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Exploring the Significant Factors Influencing Bussiness benefit in Construction Sector

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A R T I C L E I N F O

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A B S T R A C T

Stakeholders capability factors can be effect by domination and competency beside their interpersonal skills to gain competitive advantage organizations need to have something that the competitors do not have and cannot achieve in the short-term. Bussiness benefit in construction sector must have stakeholders with the competency and domination for knowledge the project characteristic to be the project success. This research based on 80 samples from the stakeholders in business construction sector wich which will be analyzed with the partial structural-least square equation model (PLS-SEM). The result of the analysis show that the competency an domination of the Stakeholders is the only variable consistently giving influence upon the project success, project characteristic and business benefit in construction sector in all modelling compositions.

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1. Introduction

To gain competitive advantage organizations need to have something that the competitors do not have and cannot achieve in the short-term. In the past organizations invested large amounts of human resources to the finest equipment to increase competitiveness in the business construction sector. project management is the composition of various economic activities. Project management in both construction and manufacturing industries is playing very important role in the development of economy. Multinational companies are busy in investing and reinvesting in different projects with time to time to boost up their business.

Project success has been measured in a variety of ways. While the measurement of bussiness success has focused on tangibles,current thinking is that ultimately, bussiness success is best judged by the stakeholders, especially the primary sponsor (Pedro, 2015).

People say that a project is successful as far as project management is concerned if the project is complete within time, within the given budget and meets the customer requirements with the specified quality (Purna, 2015). Similarly, there are various parameters based on which people consider project product is successful. Different stakeholders of the project such as project manager, team members, senior management, functional managers, CEO, directors, suppliers, vendors, customers and third parties have a different perspective on project success (Ramos & Mota, 2016). For example, a project which isconsidered as successful by senior management may not be considered as successful by team members.This is because the team has worked extra hoursand weekend as well (Project Management, 2016).

The characteristics presented in this section were found respectively after performing an extensive literature review, searching lessons learned documents of completed the projects in industry, and interviewing with practitioners. According to (Michel, 2013) measured according to indicator project characteristic is (a) risk clearness (b) requriment matury (c) client comitment (d) Team formation. According to bohari et al, (2021) measured according to indicator project characteristic is (a) size the project (b) degree of difficult (c) procuerement method (d) location (e) overheadcost (f) site condition (g) project special (h) avability material.

In this era most of the organizations have converted into project based organizations which means that they have divided their work into projects and programs in order to deliver the strategies of organizations and add values to the organizations. According to (Hamed,2016).measured according to indicator project success is (a) Front end paning project (b) ontime performance (c) on cost perfomance (d) project fit

According to Nazia 2016 measured according to indicator project success is (a) clear project (b) effectiv (c) on cost performance. In another journal, sanggoro,et.al (2020) explain about standard and parameter of the Project Success comprising the indicator of (a) Cost Achievement, (b) Quality Suitability, (c) Time Achievement, (d) Customer Satisfaction and (e) Social Acceptance.

Stakeholder can be categorized in three criteria, that is the stakeholder having a power to influence (dormant stakeholder), the stakeholder having legitimacy (discretionary stakeholder) and the stakeholder having urgency to the project (demanding stakeholder) (Bonnafous Boucher et al., 2012). measured according to indicator (a) Power of Stakeholders (b) Legitimacy of Stakeholders (c) Urgency of Stakeholders (d) Proximity of Stakeholders and (e) Attitude of Stakeholders (Bayu, et al, 2020).

Competence is comprised of a competent team members, competent project manager and awarding bids to the right designers or main contractors (Toor and Ogunlana, 2008). Competency of the project manager is a critical factor that has been frequently mentioned in research studies (Belout and Gauvreau, 2004). results also demonstrated empirically that project competency is a critical factor influencing the project success. Inadequate experience of construction firm is among the major contributing factors causing delays of construction project (Murali and Soona, 2007). The review of project manager competencies indicates that this has been broadly studied in numerous fields, such as human resource management and organization management (Sang Paedo, et all 2018). Competency of stakeholder is a communication skill, complain management, risk management and leadership have effect to the negotion model in construction dispute (Ladika, 2022).

