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Author: Nathalia Minarma Parhusip · Co-author: Rezi Erdiansyah

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Author: Retno Niken Palupi · Co-author: Rezi Erdiansyah

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Retno Niken Palupi

Tarumanagara University,

Jakarta, Indonesia.

Rezi Erdiansyah

Tarumanagara University,

Jakarta, Indonesia.

The Effect of DGIP–JICA Institutional Support on Indonesian MSMEs’ Interest in Intellectual Property Registration: The Mediating Roles of IP Awareness and Perceived Benefits

Retno Niken Palupi, Rezi Erdiansyah

Abstract

This study examines the influence of DGIP–JICA institutional support on Indonesian MSMEs’ interest in registering intellectual property, incorporating IP awareness and perceived benefits as mediating variables. Employing a quantitative, hypothesis-testing research design, the study collected data through a structured online questionnaire administered to 120 MSME participants of DGIP–JICA intellectual property education and socialization programs between July and October 2025. Data were analyzed using Partial Least Squares–Structural Equation Modeling (PLS–SEM) with SmartPLS. The findings show that DGIP–JICA support significantly enhances IP awareness, strengthens MSMEs’ perceptions of the benefits of intellectual property protection, and increases their interest in formal IP registration. IP awareness is also shown to significantly influence both perceived benefits and registration interest, while perceived benefits exert a strong direct effect on MSMEs’ intention to register IP and act as a significant mediator in the relationships between DGIP–JICA support, IP awareness, and registration interest. These results highlight the importance of institutional intervention in improving SMEs’ understanding and utilization of intellectual property as a strategic business asset. Despite its contributions, the study is limited by its cross-sectional design, short data-collection period, reliance on self-reported online survey data, and sample restricted to MSMEs already exposed to DGIP–JICA initiatives. Additionally, the model focuses only on internal cognitive factors and institutional support, leaving out other contextual, behavioral, and regulatory variables that may also shape MSMEs’ decisions to register their intellectual property.

Keywords: DGIP–JICA Support, IP Awareness, Perceived Benefits of IP, Interest in IP Registration.

1. Introduction

Intellectual property (IP) is a strategic asset in a modern economy driven by innovation and technology. The protection and utilization of IP are key to enhancing a country's economic competitiveness. Various forms of IP such as trademarks, patents, copyrights, industrial designs, trade secrets, and geographical indications not only safeguard creativity and innovation but also generate new economic opportunities. IP facilitates technological advancement, stimulates the growth of the creative economy, and strengthens the competitive position of businesses in both domestic and global markets.

In the global context, developed countries have utilized intellectual property (IP) as a major driver of economic growth. According to the *World Intellectual Property Organization (WIPO) Report 2024: Making Innovation Policy Work for Development*, IP-based sectors including technology, arts, and design contribute significantly to Gross Domestic Product (GDP) and generate high-value employment. In contrast, developing countries such as Indonesia continue to face challenges in optimizing the potential of IP. Low levels of awareness and understanding of the benefits of IP protection, along with limited access to IP registration mechanisms, remain major obstacles in reaching all business actors, particularly those in the Micro, Small, and Medium Enterprises (MSME) sector. Many MSME actors still do not fully comprehend how IP protection can safeguard their innovations and enhance the competitiveness of their products or services in the market.

Correspondence:

Retno Niken Palupi

Tarumanagara University,

Jakarta, Indonesia.

MSMEs, as the backbone of the Indonesian economy, play a crucial role in driving national economic growth. IP protection helps MSMEs safeguard their innovations, minimize the risks of piracy, and enhance the value of their products in international markets. At the domestic level, IP protection encourages entrepreneurs, researchers, and creators to be more creative and innovative in developing new works. However, Indonesia continues to face obstacles related to IP protection, largely due to the widespread perception that the registration process is complicated and expensive. This indicates that public education and awareness regarding IP protection remain insufficient.

The DGIP, as the agency responsible for administering the intellectual property system in Indonesia, has implemented numerous programs to promote IP awareness among the public, including seminars, workshops, and technical training sessions designed to explain the benefits of IP protection for individuals, companies, universities, and MSMEs. However, DGIP data indicate that the majority of MSME actors have not yet fully utilized IP protection, despite the sector's significant contribution to Indonesia's GDP.

