# THE INFLUENCE OF TECHNOLOGICAL CAPABILITY, SOCIAL CAPITAL, AND ENTREPRENEURIAL ORIENTATION ON FIRM PERFORMANCE THROUGH ABSORPTIVE CAPACITY IN FOOD AND BEVERAGE PACKAGING INDUSTRY COMPANIES

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## Abstrak

Tujuan dari penelitian ini adalah untuk menyajikan model yang menggambarkan pengaruh secara umum kapabilitas teknologi, modal sosial, orientasi kewirausahaan terhadap kinerja perusahaan melalui kapasitas penyerapan pada industri kemasan makanan dan minuman di Indonesia. Model yang diusulkan dalam penelitian ini diuji dengan model persamaan struktural. Penelitian ini mengolah data dari 168 responden dari karyawan level manager hingga level pemilik perusahaan di industri kemasan makanan dan minuman. Penelitian ini menemukan bahwa kapabilitas teknologi, modal sosial dan kapasitas penyerapan berpengaruh positif dan signifikan terhadap kinerja perusahaan. Sedangkan orientasi kewirausahaan berpengaruh positif namun tidak signifikan terhadap kinerja perusahaan. Penelitian ini menemukan bahwa kapabilitas teknologi, modal sosial dan kapasitas penyerapan berpengaruh positif dan signifikan terhadap kinerja perusahaan. Sedangkan orientasi kewirausahaan berpengaruh positif namun tidak signifikan terhadap kinerja perusahaan. Kapasitas penyerapan memediasi hubungan antara kapabilitas teknologi dan modal sosial terhadap kinerja perusahaan dan kapasitas penyerapan sepenuhnya memediasi hubungan antara orientasi kewirausahaan dan kinerja perusahaan. Model penelitian ini hanya membatasi faktor-faktor yang mempengaruhi kinerja perusahaan pada empat variabel utama yaitu kapabilitas teknologi, modal sosial, orientasi kewirausahaan dan kapasitas penyerapan. Penelitian selanjutnya disarankan untuk menggunakan sampel pada industri lain dan menambahkan variabel lain seperti ketidakpastian atau ketidakpastian kondisi lingkungan sebagai variabel moderasi. Implikasi praktis dari penelitian ini adalah perusahaan perlu melakukan tiga hal jika ingin mendapatkan manfaat dari orientasi kewirausahaan dan kapasitas penyerapan untuk meningkatkan kinerja perusahaan. Penelitian selanjutnya disarankan untuk menggunakan sampel pada industri lain dan menambahkan variabel lain seperti ketidakpastian atau ketidakpastian kondisi lingkungan sebagai variabel moderasi. Implikasi praktis dari penelitian ini adalah perusahaan perlu melakukan tiga hal jika ingin mendapatkan manfaat dari orientasi kewirausahaan dan kapasitas penyerapan untuk meningkatkan kinerja perusahaan. Pengetahuan baru yang didapat sangat membantu perusahaan untuk menentukan strategi, tingkat inovasi, proaktif dan keputusan berisiko tinggi, terutama ketika ada ketidakpastian di lingkungan industri. Penelitian ini menyajikan fungsi mediasi daya

serap yang diuji secara bersamaan dengan variabel kapabilitas teknologi, modal sosial, orientasi kewirausahaan merupakan sesuatu yang baru dari penelitian ini dibandingkan dengan penelitian sebelumnya. Temuan dalam penelitian ini juga memberikan daftar kontradiksi tambahan dari penelitian sebelumnya tentang hubungan antara orientasi kewirausahaan dan kinerja perusahaan.

