





“Influence of knowledge transfers on the achievement of change management in the creative industry”

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INFLUENCE OF KNOWLEDGE TRANSFERS ON THE ACHIEVEMENT OF CHANGE MANAGEMENT IN THE CREATIVE INDUSTRY

Abstract

This study aims to determine the influence of knowledge transfer on change management by involving information technology, information systems, and organizational culture variables. The study was conducted in the Java region, Indonesia, involving one of the creative industry subsectors, namely the application and game developer subsector. This study uses qualitative and quantitative research methods. In the qualitative method, online interviews were conducted with five production managers from application and game development companies to confirm and understand the variables used in the study (information technology, information system, organization culture). In the quantitative method, a survey was conducted with 168 production employees from five companies as respondents. A proportional random sampling technique was utilized, using AMOS 24 to test the hypotheses. Data analysis included descriptive statistical methods, parametric statistical methods, and confirmatory factor analysis. Hypothesis testing shows that information technology ($p = 0.000$; $\beta = 0.622$; $cr = 5.606$) and information systems ($p = 0.002$; $\beta = 0.280$; $cr = 3.048$) significantly influence knowledge transfer. Information technology ($p = 0.023$; $\beta = 0.279$; $cr = 2.274$) and information systems ($p = 0.000$; $\beta = 0.304$; $cr = 3.374$) also significantly influence change management. Knowledge transfer significantly affected change management ($p = 0.035$; $\beta = 0.271$; $cr = 2.110$). Organizational culture significantly influences change management ($p = 0.011$; $\beta = 0.145$; $cr = 2.554$). Organizational culture, namely trust, becomes an element in accelerating change management ($p = 0.042$; $\beta = 0.459$; $cr = 1.998$). Interestingly, knowledge transfer only mediates information technology in achieving change management ($t = 2.00 > 1.96$).

Keywords

information, systems, technology, knowledge, transfer, culture, change, management

JEL Classification

M14, O33

INTRODUCTION

Globalization has placed companies in an increasingly competitive environment. This condition compels organizations to adapt and undergo changes in order to survive. Change is a crucial element, particularly in the creative industry, which is characterized by its dynamic nature and dependence on trends, technological advancements, and ever-evolving market preferences. However, in pursuing these changes, human resources in the industry face challenges related to employees' limited skills and knowledge. To overcome these challenges, organizations can enhance employee capabilities through a process known as knowledge transfer. This process involves transferring knowledge, information, skills, and experiences from other employees in the company. Knowledge transfer is believed to facilitate organizational change, although its effectiveness is influenced by various factors such as information technology tools, information systems tools, and organizational culture. Therefore, it is essential to examine the influence of knowledge transfer on change management by considering the roles of information technology, information systems, and organizational culture in this study.

1. LITERATURE REVIEW AND HYPOTHESES

In the era of Industry 4.0, information technology dominates most of human life. Information technology is important in the creative industry, making knowledge the principal capital and facilitating knowledge management. In general, there are two types of knowledge, namely, tacit knowledge and explicit knowledge. Tacit knowledge is the knowledge that exists in a person's mind, formed from personal understanding and experience. Tacit knowledge is generally undocumented because it is still stored in the minds of individuals. Meanwhile, explicit knowledge is knowledge that has been processed, documented, and stored to be shared with others, making it easily understandable. Organizations can improve the tacit knowledge of their human resources through knowledge transfer facilitated by information technology. On the other hand, explicit knowledge can be managed through an information system.

Information technology is a tool to process, produce, store, and redistribute information through electronic media (Chandler & Munday, 2011). Technological developments have given rise to information technology such as personal computers, laptops, notebooks, smartphones, video conferencing (Zoom, Google Meet), television, radio streaming, YouTube, virtual reality, etc. Through information technology, organizations can transfer tacit knowledge through video conferencing with partners, customers, or managers (experts) without being limited by space and time. The transfer of tacit knowledge through this video conference can be processed, stored, and accessed in the future. Technology can encourage knowledge transfer, leveraging communication tools and knowledge management systems to enhance information sharing and collaboration, helping organizations achieve their goals (Gündüz et al., 2024). This shows that information technology significantly influences knowledge transfer (Bello et al., 2023; Albino et al., 2004; Rhodes et al., 2008; Sentana & Yuniastari, 2015), even beyond national borders (Kim, 2022; Wu & Lee, 2012). On the other hand, using information tools and technology is believed to create organizational change (Monferdini & Bottani, 2024). When an organization utilizes information technology for

knowledge transfer purposes, this translates as an organization's effort to change by increasing the knowledge of its human resources.

Information systems consist of hardware, software, data, procedures, and the people involved in transforming data into information, serving as a source of organizational knowledge (Reilly, 2022). In this context, information systems are more appropriately used to manage explicit knowledge. Through information systems, explicit knowledge is collected, compiled, processed, and stored in the form of documents, videos, articles, journals, e-books, and other formats (Smith & Brooks, 2013). Furthermore, this explicit knowledge can be distributed to be studied, understood, and utilized to support the knowledge transfer process. This statement suggests that knowledge management through information systems is believed to facilitate the knowledge transfer process within an organization. Studies have shown that information systems significantly influence knowledge transfer (Karlsen & Gottschalk, 2004; Sedera & Gable, 2010). The success of information systems in processing, storing, distributing, and providing access to knowledge is expected to enhance the knowledge possessed by organizational members. This effort becomes a strategic step for organizations to create change (Miletić, 2019). Information systems that manage knowledge in an integrated manner are referred to as Knowledge Management Systems (KMS). There are two recommended Knowledge Management System models for achieving change management: repository and network-based repository models (Yan & Zhang, 2019).