Indonesia's collaboration with Japan through the Japan International Cooperation Agency (JICA) also plays an important role in strengthening the national IP ecosystem. According to information published by JICA, the support provided by the Japanese government to developing countries is delivered through Official Development Assistance (ODA), a mechanism aimed at fostering social and economic development. ODA generally consists of two categories: bilateral assistance, which is provided directly to the governments of developing countries, and multilateral assistance, which is implemented through international organizations. JICA represents a form of bilateral ODA, offering technical cooperation, Japanese ODA loans, and grant aid across various sectors, including intellectual property.

JICA has supported the DGIP in the field of intellectual property since 1995 through a cooperation scheme coordinated with the Ministry of National Development Planning/National Development Planning Agency (Bappenas). Through this program, experts from the Japan Patent Office (JPO) have been assigned to assist the DGIP in strengthening its duties and functions related to IP administration, capacity building, and system development. This study seeks to examine the extent to which the DGIP–JICA collaboration has influenced MSME awareness of IP, their perceptions of its benefits, and their interest in registering IP as a means of protecting and strengthening their businesses. The findings are expected to provide valuable insights for relevant institutions in designing strategic policies that enable JICA-supported programs to operate more effectively, align with government efficiency objectives, reach a broader spectrum of MSMEs across Indonesia, and encourage them to understand and register their IP assets.

Several previous studies indicate that institutional support, particularly through DGIP and JICA seminars and outreach initiatives positively contributes to improved understanding and interest in IP registration. For example, the IPO (2024) report on IP awareness among SMEs highlights that higher levels of IP awareness are strongly associated with the likelihood of SMEs utilizing IP protection mechanisms. The European Union Intellectual Property Office (2022)

SME Scoreboard also shows that MSMEs with registered IP rights benefit from enhanced reputation, stronger innovation protection, and better access to financing. Additionally, Wang, *et al.* (2025) found that IP protection plays a crucial role in supporting sustainable innovation performance and competitive advantage among SMEs. Research by Pandey & Cokki (2024) further demonstrates that institutional awareness and the public image of the DGIP significantly influence the intention to register IP.

Therefore, this study aims to fill an important gap by focusing on how institutional support specifically the DGIP–JICA collaboration affects IP registration behavior through the mediating roles of IP awareness and perceived benefits among MSMEs. Based on this background, the research questions formulated in this study are as follows: Does DGIP–JICA support influence IP awareness among MSMEs in Indonesia? Does DGIP–JICA support influence MSMEs' perceptions of the benefits of IP? Does DGIP–JICA support influence MSMEs' interest in IP registration? Does IP awareness influence MSMEs' perceptions of IP benefits? Does IP awareness influence MSMEs' interest in IP registration? Does perceived benefit influence MSMEs' interest in IP registration? Does perceived benefit mediate the effect of DGIP–JICA support on MSMEs' interest in IP registration? Does perceived benefit mediate the effect of IP awareness on MSMEs' interest in IP registration?

2. Literature review

A. DJIP-JICA Support.

Institutional support refers to formal and informal assistance provided by governments and related institutions, including subsidies, tax incentives, intellectual property protection mechanisms, government procurement programs, and collaborations among industry, universities, and research institutions (Yang & Yu, 2022). In this study, institutional support specifically refers to assistance provided by the DGIP and JICA to MSMEs in Indonesia.

B. Intellectual Property (IP) Awareness

IP awareness refers to the level of knowledge, understanding, and concern regarding the concept of intellectual property, its benefits, and the procedures for obtaining protection.

C. Perception of Benefits

Perception of benefits refers to an individual's belief or assessment of the economic, legal, and business advantages that can be obtained from registering intellectual property, such as legal protection, enhanced reputation, reduced risk of imitation, increased competitiveness, and commercialization opportunities.

D. Interest in Intellectual Property (IP) Registration

Interest or intention to register IP refers to an individual's willingness or desire to apply for protection of the intellectual property they have created (Pandey & Cokki, 2024).

