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The influence of resources, service capabilities and government support on business incubator success: Empirical evidence from Indonesia

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Business incubators contribute to the development of entrepreneurship, innovation, and regional economy. However, in developing countries, implementation faces challenges and obstacles that threaten the success and sustainability of their operations. This research examines the influence of incubator resources, service capabilities, and government support on the success of business incubators. We conducted a national survey and used structural equation modelling analysis to test hypotheses on a sample representing seventy-six percent of the business incubator population in Indonesia, one of the developing countries in Asia. Empirical evidence shows that most incubators in Indonesia are non-profit, university-based, and technology business incubators. The incubator's resources and government support impact its service capabilities. However, the incubator's resources and government support do not directly impact its success. The novelty is that service capability acts as a full mediating variable on the influence of government support and incubator resources on the success of business incubators. The final section outlines managerial implications and future research directions.

1. Introduction

Business incubators are organisations that provide facilities, services, and business support to help the growth and development of businesses to prospective entrepreneurs or start-ups in the early stages of operation so that they possess the ability to not only endure, but also thrive and achieve success as corporations within a fiercely competitive commercial landscape (Alzaghal & Salah, 2023; Tengeh & Choto, 2015). The business incubator concept is spreading globally (Hu et al., 2023; Torun et al., 2018) and is being implemented in developed and developing countries (Wang et al., 2020). The dynamics of implementing business incubators attract the attention of both academics and practitioners who want to conduct research based on different perspectives (Dhiman & Arora, 2024; Hausberg & Korreck, 2018). Business incubators are believed to be an effective tool for developing entrepreneurship and innovation and encouraging the regional economy (Novino, 2023). However, previous studies state that there are challenges and obstacles to business incubator practices in developing countries. The most frequently mentioned challenge is limited funding from parent institutions for tenant incubation (Jamil et al., 2015). Business incubator funding relies heavily on government assistance or sponsorship assistance (Esponilla et al., 2019; Hu et al., 2023). Assistance from the government should be consistent and sustainable (Buys & Mbewana, 2007; Tengeh & Choto, 2015), but in reality, the amount is limited and the frequency is not routine. Business incubators are unable to provide the resources needed to incubate tenants, such as inadequate facilities and space for tenants (Khande, 2023; Lose & Tengeh, 2015; Mahmood et al., 2017), limited incubator management, technical and business expertise (Al-mubaraki & Busler, 2011; Stefanovic et al., 2008), insufficient availability of scientific and technological information (Nani, 2018), limited external partners (Stefanovic et al., 2008). These conditions have an impact on the incubator's low service capability for its tenants (Tengeh & Choto, 2015). The incubator's service fails to satisfy the requirements of its tenants (Games et al., 2020). Low quality of graduates and the number of graduates do not meet the targets (Hafeez et al., 2021; Hutabarat & Dellyana, 2012).

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Conditions like this in the long term threaten the continuity of business incubators (Tengeh & Choto, 2015). As a developing country, Indonesia has developed business incubators since 1995 at the initiative of UNESCO (Lalkaka, 2006). After three decades, 120 business incubators have spread across 21 provinces. In accordance with "Government Regulation Number 7 of 2021", the government is targeting a minimum of one incubator in each province and a minimum of one incubator in each city. Indonesia consists of 38 provinces and 514 cities, the number of business incubators set by the Indonesian government is 552 units. By the end of 2023, the government's target was only 21%. The majority (75%) of business incubators are medium-performing, and only a tiny portion (25%) are high-performing (Hasbullah et al., 2015). The majority (53%) of business incubators are in the early stage, while just a tiny proportion are in the developing and advanced stages. Business incubators in Indonesia face challenges and obstacles similar to those in other developing countries (Rukmana et al., 2024). As a result, the incubation program has yet to support tenant businesses' survival and development effectively. Only a few tenants have completed the incubation program (Yuliana et al., 2024). In the long term, this condition threatens business incubators' sustainability and operational success.

