

Strengthening Creative Economy Capabilities in East Java through Digital Transformation and Networks

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ABSTRACT

Every creative industry is required to change business operations through sophisticated digital technology since the 4.0 industrial revolution which was accompanied by the Covid-19 pandemic attack which was crippling the East Java economy. The purpose of this study is to determine how the effectiveness of digital transformation and networks in reviving the economic capabilities of East Java. A total of 220 creativepreneurs samples were selected by simple random sampling and were examined using an online questionnaire on a 5-point Likert scale. The collected quantitative data were analyzed using Partial Least Square analysis. The results show that digital transformation is very effective in strengthening the dynamic capabilities of creative industries in the digital era even though the process is still not optimal because many industries are still constrained by budgetary funds and qualified human resources in the IoT and Big Data fields. In this case, networks owned by creative industries can slightly balance the shortcomings in digital transformation. The suggestion that can be given is that penta-helix collaboration be improved so that the acceleration of digital transformation can be done. For further research, it can examine the main shortcomings in the digital transformation process and specific problems in networks.

Keywords: Digital Transformation, Networks, Dynamic Capability, Creative Industry.

1. INTRODUCTION

The Covid-19 pandemic has a real negative impact on the performance of the creative economy in East Java. In fact, East Java makes a major contribution to the national economy. It was noted that until the third quarter of 2019, East Java's GRDP was able to contribute 14.92% to the National GDP. Even though the East Java economy according to BPS still grew by 3.04% in the first quarter of 2020, this figure is still far from being compared to 2019 which reached 5.55% (Achmad, 2020).



Figure 1. East Java Economic Growth Chart I Quarter 2020

Source: BPS East Java, 2020.

SUTD research results show that the prediction of the corona virus outbreak in the world will end at the end of 2020 (Solahuddin, 2020). In the post-Covid-19 pandemic, automatically every SME must compete to revive its existence after experiencing setbacks. SMEs are required to change business operations through sophisticated digital technology (Mubarak et al., 2019). In the digital category of industrial revolution 4.0, there is an emphasis on Digital Transformation (Mendonça & Andrade, 2018). Digital transformation is defined as the use of new digital technologies, such as mobile, artificial intelligence, cloud, blockchain, and Internet of Things (IoT) technologies, to enable key business enhancements to augment customer experiences, streamline operations, or create new business models. Digital transformation is also an ongoing process of using new digital technologies in the daily life of organizations, recognizing agility as a core mechanism for strategic renewal of (1) an organization's business model,

(2) a collaborative approach, and finally (3) culture (Warner & Wäger, 2018). In the digital category of industrial revolution 4.0, there is an emphasis on cloud computing, IoT, Artificial Intelligence and Big Data, which are part of what is called Digital Transformation (Mendonça & Andrade, 2018) namely the perspective of using information and communication technology (ICT) which acts as a larger elements in the transformation and reconfiguration of organizational elements, such as strategy, processes, culture, and structure (Hess et al., 2016).

In addition to this digital transformation, SMEs must be able to reconfigure themselves in the face of a rapidly changing market, so that the capabilities of SMEs must really be considered aimed at achieving high performance. Dynamic Capabilities originate from the theory of resource-based view (RBV) (Alvarenga et al., 2016 and Wamba et al., 2017). Dynamic Capabilities are defined by Teece et al. (1997) as a firm's ability to integrate, build, and configure internal and external competencies to cope with a rapidly changing environment. In other words, dynamic capacity is a grouping of organizational skills, organizational behaviors and capacities, as well as processes and routines that lead a company to differentiate itself in a competitive market in the face of its competitors.

In addition, Kleinbaum (2014) reveals that dynamic capability is strongly influenced by networks, this is reinforced by Pham et al. (2017) which shows that there is a close relationship between networks and business performance. It is important for companies to have networks, because networks play an important role in the development of SMEs, especially to get information from partners and from the market to take the right decisions. The existence and size of each network depends on the manager's strategy. Many companies seek to diversify their networks not only with other business actors but also politicians and credit officials (Pham et al., 2017). It is important for SMEs to concentrate on building and maintaining networks because networks have a major influence on the performance of SMEs (Gronum et al., 2012).

