &Suwono, 2018), a model STEM education combined area of Science, Technology, Engineering, and Mathematics, developed eight standards and characteristics of learning, namely (1) ask questions (for science), (2) develop and use models, (3) plan and carry out the investigation, (4) analyze and interpret the data, (5) use mathematical and computational thinking, (6) to build an explanation (for science), (7) conduct argument from evidence, (8) acquire, evaluate, and communicate information. STEM is seen as a solution to the problem of human resources quality and competitiveness of each country (Word, 2015) in (Ibrahim et al., 2018) as a challenge vision of education in the era of the Industrial Revolution 4.0.

In (Huseno, 2018) mentioned efforts to improve the quality of human resources in the era of the Industrial Revolution 4.0 is pushing SDM college for the development of digital skills, create a model of collaboration in the realm of digital enhancement skills, applying the prototype latest technology, learn by doing, and doing collaboration and synergy between industry, academia, and the public to identify the demand for and availability of skills for the digital era in the future.

The era of digital transformation also requires a collaborative culture within the organization (Moreira et al., 2018). This can prevent the failure meant that his presence as a cultural development strategy and lifelong training (long-life training) because of the disjointed organizational strategy and organizational needs.

Table 5. Industrial Revolution 4.0 and Sector Employment

McKinsey in Marsudi&Widjaja (2019)	Pfeiffer in Marsudi&Widjaja (2019)	Kagerman in Marsudi&Widjaja (2019)	Duran in (Ibrahim et al., 2018)	Nina T &Kristian M
Digitization of industrial production	Utilization of*smart assistance systems* in:	Encouraging a balance of work and life, by:	STEM education model *Science, Technology, Engineering,* and Mathematics	Virtual classroom, for social learning is not synchronized
Realization capabilities of high flexibility and adaptability of the production system	Determine the work to be done	Mix the use of computer technology and data loaded network	ask questions (for science)	Learning paradigm that bridges formal and informal learning
Utilization of robotics to create efficiency and effectiveness	boosting productivity	The combination of technology with the job	developing and using models	Adaptive learning and both line learning
	Maintaining the performance and capabilities that are not declining	The combination of technology with everyday activities	plan and carry out investigations	Planning and management of active and ongoing career by and for individuals
	Labor utilization elderly and extend the working life	The combination of technology with the ongoing development of employees	analyze and interpret data	Workplace-based learning for social learning synchronized
			use mathematical and computational thinking	step and individually tailored evaluation
			build an explanation (for science)	
			do the arguments of evidence	
			obtaining, evaluating, and communicating information	

Practice implications, limitations, and further research

Tunzelmann based approach, we can analyze the relationship between industrial revolution to the Government by using three variables, namely; Variable Control (regulation), Variable Structure

(Working Procedures) and process variables (governance). How the Government by three variables are able to deal with change/disruption in society as a result of the Industrial Revolution 4.0. particularly related to the sector of Economy, Education, and Labor.

From the aspect of control, the necessary number of policies and new regulatory rules that are able to reach crevices change/disruption and reduce the impact of the Industrial Revolution 4.0. In the economic field, for example, there need to be regulation/control instruments governing the development model of business online (startup), how to construct a basis for determining the tax on economic activities, as well as how to control business competition then arises, as happened in the competition between the transport line to transport conventional. In education, the government can arrange Indonesian human resources development policy which is adaptive to the changing dimensions, through the curriculum and adequate educational instrument.

The birth of the Industrial Revolution, urging local government to adjust the model structure (work order) administration which is compatible with the problems faced in society, bureaucratic structure of government tend to be fat, hierarchical and layered, making motionless government running effectively and efficiently. local governments should be able to adapt to the public service model based on information technology, so as to compensate for changes that move quickly.

In terms of processes (governance), the birth of the era of digitalization of information widely open space, every public can directly access the required information, so that local governments should continue to fix the governance ongoing basis in order to be transparent and accountable.

In practice, this study tried to explore the challenges of limited economic sectors, education, and employment in the face of the Industrial Revolution 4.0. To meet the challenges and opportunities, it takes vision and a plan of action that is associated with the perspective of the industrial revolution 4.0; providing investment in education to ensure the implementation of the educational curriculum industrial revolution 4.0; involving social innovation in public administration to provide open space public involvement in policy implementation -as a spirit of decentralization and regional autonomy, the creation of labor skills characteristic of the digital era 4.0 and support environment for the development of entrepreneurial character and collaborative culture of the organization.

Literature review method was adopted in this study is a qualitative method to study the management and administration of the country to gain a deeper understanding of the Industrial Revolution 4.0 and its impact on regional issues. However, this study faced some limitations. First, there are many sectors affected by the industrial revolution 4.0 against the problems of the region, not all analyzed sufficiently. The main drawback of this study is the lack of appropriate indicators and quantitative data on the extent of the impact caused by the digital transformation of the industrial revolution 4.0. Secondly, all the problems revealed by the analysis of the answers, in general, were perhaps not fully answer the problems faced by the local government area.

This issue is recommended for the study of cross-sectoral and cross-national in the future after the impact of the weight of each sector to be clarified in relation to the transformation of the industrial era 4.0. Because of these limitations, the findings of this study may not be an easy generalization to all sectors affected and may be subject to other interpretations. Research quality also depends on the individual skills of researchers and easily influenced by personal biases and idiosyncrasies of researchers. This limitation will increase the new starting point for the study of the policy of decentralization and regional autonomy in the Industrial Revolution 4.0.

CONCLUSION

From the description above can be illustrated that Industrial Revolution 4.0 as a manifestation of the development of science and technology, will be able to have a big impact on the environment and social development in the society changes, these changes would have an impact on governance (governance). The government should be able to compensate for the change by participating in internal improvements as a step adaptive to changes in the social environment.

The local government as a level of government in direct contact with the public will certainly feel the impact of the change directly, some dimensions that fall under the authority of local government becomes the main element that is significantly shifting / disruption, among which the economic, education and employment.

Changes in these dimensions are not only a challenge for local authorities to be able to overcome all the problems that will arise, but also an opportunity to optimize the empowerment of the community to face the era of industrial revolution 4.0 by creating added value for regional development in the future. These prerequisites needed to support the achievement of the national development strategy and a pillar to the Indonesia World Class Government in 2025.

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