Conceptually, this study is also grounded in the Theory of Planned Behavior (TPB) (Ajzen, 1991) and the Resource-Based View (RBV) (Barney, 1991). According to TPB, behavioral intentions such as the intention to register IP is shaped by awareness, perceived benefits, and positive attitudes toward the behavior. From the RBV perspective, IP is considered a valuable, rare, inimitable, and non-substitutable strategic resource capable of generating sustainable competitive advantage for SMEs (Wang, *et al.* 2025).

E. Interrelationship Between Variables

Institutional support in the form of seminars, outreach activities, and technical training provided through the DGIP–JICA program increases MSMEs' understanding of the importance of IP protection. The (IPO, 2024) report confirms that higher levels of IP awareness encourage business actors to actively use IP protection mechanisms. Research by (Wiwesa, Ngurah Rangga, *et al.* 2023) also found that IP awareness plays a significant role in fostering innovation and business development. Thus, DGIP–JICA support is expected to increase IP awareness among MSMEs.

Hypothesis (H1): DGIP–JICA support influences IP awareness.

DGIP–JICA support also shapes MSMEs' perceptions of the value and benefits of IP protection. Through education and facilitation, MSMEs gain a clearer understanding of tangible benefits such as legal protection, enhanced reputation, and commercialization opportunities. The (European Union Intellectual Property Office, 2022) study shows that MSMEs with registered IP experience improved reputation and easier access to financing. Similar findings were reported by (Wang, *et al.* 2025), who state that IP protection strengthens MSMEs' competitiveness.

Hypothesis (H2): DGIP–JICA support influences perceived benefits of IP.

The DGIP–JICA cooperation program, which includes simplifying IP registration procedures, reducing administrative barriers, and providing structured educational and technical training sessions, is expected to encourage MSMEs to register their intellectual property. Institutional intervention is often a determining factor in shaping MSMEs' decisions regarding the management of IP as a strategic business asset. (Wang, *et al.* 2025) emphasize that institutional support enhances SMEs' ability to protect their innovations and strengthens their participation in formal IP systems. Therefore, DGIP–JICA support is anticipated to positively influence MSMEs' intention to register their IP.

Hypothesis (H3): DGIP–JICA support influences interest in IP registration.

Higher levels of IP awareness strengthen MSMEs' belief in the benefits obtained from IP registration. The IPO (2024) report shows that strong IP awareness enhances understanding of both the economic and legal benefits of IP protection. Pandey & Cokki (2024) similarly found that awareness plays a crucial role in shaping positive perceptions of IP protection.

Hypothesis (H4): IP awareness influences perceived benefits of IP.

Adequate knowledge and understanding of IP can also influence MSMEs' interest in registering their IP. Pandey & Cokki (2024) found that awareness is directly related to the intention to register IP. WIPO (2024) highlights that improved IP education stimulates awareness, which in turn motivates registration behavior.

Hypothesis (H5): IP awareness influences interest in IP registration.

MSMEs who perceive IP registration as offering legal protection, enhanced reputation, and greater market opportunities tend to show stronger interest in registering their IP. The European Union Intellectual Property Office (2022) study indicates that businesses with registered IP enjoy better reputation and improved access to funding.

Wang, *et al.* (2025) also note that IP protection contributes to competitive advantage.

Hypothesis (H6): Perceived benefits of IP influence interest in IP registration.

DGIP–JICA support not only has a direct effect on MSMEs' interest in IP registration but also indirectly influences it through perceived benefits. When MSMEs receive educational and facilitative support from DGIP–JICA, they gain a stronger understanding of the strategic value of IP, which ultimately increases their registration intention.

Hypothesis (H7): The effect of DGIP–JICA support on interest in IP registration is mediated by perceived benefits.

The relationship between IP awareness and interest in IP registration is also mediated by perceived benefits. MSMEs with higher awareness of IP are more likely to recognize the benefits of IP protection, and these positive perceptions subsequently enhance their intention to register IP.

Hypothesis (H8): The effect of IP awareness on interest in IP registration is mediated by perceived benefits.