Karimi & Walter (2015) research explains that dynamic capabilities created by changing, expanding, or adapting existing company resources, processes, and values are positively related to building digital platform capabilities, and these capabilities affect response performance to digital disruption. While the research of Sasmoko et al. (2019) proves that digital leadership has a strong relationship with dynamic capabilities. On the other hand, Mendonça & Andrade (2018) research shows that 3 technologies, IoT, Big Data, and AI, in different proportions of performance, are large in terms of dynamic capabilities. The highlight is for the performance presented by Big Data at the Seizing micro-foundation. The highest correlation was observed for the Seizing micro-foundation. So that, the first research hypothesis (H1) is *“Digital transformation is very effective in strengthening Creative Industry Dynamic Capability in the Digital era”*.

Meanwhile, the survey results of Jiang et al. (2020) shows that network breadth and depth are important drivers of dynamic capabilities, acting as mediators transmitting the benefits of business networks into successful product innovation. In addition, learning orientation and market orientation are present as important boundary conditions in the relationship between business networks and dynamic capabilities; interestingly, they function in the opposite way. These findings have important implications regarding how a company's business network, in combination with its strategic orientation, affects the development of dynamic capabilities and successful product innovation. Regarding the network relationship and dynamic capability, the findings of Abbas et al. (2019) shows that entrepreneurial business networks have a significant positive relationship with dynamic capabilities. Entrepreneurial business network is a network, which provides a platform to build business relationships, identify, develop or act on economic opportunities, share information and seek potential business partners for ventures. By developing networks, small companies can achieve sustainable performance by deploying dynamic capabilities in a competitive environment. So, the second research hypothesis (H2) is *“Networks is very effective in strengthening Creative Industry Dynamic Capability in the Digital era”*.

While the pre-survey study in the field, creative economy-based SMEs in East Java are still lacking in digital transformation. SMEs are also still not strong in doing networking. The results of a pre-survey interview with 50 Creative Economy-based SMEs in East Java showed that the Covid-19 pandemic had an impact on decreasing turnover by 70% or even 100%. BPS East Java also noted that the East Java economy contracted 5.90 percent compared to the second quarter of 2019 (Almutoif, 2020). Whereas the creative economy sector contributes greatly to the East Java and national economy. So, towards the post-Covid-19 pandemic, the government is seriously targeting the Creative Economy sector to revive the deteriorating East Java economy. So it becomes quite crucial to strengthen the capabilities of East Java Creative Economy in facing technological disruption through two factors that are thought to be the most influential, there are: digital transformation and networks.

2. RESEARCH METHOD

This research is a quantitative study of 220 creative-preneurs in East Java who were selected through simple random sampling. The data collected through a 5-point Likert scale questionnaire was analyzed by using Patial Least Square (PLS) analysis using SmartPLS software for Windows version 3.3.3. The exogenous construct measured is Digital Transformation (X1), which consists of: IoT with 4 indicators (Vongsingthong & Smachat, 2014), there are: Tagging Thing, Feeling Thing, Shrinking Thing, and Thinking Thing; and Big Data with 5 indicators (Mendonça & Andrade, 2018), there are: Volume - satisfaction, accessibility to data; Variety - diversity of sources and types of data; Speed - time needed to access the information and to make a decision; Veracity - confidence in the accuracy presented by the data; and Value - what information improves on results, the financial value used to obtain data with a good level of quality; and Networks (X2) which consists of 9 indicators (Gronum et al., 2012), namely: Accountants, Financial advisors or banks, lawyers, Business management consultants, Tax Consultant, Creative

Business Communities, Similar Business Communities, Government Organizations (Bekraf, Department of Industry, Cooperatives and SMEs), other networks such as suppliers. While the measured endogenous construct is Creative Industry Dynamic Capability (Y), which consists of: sensing ability, absorption ability, integrative ability, and innovative ability (Anjaningrum, 2021).

3. RESULT AND DISCUSSION

3.1 Result

3.1.1 Outer Model Measurement

Outer model measurement in SEM-PLS analysis is used to determine the validity and reliability of indicators measuring latent variables. This model specifies the relationship between latent variables and their indicators or it can be said that the outer model defines how each indicator relates to its latent variables. The outer model test for reflective indicators is assessed using validity and reliability. There are two types of validity in SEM-PLS, namely convergent validity (loading factor and AVE) and discriminant validity (Fornell-Larcker and Crossloading). Meanwhile, reliability was measured using composite reliability and Cronbach's Alpha values.

The loading factor shows the correlation between the indicator and its construct. An indicator is said to be valid if it has a loading factor value above 0.70 (Sarwono, 2014). Based on Figure 2. Structural model of SmartPLS output, it is known that all indicators reflecting digital transformation, networks, and dynamic capability variables have loading factor values > 0.7, this indicates that the research instrument used to measure research variables is VALID. In addition to the loading factor, convergent validity can also be measured through the Average Variance Extracted (AVE).