For companies in the creative industry, knowledge is considered one of the key intangible assets (Hogan et al., 2011) that plays a significant role. Therefore, the management of knowledge through knowledge transfer becomes a critical aspect to consider. Knowledge transfer is the process of ensuring the transfer of knowledge and mastery of skills within an organization, occurring between individuals, between organizational units, or a combination of both, facilitated by information technology or information systems. This means that in the knowledge transfer process, the information source not only shares knowledge but also ensures the transfer of knowledge

to the recipient. In this process, the information source must ensure that the knowledge shared is understood. In other words, the recipient of the information must be able to interpret and demonstrate the same knowledge as the source. A study suggests that knowledge transfer is not limited to knowledge alone, but also includes the experience possessed by organizational members (Tasselli, 2015). Knowledge transfer between individuals can occur through formal discussions (assignments) or informal interactions within the organization. Knowledge transfer between groups can be facilitated through discussions between units. Members of the organization who possess knowledge and experience on a particular topic in one unit can take turns conveying and ensuring that the information is understood by other units. This reinforces that in knowledge transfer, the communication of knowledge conveyed by the information source should be comprehensible and applicable by the recipient (Ko et al., 2005). To optimize the knowledge transfer process, organizations can utilize information technology and information systems. The use of information technology to assist in knowledge transfer can be done through personal computers, gadgets, video conferences, and so on. Meanwhile, the use of information systems can support knowledge transfer by providing access to knowledge materials through repositories, clouds, drives, and so on. In a study, knowledge transfer was identified as one of the essential elements needed to achieve change management (Yan & Zhang, 2019).

Change management can be defined as a process of learning, enhancing competencies, and fostering innovation among individuals or groups aimed at creating change within an organization. Learning is recognized as an interactive activity conducted by the source and recipient of information to acquire knowledge and skills. This emphasizes that the process of knowledge transfer is an integral part of learning. In the knowledge transfer process, there is an interaction between the information source and the recipient of the information. In the context of a company, the information source refers to managers, supervisors, customers, or organizational members (employees) / organizational units who possess specific knowledge and experience. Meanwhile, the recipient of the information refers to organizational members who require certain

knowledge or experience. The information source plays a role in delivering and explaining knowledge through various methods to ensure it is understood and applied. On the other hand, the recipient of the information listens, asks questions, and engages in discussions with the information source in an effort to comprehend the conveyed knowledge. Effective interaction between the information source and the recipient will encourage successful knowledge transfer. Successful knowledge transfer indicates the achievement of effective learning. When effective learning is achieved, an improvement in the competencies of the organization's members will occur. The improvement of competencies is expected to drive the creation of innovation, indicating that a change has occurred within an organization. (Panayides, 2006; R. C. Swansburg & R. J. Swansburg, 2002). Innovation is one of the critical elements that significantly impacts the business performance of the creative industry in Indonesia (Gunawan, 2024). In other words, knowledge-based innovation can create a competitive advantage for the creative industry in Indonesia. In general, the organization's competitive advantage is expected to address the limitations of its human resources' knowledge and skills, particularly in the subsector of application and game development. This underscores that change management can be achieved through the processes of learning, enhancing competencies, and fostering innovation (Kaswan, 2019).

However, to achieve change management, companies face challenges, one of which is culture (Conner, 2006). A study mentions that organizational cultural values, such as team collaboration, employee involvement, innovation capability, customer orientation, and technological adaptation, are factors that need to be considered when implementing strategies in the creative industry in West Java, Indonesia (Labib, 2024). Organizational culture is the fundamental values, rules, beliefs, and assumptions that are deeply rooted, as well as the individual behavior of organizational members. The study's results stated a significant relationship between organizational culture and change management (Bagga et al., 2023). Therefore, the interaction between individuals and groups needs to be encouraged, formally and informally, so that the process of sharing ideas, knowledge transfer, or experience transfer can be achieved better. In relation to knowledge transfer, knowledge trans-

fer is also known as a social phenomenon or event that is influenced by personal characteristics, interpersonal relationships, and social interactions (Gündüz et al., 2024). An organizational culture that synergizes and encourages the knowledge transfer process will positively impact the achievement of change management.

Knowledge management and change management research has been carried out by several researchers, including Jonkers and Shahroudi (2021), Hamdi et al. (2021), and Muftahu and Jamil (2021). Research related to knowledge sharing and change management has been conducted by Sullanmaa et al. (2021), Adam (2022), and Lee et al. (2006). However, there is still less research linking knowledge transfer to change management. In previous research, Yan and Zhang (2019) used qualitative methods, with the research object being the software industry. This study discusses influential factors in knowledge transfer and knowledge sharing, implementation of knowledge transfer and knowledge sharing, and knowledge management system design. Different from the previously stated research, this study combines qualitative and quantitative methods by involving creative industries in the application and game development subsector. The hypotheses prepared based on the concepts that have been described are as follows:

H1: Information technology has a positive effect on knowledge transfer.