Prior studies examined the difficulties and barriers encountered by business incubators in relation to their success. Obaji tested an incubator success model based on performance factors, placing government policy as a moderating variable (Obaji et al., 2014). Alpenidze tested a business incubator success model based on external resources, networks, internal resources, and capabilities (Alpenidze et al., 2019). Gozali et al. (2020) tested a business incubator success model based on performance factors moderated by a good infrastructure system. Alzaghal and Salah (2023) tested corporate culture's influence on incubator success, moderated by ICT. Other studies investigated the success factors determining incubator success (Alishiri et al., 2018; Bose & Kiran, 2014; Franco et al., 2015; N. Obaji et al., 2018; Silva et al., 2018). These studies focus more on examining the influence of variables related to incubation inputs on incubator success, and there are still few studies that examine the effect of service capabilities on incubator success (Lai & Lin, 2015). In fact, as an organization providing incubation services, service capabilities are critical and determine incubator success (Games et al., 2020). However, service capabilities are highly dependent on the availability of incubator resources. Previous research shows that many business incubators have inadequate resources and rely on government assistance. According to a comprehensive analysis of existing literature, no studies have been discovered that provide an explanation the complex relationship between incubator resources, government support, and service capabilities on the success of business incubators. Therefore, this research intends to fill this gap and create a new model that explains the complex relationships between variables. The research question is: How do government support and incubator resources influence the success of business incubators mediated by service capabilities? The originality of this research is in its model structure, resulting in the novelty of the mediating role of service capability in a business incubator success model based on incubator resources and government support, which previous researchers had never studied. These findings are essential for clarifying the position of service capabilities and their role in the incubator success. This can serve as a foundation for implementing effective business incubator strategies and guiding governmental decision-making processes. In addition, these findings provide strong empirical evidence and serve as discussion material for further research.

2. Literature Review

Two theories in strategic management underlie the selection of variables and the formation of a conceptual framework. According to resource-based theory assumptions, internal factors such as resources, competencies and capabilities influence competitive advantage or organizational success (Amit & Schoemaker, 1993; Barney, 1991). Meanwhile, according to resource dependency theory assumptions, organizational success depends on external factors of the organization (Hillman et al., 2009; Pfeffer & Salancik, 1978). In the context of business incubators, the most dominant external factor is government support (Allahar & Brathwaite, 2016; Tang et al., 2014).

2.1 Incubator's Resources (IR)

Business incubators require a variety of resources to host tenant incubation. Business incubator resources are all the things, assets, and critical organizational elements needed to offer tenants facilities, services, and business support during the incubation (Lin et al., 2012; Seddon, 2014; Wheelen et al., 2018). The resources required for the incubation process include human, financial, physical and technological resources (Chen, 2009). Incubator resources can come from the internal or external environment (Li et al., 2010).With adequate resources, business incubators can create value for their tenants. However, business incubators whose internal resources are inadequate for their operations depend on assistance from external parties. This research measures business incubator resources using nine indicators, as in Table 2.

2.2 Service Capability (SC)

The value of a business incubator for tenants depends on its service capabilities. Service capability is an organization's capacity to organize and deliver client services (Davies et al., 2023). Service capability refers to the ability to provide products to consumers in a way that increases their value by leveraging the tangible and intangible resources an organization has (Calabrese et al., 2021). Within the framework of a business incubator, service capability is the ability to offer various facilities, services and business support needed by tenants during the incubation process so that tenants receive added value, namely being able to survive and develop their business (Chen, 2011; Li et al., 2010; Lin et al., 2012). Each business incubator

provides different facilities, services and business support. According to Bruneel, business incubator services consist of office space, shared resources, coaching or mentoring, training to develop business skills, technology access, professionals, and financial support (Bruneel et al., 2012). According to Theodorakopoulos, business incubator services consist of space, business advisory services, business acceleration trough mentoring and coaching, shared facilities, support services, networking and proactive support (Theodorakopoulos et al., 2014). According to Khodaei, business incubator services include infrastructure, business, network, financial, and legal support (Khodaei et al., 2022). This research measures business incubator services based on nine indicators, as in Table 2

2.3 Government Support (GS)

Government support for business incubators is related to its role in supporting the government in creating new companies, creating jobs and driving the economy. In addition, many business incubators need assistance because the resources of their parent institutions are limited. Government support is a policy supporting business incubators or their tenants through regulations, funding, incentives, and programs (Allahar & Brathwaite, 2016; Gozali et al., 2020; Hendratmi & Sukmaningrum, 2018; Hoque et al., 2018; Liu, 2021; Obaji et al., 2016; Vu et al., 2020). The government is also promoting stakeholders to participate in various activities in business incubators (Falahat et al., 2021). Government support in this study was measured using eight indicators, as shown in Table 2.

2.4 Incubator Success (IS)

Organisational success can be defined as achieving superior and sustainable performance results through effective strategy implementation and employee involvement (Alzaghal & Salah, 2023). Organisational success is the achievement of organisational goals and sustainability (Nwosu et al., 2020). Business incubator success is the achievement of the tenant's incubation goals and the incubator's goals as reflected in output, outcomes, and impact of the incubation process (Al-Mubaraki & Busler, 2017; Gerlach & Brem, 2015; Hausberg & Korreck, 2018; Mian, 1997; Suferi & Rahman, 2018; Voisey et al., 2006). From another perspective, incubator success is achieved when the business incubator can meet the expectations of its tenants, stakeholders, owners or parent institutions (Franco et al., 2015; Jennings & Beaver, 1997; McAdam et al., 2006; Nätterlund & Lärkert, 2014). In this study, we assessed incubator success by utilising nine indicators, as illustrated in Table 2.