*Abstract*

*The purpose of this study is to present a model that illustrates the general influence of technological capability, social capital, entrepreneurial orientation on firm performance through absorptive capacity in the food and beverage packaging industry in Indonesia. The model proposed in this study was tested with a structural equation model. This study processed data from 168 respondents of manager-level employees to the company owner level in the food and beverage packaging industry. This study found that technological capability, social capital and absorptive capacity have a positive and significant effect on firm performance. Meanwhile, entrepreneurial orientation has a positive but not significant effect on firm performance. This study found that technological capability, social capital and absorptive capacity have a positive and significant effect on firm performance. Meanwhile, entrepreneurial orientation has a positive but not significant effect on firm performance. Absorptive capacity mediates the relationship between technological capability and social capital to firm performance and absorptive capacity fully mediates the relationship between entrepreneurial orientation and firm performance. This research model only limits the factors that affect company performance to four main variables, namely technological capability, social capital, entrepreneurial orientation and absorptive capacity. Further research is suggested to use samples in other industries and add other variables such as uncertainty or uncertainty of environmental conditions as moderation variables. The practical implications of this research are that companies need to do three things if they want to get the benefits of entrepreneurial orientation and absorptive capacity to improve firm performance. Further research is suggested to use samples in other industries and add other variables such as uncertainty or uncertainty of environmental conditions as moderation variables. The practical implications of this research are that companies need to do three things if they want to get the benefits of entrepreneurial orientation and absorptive capacity to improve firm performance. The new knowledge gained is very helpful for companies to determine strategies, levels of innovation, proactiveness and high-risk decisions, especially when there is uncertainty in the industrial environment. This study presents the mediating function of absorptive capability tested simultaneously with the variables technological capability, social capital, entrepreneurial orientation is something new from this study compared to previous studies. The findings in this study also provide an additional contradictory list of previous studies on the relationship between entrepreneurial orientation and firm performance.*

*Keywords: technological capability, social capital, entrepreneurial orientation, firm performance, absorptive capacity.*

## Pendahuluan

The food and beverage industry is one of the most important industries in the economy in Indonesia and is still one of the mainstay sectors supporting Indonesia's

manufacturing and economic growth in 2021. According to (Safa'at, 2022), as Chairman of GAPPMI, the food and beverage industry was recorded to contribute 38.42% to Indonesia's non-oil and gas manufacturing industry in the second quarter of 2021, with a positive growth of 2.95% and contributed 6.66 percent to gross domestic product (GDP) in the second quarter of 2021 of Rp. 278.1 trillion. In terms of the food and beverage export sector, it was recorded to increase to US$. 19.58 billion in the second quarter of 2021, compared to exports in the same period in 2020 of US$. 13.73 billion.

There are 244 packaging supplier companies in the food and beverage industry listed in the B2B directory in 2020. In terms of material according to the Indonesian Packaging Federation, there are not too many variations of packaging circulating for the food and beverage industry, including in the form of flexible packaging, rigid plastic packaging, and paperboard packaging, the use of this meterial is most in demand in line with the increasing demand for smart packaging and increasing consumer awareness of sustainable packaging.

Meanwhile, in terms of technology used, it includes Active & Intelligent Packaging (AIP), Modified Atmosphere Packaging (MAP), Vacuum Pack, Frozen food, and Retort Packaging. With the number of companies, the variety of packaging and the use of technology that is still limited causing a high level of competition between companies, this competition occurs because each company always strives to provide competitive selling prices, innovate new products to meet customer desires and provide commitment to quality, quantity and punctuality of delivery to customers.

So to win the competition in the packaging industry, packaging companies need to innovate production by reducing the cost of packaging materials and packaging processes which are expected to reduce the cost of goods produced by improving the production process and innovating packaging forms which are important elements to increase the use of packaging because packaging has now become a product identity, so that the application of packaging technology and appropriate creative design  With market trends is one of the main strategies to increase the competitiveness of national industrial products as well as in the global market.

Collaboration between corporate partners or inter-organizational can increase success in this knowledge-making process (Lane & Lubatkin, 1998), inter-organizational communication is a critical factor in strategic collaboration between companies, because the main purpose of inter-organizational communication is as a relational competency based on the similarity of resources and management capabilities, thus enabling increased strategic advantages for suppliers or buyers through the process shared learning in supply chain decision-making and making, as well as combining capabilities to achieve competitive advantage sustainably and add value to end consumers (Manuj, Omar, & Pohlen, 2014).

The process of collaborative relationships between partners can differ according to the type of knowledge they want to absorb, therefore the type of cooperation between companies can also affect antecedent absorptive capacity. Absorptive capacity is a dyadic process or relationship of two entities, so it is necessary to pay attention to the buyer's point of view to maximize the supplier's absorptive capacity. According to Melander & Tell (2014) there are three alignments that are the criteria for buying companies in the selection of supplier partners, namely technology alignment, strategic alignment and relational alignment. In addition to this alignment, buyers also seek

flexibility in choosing suppliers in times of technological, organizational and commercial uncertainty.

