Data Article

Data of innovation ambidexterity as a mediator in the absorptive capacity effect on sustainable competitive advantage

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ABSTRACT

This data article shows the nexus between absorptive capacity (X), innovation ambidexterity (Y1) and sustainable competitive advantage (Y2). There are three nexus points between the constructs, namely the direct nexuses of X to Y1, X to Y2 and the indirect nexus from X to Y2 through Y1. The raw data of 530 self-administrated questionnaires were obtained from 64 non-vocational private higher education institutions in the Bandung area of West Java, Indonesia. Data analyzing were conducted using SPSS and Smart PLS. The data are useful as the data can be reproduced, reused and reanalysed. This data article also opens up better research opportunities going forward through collaboration with other researchers.

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1. Data description

The questionnaire data consisted of 3 research variables, namely absorptive capacity (AC) as the independent variable (X), innovation ambidexterity (IA) as the first dependent variable (Y1) and sustainable competitive advantage (SCA) as the second dependent variable (Y2). The questionnaire consists of 60 statement indicators that must be answered based on the Likert scale of 1–5 (very disagree to very agree). Variable X consists of 19 indicator items adopted from Ref. [1]; variable Y1 consists of 9 indicator items adopted from Refs. [2,3]; and variable Y2 consists of 32 indicator items adopted from Refs. [4,5]. Questionnaire data were obtained from Research Data [6].

This questionnaire belongs to the category of self-administration and therefore it needs to be tested for common method variance [7]. Self-administrated questionnaires can potentially lead to a common method bias. Therefore this questionnaire needs to be checked in order to whether this research is free...
from common method bias. The evaluation of common method variance (CMV) using the Harman single factor test has been carried out and the variance value is 38.837%. If the percentage variance is below 50%, then it can be said that the measurement of the research indicators has passed the common method bias. Table 1 states the results of the Harman single factor test for CMV testing using SPSS.

From the results of the descriptive statistics as can be seen in Table 2, the demographics of the respondents in this research were balanced between men and women. The highest number of educated level was a Master’s. Furthermore, the research respondents were dominated by full-time lecturers.

The questionnaire data analyzing were done using the smart PLS protocol according to Ref. [8]. Data analyzing using smart PLS consists of the measurement model evaluation and structural model evaluation. The measurement model calculation can be seen sequentially in Tables 3–5. Smart PLS preparation begins from assessing the measurement model through indicator reliability, internal

| Component | Initial Eigenvalues | Extraction Sums of Squared Loadings |
|-----------|---------------------|-------------------------------------|
| 1         | 23.302              | 38.837                              |
| 2         | 3.004               | 5.007                               |
| 3         | 2.635               | 4.392                               |
| 4         | 1.991               | 3.318                               |
| 5         | 1.564               | 2.607                               |
| 6         | 1.471               | 2.452                               |
| 7         | 1.446               | 2.409                               |
| 8         | 1.204               | 2.007                               |
| 9         | 1.165               | 1.942                               |
| 10        | 1.060               | 1.766                               |
| 11        | .987                | 1.645                               |
| 12        | .869                | 1.448                               |
| 13        | .821                | 1.369                               |
| 14        | .781                | 1.302                               |
| 15        | .744                | 1.240                               |
| 16        | .724                | 1.207                               |
| 17        | .686                | 1.144                               |
| 18        | .677                | 1.128                               |
| 19        | .655                | 1.092                               |
| 20        | .617                | 1.028                               |
| 21        | .608                | 1.013                               |
| 22        | .589                | .982                                |
| 23        | .570                | .951                                |
| 24        | .551                | .918                                |
| 25        | .545                | .908                                |
| 26        | .494                | .823                                |
| 27        | .475                | .791                                |
| 28        | .465                | .776                                |
| 29        | .458                | .764                                |
| 30        | .451                | .752                                |
| 31        | .437                | .728                                |
| 32        | .430                | .716                                |
| 33        | .400                | .666                                |
| 34        | .396                | .660                                |
| 35        | .383                | .638                                |
| 36        | .361                | .602                                |
| 37        | .351                | .584                                |
| 38        | .341                | .568                                |
| 39        | .332                | .553                                |
| 40        | .328                | .547                                |
| 41        | .315                | .524                                |

(continued on next page)
consistency reliability, convergent validity and discriminant validity [8]. The reliability of the indicator is known by the loading factor value (>0.708), which means that the indicator is reliable. The factor loading in Table 3 for each indicator must be more than 0.708. If the factor loading value is less than 0.708, then it will be removed and not included in the next evaluation process. Only the indicators with loading factor values of 0.708 or more are included in the next evaluation process. From Fig. 1, it can be seen that there are indicators whose values are the same or more than 0.708.

