Building Economic Competitiveness In Central Java based on Information Technology and Locality

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Abstract. Collaboration with technology is the best strategy to create regional competitiveness in this era. However, adjustments to locality elements must still be included because it is the key and capital of success. The purpose of this study is to develop a strategy to build the competitiveness of the Central Java region based on technology and locality with the Pentahelix approach. The method used in this research is Research and Development (R&D). The study is based on qualitative research with the Pentahelix approach. The second stage is developing a technology and locality-based platform implemented in one of the districts in Central Java. The results of the first research phase are in the form of an analysis of the conditions of Central Java which can be capitalized in increasing regional competitiveness and can be realized in the form of a digital platform with the Pentahelix approach. The results of the second study are digital platforms in the form of technology and locality-based apps. The new thing offered in this research is the R&D method used to develop a strategy to increase the competitiveness of the Central Java region.

Keywords: economic competitiveness, information technology, locality, pentahelix

1 INTRODUCTION

Investment in an area is an interesting study because it covers many sectors, including investments in transportation, energy, infrastructure, tourism, innovation, and other forms of investment. Investment in a region will affect and affect the economy of the region. If the regional economy is good, the regional competitiveness will also be good (Alberti & Giusti, 2012). The concept of regional competitiveness itself is also a concept that cannot stand

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One way to boost regional economic growth in Central Java province is to increase investment (Jatengprov, 2021). Currently, the Central Java Provincial Government is maximizing special economic zones, integrated industrial areas, and several other industrial areas to facilitate potential investors from within and outside the country. With these stated goals, the Central Java Provincial Government needs to develop a strategy to build regional competitiveness to improve the investment climate. Digitalization, which in this era has always been used as a strategy for developing tangible and intangible things, can also be used to boost regional competitiveness, including in the province of Central Java. However, this strategy is also used by other regions to boost competitiveness in their region so that the Central Java provincial government must have differentiation in utilizing digitalization to be different from other regions. Another competitive strategy is using the basic skills (Thompson et al., 2014).

In other words, the locality elements in Central Java are an asset to winning the competition. Matters related to the locality in Central Java are a genuine big capital because they could not be owned or imitated by other regions. The adoption of technology will make the area spread faster, but the area must also have marketable content to spread. Something original and local is the most appropriate to be used as content because it has differentiation. So that, it can be said the locality is the capital of successful technology adoption.

There are two objectives in this research. First, analyze the problem of increasing regional competitiveness by combining technology and locality using the Penta helix approach. Second, build technology and locality-based platforms. The novelty in this research is the Research and Development (R&D) method used to develop strategies to increase regional competitiveness in the province of Central Java. Research conducted using the Pentahelix approach is wider in scope. While Apps development is based on research results to follow the community's needs in Central Java Province. This is a highly customised need-based depending on the need of the locality.

2 METHOD
The concept of Pentahelix, used as the basis in this research, is used for selecting the key person interviewed. The concept of Pentahelix is used to increase bottom-up participation to produce initiative suggestions. Pentahelix is an ideal concept because it can explore a profile, motivation, mode of interaction, and transformative conditions in the subject being studied (Calzada, 2020). In this study using the Pentahelix scheme, the key persons selected as respondents were representatives of five positions, namely business, media, society, government, and academia. The indicators of this research are based on the pillars of regional competitiveness. There are five pillars of regional competitiveness: economy, companies, government, infrastructure, and society. From these indicators, strategies for increasing the competitiveness of IT-based regions and localities are developed. The indicators obtained from the various kinds of literature are summarized and presented in Table 1.

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Data processing in this study was carried out with NVIVO software. This software is the most suitable software for qualitative data processing. The data is then presented in the form of charts.

### RESULTS AND DISCUSSIONS

#### Central Java's Competitiveness in 5 Pillars according to Businesses

From the results of interviews with business people, positive information about the competitiveness of Central Java was obtained. From the interviews, the following five points can be identified. Firstly, about economic competitiveness, Central Java can be said to have a strong economic size. This is because business people in Central Java can compete to provide better prices but do not deny friendly service. Economic growth in Central Java is also quite positive because it is supported by a large market share and a population of 36.7 million (BPS Central Java, 2021). In addition, the increase in production was welcomed by positive consumer enthusiasm. Then when viewed from the export sector, Central Java has many advantages, especially iconic tourism and global cultural diversity. These advantages are supported by the diversification of business fields by culinary and handmade business people and cultural actors.