A study concluded that it was found that there was a positive influence and relationship between labor, material, equipment, finance, field characteristics and the project contractor's profit (Nata et al., 2016). This should be an important consideration for business people in the construction sector considering that contractor competition in the globalization era is very tight due to the presence of foreign contractors in the domestic project construction market (Syarifudin, 2020). However, fften the benefits of good relationships in the workplace are seen as a vague concept. It would just be much wiser to see relationship building as a business necessity. After all, it has a tangible impact on the organization. In addition to the business relationship you enter into with your team, it is also important to cross the boundary of formality. Showing genuine interest in colleagues and making time to build up a relationship really contributes to greater understanding and tolerance, and therefore confidence in mutual interests within the project. According to other journal measured according to indicator business benefit is (a) company reputation (b) continuity of bussiness (c) relationship with previous project (d) expansionof organization (Bohari, 2012).

Based on the data and facts that have been explained based on the results of previous previous studies, it is necessary to conduct a study that will analyze the factors that influence business benefits in the construction sector based on nine variables that have been determined by the Partial Least Square (PLS) testing tool. The results of the research are expected to be useful information for business people in the construction sector in making policies to grow or even increase the benefits of business in the construction sector so that the running business is not only looking for business profits but also increasing useful benefits for all stakeholders involved.

2. Method

2.1. Research Type

Based on the method and measurement, this research is categorized in survey research using questionnaires as data source. This research type is quantitative research aiming for describing phenomenon or social symptom quantitatively or analyzing how the phenomenon or social symptoms occurred in the community is connected each other.

2.2. Hyphotesis of research

By considering the capabilty model and its variables, the hypothesis of this research is composed as follows:

H1: Competency of stakeholder have significant positive effects on the business benefit in construction.
H2: Competency of stakeholder have significant positive effects on the project characteristic.
H3: Domination of stakeholder have significant positive effects on the business benefit in construction.
H4: Domination of stakeholder have significant positive effects on theproject success.
H5: Project characteristic have significant positive effects on the business benefit in construction.
H6: Project success have significant positive effects on the business benefit in construction.
H7: Competency of stakeholder have significant positive effects on the business benefit in construction trough the project characteristic.
H8: Domination of stakeholder have significant positive effects on the business benefit in construction through the project success.
H9: Domination of stakeholder, competency, project characteristic and project success have significant positive effects on the business benefit in construction simultaneously.

2.3. Research Variable

Independent variables in this research influencing the business benefit in construction sector, among others:

a. Competency, measured according to indicator (a) Technical Competency (X1.1), (b) Globalization (X1.2), (c) Evaluation (X1.3), (d) Critical Analysis (X1.4)
b. Domination of Stakeholders, measured according to indicator (a) Power of Stakeholders (X2.1), (b) Legitimacy of Stakeholders (X2.2), (c) Urgency of Stakeholders (X2.3), (d) Proximity of Stakeholders (X2.4)
c. Project characteristic, measured according to indicator (a) site condition (X3.1), (b) project special (X3.2), (c) client commitment (X3.3), (d) size project (X3.4)
d. Project success, measured according to indicator (a) on-cost performance (X4.1), (b) on-time performance (X4.2), (c) Project fit (X4.3), (d) social acceptence (X4.4)

Dependent variables in this research explain about standard and parameter of the Bussiness Benefit (Y-BB), a) company reputation (b) continuity of bussiness (c) relationship with previous project (d) expansionof organization.

This research population is the Project Owner, Design Consultant/Supervision Consultant, Sub Contractor and Main Contractor. Determination of population in this research used data from project in highrise building.

2.4. Data Analysis Tecnique

This research will use Partial Least Square (PLS) as supporting tool of its analysis. The Software applied in this research uses SmartPLS 3.0. According to Ghozali (2014) [18], PLS approach is distribution free (not to assume certain distributing data, it can be in the form of nominal, category, ordinal, interval and ratio). In PLS, all standards of variance can be assumed as variance which is useful to explain.