The purchasing company will select supplier companies to obtain suppliers with the best alignment so as to be able to build collaborative relationships that support the integration of knowledge and understanding of products, processes and markets with the aim of reducing costs, improving quality and developing new markets (Revilla & Knoppen, 2015). By increasing the absorptive capacity and understanding the antecedent absorptive capacity of food and beverage packaging companies as suppliers to food and beverage companies, the company is expected to be able to combine internal knowledge with external knowledge to gain a competitive advantage and improve company performance with limited existing resources.
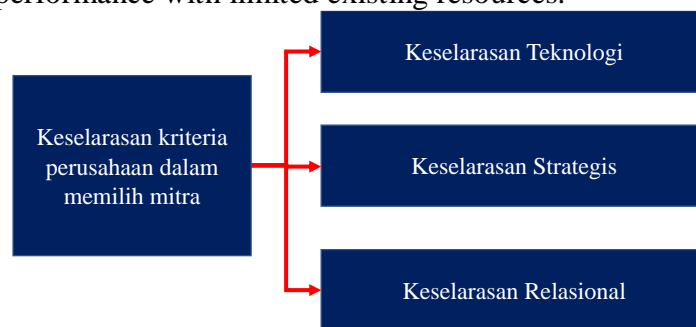


**Figure 1**
**Alignment of partner selection**

In this study, there are three variables studied as antecedent absorptive capacity, namely the variable technological capability as the alignment of technology which is an individual and organizational process, the social capital variable as relational alignment which is a process on individuals in groups and inter-organizational and the variable entrepreneurial orientation as strategic alignment which is a process in managerial and organizational.

The first variable in this study is technological capability, in previous research shows that company implementation of innovation practices can be influenced by technological changes and environmental dynamism (Taghizadeh, Nikbin, Alam, Rahman, & Nadarajah, 2020). As a strategic resource, the company's technological capability has been considered important that allows the company to achieve a competitive advantage, so companies with superior technological capability are expected to benefit from greater efficiency by pioneering process innovation and can achieve higher differentiation by innovating products in response to the changing market environment. This has caused the company to keep abreast of technological changes (Schoeneberg, Schilling, Burggraf, Fochtmann, & Lendemans, 2014). However, consumer demand has become more diverse, causing the use of technology to become more complex so that one company can hardly master all the necessary technological knowledge (Registreren, Recht, & van Geneesmiddelen, 2012).



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**Figure 2**
**Variabel Penelitian sebagai Antecendent Absorptive Capacity**

This research assumes that the company's performance at the organizational level that there is a synergy between the company's absorptive capacity and technological capability, social capital, and entrepreneurial orientation. The higher the capacity of the supplier company to explore, integrate and exploit external knowledge, it is expected that the supplier company will be able to improve its performance, the relationship between technological capability, social capital, entrepreneurial orientation, absorptive capacity and its impact on firm performance in the food and beverage packaging industry has not been extensively tested, so empirical testing is needed.

## Research Methods
### A. Research Design

This study aims to test hypotheses to explain phenomena in the form of relationships between variables. This study examines hypotheses with the aim of understanding and uncovering the influence of causality, between the factors that affect absorptive capacity and how technological capability, social capital, and entrepreneurial orientation affect absorptive capacity and firm performance.

In this study, the variables tested were exogenous variables (independent variables) namely technological capability, social capital, and entrepreneurial orientation, then endogenous variables (dependent variables) namely firm performance, while absorptive capacity was a mediating variable. Quantitative data are collected through a list of questions in surveys and interviews designed to collect data describing the characteristics of people, events or situations, aiming to find out if a variable causes changes over other variables (Sekaran & Bougie, 2020).

### B. Population and Sample

Population according to Cooper & Schindler (2008) population is the whole of the subject to be studied or the area of generalization consisting of objects or subjects that have certain qualities and characteristics that are determined by the researcher to be studied and draw conclusions. The population in this study was a food and beverage packaging company registered in the B2B directory in 2020.This aims to avoid the emergence of miss-specifications in the determination of research samples which will subsequently affect the results of the analysis.

### C. Data Collection Methods

The data collected is in the form of primary and secondary data. Primary data is data generated to meet the research needs that are being handled (Sekaran & Bougie, 2020) This data is collected directly from the field obtained by conducting online interviews using the zoom application, giving online questionnaires using google forms due to limited conditions due to Covid-19 and if respondents are pleased, face-to-face interviews are conducted.