Internal consistency reliability is measured based on composite reliability values (CR) > 0.70, which means that the research variable is reliable. The convergent validity is represented by the value of Average Variance Extracted/AVE (>0.50), which means that the variable can explain more than 50% of the variance of the indicators. The AVE value in Table 4 for each variable must be higher than 0.50.

Furthermore, the discriminant validity uses HeteroTraitMonoTrait (HTMT) values. The HTMT or discriminant validity values in Table 5 for each research variable must be less than 0.90. The HTMT values of the research variables were below 0.90 [9], which means that the research variables have good discriminant validity.

All of the indicators and variables have passed the measurement model evaluation process and have fulfilled all of the rules of thumb, as can be seen in Fig. 1.

**Table 1 (continued)**

| Component | Initial Eigenvalues | Extraction Sums of Squared Loadings |
|-----------|---------------------|-------------------------------------|
|           | Total % of Variance | Cumulative %                        |
| 42        | .309                | .515                                | 93.318                              |
| 43        | .306                | .510                                | 93.828                              |
| 44        | .292                | .487                                | 94.315                              |
| 45        | .292                | .487                                | 94.802                              |
| 46        | .287                | .478                                | 95.280                              |
| 47        | .264                | .440                                | 95.720                              |
| 48        | .253                | .422                                | 96.142                              |
| 49        | .243                | .405                                | 96.547                              |
| 50        | .240                | .400                                | 96.947                              |
| 51        | .227                | .379                                | 97.325                              |
| 52        | .213                | .355                                | 97.681                              |
| 53        | .210                | .350                                | 98.031                              |
| 54        | .197                | .328                                | 98.360                              |
| 55        | .189                | .315                                | 98.674                              |
| 56        | .182                | .303                                | 98.977                              |
| 57        | .173                | .288                                | 99.265                              |
| 58        | .159                | .264                                | 99.529                              |
| 59        | .154                | .257                                | 99.787                              |
| 60        | .128                | .213                                | 100.000                             |

Extraction Method: Principal Component Analysis.

**Table 2**

Respondent profile.