2.5 Conceptual Framework and Hypotheses

Previous study findings show that government support influences business incubator resources and service capabilities. Allahar and Brathwaite (2016) stated that developing business incubator resources comes from government funding. Li et al. (2010) state that government policy positively affects incubator capability. Lin et al. (2012) noted that government policies have a significant impact on incubator's integrated service capabilities. The government encourages the development of incubator resources and incubator service capability through funding assistance, technology policies, industrial development, and programs. Business incubator programs are social services that depend on government funding. Therefore, government policies in the form of funding greatly influence the resources, operations, and programs run by business incubators (Obaji et al., 2016).

Based on previous research findings, government support is known to influence of incubators success. Government policy determines incubator success, especially for business incubators organized by government institutions (Vij & Jhanji, 2013). Government support influences business incubators' incubation operations, practices, and performance (Obaji & Olaolu, 2020). Buys & Mbewana (2007) concluded that government policy positively affects the success of business incubators. Li et al. (2010) also concluded that government policy positively impacted incubator performance. Similarly, Obaji and Senin (2016) wrote that government policies regarding funding for business incubator services greatly influence business incubators' performance. Other research states that government support and protection for business incubators influence their performance, moderated by credit and rewards (Gozali et al., 2018). Business incubator services provide space, organise activities, and provide business and technical support. Therefore, human resources are needed to manage the incubator, as presenters in various activities, and as companions in the mentoring process. In addition, funds are needed to organise all activities. Carrying out incubation requires adequate space and requires specific knowledge and technology. As a result, the availability of incubator resources influences the business incubator's ability to provide services to its tenants. The findings of several previous studies support this. According to Lin et al. (2012), infrastructure resources significantly affect the integrated service capabilities of business incubators. Li et al. (2010) concluded that resources positively affect business incubator capabilities. More generally, organisational resources influence organisational capabilities (Tuan & Takahashi, 2009). According to Wu, organisational resources positively affect the organisation's dynamic capabilities (Wu, 2006). Previous research concluded that business incubators' resources and service capabilities influence their success. Alpenidze et al. (2019) conclude that the success of incubators is influenced by accessibility and availability of external financial resources, strong business and social networks, resources, and capabilities. Buys and Mbewana's (2007) opinion is that incubators' success is determined by numerous elements, including the provision of buildings, availability of funding, competent and motivated administrators, and strong networks. According to Gozali et al. (2018), mentoring and networking, funding, and

business incubator support are provided to tenants related to business incubators so that a good infrastructure system moderates their performance. Mbewana identified incubator success as the contribution of funding availability, competent management, the right incentives, networks and financial sustainability (Mbewana, 2005). Alishiri et al. (2018) concluded that human resources, management, and organizational capabilities are essential for incubator success. Silva et al. (2018) stated that incubator success is supported by its financial sustainability, a dynamic and competent management team, diverse services offered, and the facilities given to tenants. Verma states that facilities and services influence the success of business incubators (Verma, 2004). Furthermore, a separate study determined that the management, administration, and support services offered to incubators directly impacted the performance and success of incubators (Yamockul et al., 2019). According to Li et al. (2010), incubator resources influence business incubator performance through incubator capabilities. Based on previous research studies, the framework is depicted in Fig. 1.

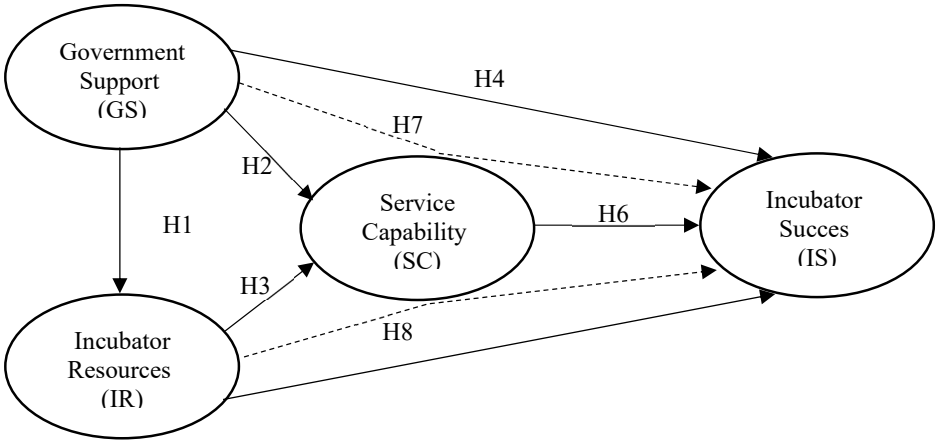

Fig. 1. Conceptual Framework

The hypotheses below are proposed:

H1: *Government support influences incubator resources.*
H2: *Government support influences service capability.*
H3: *Incubator resources influence service capability*.
H4: *Government support influences incubator success*.
H5: *Incubator resources influence incubator success.*
H6: *Service capability influences incubator success.*
H7: *Government support influences incubator success through service capabilities*.
H8: *Incubator resources influence incubator success through service capabilities*.