In this study, the data used is primary data and data search will be more emphasized on the use of online questionnaires, where questionnaires will be given to observation units or respondents in this study, namely senior managers or managers of food and beverage packaging companies who are considered to have conseptual skills, with broad insight and understanding of the industrial environment and are decision makers so that they are considered to be able to represent the analysis unit in this research. Secondary data is existing data such as statistical data, publications, organizational reports, data from previous research, case studies, important notes in

libraries, online data, company web and general data on the internet. (Sekaran & Bougie, 2020).

D. Data Analysis Methods

The data analysis techniques used to discuss the problems in this study are Structural Equation Modeling, which are statistical techniques that allow testing a series of relatively complex relationships simultaneously. This study used Stuctural Equation Model analysis, using the AMOS version 26 program. The main purpose of this analysis is to test whether the model is fit and to prove the hypothesis put forward in this study. The SEM modeling stages are carried out with the following steps:

1. Developing a theoretical model, the Structural Equation Model (SEM) is a confirmatory technique used to test the influence of causality of changes one variable is assumed to produce changes in other variables based on existing theories. Theoretical studies are used to develop the model on which the un is based for the next steps.

2. Model Identification, at this stage relates to the assessment of the possibility of obtaining unique values for each parameter present in the model and the possibility of no solution in the simultaneous equation.

3. Model Estimation, at this stage an estimate is carried out on the model to produce parameter values using the Maximum Likelihood (ML) estimation method, because the method will produce the best (unbiased) parameter estimation. With the ML method, according to (Haryono, 2017) the sample size must be large (asymptotic), where the appropriate sample size is as much as 5 times the indicator of latent variables, this is used to meet the assumption of multivariate normality with the aim of reducing the impact of abnormalities in a data distribution. Taking these opinions into account, in this study the number of samples needed was 48 indicators multiplied by five, so that the total sample was 240 respondents.

4. Model Evaluation, this stage aims to evaluate the model against measurements that focus on the relationships between latent variables and their indicators. This stage relates to testing the fit between the model and the data.

E. Uji Validitas

Validity testing aims to find out whether the question items used can measure the variables measured in this study appropriately. The question items used in this study are an elaboration of the theoretical definition of the variables used in the study. Indicators used to measure all variables based on the theories that have been discussed in chapter II, so that it can be concluded that all items of statements are valid. The validity test in this study used item analysis, which correlates the score of each item with the total score which is the sum of each item score. If there is an item that is not eligible, then the item will not be further researched The condition according to (Sekaran & Bougie, 2020). What must be fulfilled is that it must have the following criteria:

1. If r count > 0.50, then the question items of the questionnaire are valid.
2. If r count < 0.50, then the question items of the questionnaire are invalid.

F. The validity of the test results

The validity test is carried out by correlating the score of the answers to each question with the number of score variables. The correlation technique used is the Pearson product moment correlation technique according to the ordinal measuring data scale. The number used as a comparison to see whether or not a question item is valid.

G. Reliability Test

Reliability indicates that the questionnaire is consistent when used to measure the same symptoms elsewhere. The method commonly used for reliability testing is by looking at Cronbach's alpha. The purpose of testing the validity and reliability is to ensure that the questionnaire we have compiled will be really good at measuring symptoms and produce valid data. Reliability level value > 0.5.

H. Goodness of Fit Model test

Before carrying out hypothesis testing, the first step is to assess good suitability. The evaluation was carried out using several fit index criteria to measure whether the proposed model was good or not (Hair Jr et al., 2019), which were divided into 3 groups, namely Absolute Fit Indices (Chi-Square, GFI, CMIN/DF), Incremental Fit Index ( NFI, CFI, IFI, RFI) and the Parsimony Fit Index (RMSEA, PNFI, PCFI). The model is considered feasible if it meets the criteria that meet if it meets one of the suitability levels in each group.