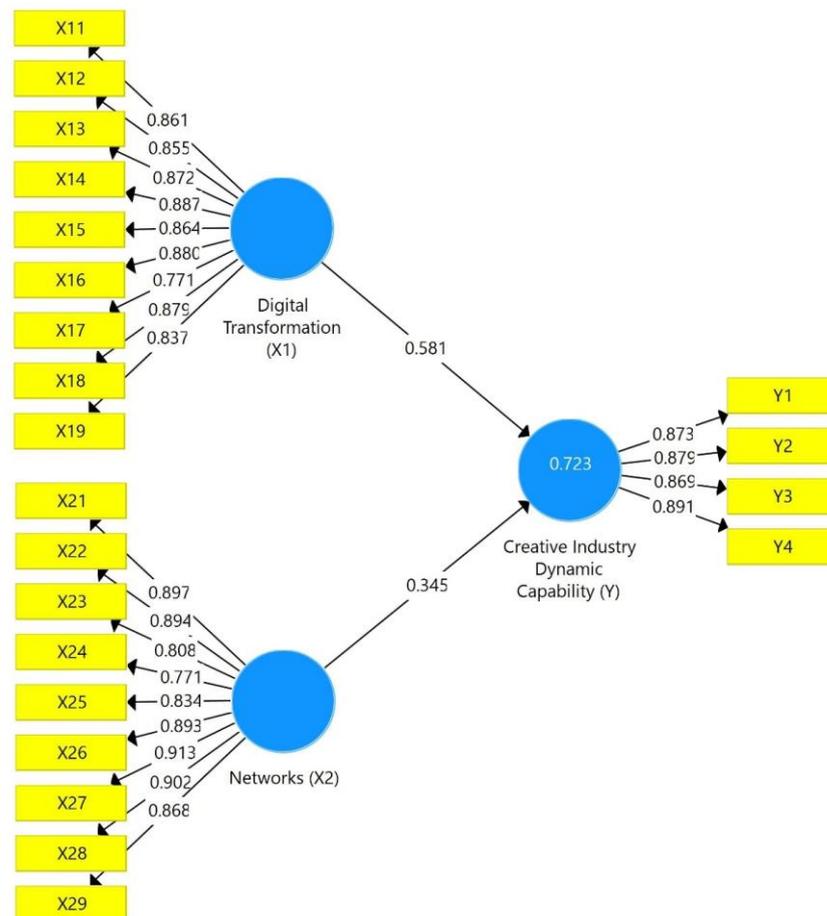


Figure 2. Structural Model
Source: SmartPLS 3.3.3 Output, 2021.

Table 1. AVE Value

	Average Variance Extracted (AVE)
Creative Industry Dynamic Capability (Y)	0.771
Digital Transformation (X1)	0.734
Networks (X2)	0.749

Source: SmartPLS 3.3.3 Output Data Processed, 2021.

The average extract variance (AVE) with a value > 0.5 was used as a determinant of convergent validity. Based on Table 1. The AVE value above, it is known that the AVE value of the Creative Industry Dynamic Capability variable is $0.771 > 0.5$; Digital Transformation of $0.734 > 0.5$; and Networks of $0.749 > 0.5$. That is, the research instrument used to measure the research variables is valid. The way to do the Fornell Lacker test is to compare the value of the square root of the AVE with the correlation value between constructs.

Table 2. Fornell-Lacker

	Creative Industry Dynamic Capability (Y)	Digital Transformation (X1)	Networks (X2)
Creative Industry Dynamic Capability (Y)	0.878		
Digital Transformation (X1)	0.581	0.857	
Networks (X2)	0.345		0.866

Source: SmartPLS 3.3.3 Output Data Processed, 2021.

Based on Table 2. above, it can be seen that the Fornell-Lacker Digital Transformation value of 0.857 is greater than the correlation value of Digital Transformation with Creative Industry Dynamic Capability of 0.581. Fornell-Lacker Networks value of 0.866 is also greater than the correlation value of Networks with Creative Industry Dynamic Capability of 0.345. This shows that at the construct level, discriminantly, the indicators used to measure the research variables are valid.