3. Research Methods

This study was conducted as survey research with research procedures referring to Morgan in Bougie and Sekaran (2019). This study examines the business incubator as a unit of analysis. The research population is active business incubators in the Republic of Indonesia with graduates, N = 120 incubators. The Krejcie-Morgan Table was utilised for the purpose of ascertaining the appropriate sample size (Bougie & Sekaran, 2019), which obtained a minimum sample size, n = 92 incubators, or 76% of the population. The sample was selected in a random manner and determined using a strategy that involved the use of probability sampling. The respondents were business incubator management as shown at Table 1. One respondent represents each business incubator. The data utilised is quantitative primary data. The data was collected using a cross-sectional approach, using a 1–5 Likert scale questionnaire in digital format (Google Forms). Before filling out the questionnaire, respondents were confirmed via email and telephone to ensure that the respondent was the management of a business incubator whose incubator had carried out tenant incubation and produced graduates. We also interviewed incubator managers and observed incubator facilities at 31 business incubators to obtain supporting data and information. The data was analyzed quantitatively using the Structural Equation Modeling (PLS-SEM) statistical technique to test the hypothesis, using SmartPLS Professional Version 4 as a statistical tool (Sarstedt et al., 2019). The data analysis stages follow the guidelines set by (Hair et al., 2022).

4. Results

4.1 Profile of respondents and business incubators in Indonesia

Table 1 displays the characteristics of the respondents and business incubators in Indonesia in the year 2023. Most respondents are incubator directors (55%), male (71%), aged 30 to 45 years (56%), and have a master's degree (57%). Most incubators are not independent organizations but part of parent organizations, with 81% being organized by universities, 77% not for-profit-

oriented, and 53% being Technology business incubators. Based on open ended questions, the five problems most frequently faced by business incubators in Indonesia are limited operational funds for tenant incubation (39%), tenant commitment to developing their business at the incubation stage (33%), business incubator facilities and infrastructure (15%), capital tenant businesses (13%), and prospective tenants who meet the criteria (12%).

Table 1
Profile of Business Incubators in Indonesia and Respondents

Category of Incubator	Attribute	Count (%)
Parent institution	University	74 (81%)
	Government	11 (12%)
	Company	5 (5%)
	Social community	2 (2%)
Orientation	Not for profit	71 (77%)
	For profit	21 (23%)
Type of incubator	Technology (TBI)	49 (53%)
	Mixed Incubator	34 (37%)
	Non Technology	5 (6%)
	Digital Technology	4 (4%)
	Grand total	92 (100%)

Category of Respondent	Attribute	Count (%)
Position	Director of incubator	51 (55%)
	Incubator Manager	30 (33%)
	Manager Asisstant	11 (12%)
Gender	Male	65 (71%)
	Female	27 (29%)
Age	< 30	9 (10%)
	30 - 45	52 (56%)
	> 45	31 (34%)
Educational background	Undergraduate Degree	22 (23%)
	Master's Degree	53 (57%)
	Doctoral's Degree	19 (20%)
	Grand total	92 (100%)

4.2 Measurement Model Assessment (Outer model)

Reliability tests are conducted on the outer model at both the indicator and construct levels. Validity testing encompasses two types: convergent validity testing and discriminant validity testing.

Step 1 assesses the reliability of the indicators, as presented in Table 2, using the criteria established by Hair et al. (2022).