Secondly, regarding the company's competitiveness, the productivity of companies in Central Java is quite good but has to face intense competition in prices and services at the regional level. The company is forced to face obstacles from its business environment, such as the business ethics of business actors who are not yet established, uncontrolled competition, and a climate of good governance that cannot be said to be good. However, it can be said to be good when viewed from the side of the company's management skills. This is because the human resources in the company have sufficient skills and a responsible work ethic. Companies in Central Java also have good innovation and are supported by recruitment of job creation with specialization in special skills. These results align with a study that innovation is capital for creating competitiveness (Květoň & Horák, 2018). This innovation can certainly be developed in a policy or actions to create regional competitiveness in Central Java.

Thirdly, regarding the government's competitiveness, the resources owned by the Central Java government need to be improved, especially in human resources. Autonomy has also been implemented well, as evidenced by each city/district government's unique policies. Furthermore, government spending is expected to focus on social security and to pay more attention to supporting business people by organizing promotional events. The Central Java government has provided fairly good security and justice based on...
locality values, but there are still overlapping policies between central and local government policies.

Fourthly, infrastructure competitiveness, the overall road network, transportation, and tourism in Central Java are very good, and communication infrastructure. The speed of updating information and communication between community stakeholders, business people, and the government can be conveyed very well.

Fifthly, regarding the competitiveness of the population of Central Java, efforts are needed to increase the output of high school and college graduates to be more compatible with the industry. Job training can facilitate these obstacles; Central Java is superior because it has many governments and private job training centers. Job training participants from various regions welcomed the enthusiasm of the organizers. Then when viewed from the level of public health in Central Java is also quite good.

The discussion so university graduates can be matched as described above requires a demand analysis. In this case, the businessman is the most observant party in this analysis (Ferrarese et al., 2021). With this analysis, businesses can assess the profitability of developing competitiveness in the middle class. Business people have an interesting perspective on seeing an object, so it becomes marketable. In addition, business people always have a way to create value so that existing objects can have competitiveness. For this reason, the views of business people need to be included in competitiveness development research (Basco, 2015).

Central Java's Competitiveness in 5 Pillars according to the media

The results of the research are as follows. First, competitiveness in the economic sector, Central Java's economic size is quite large, but the existing potential has not been developed to its full potential. For example, the development of the creative economy in some districts has only become satellite cities for the surrounding big cities. Central Java's economic growth continues to increase despite the challenges of the COVID-19 pandemic. MSMEs and the collective efforts of citizens have saved the country's economy from the crisis caused by the pandemic. Even though the economy continues to grow, there are still challenges that must be faced by small districts/cities, such as people's lifestyles which are constantly changing due to the rapid flow of information. The urban lifestyle is also a challenge for economic growth.

Furthermore, exports show a positive trend because Central Java's natural resources are very potent and are supported by creative economy craftsmen. The effect of the Village Fund can also boost the diversification of the local economy; BUMDes is one of the entities that developed massively. Although natural resources and BUMDes are distinct advantages, the fact is that management must be taken seriously to be ready to face demand.
It is still a problem that the regions cannot increase their services from local to national. In addition, it is necessary to increase workers' capacity through various pieces of training that are more evenly distributed. The ability of a region to provide services is influenced by how a region can create value in what already exists in the region (Zhu et al., 2022). In creating this value, a region cannot be separated from other aspects such as politics, economy, culture, regional resilience, and other aspects.

Second, the company's competitiveness and increasing company productivity in Central Java are quite positive, especially if you look at the presence of local influencers who can be said to have a big enough impact on local business productivity. Productivity can also be superior due to local wisdom in welcoming the growth of the industrial world. The business environment in Central Java is generally quite conducive and open to business people.

However, there are still obstacles related to land use change, which is suspected to be the lack of government communication approach to the community. Furthermore, suppose you look at the management skills of companies in Central Java. In that case, they have positive values, especially regarding hospitality, but the professionalism of the work culture still adheres to local norms. The company's innovation is quite well developed, including preparing the employment generation.