2.5. Research Frame Work

This research will test the interaction model influence upon based on competency stakeholder, domination stakeholder, project characteristic, project succes to the business benefit construction sector using the sample standard in highrise building Project. The interaction model analyzed in this research is proposed as in figure 1 below.

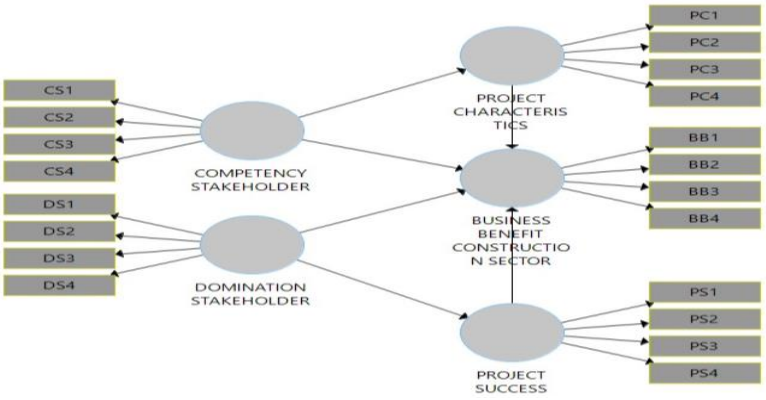

Figure 1. Bussiness Benefit Factor

3. Result and Discussion

3.1. Description of research object

Total of sample used in this research is 80 stakeholders spread project from each criteria of stakeholders selected with working experience. The background information of the 80 respondents is displayed in Table 1.

Table 1.
Information of sample

Variable	Category	Frequency
Working experience	0–5	12
	6–10	43
	11–15	15
	16–20	7
	>20	3

3.2. Outer model evaluation

This measurement model testing will be made for 3 sample data from Highrise building project, Industrial project and total all Sample (combination of both project). This measurement model evaluation uses SmartPLS software to get values of loading factor, convergent validity, cronbach's alpha (CA), composite reliability (CR) and average variance extracted (AVE).

The reliability test in this equation must meet the requirements that the composite reliability value must be more than 0.7 and its Cronbach's Alpha is more than 0.6. From estimating this model, resulting that all datas having value more than 0.7 for composite reliability and more than 0.6 for Cronbach's Alpha, which can be concluded that the variable used has good reliability. Composite reliability representsthe internal consistency of the latent variables proposed by Hoffmann and Birnbrich. 0.70 is the minimum acceptable value for composite reliability and all the constructs involved were found to have exceeded the minimum value. set up 0.5 as a minimum value for AVE.

Table 2 shows that the factor loadings, AVEs and the CR of the constructs were higher than the threshold value mentioned. Furthermore, it can be seen through the value of convergent validity, that is a level to what extent the measurement result of a concept indicates positive correlation with the measurement result of other concepts which theoretically must have positive correlation. This value of convergent validity uses the value of average variance extracted (AVE) which must be more than 0.5 to be said good. Result of AVE value from this research having values more than 0.5 and meaning that having good validity.

Table 2.
Factor loadings, Cronbach's Alpha, Composite, Reliability and AVE All sample

	Items	Factor Loadings	CA	CR	AVE
	CS-1	0.734	0.746	0.790	0.488
COMPETENCY OF STAKEHOLDER	CS-2	0.628			
	CS-3	0.616			
	CS-4	0.799			
	DS-1	0.604	0.749	0.844	0.578
DOMINATION OF STAKEHOLDER	DS-2	0.857			
	DS-3	0.793			
	DS-4	0.765			
	PC-1	0.763	0.861	0.906	0.708
PROJECT CHARACTERISTIC	PC-2	0.878			
	PC-3	0.825			
	PC-4	0.894			
	PS-1	0.699	0.739	0.832	0.558
PROJECT SUCCESS	PS-2	0.609			
	PS-3	0.788			
	PS-4	0.867			
	BB-1	0.646	0.817	0.871	0.636
BUSINESS BENEFIT	BB-2	0.627			
	BB-3	0.932			
	BB-4	0.930			

3.3. Inner model evaluation

Result of model analysis for this evaluation is based on the result of SMART- PLS data as in figure 2 displaying the each value of R square and path coefficient.