3. Research Method

3.1 Type and Period of Research

This study employs a quantitative research design with a survey approach, aiming to analyze the effect of DGIP–JICA institutional support on the interest of MSMEs in registering intellectual property (IP), with IP awareness and perceived benefits serving as mediating variables. The quantitative approach was selected because the study focuses on testing the relationships among variables formulated in the hypotheses, using numerical data obtained through a Likert-scale questionnaire. The research design is cross-sectional, meaning that data collection was conducted at a single point in time to describe the relationships between variables as they existed during the study period (Creswell, 2013).

The research was carried out from July to October 2025, covering several stages including instrument development, questionnaire distribution, data collection, and data analysis using Partial Least Squares–Structural Equation Modeling (PLS-SEM) with the assistance of SmartPLS 3 software.

3.2 Population and Sample

The population of this study consisted of Micro, Small, and Medium Enterprises (MSMEs) in Indonesia that had participated in intellectual property socialization and education programs conducted in collaboration between the DGIP and JICA.

The sample was selected based on the following criteria:

1. MSME actors who have participated in socialization or training activities on intellectual property rights (IPR) conducted through the collaboration between the Directorate General of Intellectual Property (DGIP) and the Japan International Cooperation Agency (JICA).
2. Possess basic knowledge regarding the importance of IP registration.
3. Willing to participate as respondents and complete the questionnaire.

The sample size was determined based on the guidelines proposed by (Hair, *et al.* 2019) which recommend a sample size of 5–10 times the number of indicators. Referring to the operational variable table, which consists of 20 indicators, the ideal sample size ranges from 100 to 200

respondents.

The sampling technique used was purposive sampling, which involves selecting respondents based on specific criteria aligned with the research objectives.

3.3 Data Analysis Method

Data analysis in this study was conducted to test the formulated hypotheses and evaluate the causal relationships among latent variables, both direct and indirect. The analytical procedures were carried out using the Partial Least Squares–Structural Equation Modeling (PLS-SEM) approach with the assistance of SmartPLS 3 software.

4 Results and Discussion

This study involved 120 respondents who were MSME actors in Indonesia who were the targets of the DJKI-JICA cooperation program in KI socialization.

Based on the results of data analysis, the majority of respondents were female, namely 75 people (62.5%), while 45 people (37.5%) were male. Most respondents were in the 35–44 age range, namely 50 people (41.7%). This was followed by 27 respondents (22.5%) under the age of 25, 23 respondents (19.2%) aged 25–34, and 20 respondents (16.7%) aged ≥ 45 .

Most respondents had a bachelor's degree, totaling 49 people (40.8%), followed by 28 people (23.3%) with a

diploma, 26 people (21.7%) with a high school/vocational school diploma, and 17 people (14.2%) with a master's/doctorate degree. A total of 37 respondents (30.8%) had been running their business for 1–3 years, 34 respondents (28.3%) for 4–6 years, 23 respondents (19.2%) for more than 6 years, and 26 respondents (21.7%) for less than 1 year.

The most common type of business among respondents was culinary, with 49 people (40.8%). Other fields included crafts (27 people or 22.5%), fashion (24 people or 20%), technology (16 people or 13.3%), and a small number in pharmaceuticals (1.7%), education (0.8%), and finance (0.8%). Most business owners had 0–5 employees, with 80 respondents

(66.7%), followed by 6–20 employees with 33 respondents (27.5%), and more than 20 employees with 6 respondents (5%). One respondent (0.8%) was in the 1–5 employee category. The survey results show that 74 respondents (61.7%) have registered their intellectual property with the DJKI, 41 respondents (34.2%) are in the process of registering, and only 5 respondents (4.2%) have never registered their intellectual property.