H2: Information technology has a positive effect on change management.

H3: Information systems have a positive effect on knowledge transfer.

H4: Information systems have a positive effect on change management.

H5: Knowledge transfer has a positive effect on change management.

H6.1: Organizational culture has a positive effect on change management.

H6.2: Organizational culture in moderating knowledge transfer has a positive effect on accelerating change management.

Through the hypotheses formulated, the study will focus on the influence of knowledge transfer on change management by involving the variables of information technology, information systems, and organizational culture.

2. METHOD

This study was conducted in Java, Indonesia. Java was chosen as the research location because most creative industry-based companies are in Java, Indonesia. This research focuses on one of Indonesia's sub-sectors of the creative industry, namely application and game development. There are 16 subsectors in Indonesia's creative industry, including:

- 1) application and game development;
- 2) architecture;
- 3) interior design;
- 4) visual communication design;
- 5) product design;
- 6) fashion;
- 7) film, animation, and video;
- 8) photography;
- 9) crafts;
- 10) culinary arts;
- 11) music;
- 12) publishing;
- 13) advertising;
- 14) performing arts;
- 15) fine arts; and
- 16) television and radio.

The application and game development subsector is part of the creative industry, focusing on the creation of application software (such as mobile apps) and games (including video games, online games, and others). The applications and the game development industry in Indonesia have great potential and opportunities to increase Indonesia's GDP. Even during the pandemic, this industry became the capital for the revival of the creative economy in Indonesia (Ministry of Tourism and Creative Economy, 2021). The gaming industry experienced a growth of around 35.56 percent, while the application industry recorded a growth of 23.26 percent (Asthu et al., 2024). However, human resources are one of the factors that challenge this industry to compete globally (Mulachela, 2020;

Yulianto, 2023). The companies involved in the research are Company 1 in Salatiga city, Company 2 in Bandung city, Company 3 in Yogyakarta city, Company 4 in Jakarta city, and Company 5 in Salatiga city. The company name mentioned is a pseudonym to maintain the confidentiality of the company.

This study involved a survey research design and utilized both qualitative and quantitative methods. Qualitative methods are conducted through interviews, while quantitative methods are carried out by distributing questionnaires to respondents. Both data collection processes were conducted from August 1, 2023 to the end of October 2023. In the qualitative method, the interview involved 5 production managers in each of the 5 companies as respondents. The interviews were conducted to:

- (1) ensure that the variables incorporated in the model support knowledge transfer;
- (2) gather information regarding the available infrastructure; and
- (3) obtain an overview of the knowledge transfer processes occurring within the company.

The interview process assumes that the questionnaire distributed to employees is easily understood, thus impacting the validity of the data collected. In quantitative methods, the data collection involved 168 production employees as research respondents. Production employees were chosen based on the following criteria:

- 1) Most members of Generation Z possess sufficient technological literacy to support knowledge transfer through digital platforms.
- 2) The trial-and-error process in production activities generates experience and knowledge,

which can be shared and transferred to other production employees in need.

- 3) To enhance performance, production employees frequently participate in training sessions and discussions to facilitate knowledge transfer.

Meanwhile, the determination of the number of respondents (sample) refers to Hair Jr et al. (2019), where the number of indicators is x 5 to 10, and the total sample used is 168 respondents (24 indicators x 7). Determining the number of samples in modeling structural equations is considered sufficient, referring to the recommendation of Hair Jr et al. (2010), which is between 100-200 respondents. The number of samples for each company is determined using the formula:

$$ni = \frac{Ni}{N} \cdot Xn, \tag{1}$$

where *ni* is each company's sample, *Ni* is each company's population, *N* is the total population of the five companies, and *n* is the total sample used (*n* = 168). The calculation of sample determination for each company is presented in Table 1.

Data were collected using structured questionnaires in the form of paper-based surveys and online surveys via Google Forms. The paper-based survey was given to one company that asked for a paper-based format, while the others administered the online survey. The survey used the Likert scale from 1 (strongly disagree) to 5 (strongly agree). The study employed four indicators to measure information technology variables, which were adapted from the work of Song et al. (2001), Ningsih (2014), Namdarian et al. (2020), and Casimir et al. (2012). Information systems were measured using four indicators adapted from Sedera and Gable (2010), Samiei and Habibi (2020), and Lehner and Haas

Table 1. Calculation table for each company

Company Name	Subsector	Company Population (Ni)	Percentage of Each Company (Ni/N)	Sample of Each Company ni = (Ni/N) x n
Company 1	Application	220	0.57	96
Company 2	Game Development	80	0.21	35
Company 3	Game Development	45	0.12	20
Company 4	Application	11	0.03	5
Company 5	Game Development	30	0.08	13
Total Population (N)		386	-	168

(2010). Meanwhile, the knowledge transfer variable between individuals and groups is measured by adapting indicators from Rhodes et al. (2008). Furthermore, the organizational culture variable was measured using four indicators proposed by Namdarian et al. (2020). The questionnaire design was deemed effective in representing the variables, as confirmed by the production manager. In addition, the theory proposed by Kaswan (2019) was adapted to measure change management variables using four statement indicators. These variables are relevant because they relate to knowledge transfer, namely the learning process, competence, and innovation. A total of 24 statement indicators were utilized in the research instrument. Proportional random sampling is used as a sampling technique.