Table 2
Convergent Validity and Construct Reliability

Construct	Item Code	Indicator	Outer loadings	Cronbach's alpha	Composite Reliability	AVE
Government support (GS)	GS1	Regulatory support for tenants	0.761	0.916	0.931	0.628
	GS2	Regulatory support for incubators	0.784			
	GS3	Funding for establishing incubator	0.771			
	GS4	Funding for incubator operations	0.898			
	GS5	Funding for tenant business capital	0.833			
	GS6	Incubator management strengthening program	0.772			
	GS7	Tenant strengthening program	0.784			
	GS8	Low interest policy for tenants	0.722			
Incubator's Resources (IR)	IR1	Number of management incubators	0.709	0.902	0.920	0.561
	IR2	Incubator management experiences	0.756			
	IR3	Incubator management capabilities	0.811			
	IR4	Incubator operational funds	0.737			
	IR5	Tenant incubation funds	0.794			
	IR6	Incubator building	0.751			
	IR7	Shared office equipment	0.719			
	IR8	Machines for tenants	0.740			
	IR9	Technology that suits tenant needs	0.719			
Service Capability (SC)	SC1	Ability to provide tenant's co-working space	0.746	0.910	0.926	0.581
	SC2	Ability to organize training	0.766			
	SC3	Ability to provide nurturing assistance	0.784			
	SC4	Ability to organize mentoring	0.767			
	SC5	Ability to provide business support	0.740			
	SC6	Ability to provide access to business capital for tenants	0.743			
	SC7	Ability to organize marketing activities for tenant products	0.787			
	SC8	Ability to organize business matching	0.809			
	SC9	Ability to organize co-incubation	0.715			
Incubator's Success (IS)	IS1	Number of graduates	0.764	0.904	0.921	0.566
	IS2	Number of innovative products produced by tenants	0.778			
	IS3	Number of tenants receiving business funding	0.711			
	IS4	Tenant turnover rate	0.738			
	IS5	Tenant business profit level	0.706			
	IS6	Number of new venture creation	0.776			
	IS7	Number of jobs created	0.760			
	IS8	The level of incubator contribution to the parent institution	0.769			
	IS9	The level of tenant contribution to state revenue	0.761			

There are four constructs, each of which is measured using indicators. The government assistance construct has outer loadings values ranging from 0.722 to 0.898. The incubator resource construct has an outer loadings value of 0.709–0.811. The service capability construct has an outer loading value of 0.715–0.809. The incubator success construct has an outer loading value ranging from 0.706 to 0.778. All constructs possess an outer loading value exceeding 0.7. Therefore, all indicators are reliable because they meet the reliability criteria.

Step 2 is internal consistency reliability testing to assess the reliability of a construct. According to Hair et al. (2022), the criteria for good reliability is if the Cronbach's alpha value is greater than 0.7 and the Composite Reliability value is greater than 0.7. The Cronbach's alpha value for the four constructs is 0.902 to 0.916, and the Composite Reliability value for the four constructs is 0.920 to 0.931. Based on Table 2, all constructs meet good reliability criteria and can be relied upon to measure all constructs.

Step 3 is convergent validity testing. The convergent validity test uses the AVE value criterion to assess the correlation between latent and manifest variables. According to Hair et al. (2022), a good construct is one whose Average Variance Extracted value equals 0.5 or more. Table 2 displays the Average Variance Extracted (AVE) value for all constructs of 0.561 to 0.628; thus, all constructs in the model have strong convergent validity.

Step 4 is testing discriminant validity to measure whether a construct differs from other constructs in the model. Testing discriminant validity was carried out based on the Heterotrait-monotrait ratio (HTMT) value, and the threshold value for good discriminant validity is less than 0.85 (Henseler et al., 2015). As in Table 3, the HTMT values for all constructs vary between 0.251 and 0.741, this signifies that all elements in the model are valid.

Table 3
Discriminant Validity: Heterotrait-Monotrait Ratio (HTMT)

Construct	GS	IR	IS	SC
GS				
IR	0.251			
IS	0.275	0.556		
SC	0.340	0.704	0.741	

Based on the test results at stages 1 to 4, it is known that all constructs and measurement items in the model are valid and reliable. Thus, data processing continues to the structural model assessment stage.

4.3 Structural Model Assessment (Inner model)

The research employs a structural model, depicted in Fig. 2, consisting of one dependent variable, IS, and three independent variables which are predictors: GS, IR, and SC. In the model, there is a test of the mediating effect of the SC variable in the first path, namely the influence of GS on IS through SC, and in the second path, IR on IS via SC. Structural model evaluation is a sequential procedure consisting of four steps: evaluating multicollinearity, evaluating the importance and pertinence of the connections inside the structural model, assessing the model's capacity to explain the observed data, and evaluating its predictive power.