I. Hypothesis Testing

Hypothesis testing aims to determine the relationship between the constructs proposed in the study. The relationship between constructs in the hypothesis is shown by the regression weight value (Hair Jr et al., 2019). Hypothesis testing was carried out using a critical ratio value (c.r) ≥ 1.967 with a significance level of 0.05. The regression model in this study was formulated by the researcher as follows:

Equation 1. $Y1 = \propto + \beta1.1TC + \beta1.2SC + \beta1.3EO$

Equation 2. $Y2 = \propto + \beta2.1TC + \beta2.2SC + \beta2.3EO$

Information:

Y1      Absorptive Capacity
Y2      Firm Performance
∝       Konstanta
$\beta1$- $\beta3$          Koefisien regresi
TC      Technological Capablity
SC      Social Capital
EO      Entrepreneurial Orientation

**Results and Discussion**

A. Profile of respondents

This study involved as many as 168 respondents where the respondents had complied with the calculation results from the formula for calculating the number of samples. Respondents answered the research instrument/questionnaire as distributed by the researcher. Following are the answers of each respondent regarding the respondent's profile.

**Table 1**
**Characteristics of Respondents' Positions**

| Characteristics of Respondents | Sum | Percentage |
|---|---|---|
| Director / CEO | 3 | 1,8% |
| General Manager | 42 | 25,0% |
| Manager | 119 | 70,8% |
| Company Owner | 4 | 2,4% |
| **Total** | **168** | **100%** |

Source: Results of Primary Data Processing with Excel, 2022.

The respondent's profile shows that the characteristics of the respondents observed are company owners or employees at the director / CEO level, general manager and manager. The most respondents were managers or middle managers, as many as 119 people or 70.8%. The position of General manager or senior manager level is 42 people or 25%, while the position of Director is 3 people or 1.8% and the company owner is 4 people or 2.4%.

B. Packaging type categories

The diversity of respondents by sector category of the company in which respondents work can be seen in table 2, the following:

**Table 2**
**Characteristics of Respondents Based on Packaging Type Categories**

| Company Type | Sum | Percentage |
|---|---|---|
| Canned Packaging | 12 | 7% |
| Paper packaging | 47 | 28% |
| Plastic Packaging | 109 | 65% |
| **Total** | **168** | **100%** |

*Source: Results of Primary Data Processing with Excel, 2022.*

Based on table 2, it can be seen that the respondents in this study predominantly worked in canned packaging industry companies as many as 12 respondents with a percentage of 7%, in packaging industry companies as many as 47 respondents with a percentage of 28%, and in plastic packaging industry companies as many as 109 respondents with a percentage of 65%.

C. Descriptive Statistics

Descriptive analysis is used to find out the general description of the variables that affect the hypothesis during the research observation period. The results of descriptive statistics can be interpreted as the mean (average) which is the average value of each variable studied and the standard deviation describes the dispersion or variation of these variables, the smaller the standard deviation number, the more uniform and more accurate the mean value. The results of the descriptive statistics in this study can be seen in the following table::

**Table 3**
**Respondents' Perceptions of Technological Capability**

| No. | Statement | *Mean* | *Std. Deviation* |
|---|---|---|---|
| *Product Related Technology* | | | |
| 1 | Have products with clear technical specifications. (example: type, material and size used, etc.). | 3,958 | 0,956 |
| 2 | Collaborating research results in a structured manner in product-related departments. (example: application of meeting results / findings of the R&D department into the production department, etc.). | 3,488 | 0,701 |
| 3 | Feedback from consumers on the performance of the products we produce is very important. (example: input from | 3,982 | 0,858 |

| No. | Statement | Mean | Std. Deviation |
|---|---|---|---|
| | consumers regarding the quality of production results, etc.). | | |
| 4 | Our company conducts technical consulting to improve existing and new production technologies. | 4,107 | 0,758 |
| | Mean | 3,884 | |

*Process Related Technology*

| No. | Statement | Mean | Std. Deviation |
|---|---|---|---|
| 1 | Have an innovation process internally. (example: have a new product development SOP, etc.). | 4,143 | 0,835 |
| 2 | Have the ability to utilize technology to adapt to market needs. (example : modifying the machine for the reduction of production costs or new products, etc.). | 3,940 | 0,809 |
| 3 | Have the ability to maintain, repair and control quality in the production process. (example: have SOP for machine maintenance, SOP for Quality Control / Assurance, etc.). | 4,292 | 0,737 |
| | Mean | 4,125 | |