Table 3. Cross Loading Value

	Creative Industry Dynamic Capability (Y)	Digital Transformation (X1)	Networks (X2)
X11	0.690	0.861	0.578
X12	0.684	0.855	0.576
X13	0.722	0.872	0.608
X14	0.696	0.887	0.605
X15	0.721	0.864	0.572
X16	0.687	0.880	0.588
X17	0.617	0.771	0.511
X18	0.696	0.879	0.560
X19	0.730	0.837	0.542
X21	0.671	0.636	0.897
X22	0.656	0.641	0.894
X23	0.606	0.480	0.808
X24	0.533	0.463	0.771
X25	0.615	0.615	0.834
X26	0.668	0.603	0.893
X27	0.661	0.584	0.913
X28	0.658	0.620	0.902
X29	0.621	0.532	0.868
Y1	0.873	0.683	0.645
Y2	0.879	0.742	0.670
Y3	0.869	0.709	0.625
Y4	0.891	0.712	0.631

Source: SmartPLS 3.3.3 Output Data Processed, 2021.

While, at the indicator level, discriminant validity is tested through cross loading. The trick is to compare values, where the value of cross loading on the intended construct must be greater than the value of loading with other constructs. Based on Table 3. Cross Loading values, it is known that all cross-loading values of the Digital Transformation indicator (X11, X12, X13, X14, X15, X16, X17, X18, X19) to the intended construct (Digital Transformation) are higher when compared to the value of cross loading of other constructs. Likewise, all the cross-loading values of Networks indicators (X21, X22, X23, X24, X25, X26, X27, X28, X29), towards the target construct (Networks) are higher when compared to the cross-loading value of other constructs. All cross-loading values of the Creative Industry Dynamic Capability indicators (Y1, Y2, Y3, Y4) to the intended construct (Creative Industry Dynamic Capability) are higher than the cross-loading values of other constructs.

Table 4. Cronbach's Alpha and Composite Reliability Value

	Cronbach's Alpha	Composite Reliability
Creative Industry Dynamic Capability (Y)	0.901	0.931
Digital Transformation (X1)	0.955	0.961
Networks (X2)	0.958	0.964

Source: SmartPLS 3.3.3 Output Data Processed, 2021

The instrument is said to be reliable if the value of Cronbach's alpha > 0.6 and the value of composite reliability > 0.8. Based on Table 4., it is known that the value of Cronbach's alpha variable Creative Industry Dynamic Capability is 0.901 > 0.6 with a composite reliability value of 0.931 > 0.8; the value of Cronbach's alpha of the Digital Transformation variable is 0.955 > 0.6 with a composite reliability value of 0.961 > 0.8; Cronbach's alpha value of the Networks variable is 0.958 > 0.6 with a composite reliability value of 0.964 > 0.8. This shows that the research instrument used to measure the research variables is reliable.

3.1.2 Inner Model Measurement

Tests on the structural model were conducted to test the relationship between latent constructs. There are several tests for the structural model, namely: R-Square (R²), Effect Size (f Square), Q², and GoF. The value of R Square is the coefficient of determination on the endogenous construct. According to Chin (1998), the value of R square is 0.67 (strong), 0.33 (moderate) and 0.19 (weak). Based on Figure 1. Structural Model, it is known that the R-Square value in Creative Industry Dynamic Capability is 0.723. This shows that 72.3% of Creative Industry Dynamic Capability is explained strongly by Digital Transformation and Networks. The rest, 100% - 72.3% = 27.7% was explained by other exogenous constructs not considered in the study.

In addition to examining the R-Square, an examination was also conducted regarding the effect of endogenous variables on known exogenous variables based on the value of effect size (f²).

Table 5. Effect Size (f²) Value

	Creative Industry Dynamic Capability (Y)
Digital Transformation (X1)	0.677
Networks (X2)	0.238

Source: SmartPLS 3.3.3 Output Data Processed, 2021

According to Hair et al. (2017), the Effect Size criteria are: if the f² value of 0.02 is categorized as a weak influence of the exogenous latent variable at the structural level, if the f² value of 0.15 is categorized as sufficient influence, and if the f² value of 0.35 is categorized as an influence strong.

Based on Table 5., it is known that f² for the relationship between Digital Transformation and Creative Industry Dynamic Capability is 0.677. This shows that Digital Transformation has a strong influence on Creative Industry Dynamic Capability. While f² for the relationship between Networks and Creative Industry Dynamic Capability is 0.238. This shows that Networks has a fairly strong influence on Creative Industry Dynamic Capability.