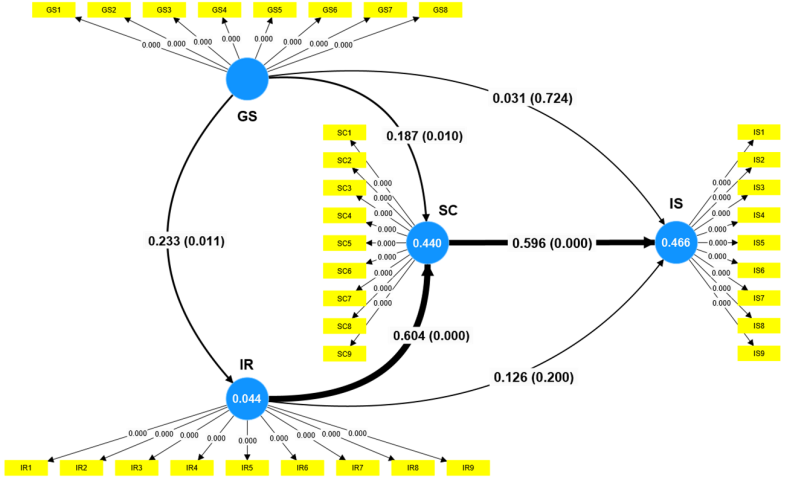

Fig. 2. Graphical Output of Bootstrapping from SmartPLS4 software

The initial step involves conducting multicollinearity testing to assess the degree of correlation between exogenous variables. According to Hair et al. (2022), a strong correlation in the structural model occurs if the variance inflation factor (VIF) value

is more than 5. As shown in Table 5, data processing results show three exogenous variables whose VIF values are 1.000 to 1.827 or less than 5.000. Therefore, the structural model has no multicollinearity between the exogenous variables.

Table 5
Collinearity Statistics

Exogenous variables	Endogenous variables		
	IR	IS	SC
GS	1.000	1.122	1.058
IR		1.724	1.058
SC		1.827	

The second step is hypothesis testing based on significance criteria on the influence of exogenous constructs on endogenous constructs in the structural model, as in Table 6. Data processing in SmartPLS 4 software uses bootstrapping techniques. The minimum number of bootstrap samples selected was 5000, using a percentile bootstrap type, at a one-tailed test for direct effect, a two-tailed test for indirect effect, and a significance level of 0.05. The results of bootstrapping are displayed in Fig. 2.

Table 6
Hypotheses Testing Results

Hypotheses	Path	Path Coefficients (β)	Standard deviation	p values	Effect size (f^2)	Hypotheses testing decision
H1	GS → IR	0.233	0.091	0.011	0.058	Accepted
H2	GS → SC	0.187	0.072	0.010	0.061	Accepted
H3	IR → SC	0.604	0.065	0.000	0.631	Accepted
H4	GS → IS	0.031	0.088	0.724	0.002	Not accepted
H5	IR → IS	0.126	0.099	0.200	0.018	Not accepted
H6	SC → IS	0.596	0.092	0.000	0.376	Accepted
H7	GS → SC → IS	0.112	0.046	0.015	-	Accepted
H8	IR → SC → IS	0.360	0.064	0.000	-	Accepted

Source : Data processing outputs from Smart PLS version 4 software

The results of the hypothesis test are as follows:
H_1 is accepted at the 5% significance level (β = 0.233, p = 0.011 < 0.05). The influence of government support on incubator resources is significant, but the magnitude of the direct effect is small.
H_2 is accepted at the 5% significance level (β = 0.187, p = 0.010 < 0.05). The influence of government support on service capability is significant, but the level of direct effect is small.
H_3 is accepted at the 5% significance level (β = 0.552, p = 0.000 < 0.05). The influence of incubator resources on service capability is significant, and the level of direct effect is in a large category.
H_4 is rejected at the 5% significance level (β = 0.031, p = 0.724 > 0.05). The influence of government support on incubator success is nonsignificant, and the level of direct effect is in the very small category.
H_5 is rejected at the 5% significance level (β = 0.123, p = 0.198 > 0.05). The influence of incubator resources on incubator success is nonsignificant because the level of direct effect is very small.
H_6 is accepted at the 5% significance level (β = 0.596, p = 0.000 < 0.05). The influence of service capability on incubator success is significant, and the level of direct effect is in a large category.
H_7 is accepted at the 5% significance level. The influence of government support on incubator success through service capability is significant (β = 0.112, p = 0.015 < 0.05), and service capability acts as a mediator variable.
H_8 is accepted at the 5% significance level (β = 0.360, p = 0.000). The influence of incubator resources on incubator success through service capability is significant, and service capability acts as a mediator variable.

Table 7 is the result of the mediation analysis measured based on procedures that refer to the opinions of Hair et al. (2022) and (Zhao et al., 2010). In the first path, both the indirect effects of GS on SC and SC on IS are significant. However, the direct influence of GS on IS is not significant. So, the first type of mediation is indirect-only mediation or full mediation. Likewise, for the second path, both the indirect effects of IR on SC and SC on IS are significant. However, the direct influence of IR on IS is not significant. So, the second type of mediation route is indirect-only mediation or full mediation. In this way, service capability acts as a full mediator. Thus, IR and GS cannot directly influence incubator success but must do so through service capability. Service capability transforms inputs in the incubation process into outputs, outcomes, and impacts.