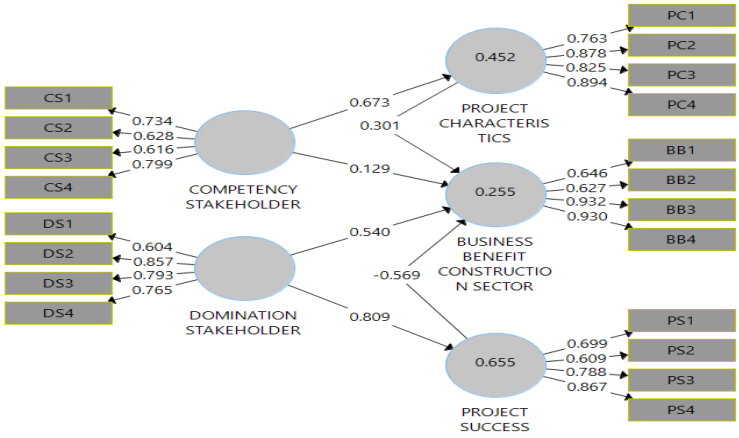

Figure 2. Equation Model of all Sample Data

Table 3.
R^2 variable

Variable	R^2	R^2Adjusted
Business Benefit	0.255	0.232
Project Characteristic	0.452	0.448
Project Successs	0.655	0.652

From figure 2, the equation obtained from the model measurement for all sample data is as follows

Definition 1 **:** *Equation model formula for all sampel data*

Based on the equation (1) above, the conclusion is as follows:

a. The value of R^2 Bussiness Benefit is 0.255, the meaning is Bussiness benefit is influenced by Project Succes, project characteristic, domination and competency by 25.5%, while the rest is influenced by other factors not examined in this research.
b. The value of R^2 Project characteristic is 0.452, the meaning is Project characteristic is influenced by competency by 45.2%, while the rest is influenced by other factors not examined in this research.
c. The value of R^2 Project success is 0.655, the meaning is Project characteristic is influenced by domination by 65.5 %, while the rest is influenced by other factors not examined in this research.

3.4. Hypothesis testing

Partial hypothesis testing

This testing is to test the influence upon the significance between predictor latent variable and criterion latent variable directly. This testing is made by considering t-statistic and its t-table and between the significance value and its research significance level; in this research it uses significance level by 5% or 0.05. Criteria of this hypothesis testing is as follows:

Hypothesis:
Accept H_0 and reject H_a, if:
Significance > 0.05 or t-stat. < t-table
Accept H_a and reject H_0, if:
Significance < 0.05 or t-stat. > t-table

This measurement uses assumption in the bootstrapping process with total sub-sample of 300 and significance level of 0.05, so that t-table used according to the standard of SmartPLS 3 is 1.960. The partial hypothesis of the significance value and t-statistics of this model measurement is presented in table 3.

Table 4.
Path Coefficient, T-Statistics and Partial Hypothesis

Path	Path Coefficient	t-stat.	Sign.	Hip. (H_a)
CS → BB	0.229	1.714	0.006	Accepted
CS → PC	0.673	17.009	0.005	Accepted
DS → BB	0.540	2.801	0.000	Accepted
DS → PS	0.809	33.83	0.010	Accepted
PC → BB	0.301	2.565	0.005	Accepted
PS → BB	0.569	3.774	0.000	Accepted

Mediation hypothesis testing

This hypothesis is to test the significant positive effects upon the relation and significance from mediation variable towards predictor latent variable and criterion latent variable in its measurement model. Criteria of this hypothesis testing is as follows:

Hypothesis:

Accept H_0 and reject H_a, if:
Significance > 0.05 or t-stat. < t-table
Accept H_a and reject H_0, if:
Significance < 0.05 or t-stat. > t-table

Table 5.
Indirect effects

Path	Path coefficient	t-stat.	Sign.	Hypn (H_a)
CS → PC → BB	0.203	2.243	0.015	Accepted
DS →PS → BB	0.641	3.474	0.003	Accepted

Simultaneous hypothesis testing

This hypothesis is used to know the influence upon the relation and significance effect between independent variable and dependent variable simultaneously. To test this hypothesis by comparing between F-statistic to –Table. F-calculation is obtained from the calculation with formulation as follows:

Definition 4 : *$F_{statistic}$ formula for simultant hypothesis testing*

Particulars:
n = Total sample
k = Total independent variable
R^2 = Influence value

$$F = \frac{(n-k-1)R^2}{k(1-R^2)} \quad (1)$$

Criteria of this hypothesis testing is as follows:
Hypothesis :
Accept H_0 and reject H_a, if:
F-stat < F-tab
Accept H_a and reject H_0, if:
F-stat > F-tab
F-table is obtained from table F using DF1 base as denominator and DF2 as numerator obtained from the following calculation (5):

DF1 = Total independent variable

DF2 = n – k – 1

Table 6.
Simultaneous hypothesis testing table based on F-statistic and F table

Path	F-statistic	F- table	Hypothesis
SC, DS, PS and PC → BB	54.32	2.69	Accepted

Based on the result of hypothesis testing in the research model for all sample data it can be concluded that in this model, competency of stakeholder, dominantion of stakeholder, project success, project characteristic have effect to the business benefit **(H1, H3, H5, H6 is accepeted)**. Competency of stakeholder has significant effect upon project characteristic **(H2 is Accepted)**. It means that in bussines project construction sector must have a good competency and dominanation for bussines have a good benefit.

If seen from the mediation testing, the project success is also significant enough to effect relation between domination of stakeholder and the business benefit **(H8 is Accepted)** and project characteristic it also significant enough effect relation between competency and business benefit **(H7 is Accepted)**; this matter indicates that the competency and domination of stakholder owned is only able to give contribution to the business benefit if it is supported by theproject success.

Simultaneously, competency and domination of stakeholder, project success and characteristic are able to explain about the significant effect upon the business benefit in construction sector (**H9 is Accepted)**; likewise, competency and domination of stakholder to the business a good benefit jointly gives significant effect.

4. Conclusions

Based on the result of hypothesis testing in the all model for sample data, all of the result give effect upon the conclusion towards the sample testing thoroughly. It means that all data becomes reflection to the conclusion of this research hypothesis, because the research conclusion of all samples is the same result of the conclusion obtained from the respondents' sample testing of highrise building project.

The results of this study provide an overview of the business benefit in construction sector in projects that are measured based on competency and domination of stakeholder, project success and characteristic project on the business benefit succes. From all the samples processed in this study, the following conclusions Competency of stakeholder have a significant effect on the business benefit (CS-BB: H1). Thus, if the stakeholder have a competency, it will have an impact when conducting a business in construction sector.

Competency of stakeholder have a significant effect on the project characteristic (CS-PC: H2). Thus, if the stakeholder have a competency, it will have an impact when conducting a project characteristic. Domination of stakeholder have a significant effect on the business benefit (DS-BB: H3). Thus, if the stakeholder have a domination, it will have an impact when conducting a business in construction sector. Domination of stakeholder have a significant effect on the business benefit (DS-PS: H4). Thus, if the stakeholder have a domination, it will have an impact project success in construction sector. Project Success and Project characteristic have a significant effect on the business benefit (PC-BB: H5) (PS-BB: H6). Thus, if the stakeholder have project success and knowledge a project characteristic, it will have an impact when conducting a business in construction sector.From all measurement models, it shows that the competency an domination of the Stakeholders is the only variable consistently giving influence upon the project success, project characteristic and business benefit in construction sector in all modelling compositions (H7, H8, H9).

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