The following for testing the Inner model can be done by looking at the value of Q² (predictive relevance). To calculate Q² can be used the formula: $Q^2 = 1 - (1 - R_1^2)(1 - R_2^2) \dots (1 - R_p^2)$. Because there is only one R² then the value of Q² is the same as R². As with R², it also shows that around 72.3% of Creative Industry Dynamic Capability is explained by Digital Transformation and Networks.

The last part of the inner model test is to find the Goodness of Fit (GoF) value. Unlike the CB-SEM, the GoF value in the SEM-PLS must be calculated manually. In accordance with the formula from Tenenhaus (2004), specifically GoF = Square of AVE multiplied by R² so that the value of GoF Digital Transformation is 0.530682 and the value of GoF Networks is 0.541527. According to Tenenhaus (2004), small GoF = 0.1, medium GoF = 0.25 and large GoF = 0.38. Based on the calculation results above, it shows that the GoF value of the Digital Transformation and Network constructs is greater than 0.38, which means that the structural model formed meets the goodness of fit or the structural model that is formed is good, fits the field conditions, and can be used to predict the ability to purchase services. health, so that the structural model is acceptable.

From the R^2 , f^2 , Q^2 and GoF tests, it can be seen that the structural model formed is robust. So that hypothesis testing can be done.

3.1.3 Hypothesis Testing

There are two things that will be discussed in hypothesis testing, namely estimates for path coefficients (original sample O) and t-statistics or p-values that indicate whether or not the effect of endogenous constructs is significant on exogenous constructs, as well as seeing which indicators have a major contribution in reflecting or shaping latent construct. Estimate for Path Coefficients is done by Bootstrapping procedure.

Table 6. Path Coefficient Estimation and T-Statistics Total Effect

	Original Sample (O)	T Statistics (O/STDEV)	P Values
Digital Transformation (X1) -> Creative Industry Dynamic Capability (Y)	0,581	5,171	0,000
Networks (X2) -> Creative Industry Dynamic Capability (Y)	0,345	3,161	0,002

Source: SmartPLS 3.3.3 Output Data Processed, 2021

Based on the Original Sample O values in Table 6., as well as in Figure 1. The previous Structural Model, the main structural equations formed are: $Y = 0.581X_1 + 0.345X_2 + e$ where Y is Creative Industry Dynamic Capability, X1 is Digital Transformation, X2 is Networks, and e is error term.

Based on the structural equations formed, it is known that the coefficient of the structural model of the main path of Digital Transformation (X1) to Creative Industry Dynamic Capability has a positive value of 0.581 units with a T-statistics value of 5.171 > 1.96 and a P-Values of 0.000 < 0.05. This shows that Digital Transformation has a positive and significant impact on Creative Industry Dynamic Capability, where the higher the Digital Transformation applied by creative-preneurs in running the creative industry, the higher the Creative Industry Dynamic Capability. The increase in Creative Industry Dynamic Capability in every increase in Digital Transformation is 0.581 units. Thus, the First Research Hypothesis (H1) which states that: "Digital Transformation is very effective in strengthening Creative Industry Dynamic Capability in the Digital Era", ACCEPTABLE.

Meanwhile, the coefficient of the structural model of the Main Line Networks (X2) towards Creative Industry Dynamic Capability is positive at 0.345 units with a T-statistics value of 3.161 > 1.96 and a P-Values of 0.002 < 0.05. This shows that Networks also has a positive and significant effect on Creative Industry Dynamic Capability, although the effect is not as strong as Digital Transformation. The higher the Networks owned by creative-preneurs in running the creative industry, the higher the Creative Industry Dynamic Capability. The increase in Creative Industry Dynamic Capability in every increase in Networks is 0.345 units. Thus, the Second Research Hypothesis (H2) which states that: "Network is very effective in strengthening Creative Industry Dynamic Capability in the Digital Era", is ACCEPTABLE.

While the error term or model error is the level of inaccuracy in measuring the actual path coefficient value due to the fallibility of the measurement instrument (eg, an inappropriate Likert scale), data entry errors or respondent errors. According to Hair et al. (2014), the error term is the difference in the path coefficient value between using data from the population (true value or parameter) and using data from the sample (predicted value or statistics).