Employment generation needs to be prepared because every period has different challenges, so creating regional competitiveness also requires different strategies. The current generation is more open to new things and good digital mastery (Hota et al., 2020). So that the creation of regional competitiveness must begin to look towards digital; with digitalization, regional development will spread more quickly without any barriers of space and time.

Third, the government's competitiveness and available organizational resources are quite proportional and have an open-minded approach. Good resources lead to well-organized regional autonomy. Government spending is also realized quite cleanly due to the generation of young, productive, and clean ASNs. The government has tried to maximize security, but justice for some ASN is considered not to have a balance between rights and obligations. Good Government Governance (GGG) is the availability of human resources in the government sector. With the achievement of Good Government Governance, a region will have good competitiveness because it is an assessment of the competence of the local government (Nofianti & Suseno, 2014).

Fourth, the competitiveness of infrastructure, in general, the availability of energy, tourism, road, and communication networks is quite good in Central Java. The availability of good infrastructure still has weaknesses because people's transportation habit prefers private service providers to those,
Regional Competitiveness in 5 Pillars by Government

Based on interviews with the government, Central Java's competitiveness is positive compared to other provinces. First, Central Java's economic competitiveness has a competitive advantage, especially its ability to rise from adversity due to the pandemic. The impact of the pandemic on the economic sector can be overcome with access to the digital economy. It has become a culture for the people of Central Java to help each other, so the collective local economy can still grow.

Second, the competitiveness of companies in Central Java is consistent in supplying productive labor. A conducive business environment supports the company to survive in the face of the pandemic and its aftermath. Productivity can still be achieved with various innovations coupled with adequate government support.

Third, the government's competitiveness can be said to have strong resilience. The government in Central Java has been able to create good security since the pandemic occurred. Government organization resources support recovery in all sectors. The autonomy that goes well creates justice for Society.

Fourth, the competitiveness of Central Java's infrastructure is getting stronger, as seen from the expansion of infrastructure and a good road network. The available energy is sufficient to meet the needs of the community. On the other hand, transportation infrastructure continues to be improved to provide the best service to the community.

Fifth, the competitiveness of the people of Central Java should be taken into account. Community education has developed quite significantly, both formal and non-formal education. However, the government continues to educate the public about new things, such as unexpected impacts in the era of technological development. A good education has also been supported by...
equitable public health, so Central Java is considered to have competitiveness compared to other provinces.

Central Java's Competitiveness in 5 Pillars according to Society

The interviews with the community illustrate the five pillars' contribution to creating Central Java's competitiveness. The five pillars are as follows. The first pillar is that Central Java's economic competitiveness has resilience, as evidenced by the good progress of the community's economic recovery skills. The effect is that the economy continues to grow well. The collective community can run naturally in tackling the economic downturn due to the pandemic. The community helps each other to recover households affected by the COVID-19 virus. Business diversification is carried out amid global economic uncertainty. As a result, post-pandemic diversification can still be carried out. Along with the number of conditional and permanent layoffs, a productive workforce is still available in abundance, the demographic bonus being one of the factors.

The second pillar, company competitiveness, Central Java has both advantages and disadvantages. A safe business environment and minimal political conflict make Central Java a comfortable place to develop companies. This allows the company to focus on creating the best quality products. The company's managerial ability is fairly good, although it is not evenly distributed geographically.

The third pillar, government competitiveness, Central Java can provide fair justice. Creating justice reduces the crime rate in the regions so that Central Java has a good security environment. Organizational resources also compete in the era of human resource regeneration and information disclosure.

The fourth pillar is infrastructure competitiveness; Central Java has an adequate transportation system and communication network, both government and private. There is enough energy available, so Central Java has never experienced a shortage of energy. Likewise, Central Java tourism is quite competitive compared to other provinces.

The fifth pillar, the competitiveness of the people of Central Java, requires sufficient attention. Public health is still a cliché that is often debated; people think health facilitation is not evenly distributed. Like health, education issues have not been evenly distributed, especially in remote areas. However, the people of Central Java have values that uphold collectivity in many ways. Value is a distinct advantage in building community competitiveness.