*Human Resources*

| No. | Statement | Mean | Std. Deviation |
|---|---|---|---|
| 1 | Have the ability to combine skills, training knowledge to improve the service process. (example: applying SOPs and training results regarding customer complaints, etc.). | 4,036 | 0,868 |
| 2 | Get technical training to employees so that they can improve company performance. | 4,250 | 0,887 |
| 3 | Employees can multi-task at the same time. (example: employees of the Research and Development department help the Quality Control section, etc.). | 4,024 | 0,909 |
| | Mean | 4,103 | |

*Research and Development*

| No. | Statement | Mean | Std. Deviation |
|---|---|---|---|
| 1 | It costs money to do higher research. (example: expenditure of the cost of developing a new product, etc.). | 4,083 | 0,918 |
| 2 | It's faster when it comes to getting feedback on manufacturing results to product engineering from customers. (example: consumer response regarding product quality, etc.). | 4,268 | 0,722 |
| 3 | Have better mechanisms and procedures for transferring technological knowledge from research to product development. | 4,250 | 0,756 |

| No. | Statement | Mean | Std. Deviation |
|-----|-----------|------|----------------|
| | (example: company SOPs in accordance with ISO standards, etc.). | | |
| | *Mean* | 4,200 | |

The technological capability variable of the Product Related Technology dimension has a mean value of 3,884, the Process Related Technology dimension has a mean value of 4,125, the Human Resources dimension has a mean value of 4,103 and the Research and Development dimension has a mean value of 4,200. The lowest score on the question item "Collaborating research results in a structured manner in the product-related department" with a mean value of 3,488 and the highest score on the question item "Having the ability to maintain, improve and control quality in the production process." with a mean value of 4,292.

**Table 4**
**Respondents' Perceptions of Social Capital**

| No. | Statement | Mean | Std. Deviation |
|-----|-----------|------|----------------|
| *Structural Capital* | | | |
| 1 | Interact and conduct internal meetings at regular intervals. (example: conducting weekly or monthly meetings, etc.). | d | 0,444 |
| 2 | Together achieve the goals of the company collectively. (example: together looking for solutions to customer complaints, etc.). | 4,726 | 0,447 |
| 3 | Develop mutual understanding of duties and responsibilities. (example: understanding the description of the work and tasks of each department, etc.). | 4,482 | 0,766 |
| 4 | Share ideas, information and consumer responses. | 4,768 | 0,423 |
| | *Mean* | 4,677 | |
| *Cognitive Capital* | | | |
| 1 | Have the same vision regarding the cooperative relationship carried out. (example: willingness to synergize in cooperative relationships, etc.). | 4,399 | 0,834 |
| 2 | Have a common goal in the cooperative relationship carried out. (example: making an agreement to find a solution to achieve maximum results, etc.). | 4,155 | 0,750 |
| 3 | Looking at each other as equal partners. (example: put forward a win-win solution if there are obstacles, etc.). | 4,417 | 0,761 |
| | *Mean* | 4,323 | |
| *Relational Capital* | | | |

| No. | Statement | Mean | Std. Deviation |
|-----|-----------|------|----------------|
| 1 | Caring about the success of the cooperation carried out. (example: mutually control the agreed specifications and quality, etc.). | 4,732 | 0,444 |
| 2 | Our company believes that our customers always pay attention to our best interests. (example: consumers make bill payments on time, etc.). | 3,786 | 0,903 |
| 3 | Our customers consider our well-being and their own. (example: looking for the best deal or solution if something goes wrong with the production results, etc.). | 3,530 | 0,947 |
| | Mean | 4,016 | |

*Source: Processing Results with MS Excel 2019*

D. Confirmatory Factor Analysis Testing

Validity and reliability tests were carried out with AMOS software for SEM analysis involving latent and observable variables. The first step is to respecify a hybrid model as a CFA (Confirmatory Factor Analysis) model. The CFA model is a measurement model that models the relationship between latent variables and observed/measured variables. This relationship is reflective in that the observed variables are a reflection of the related variables. In Structural Equation Modeling (SEM) this relationship is con-generic, that is, one observed indicator only measures or reflects a variable.