3.2 Discussion

The results show that digital transformation is very effective in strengthening the dynamic capabilities of creative industries in East Java which is indicated by the significant positive effect of digital transformation on creative industry dynamic capability, where the higher the digital transformation carried out by each industry, the higher the dynamic capability. the capability of the industry in facing changes in the economic climate in the digital era. This finding is in line with the research results of Karimi & Walter (2015) which explains that digital platforms can create dynamic capabilities. The results of this study also support the results of research by Sasmoko et al, (2019) which proves that digital practices starting from organizational leadership have a strong relationship with dynamic capabilities. As for the practice of digital transformation that greatly affects the dynamic capabilities of a company according to the results of Mendonça & Andrade (2018) research, there are 3 main things, namely IoT, Big Data, and AI.

Although AI was not considered in this study, because AI technology is still very rarely used by lower-middle creative industries in East Java, IoT and Big Data have had a very large effect on the dynamic ability of every industry in East Java in dealing with the era of globalization. digital, although in practice there are still many obstacles in the way of qualified human resources and capital in the development of IoT and Big Data. This is where synergistic collaboration between stakeholders in the penta-helix unit (academicians, business, community, the government and media) is needed as well as strong networks to accelerate the digital transformation process effectively and efficiently.

In the process of digital transformation, creative industries in East Java have strength in terms of Thinking Thing which is a dimension of IoT. The use of IoT has sparked the creativity of several creative industries to digitize the operational marketing process in general. However, the main obstacle is in terms of human resources who are qualified in their fields and budget funds. Especially during the Covid-19 period, the decline in income has made the

digitization process very constrained, although in practice it is very important to strive for it. Social restrictions make the use of digital means a must. Another advantage of the creative industries in East Java is in terms of volume-satisfaction, accessibility to data in an effort to obtain Big Data. In fact, access to data is easy to obtain in this era, although the data may be limited. Currently, manufacturers easily request consumer biodata through applications, through the web, or via google-form, instead of customer satisfaction surveys as well as customer data. Currently, social media is also connected, such as Whatsapp with Facebook and Instagram. However, the main weakness in the digital transformation process carried out by creative industries in East Java is in two things, namely Feeling Thing which is the dimension of IoT and Speed - time is needed to access information and make decisions which are dimensions of Big Data. In the process of collecting data from the communication environment that is built is still lacking because it relies on online rather than offline at this time. Most creative industry players are also less fast in accessing information and making decisions because of the uncertainty of the uncertainty of any available information.

This is also evident from the results of this study which show that the networks owned by each creative industry are very effective in the process of strengthening the dynamic capabilities of creative industries in East Java in facing the digital era. This effectiveness is also demonstrated by the proven relationship between networks and creative industry dynamic capability in a positive and significant direction, where the wider, stronger, and deeper the networks owned by each creative industry, the stronger the dynamic capabilities of each industry in facing technological disruption and change. economic climate in the digital age.

This finding strongly supports the results of previous studies, namely the research of Jiang et al. (2020) which reveals that network breadth and depth are important drivers of dynamic capabilities. Networks can transmit the benefits of business networking into successful product innovation. In addition, this finding is also in line with the findings of Abbas et al. (2019) which shows that entrepreneurial business networks have a significant positive relationship with dynamic capabilities. An entrepreneurial business network is a network that provides a platform for building business relationships, identifying, developing or acting on economic opportunities, sharing information and seeking potential business partners for ventures. By developing networks, small companies can achieve sustainable performance by deploying dynamic capabilities in a competitive environment.

The most powerful networking owned by most creative industries in East Java is the network with similar business communities and Government Organizations, such as Bekraf, Department of Industry, and Department of Cooperatives and SMEs. This shows that there is a very strong creative community of similar businesses, usually more interested in hedging issues of their products. The strong network with the government proves the government's attention to the condition of the creative economy ecosystem is very high. This is due to the contribution of the creative economy to the country's GDP. Meanwhile, networking that is still lacking is with Business management consultants and Tax Consultants. There are rarely free consultants. Management and business consultants, as well as tax consultants who stand independently, are paid on average at rates that are often considered quite heavy for beginner entrepreneurs or small and micro businesses. So, the role of the penta-helix in supporting creative economy in East Java is urgently needed.

4. CONCLUSION

The conclusion from the results of this study is that digital transformation is very effective in strengthening the dynamic capabilities of creative industries in the digital era even though the process is still not optimal because many industries are still constrained by budgetary funds and qualified human resources in the IoT and Big Data fields. In this case, networks owned by creative industries can slightly balance the shortcomings in digital transformation. The suggestion that can be given is that penta-helix collaboration be improved so that the acceleration of digital transformation can be done. For further research, it can examine the main shortcomings in the digital transformation process and specific problems in networks.

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