After all the questionnaires have been completed, calculations regarding the respondents' demographics are performed. Table 2 presents a summary of respondents' demographics.

Table 2. Respondents' demographics

Profile	Description	Percentage
Gender	Male	77%
	Female	23%
Work Experience (Year)	< 1	3%
	1-5	82%
	6-10	7%
	11-15	4%
	16-20	5%
	> 20	1%
Education	Senior High School/ Vocational School	55%
	Associate Degree	0%
	Applied Bachelor's Degree	0%
	Bachelor's Degree	41%
	Master's Degree	4%
Age	Doctoral Degree	0%
	17-20	23%
	21-30	51%
	31-40	14%
	41-50	10%
	> 50	3%

Based on gender, male respondents occupy the majority, namely 77%. Based on work experience, most respondents had work experience of up to 5 years, which is 82%. Then, from the last level of education, most respondents had a high school/vocational school/equivalent education of 55%, and 41% had a bachelor's degree. Most respondents were aged 21-30 years, amounting to 51%. The next

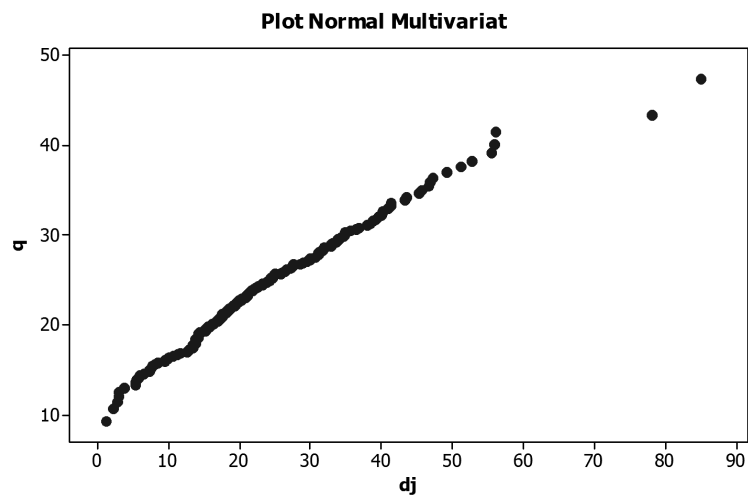
step involves processing the data based on the model that has been developed using Structural Equation Modeling (SEM). The data testing stage is conducted through several steps: normality test, confirmatory factor analysis (CFA), direct effect test, and indirect effect test. The Normality Test was processed with the SPSS 23 program using the QQ Plot method. Confirmatory factor analysis (CFA) and direct influence test were processed using AMOS 24. Meanwhile, the indirect influence test was analyzed using the Sobel Test (Sobel, 1982). Analysis of the results of data processing is carried out through testing *Confirmatory Factor Analysis* (CFA) by looking at the value validity test is below 0.05 (< 0.05), estimated value *loading factor* must be above 0.5 (> 0.5) and reliability test more than 0.70 (> 0.70). Measurement of the Goodness of Fit Model is done by looking at the default value of the model in GFI, AGFI, and TLI (GFI, AGFI, TLI > 0.9), RMSEA (RMSEA < 0.08), and the default AIC and ECVI models must be smaller than *the saturated* and *independent models*. A model can be said to meet the Goodness of Fit Model if it has fulfilled more than one model suitability test (Widarjono, 2010). Testing the direct effect hypothesis uses a probability value below 0.05 ($p\text{-value} < 0.05$), and the critical ratio must be above 1.96 ($cr > 1.96$). Analysis of the strength of the relationship between variables refers to Hair Jr et al. (2010), where $\beta < 0.20 =$ weak, $\beta = 0.20\text{-}0.50$ moderate, and $\beta > 0.50 =$ strong. The indirect effect hypothesis is tested using the calculated t value ≥ 1.96 ($t \geq 1.96$).

3. RESULT

In the first stage, after coding the data, a normality test was conducted using a QQ Plot, which is illustrated in Figure 1.

In Figure 1, the results show that most of the points are very close; some even stick to the diagonal line. So, it can be ascertained that the data obtained follow a normal distribution or are normally distributed so that it can be continued to the next testing stage.

In the next stage, CFA analysis was carried out by looking at the output results of the validity, loading factors, and reliability values in Table 3.



Note: The points formed are the results of the normality test.

Figure 1. Normality test

Table 3. Output for mean, standard deviation, loading factor, validity, and reliability tests