| Characteristics         | Sub characteristics | Frequency | Percentage (%) |
|-------------------------|---------------------|-----------|----------------|
| Gender                  | Male                | 277       | 52             |
|                         | Female              | 253       | 48             |
| Education level         | Bachelor            | 35        | 7              |
|                         | Master              | 380       | 72             |
|                         | Ph.D/DR.            | 115       | 21             |
| Structural position     | No                  | 134       | 25             |
|                         | Yes                 | 396       | 75             |
| Structural Position Name| Lecturer            | 277       | 52             |
|                         | Quality Assurance   | 52        | 10             |
|                         | Leader              | 201       | 38             |
|   | Absorptive Capacity | Innovation Ambidexterity | Sustainable Competitive Advantage |
|---|-------------------|--------------------------|----------------------------------|
| X10 | 0.754             |                          |                                  |
| X11 | 0.690             |                          |                                  |
| X12 | 0.718             |                          |                                  |
| X13 | 0.724             |                          |                                  |
| X14 | 0.723             |                          |                                  |
| X15 | 0.775             |                          |                                  |
| X16 | 0.804             |                          |                                  |
| X17 | 0.765             |                          |                                  |
| X18 | 0.677             |                          |                                  |
| X19 | 0.710             |                          |                                  |
| X2  | 0.696             |                          |                                  |
| X3  | 0.753             |                          |                                  |
| X4  | 0.799             |                          |                                  |
| X5  | 0.780             |                          |                                  |
| X6  | 0.773             |                          |                                  |
| X7  | 0.706             |                          |                                  |
| X8  | 0.610             |                          |                                  |
| X9  | 0.603             |                          |                                  |
| Y1.1| 0.755             |                          |                                  |
| Y1.2| 0.714             |                          |                                  |
| Y1.3| 0.645             |                          |                                  |
| Y1.4| 0.722             |                          |                                  |
| Y1.5| 0.801             |                          |                                  |
| Y1.6| 0.781             |                          |                                  |
| Y1.7| 0.713             |                          |                                  |
| Y1.8| 0.825             |                          |                                  |
| Y1.9| 0.816             |                          |                                  |
| Y2.1| 0.525             |                          |                                  |
| Y2.10| 0.560          |                          |                                  |
| Y2.11| 0.634          |                          |                                  |
| Y2.12| 0.529          |                          |                                  |
| Y2.13| 0.553          |                          |                                  |
| Y2.14| 0.582          |                          |                                  |
| Y2.15| 0.551          |                          |                                  |
| Y2.16| 0.531          |                          |                                  |
| Y2.17| 0.705          |                          |                                  |
| Y2.18| 0.767          |                          |                                  |
| Y2.19| 0.484          |                          |                                  |
| Y2.2 | 0.474         |                          |                                  |
| Y2.20| 0.761         |                          |                                  |
| Y2.21| 0.759         |                          |                                  |
| Y2.22| 0.683         |                          |                                  |
| Y2.23| 0.669         |                          |                                  |
| Y2.24| 0.760         |                          |                                  |
| Y2.25| 0.798         |                          |                                  |
| Y2.26| 0.777         |                          |                                  |
| Y2.27| 0.612         |                          |                                  |
| Y2.28| 0.733         |                          |                                  |
| Y2.29| 0.665         |                          |                                  |
| Y2.3 | 0.619         |                          |                                  |
| Y2.30| 0.012         |                          |                                  |
| Y2.31| 0.055         |                          |                                  |
| Y2.32| 0.046         |                          |                                  |
| Y2.4 | 0.589         |                          |                                  |
| Y2.5 | 0.695         |                          |                                  |
| Y2.6 | 0.676         |                          |                                  |
| Y2.7 | 0.406         |                          |                                  |
| Y2.8 | 0.661         |                          |                                  |
| Y2.9 | 0.704         |                          |                                  |
| X1  | 0.658         |                          |                                  |
After evaluating the measurement model, it is followed by an evaluation of the structural model consisting of the values of inner VIF, path coefficients, specific indirect effect, $R^2$ and $Q^2$ [8]. The Fig. 2 and Table 6 show the structural evaluation model in sequence from Table 6 through to 10. The inner VIF structural model for all of the research variables in Table 6 has fulfilled the cut-off in the range of 0.20 up to less than 5, which means that all of the research variables are free from collinearity problems.

The number of hypotheses in the structural model consists of 2 direct nexus and one indirect nexus. The direct nexuses are X to Y1 and Y1 to Y2. The indirect nexus is X to Y2 through Y1. Table 7 shows that all of the direct nexus are significant.

In Table 7, the rule of thumb of the direct effect between the variables shows that the p-value is smaller than 0.05 and the t-statistics value is higher than 1.96 (using a 5% confidence level).

In Table 8, the rule of thumb for the specific indirect effect between the variables shows that the p-value is less than 0.05 and the t-statistics value is higher than 1.96 (using a 5% confidence level). Table 8 shows that the indirect nexus is significant.

Table 4
CR and AVE values.

|                  | Composite Reliability (CR) | Average Variance Extracted (AVE) |
|------------------|----------------------------|----------------------------------|
| Absorptive Capacity | 0.945                      | 0.588                            |
| Innovation Ambidexterity | 0.920                      | 0.657                            |
| Sustainable Competitive Advantage | 0.936                      | 0.620                            |

Table 5
HTMT values.

|                  | Absorptive Capacity | Innovation Ambidexterity | Sustainable Competitive Advantage |
|------------------|--------------------|--------------------------|----------------------------------|
| Absorptive Capacity |                  |                          |                                  |
| Innovation Ambidexterity | 0.897            |                          |                                  |
| Sustainable Competitive Advantage | 0.831            | 0.789                    |                                  |

Fig. 1. Measurement model evaluation.
In Table 9, the rule of thumb shows that the original sample (O) value of $R^2$ and the p-value are both smaller than 0.05. The original sample (O) values are higher than 0.25. Furthermore, the $R^2$ values between 0.5 and 0.75 indicate that the structural model has moderate explanatory power (see Table 9).

In Table 10, the rule of thumb shows that the values of $Q^2$ are higher than zero. All of the $Q^2$ values are in the range of 0.25–0.5, which means that the structural model has medium predictive relevance.

All of the variables have passed the structural model evaluation process and they have fulfilled all of the rules of thumb. The structural model evaluation can be seen in Fig. 2 below.