Table 7
Mediation Analysis Result

No	Path	Indirect effects		Direct effects	Type of mediation
1	GS → SC → IS	GS → SC significant	SC → IS significant	GS → IS not significant	Indirect-only mediation (full mediation)
2	IR → SC → IS	IR → SC significant	SC → IS significant	IR → IS not significant	Indirect-only mediation (full mediation)

Note: Type of mediation, refers to Zhao, et al, (2010), and Hair et al. (2022)

The third step is assessment of the model's explanatory power as measured by coefficient of determination (R^2) referring to (Shmueli et al., 2016). The variation in business incubator success explained by incubator resources, government support and service capabilities is 0.466 or 46.6% according to Table 8, including criteria that are moderate (Chin, 1998). Government support and incubator resources can explain 0.440, or 44%, of the variation in service capability. Moreover, the variation in incubator resources explained by government support is 0.055, or 5.5%, including weak criteria.

Table 8
Model's Explanatory Power Results

Exogeneous Variable	Endogeneous Variable	R-square	R-square adjusted	Category
GS	IR	0.055	0.044	Weak
GS IR	SC	0.453	0.440	Moderate
GS IR SC	IS	0.483	0.466	Moderate

R-squared of latent variables: 0.19 (weak), 0.33 (moderate), and 0.67 (substantial), refers to (Chin, 1998).

Fourth step tests the model's predictive power using the PLS prediction procedure according to Shmueli et al. (2016) and Hair et al. (2022). This study employs a method that compares the Root Mean Square Error value in PLS-SEM analysis (RMSE PLS) with the Root Mean Square Error value in the Linear Regression Model (RMSE LM) for all 27 indicators on the three endogenous variables (GS, IR, and SC). The results show that 96.3% of RMSE PLS-SEM values are smaller than RMSE LM values. So, the model of this research has high predictive power, which means that the PLS path model and the research findings can be generalized to other data sets that are not included in the estimation process.

5. Discussion

The findings from the initial hypothesis testing indicate that the government's support influences incubator resources. These findings corroborate the outcomes of prior research carried out by Obaji et al. (2016) and Allahar and Brathwaite (2016). This means that increasing government support for business incubators causes an increase in the availability of business incubator resources. Business incubators organized by private companies are generally managed professionally to generate profits or aim to support the business of the parent institution. Therefore, resource procurement does not depend on government assistance. Business incubators organized by government institutions and government-owned universities occupy government-owned buildings and facilities; the incubator managers are government employees, and through internal mechanisms, the organization can apply for additional facilities and personnel using public funds managed by the government. However, business incubators organized by private universities and social communities need help to provide the required resources independently, even though their orientation is non-profit. Therefore, these two groups most need to receive support in providing resources from the government. All business incubators need government support through a management capacity strengthening program.

The findings from second hypothesis testing indicate that government support influences service capability. This means that the more government help business incubators receive, the better their capability to serve their tenants. These findings support research results of Allahar and Brathwaite (2016), Obaji et al. (2016), Li et al. (2010), Lin et al. (2012), and (N. Obaji & Olaolu, 2020). Government support in the form of regulations provides standard guidelines for implementing incubation, such as input standards, incubation process standards and output standards. Then, the government ranked them into three levels, namely early growth incubators, developing incubators, and superior mature incubators. This ranking is used as material for government consideration in providing the type and amount of assistance to business incubators. This regulation encourages business incubators to improve service quality and comply with service standards. Incubator services capability is influenced by funding from government in the form of operational funds. This funding determines the quantity and quality of programs or activities that the business incubator can organize. Various business incubator services such as training, mentoring, mentoring, business support services, tenant product marketing activities, business matches, coincubation, and so on require adequate costs to be carried out well. The government provides financial help to tenants in the form of business capital assistance funds, which are distributed through business incubators. This support aims to enhance the service capacities of business incubators and promote their growth. The central government often holds seminars and workshops through the relevant ministries to increase knowledge and skills in incubator management. This can improve incubator managers capability providing services to their tenants. Government support effects on service capacity is small because the government budget for the business incubator development program was limited, and the allocation of assistance was mostly prioritized for business capital for tenants and the provision of business incubator facilities.