No.	Questions of Research Variables	Mean	Std	Loading Factor (> 0.5)	Validity (≤ 0.05)	Reliability (> 0.7)
Information Technology (X1)						
X1.1	IT tools such as email, intranet/internet/website/video conversion are used to share knowledge with colleagues	4.31	0.71	0.80	0.000	0.88
X1.2	Knowledge sharing is often done using IT tools	4.25	0.70	0.85		
X1.3	Easy access to the IT tools used is provided by the organization	4.07	0.84	0.87		
X1.4	Experts are provided by the organization to support knowledge sharing activities	3.85	0.83	0.69		
Total Mean		4.12				
Information System (X2)						
X2.1	The information system developed by the organization is easy to use	4.06	0.77	0.87	0.000	0.87
X2.2	The information system developed by the company is integrated with other units	3.77	0.83	0.84		
X2.3	The information system implemented by the organization has clear guidelines	3.81	0.79	0.71		
X2.4	The organization's information system in use has important functions	4.17	0.69	0.76		
Total Mean		3.95				
Knowledge Transfer (Y1)						
Individual (Y1.1)						
Y1.1.1	Knowledge obtained from members of the organization	4.12	0.68	0.80	0.000	0.91
Y1.1.2	Experience obtained from members of the organization when they are asked	3.83	0.78	0.79		
Y1.1.3	Knowledge will be shared with members of the organization if it benefits the organization	4.22	0.61	0.72		
Y1.1.4	Effective knowledge transfer is achieved through training courses, presentations, and internal magazines provided by the company	3.97	0.82	0.64		
Total Mean		4.03				
Group (Y1.2)						
Y1.2.1	Knowledge obtained through group discussions within the organization (company)	4.21	0.68	0.84	0.000	0.91
Y1.2.2	Experience obtained through group discussions within the organization (company)	4.20	0.61	0.81		
Y1.2.3	Knowledge will be shared with other units or divisions if it benefits the organization	4.19	0.64	0.82		
Y1.2.4	The company transfers experience from one unit (division) to another	3.84	0.78	0.62		
Total Mean		4.11				

Table 3 (cont.). Output for mean, standard deviation, loading factor, validity, and reliability tests

No.	Questions of Research Variables	Mean	Std	Loading Factor (> 0.5)	Validity (≤ 0.05)	Reliability (> 0.7)
Organizational Culture (Z)						
Z.1	Trust in someone encourages the transfer of knowledge	4.17	0.66	0.84	0.000	0.91
Z.2	A commitment to the organization is shown through the transfer of knowledge	4.06	0.71	0.85		
Z.3	The form of self-confidence is expressed through the transfer of knowledge	4.00	0.75	0.87		
Z.4	Integrity to the organization is demonstrated through knowledge transfer efforts	4.08	0.70	0.83		
Total Mean		4.08				
Change Management (Y2)						
Y2.1	Future developments are derived from knowledge transfer	4.34	0.61	0.91	0.000	0.90
Y2.2	Competency improvement is obtained from the knowledge transfer process	4.27	0.67	0.80		
Y2.3	Innovation and discovery of new products are obtained from the process of knowledge transfer	4.06	0.75	0.80		
Y2.4	Skill updates are obtained through the process of knowledge transfer	4.35	0.60	0.83		
Total Mean		4.25				

Note: X1.1, X1.2, X1.3, X1.4: information technology indicators; X2.1, X2.2, X2.3, X2.4: system information indicators; Y1.1.1, Y1.1.2, Y1.1.3, Y1.1.4: individual knowledge transfer indicators; Y1.2.1, Y1.2.2, Y1.2.3, Y1.2.4: group knowledge transfer indicators; Y2.1, Y2.2, Y2.3, Y2.4: change management indicators; Z1.1, Z1.2, Z1.3, Z1.4: organization culture indicators.

In Table 3, the validity test shows that the variable values for information technology, information systems, knowledge transfer, change management, and organizational culture are below 0.05. The loading factor for each variable is above the value of 0.5, so it is concluded that the variable is used to meet validity requirements. The reliability test shows a value above 0.7 for each bell variable, so it is concluded that the variables used are reliable. The standard deviation value shows a value smaller than each indicator’s average. So, it can be concluded that the data are tightly clustered or tapered towards the average. This indicates that the data are consistent and homogeneous. Consistency and homogeneity of data refer to the suitability of the data to the model or assumptions used in the study. Most members of the organization share knowledge through information technology devices such as email, intranet, internet, websites and video conferences (X.1.1). In relation to information systems, it shows that the majority of organizational members agree that the implementation of the information system carried out by the company is felt to have an important function and role (X.2.4). Furthermore, achieving individual knowledge transfer begins with the awareness of organizational members to help the company by sharing knowledge with other members (Y.1.1.3). Meanwhile, regarding group knowledge transfer, the majority of organizational members agree that

helping the company can be done through sharing knowledge with departments (Y.1.2.3). It is believed that discussions held between these departments can increase knowledge and experience for members of the organization (Y1.2.1; Y1.2.2). In terms of organizational culture variables, it appears that trust is an indicator that most organizational members pay attention to when seeking knowledge transfer (Z1). The change management variable shows that the majority of organizational members agree that knowledge encourages organizational members to develop (Y.2.1) and improve their abilities (Y.2.2). The next step is to analyze the goodness of fit test presented in Table 4.

Based on Table 4, it appears that the chi-square value = 438.581 > 287.882; p-value = 0.000 < 0.005; GFI = 0.831 < 0.90; AGFI = 0.783 < 0.90; TLI = 0.923 > 0.90; RMSEA = 0.066 < 0.08; AIC = 582.581 < 650.000 & 3210.731; ECVI = 3.489 < 3.892 & 19.226.

Table 4 shows that there is more than one output indicating that the research model meets model suitability or *goodness of fit*. This is shown by the TLI value, which is 0.923, which is greater than 0.90; the RMSEA value, which is 0.066, which is less than 0.08; the AIC and ECVI values, which are 582.581 and 3.489, where these values are less than the saturated & independence model values.