Regional Competitiveness in 5 Pillars according to Academics

The five basic pillars will be explained as follows. First, regarding economic competitiveness, Central Java's economic size moves positively. This happens because it is supported by abundant natural resources, easy.
transportation, large potential consumers, and qualified human resources. Central Java's economy has experienced growth, although it is not too significant but shows a good recovery after the pandemic. In addition, exports have a wide enough opportunity along with the development of BUMDes. Still, the local market has not been well exploited considering the large population compared to other provinces. Economic diversification can be done if the management focuses on local product advantages. Then the workforce in Central Java has more creativity; it is proven that the development of the creative economy is growing rapidly. The focus on the local market shows that demand in the province of Central Java is quite good. This demand indicates good consumption in the area (McCarthy & Lei Lei, 2010). Meanwhile, good consumption is an indicator of good per capita income and a good level of economic growth.

Second, regarding the competitiveness of companies, the productivity of companies in Central Java shows an upward trend. This is caused by many factors: a conducive UMR policy between the government, employers, and trade unions. The business environment can also provide comfort for business actors, full government support plus external and internal community support has its impact. This situation allows the company's managerial skills to develop, so innovation can continue to be carried out. Employment creation from the company creates a creative workforce and people in the company environment who are more active in the creative economy business. The business in the creative economy sector in Indonesia is starting to stretch and become a sector targeted to be seeded. Likewise, in Central Java, businesses in the creative economy sector have shown a significant increase. The potential of Central Java to develop a creative economy is very good because the nuances of the people of Central Java still hold the culture and the application of values as wong jowo. Its culture and values are good capital for building a competitive creative economy (Greffe, 2016).

Third, regarding the government's competitiveness, the resources of government organizations in Central Java received a positive response from the community. District/city governments can carry out autonomy to the maximum, and this is due to getting support from the central government. Government spending is also in line with the current community's greater need for economic recovery through social assistance. Then the security and justice provided by the government are also considered good. In creating regional competitiveness, the government has a vital role. Competitiveness and government have a positive correlation; the better the governance of a region, the better the regional competitiveness will be (Makin & Ratnasiri, 2015).

Fourth, regarding infrastructure competitiveness, the road network, communication, and transportation are quite well fulfilled in the energy sector. Meanwhile, in the tourism sector, several things need to be improved.
to increase the competitiveness of Central Java. In recent years, cleanliness in tourist destinations is still getting criticism from tourists. Tourism has not fully become a government priority, so that its management is still modest. The support of the surrounding community is also not fully visible. Government priorities and community support are needed to improve adequate infrastructure for creating good tourism. Currently, the participatory concept is a concept that excels in development. In this concept, community empowerment in development will be a contributing factor in the success of the development. Empowerment should be done directly and virtually (Wang et al., 2021).

Fifth, regarding the competitiveness of the people of Central Java, public education at the primary and secondary levels need attention, especially in the periphery. At the same time, higher education is quite good because rural communities are gradually aware of the importance of higher education. Then, along with the rapid growth of job training in Central Java, it was not in line with the impact. This is because the number of institutions that provide job training only act as program implementers from the government. Still, it is not balanced with follow-up assistance after on-job training. This is exacerbated by the material provided being less match with the industry.

4 CONCLUSION

The values that develop in Central Java, such as collectivity, community character, and Javanese culture, along with the philosophy embedded in the people of Central Java, are assets that have differentiation and have the potential to become raw materials in creating regional competitiveness. This value will grow faster if it has collaborated with technology. Collaboration between the values in Central Java and technology is a competitive advantage that can be used as capital to increase the competitiveness of the Central Java region.

REFERENCES

Research in Transportation Economics 90.

From culture to creativity and the creative economy: A new agenda for cultural economics 7 (2), 71–74.


Jatengprov 2021.


Agricultural landscapes, ecosystem services and regional competitiveness — Assessing drivers and mechanisms in nine European case study areas. Land Use Policy 76 (February), 735–745. https://doi.org/10.1016/j.landusepol.2018.03.001

Will researching digital technology really empower green development? Technology in Society 66.