The results of testing the third hypothesis show that incubator resources influence service capability. This means that the more adequate the business incubator's resources are, the better its ability to provide services to its tenants. These support research findings of Li et al. (2010), Lin et al.'s (2012) and Wu (2006). The primary resources that a business incubator needs to provide for the tenant incubation process are human resources, financial resources, physical resources such as buildings and incubator facilities, and science and technology resources. Business incubator human resources include the head of the incubator,

incubator manager, assistant manager. The number of managements of one incubator around 4 – 5 people are enough to manage the tenants of 5 – 25 startup companies. More assistant managers are needed if the number of tenants exceeds that. Business incubator services and activities vary; Therefore, incubator managers usually involve external human resources from various fields of expertise or experienced practitioners to act as presenters in seminars, workshops or tenant assistance. Incubators also require various professional services such as business consultants, technology consultants, notaries, accountants, etc. Employing these external parties in multiple activities during the tenant incubation period requires adequate funds. Business incubators with limited funds use internal human resources that do not match their competencies. Various activities during the incubation period require space, multiple tools, technology, and even raw materials, all of which require costs to procure. Therefore, the availability of funds and human resources in a business incubator determines its ability to provide services to its tenants. The findings of this research show that the influence of incubator resources on service capabilities is in a large category. Business incubators with limited funds and human resources tend to provide poor service to their tenants. The findings from fourth hypothesis testing indicate that government support has no direct effect on incubator success. This result is consistent with Lin et al. (2012) and Kavhumbura (2014). However, this is different from the research results of Buys and Mbewana (2007), Li et al. (2010), Obaji and Senin (2016), and Obaji and Olaolu (2020). Government support in the form of regulations, funding, or programs cannot directly produce output and outcomes from tenant incubation. Outputs and outcomes from tenant incubation, such as those of tenant companies that graduate, innovative products created by tenants, and increased turnover and profits of tenant companies, are obtained from the tenant incubation process. Therefore, increasing government support for business incubators needs to be focused on factors that enhance the quality of the tenant incubation.

The fifth hypothesis testing results show that incubator resources have no direct effect on incubator success. Consequently, augmenting business incubator resources does not invariably enhance the incubator success. These findings support Verma (2004) and (Kavhumbura, 2014) however, it does not support the findings of Alpenidze et al. (2019). Buys and Mbewana (2007), Alishiri et al. (2018), and Silva et al. (2018). Resources of a business incubator, including physical, financial, human, science, and technology, is an essential input in the incubation process. Increasing the availability of inputs without being accompanied by improving the quality of the incubation process and improving services to tenants cannot increase outputs and outcomes of incubation. The research results reveal that service capability directly influences the success of business incubators. This supports previous research findings that higher service capabilities result in better tenant incubation quality Alishiri et al. (2018), Alpenidze et al. (2019), Silva et al. (2018), and Yamockul et al. (2019). This research indicates that increasing service capabilities contributes to increasing the incubator's success as reflected in increased output, results and impact of tenant incubation. The direct influence of service capabilities on incubators' success is in a large category. Compared to government support and incubator resources, service capabilities have the most direct influence on the success of business incubators. Increasing service capabilities needs to be a priority to increase the success of business incubators.

The findings from the seventh hypothesis testing indicate that service capability mediates the effect of government support on the incubator's success. Likewise, the findings of the investigation on the eighth hypothesis indicate that service capability mediates the influence of incubator resources on incubator success. These findings support Li et al. (2010) and Tuan and Takahashi (2009). Service capability is an intervening variable that transforms business incubator resources and government support into outputs, results, and impacts in the tenant incubation process. Service capability plays a full role as a mediator, meaning that increasing government support or incubator resources will only affect the success of the business incubator if service capability increases. This is in line with the results of the fourth and fifth hypothesis tests that the direct effect of incubator resources and government support on incubators success is not significant because it requires a mediating variable, namely service capability. Therefore, the success of a business incubator relies heavily on its service capabilities. Business incubator management must prioritize improving service capabilities to improve the quality of the incubation process so that it can increase the output, results, and impact of tenant incubation.

6. Conclusions

This research has succeeded in achieving its objective of producing a new model of business incubator success, which is influenced by incubator resources and government support and mediated by service capabilities. Service capability acts as a full mediator and is a crucial determinant of incubator success. Business incubator managers must try to improve their service capabilities to tenants to solve tenant problems and meet their needs. Managers need to show their best performance to get greater support from parent institutions, governments or sponsors, look for alternative sources of financing, develop networks and collaborate with stakeholders to gain mutual benefits. Government support is vital, especially for non-profit incubators with limited resources and low service capabilities in the form of funding for tenant incubation, initial capital assistance for tenants, increasing the availability of incubator facilities and infrastructure, and management capacity-development programs.

Limitations of this research include the limited number of business incubators in the population and answers solely from the standpoint of business incubator management. Future research is recommended to test the model on a larger population or a population where most business incubators are profit-oriented. Explore other variables that influence the incubator's service capability, business incubator success, or other variables related to the tenant incubation process and results. It is

recommended that the findings of this research be developed by surveying the perceptions of funding institutions, incubator parent institutions, tenants, or graduates.

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