Table 4. Goodness of fit test

Criteria	Cutt-off Value	Model Output	Model Evaluation
Chi-Square (DF=253;0.05)	≤ 287.882	438.581	Poor Fit
p-value	≥ 0.005	0.000	Poor Fit
GFI	≥ 0.90	0.831	Marginal Fit
AGFI	≥ 0.90	0.783	Marginal Fit
TLI	≥ 0.90	0.923	Model Fit
RMSEA	≤ 0.08	0.066	Model Fit
AIC	AIC < Saturated & Independence Models	582.581	Model Fit
ECVI	ECVI < Saturated & Independence Models	3.489	Model Fit

Note: DF: Degree of Freedom; p-value: probability value; GFI: Goodness of Fit Index; AGFI: Adjusted Goodness of Fit Index; TLI: Tucker-Lewis Index; RMSEA: Root Mean Square Error of Approximation.

Table 5. Hypothesis testing

Hypothesis	Variable	Coefficient β	Critical ratio (cr)	P-value (p)	Result
H1	Information Technology (X1) → Knowledge Transfer (Y1)	0.622	5.606	.000	Significant
H2	Information Technology (X1) → Change Management (Y2)	0.279	2.274	.023	Significant
H3	Information System (X2) → Knowledge Transfer (Y1)	0.280	3.048	.002	Significant
H4	Information System (X2) → Change Management (Y2)	0.304	3.374	.000	Significant
H5	Knowledge Transfer (Y1) → Change Management (Y2)	0.271	2.110	.035	Significant
H6.1	Organizational Culture (Z) → Change Management (Y2)	0.145	2.554	.011	Significant
H6.2	Organizational Culture (Z_Y1) → Change Management (Y2)	0.459	1.998	.042	Significant

Note: “→” influence; H1: hypothesis 1, H2: hypothesis 2; H3: Hypothesis 3; H4: hypothesis 4; H5: hypothesis 5; H6.1: hypothesis 6.1; H6.2: hypothesis 6.2.

Based on the hypothesis test output results in Table 5, testing the information technology variable on the knowledge transfer variable shows $\beta = 0.622$ (strong); $cr = 5.606 > 1.96$; $p = 0.00 < 0.05$. It can be concluded that hypothesis H1 significantly influences information technology variables on knowledge transfer. In testing the information technology variable on the change management variable shows $\beta = 0.279$ (moderate); $cr = 2.274 > 1.96$; $p = 0.023 < 0.05$. It can be concluded that hypothesis H2 significantly influences information technology variables on change management. Then, when testing the information system variable on the knowledge transfer variable shows $\beta = 0.280$ (moderate); $cr = 3.048 > 1.96$; $p = 0.002 < 0.05$. Hypothesis H3 is accepted, or it can be said that there is a significant influence of the information system variables on knowledge transfer. Next, testing the information system variables on the change management variables shows $\beta = 0.304$ (moderate); $cr = 3.374 > .96$; $p = 0.00 < 0.05$. It can be concluded that hypothesis H4 is accepted, stating a significant influence of information system variables on change management. Testing the knowledge transfer variable on the change man-

agement variable, $\beta = 0.271$ (moderate); $cr = 2.110 > 1.96$; $p = 0.035 < 0.05$. It was concluded that hypothesis H5 was accepted, or there was a significant relationship between the knowledge transfer variable and change management. In testing the organizational culture variable on the change management variable, $\beta = 0.145$ (weak); $cr = 2.554 > 1.96$; $p = 0.011 < 0.05$. It can be concluded that hypothesis H6.1 is accepted or that there is a significant influence between organizational culture variables on change management. In testing the organizational culture variable as a moderating variable for the change management variable, $\beta = 0.459$ (strong); $cr = 1.998 > 1.96$; $p = 0.042 < 0.05$. Hypothesis H6.2 is accepted, or it can be said that the organizational culture variable as a moderator significantly accelerates change management in an organization. The Sobel test is used in indirect hypothesis testing involving mediating variables (Sobel, 1982). The Sobel test is conducted by testing the strength of the indirect influence of the independent variable on the dependent variable through the mediating variable. The value of the Sobel Test can be obtained through the following formula:

Table 6. Sobel test

Test	Indirect Effect	a	b	Se _a	Se _b	t-value	Result	Conclusion
Test 1	Information Technology (X1) → Knowledge Transfer (Y1) → Change Management (Y2)	0.590	0.370	0.105	0.175	2.00	2.00 > 1.96	Mediating
Test 2	Information System (X2) → Knowledge Transfer (Y1) → Change Management (Y2)	0.287	0.370	0.094	0.175	1.70	1.70 < 1.96	Not Mediating

Note: *a*: The regression coefficient for the relationship between the independent variable and the mediator; *b*: The regression coefficient for the relationship between the mediator and the dependent variable; *Se_a*: The Standard error of the relationship between the independent variable and the mediator; *Se_b*: The Standard error of the relationship between the mediator variable and the dependent variable.

$$Se_{ab} = \sqrt{a^2 se_b^2 + b^2 se_a^2 + se_a^2 + se_b^2} \tag{2}$$

The t-value is calculated using the following formula:

$$t = \frac{ab}{Se_{ab}} \tag{3}$$

The values of a, b, *Se_a*, and *Se_b* are obtained from the output of data processing using the AMOS application. The results of the hypothesis test processed using the Sobel test formula are presented in Table 6.