2. Experimental design, materials, and methods

This data article used a quantitative research method approach. The data analysis unit were organisations. The research population consisted of all non-vocational private higher education institution in the area of Bandung, West Java, Indonesia taken from Ref. [10]. The number of samples of this research were the same as the total non-vocational private higher education institutions in the Bandung area, which were 81. The sampling technique used was non-probability sampling, with saturated sampling making all of the members of the population the sample [11]. Each non-vocational private higher education institution had an average of 10 respondents, so the total number of respondents who would filled the questionnaire were 810. The questionnaire data were collected between May 2019 and September 2019. The questionnaire data that were collected and found to be suitable for the analyzing were 530 questionnaires from 64 non-vocational private higher education institutions. The response rate of the data collection was 65.43%. The data collected has fulfilled the minimum requirements of the Smart PLS sample size recommendation, with a range of 8–90 organisations for theoretical models with a significance level of 5% [8]. The data collected were analyzed into SPSS for common method variance in order to evaluate whether the research indicators are free of bias [7]. Descriptive statistics were used to know the respondent’s profile.

Table 7
Path coefficients.

| Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics ($O$/STDEV) | P Values |
|---------------------|-----------------|-----------------------------|--------------------------|----------|
| 0.825               | 0.825           | 0.018                       | 45.811                   | 0.000    |
| 0.723               | 0.724           | 0.030                       | 23.956                   | 0.000    |

The definition of significance of bold is if the p-value less than 0.05.

Table 8
Specific indirect effect.

| Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics ($O$/STDEV) | P Values |
|---------------------|-----------------|-----------------------------|--------------------------|----------|
| 0.596               | 0.598           | 0.034                       | 17.421                   | 0.000    |

The definition of significance of bold is if the p-value less than 0.05.

In Table 9, the rule of thumb shows that the original sample (O) value of $R^2$ and the p-value are both smaller than 0.05. The original sample (O) values are higher than 0.25. Furthermore, the $R^2$ values between 0.5 and 0.75 indicate that the structural model has moderate explanatory power (see Table 9).

In Table 10, the rule of thumb shows that the values of $Q^2$ are higher than zero. All of the $Q^2$ values are in the range of 0.25–0.5, which means that the structural model has medium predictive relevance.

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Table 9
$R^2$ values.

| Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics ($O$/STDEV) | P Values |
|---------------------|-----------------|-----------------------------|--------------------------|----------|
| Innovation Ambidexterity | 0.680 | 0.681 | 0.030 | 22.929 | 0.000 |
| Sustainable Competitive Advantage | 0.523 | 0.526 | 0.044 | 12.018 | 0.000 |

The definition of significance of bold is if the p-value less than 0.05.
Smart PLS was used with the considerations as follow [8]:

1. Aims to identify the key driver of a variable (measurement model)
2. Can be used to structure complex theoretical models (consisting of many indicators)
3. Can be used for small sample sizes and for data that is not normally distributed
4. Aim at analysing the latent variables (structural model)

SmartPLS was used for the measurement model evaluation and structural model evaluation [8]. The measurement model evaluation was first used in the analyzing of the Smart PLS data in order to examine the feasibility of the research indicators. All of the indicators are stated to have met the rule of thumb. The measurement model evaluation was followed by the structural model evaluation. The structural model evaluation was used to examine the nexus between the research variables with conclusions that were either significant or not. The data analyzing in the structural model evaluation used the complete bootstrapping 5000 sample method inclusive of the two-tailed BCa confidence interval method and a 0.05 confidence level.

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Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.dib.2020.105200.

References

[1] C. Camisón, B. Forés, Knowledge absorptive capacity: new insights for its conceptualization and measurement, J. Bus. Res. 63 (7) (2010) 707–715.
[2] J.L. Soares, D. Roberto, J. Carlos, P. José, S. Neto, “Organizational Ambidexterity : a study in Brazilian higher education institutions, J. Technol. Manag. Innovat. 13 (3) (2018) 36–46.
[3] A. Sengupta, A.S. Ray, University research and knowledge transfer: a dynamic view of ambidexterity in british universities, Res. Pol. 46 (5) (2017) 881–897.
[4] Kementerian Riset, Teknologi, “Klasterisasi Perguruan Tinggi Indonesia Tahun 2017.”, 2017. Available, https://www.kopertis12.or.id/wp-content/uploads/2017/08/Pemeringkatan-PT-2017-min.pdf. (Accessed 1 February 2020).