The analysis conducted using SmartPLS software produced the beta coefficients and t-statistics values, as presented in the following figure:

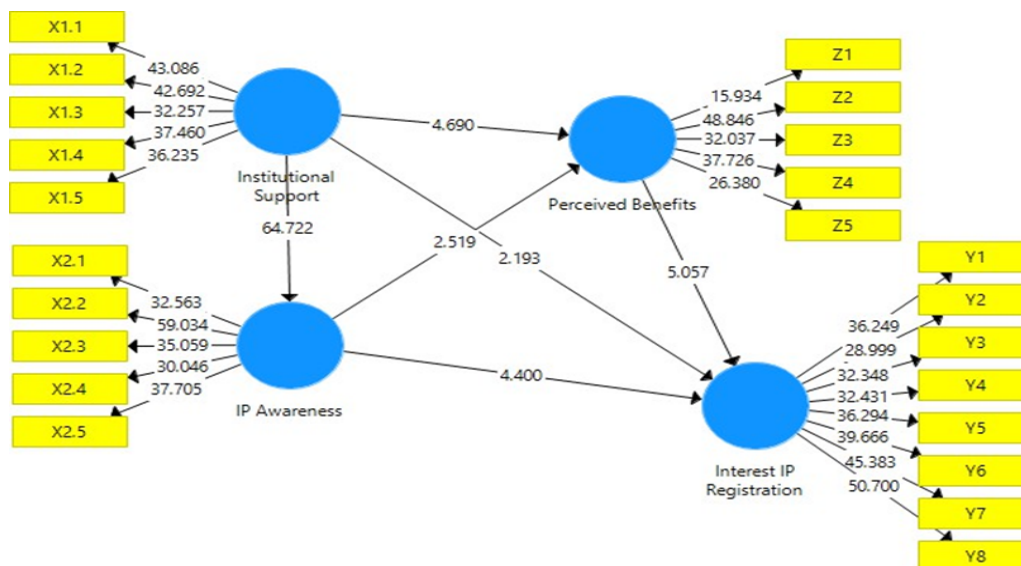


Fig. 4.1: Beta Coefficient.

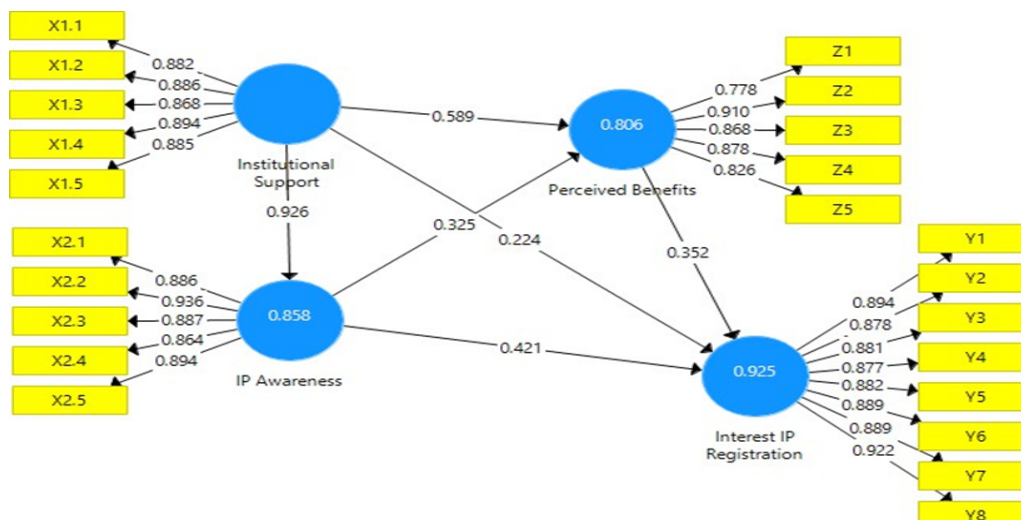


Fig. 4.2: T Statistics.

The results of the hypothesis testing are presented in the following table:

Table 4.1 Hypothesis Test Results.

	Path Coefficient (O)	T-Statistics	P-Values
DGIP-JICA Support → IP Awareness	0.926	64.722	0.000
DGIP-JICA Support → Perceived Benefits	0.589	4.690	0
DGIP-JICA Support → Interest in Intellectual Property Registration	0.224	2.193	0.029
IP Awareness → Perceived Benefits	0.325	2.519	0.01
IP Awareness → Interest in IP Registration	0.421	4.400	0.00
Perceived Benefits → Interest in IP Registration	0.352	5.057	0.000

Source: Processed primary data, 2025.

Table 4.2: Hypothesis Test Results (Mediation Relationship).