In Table 6, the calculated t-value in test 1 of the indirect effect shows t-value = 2.00 > 1.96. It can be interpreted that knowledge transfer can mediate information technology in achieving change management. Meanwhile, in test 2, the indirect effect showed t-value = 1.70 < 1.96. It can be concluded that knowledge transfer cannot mediate the information system in achieving change management.

4. DISCUSSION

Based on the analysis, this study found that information technology significantly affects knowledge transfer. Most organization members utilize information technology devices such as email, intranet, internet, website, or *video conferencing* to share knowledge with colleagues.

Technology related to knowledge management is indispensable for companies operating in high-tech sectors such as application and game development (Esposito & Evangelista, 2016). Technology trends are also believed to encourage openness and knowledge development (Tapscott & Williams, 2007).

Information systems are also a variable that significantly affects knowledge transfer. In this case, members of the organization feel that they have

gained significant benefits from using the information system. However, the findings show that knowledge transfer does not significantly mediate information systems to achieve change management. The study's findings reveal that knowledge transfer only significantly mediates between information technology and the achievement of change management. It can be concluded that organization members are more accustomed to transferring knowledge using information technology devices. The conclusion refers to the assumption that the majority of workers belong to Generation Z. Generation Z is a tech-savvy generation in the information society. This fact makes workers more accustomed to using information technology devices rather than information systems. These finding supports research conducted by Palumian et al. (2023), which shows that information literacy significantly influences technology use among Gen Z in Indonesia. Information literacy effectively evaluates and utilizes information by comprehending the technological infrastructure involved in information transfer. It encompasses the social, political, and cultural dimensions and their influence (Reitz, 2004).

About the transfer of individual knowledge, research has found that motivation in the process of knowledge transfer is carried out in the interest of helping the organization. The allegations refer to Herzberg's theory of motivation (Herzberg, 1964). In motivation theory, the satisfaction of organizational members can be achieved when they behave positively or accomplish things. The study's findings stated that group knowledge transfer was preferable to individual knowledge transfer. Members of the organization believe they have gained knowledge and experience through discussions and group sharing. Previous research revealed that groups or subgroups in organizations can facilitate knowledge transfer by building communication to ensure knowledge transfer (Fang et

al., 2010). The teaching pattern carried out collectively in a group has a positive effect on the intelligence of the receiving team (Huang & Chin, 2018). Regarding the information technology used by the organization, Senge (1990) proposes that group learning can be facilitated through advanced technology. In the end, the collective knowledge formed in the organization will be integrated and configured to help create innovation (Duffy & Cunningham, 1996; Kogut & Zander, 1992). Interviews were conducted to discuss innovation issues, and it was revealed that knowledge transfer within the company is done in groups. The knowledge transfer process can be done face-to-face or online by involving colleagues, seniors, managers, or clients. This synergy is believed to create innovation for the company.

In organizational culture, the trust factor is an important finding. Previous research revealed that trust and positive attitudes toward colleagues facilitate knowledge transfer while encouraging the learning process and cooperation between departments (Newell & Swan, 2000). Several factors were identified as obstacles to development in the study of creative clusters in Poland. These include reluctance to reduce trust, insufficient knowledge sharing, intense competition, lack of cooperation, and limited employee transfer between clusters. (Namyślak, 2020). The study confirms that a person will be more reluctant to share and transfer knowledge when the trust factor decreases. However, when trust has been built in an organization, it is believed to increase the willingness to share with the members of the organization (Laily et al., 2023). Almost the same study argues that trust in the sense of security to share ideas is associated with colleagues' competence in carrying out joint tasks aimed at achieving organizational goals. In other words, members of the organization will be more trusted in transferring ideas to members with abilities/competencies (Sunnemark et al., 2023). In this situation, distrust is suspected to be a concern for the organization's members (as sources) in transferring knowledge due to the organization's members' (as recipients) inability. As a source who transfers knowledge, they are worried that the recipient does not understand and cannot complete their task, even though they have gone through the knowledge transfer process. Failure occurs because the recipient lacks competence,

which will ultimately be the responsibility of the source who carries out the knowledge transfer.

In research, change management indicators are based on learning, competence, and innovation (Kaswan, 2019). The study's findings show that knowledge transfer enables members to improve their skills. Learning that occurs through knowledge transfer encourages organization members to develop and improve their abilities. This fact confirms that there is learning in the organization that enables organizational members to acquire competencies. The competencies possessed by members of the organization are expected to enable them to create innovation. This demonstrates that systems and knowledge transfer foster innovation (Verhoef et al., 2021). The elements of creativity and innovation significantly influence the business performance of Indonesia's creative industry (Gunawan, 2024). The achievement of three things, namely learning, competence, and the emergence of innovation, indicates that the organization has worked on change management.

Information technology, information systems, and organizational culture are important to achieve change management in the knowledge transfer process. In supporting the knowledge transfer process, organizations are advised to increase the availability of information technology infrastructure such as intranets, high-speed internet networks, websites, video conferencing, etc. The organization must provide an information system that contains important information related to the knowledge needed by the organization to support the transfer of explicit knowledge. Organizations also need to improve group knowledge transfer activities such as seminars, workshops, discussions between divisions, etc., which can be facilitated by information technology. To overcome the crisis of trust caused by a lack of competence, organizations need to develop training and development planning strategies for organizational members. The goal is to ensure that all organization members possess a similar level of competence. Related to change management, organizations need to maintain an efficient and effective learning process through knowledge transfer, motivate organizational members to improve their competencies, and provide rewards for organizational members who find innovation.

CONCLUSION

The study aims to determine the influence of knowledge transfer on change management in the creative industry in Indonesia by involving the variables of information technology, information systems, and organizational culture. The study has found that knowledge transfer indirectly mediates the use of information technology in achieving effective change management. The primary factor in change management is group knowledge transfer facilitated by information technology. The study highlights that trust, as an element of organizational culture, can significantly impact the knowledge transfer process. Organizational culture is essential for accelerating the change management process within an organization.

Nevertheless, this study has some shortcomings; specifically, variables related to creativity, conflict, leadership, and communication were not included in the research model. Additionally, the study was limited to the application and game development subsectors. Further research is encouraged to include other variables, such as creativity, conflict, leadership, or communication, and explore different subsectors of the creative industry.

AUTHOR CONTRIBUTIONS

Conceptualization: Mohammad Isa Irawan, Anton Hermawan.

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APPENDIX A

Table A1. Questionnaire research instrument

PART I. IDENTITY OF THE RESPONDENT

Choose the appropriate answer for the fields with the * sign or Put a check mark (✓) on each question and fill in the box with the appropriate answer, as follows:

1. Respondent's Position: _____Unit/Part:_____

2. Gender of Respondents:

- Male
- Female

3. Length of Work: _____Year

4. Education

- Senior High School
- Associate Degree
- Applied Bachelor's Degree
- Bachelor's Degree
- Master's Degree
- Doctoral Degree

5. Age of Respondents (years)

- 17-20
- > 21-30
- > 31-40
- > 41-50
- > 50

PART II.

INFORMATION TECHNOLOGY

The statement in part II will be used to see the respondents' perception of the measured research variables. Therefore, you are requested to put a check mark (√) on one of the answer columns according to your choice.

Meaning of Choice of Answer:

STS = strongly disagree, TS = disagree, N = neutral, S = agree, SS = strongly agree

No.	Statement	Choice of Answer				
		STS	TS	N	S	SS
INFORMATION TECHNOLOGY (Song et al., 2001; Ningsih, 2014; Namdarian et al., 2020; Casimir et al., 2012)						
1	I use IT devices such as email, intranet/ internet/ website/ video conferencing to share knowledge with members of the organization					
2	I often use IT devices to share work-related knowledge					
3	Organizations provide easy access to the IT devices used					
4	The organization provides experts in supporting knowledge-sharing activities					
INFORMATION SYSTEMS (Sedera & Gable, 2010; Samiei & Habibi, 2020; Lehner & Haas, 2010)						
5	Information systems built by organizations are easy to use					
6	The information system built by the company is integrated with other units					
7	The information system that the organization implements has clear guidelines					
8	The organizational information system used has an important function					
KNOWLEDGE TRANSFER: INDIVIDUALS (Rhodes et al., 2008)						
9	I gain knowledge from members of the organization					
10	I gain experience from members of the organization if they are asked to					
11	I always share knowledge with members of the organization when it helps the organization					
12	The company strives for effective knowledge transfer to employees through training courses, presentations, and internal magazines					
KNOWLEDGE TRANSFER: GROUPS (Rhodes et al., 2008)						
13	I gained knowledge through group discussions in organizations (companies)					
14	I gained experience through group discussions in organizations (companies)					
15	We always share knowledge with other units or divisions when it helps the organization					
16	The company transfers experience from one unit to another					
ORGANIZATIONAL CULTURE (Namdarian et al., 2020)						
17	I try to transfer knowledge because I trust my colleagues					
18	Transferring knowledge is my commitment to the organization					
19	My efforts to transfer knowledge are a form of confidence					
20	Transferring knowledge is a form of my integrity to the organization					
CHANGE MANAGEMENT (Kaswan, 2019)						
21	The transfer of knowledge I gained enabled me to develop further					
22	The transfer of knowledge I gained improved my competence					
23	The transfer of knowledge I gained enabled me to be creative in creating new products					
24	Transfer of knowledge I have gained to renew (<i>update</i>) my membership					

PART III. FEEDBACK AND SUGGESTIONS

Please provide input and suggestions, if any:

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Thank you for your support and participation.
 Greetings, success to us together.-o0o-

APPENDIX B

Tabel B1. Sobel Test Calculation: Test 1

a	Sea	b	Seb	a ²	Sea ²	b ²	Seb ²	a ² . Seb ²	b2. Sea ²	Sea ² .Seb ²	Total	Seab	a.b	t= a.b/Seab
0.590	0.105	0.370	0.175	0.348	0.011	0.136	0.030	0.010	0.0015	0.0003	0.0125	0.1118	0.2183	2.0

Tabel B2. Sobel Test Calculation: Test 2

a	Sea	b	Seb	a ²	Sea ²	b ²	Seb ²	a ² . Seb ²	b2. Sea ²	Sea ² .Seb ²	Total	Seab	a.b	t= a.b/Seab
0.287	0.094	0.370	0.175	0.082	0.008	0.136	0.0306	0.0025	0.0012	0.0002	0.0040	0.0632	0.1061	1.7