	Original Sample (O)	T-Statistics	P-Values
DGIP-JICA Support → Perceived Benefits → Interest in IP Registration	0.207	3.503	0.001
IP Awareness → Perceived Benefits → Interest in IP Registration	0.114	2.105	0.036

Source: Processed primary data, 2025.

A. DGIP-JICA Support for IP Awareness

Based on the bootstrapping analysis, the path coefficient for the DGIP-JICA support variable (X1) was 0.926, with a t-statistic of 64.722 and a p-value of 0.000. These results indicate that DGIP-JICA support has a significant effect on IP awareness (X2). The high and positive coefficient value suggests that the greater the support provided through the DGIP-JICA cooperation program, the higher the level of MSME awareness regarding the importance of registering and protecting intellectual property.

B. DGIP-JICA Support for Perceived Benefits

The bootstrapping results show that DGIP-JICA support (X1) has a path coefficient of 0.589, with a t-statistic of 4.690 and a p-value of 0.000. This indicates that institutional support significantly influences MSMEs' perceived benefits of IP (Z). The stronger the support offered through the program, the higher the perceived advantages of IP registration and protection among MSME actors.

C. DGIP-JICA Support for Interest in IP Registration

The analysis also shows a path coefficient of 0.224, with a t-statistic of 2.193 and a p-value of 0.029. This confirms that DGIP-JICA support (X1) significantly affects interest in IP registration (Y). Therefore, the third hypothesis (H3) is accepted.

D. IP Awareness and Perceived Benefits

Bootstrapping analysis produced a path coefficient of 0.325, a t-statistic of 2.519, and a p-value of 0.012. These values indicate that IP awareness (X2) significantly affects perceived benefits (Z). Higher awareness of the importance of IP protection leads to more positive perceptions of the benefits associated with IP registration.

E. IP Awareness and Interest in IP Registration

The bootstrapping analysis results show that the IP Awareness variable (X2) has a path coefficient value of 0.421, with a t-statistics value of 4.400 and a p-value of 0.000. These results indicate that IP awareness has a significant effect on Interest in IP Registration (Y). This means that the higher the awareness of MSME actors regarding the importance of intellectual property protection, the greater their interest in registering IP.

F. The Relationship between Perceived Benefits and Interest in IP Registration

Based on the bootstrapping analysis results, a path coefficient value of 0.352 was obtained, with a t-statistics value of 5.057 and a p-value of 0.000. This value indicates that Perceived Benefits (Z) have a significant effect on Interest in IP Registration (Y). This means that the more positive MSME actors' perceptions of the benefits of registering intellectual property are, the greater their interest in registering IP will be.

G. Mediating Role of Perceived Benefits in the Relationship Between DGIP-JICA Support and IP Registration Interest

Based on the bootstrapping analysis results, a path coefficient value of 0.207 was obtained, with a t-statistic value of 3.503 and a p-value of 0.001. These results indicate that the Intellectual Property Benefit Perception (Z) variable acts as a significant mediating variable in the relationship between DGIP-JICA Support (X1) and Interest in Intellectual Property Registration (Y). This means that institutional support not only has a direct impact on registration interest but also an indirect effect through increased perceptions of the benefits of IP.

H. Mediating Role of Perceived Benefits in the Relationship Between IP Awareness and IP Registration Interest

The mediating analysis produced a path coefficient of 0.114, with a t-statistic of 2.105 and a p-value of 0.036. This indicates that perceived benefits (Z) significantly mediate the relationship between IP awareness (X2) and interest in IP registration (Y). Thus, greater awareness leads to stronger perceived benefits, which subsequently increases the intention to register IP.

5 Conclusion

DGIP-JICA support has a significant effect on IP awareness, DGIP-JICA support has a significant effect on perceived IP benefits, and DGIP-JICA support has a significant effect on interest in IP registration. IP awareness has a significant effect on perceived IP benefits, and IP awareness has a significant effect on interest in IP registration.

Perceived benefits of IP significantly influence interest in IP registration through perceived benefits as a mediating

variable, and IP awareness significantly influences interest in IP registration through perceived benefits as a mediating variable.

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