The CFA model aims to measure its suitability to the data. The final results of the CFA are obtained through a fit test of the entire model, analysis of the validity and reliability of the model. One way that can be done is by trimming the model. Analysis of the validity of the measurement model is carried out by examining whether the t-value of the standardized loading factor ($\lambda$) of the observed indicator variables in the model is > 1.96. and standardized loading factor ($\lambda$) of the observed indicator variables in the model $\geq$ 0.50. If there are variables that do not meet these two conditions, they will be removed from the model. The CFA (Confirmatory Factor Analysis) model assessment process will be explained in more detail as follows:

E. Technological Capability Latent Variable

The results of the validity test in Appendix-1 show that the dimensions and indicators in the 2nd Order CFA Model, namely PT2, HR1 and RD1, are not valid because they have a standard loading factor of <0.5. Therefore the indicators PT2, HR1 and RD1 were removed from the Exogenous Construct in subsequent analysis. Thus the 2nd Order CFA Model is obtained as follows.
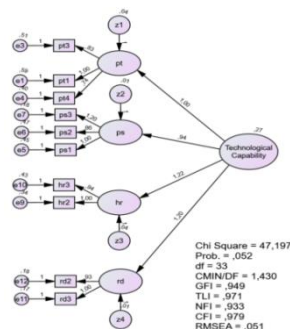


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**Figure 3**
**CFA Variabel Laten Technological Capability**

F. Tructural Equation Model Testing

Analysis of the Structural Equation Model (SEM) in this study used Software Analysis of Moment Structure or AMOS version 26. Basically, the structural model aims to test the causal relationship between variables so that if one of the variables is changed, a change occurs in the other variables. In SEM analysis it is possible that there are several dependent variables, and these variables are possible to become independent variables for other dependent variables.
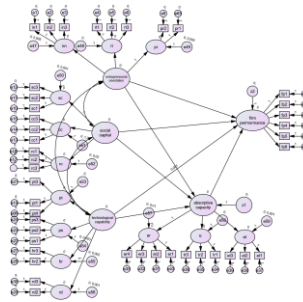


**Figure 4**
**Full Model Persamaan Struktural**

G. Effect of Technological Capability on Absorptive Capacity

The significant test results for hypothesis one prove that there is a positive effect of technological capability on absorptive capacity as indicated by a p value or <0.05. This shows that in the food and beverage packaging industry, when companies develop their technological capabilities related to products, processes, human resource skills towards mastery of technology and development research it will be easier to carry out the process of exploring, transforming and exploiting new knowledge.

The results of this study support the results of previous research conducted by (Tzokas et al., 2015) which found a positive effect between technological capability on absorptive capacity, where the accumulation of technological knowledge not only increases product innovation skills, but also the company's ability to be involved in the transformation process. through the evaluation, use, and application of new technologies. Companies with strong technological capability tend to have a strong ability to use new knowledge (Srivastava et al., 2015) obtained from external parties.

H. The Effect of Technological Capability on Firm Performance

The significant test results for the second hypothesis prove that there is a positive influence of technological capability on firm performance as indicated by the p value or <0.05. This shows that in the food and beverage packaging industry, when a company develops its technological capabilities it will have an impact on increasing the company's operational performance in the form of quality improvement, specification conformity, delivery accuracy, quantity suitability and competitive prices.

This is in line with the RBV theory and dynamic capability which explains the benefits of technological capability in increasing competitive advantage and performance, by enabling companies to identify acquiring and applying external knowledge to develop operational competencies aimed at achieving competitive advantage (Salisu, 2019). Results of research by Hsu et al., (2014); Tzokas et al., (2015) also shows that technological capability affects performance and is very important

because responding to dynamic market needs requires the development of new products that are based on technology development, so that they can accurately predict and adapt to technological changes (Salisu & Abu Bakar , 2019) by turning information into product innovation (Aydin, 2020).

So it can be concluded that technological capability in food and beverage packaging companies is an important resource for companies that must be managed effectively to develop products that are in line with market trends and to introduce new products from time to time (Guerra & Camargo, 2016). To maintain a competitive advantage, technological capability must be carried out on an ongoing basis to absorb and create technological knowledge from interactions with the environment and the accumulation of skills and knowledge possessed by a company to achieve a higher level of technical-economic efficiency (Reichert & Zawislak, 2014) to meet the needs customers while determining the success of new product development and performance improvement (Salisu & Abu Bakar, 2019)

I. The Effect of Technological Capability on Firm Performance

The significant test results for the second hypothesis prove that there is a positive influence of technological capability on firm performance as indicated by the p value or <0.05. This shows that in the food and beverage packaging industry, when a company develops its technological capabilities it will have an impact on increasing the company's operational performance in the form of quality improvement, specification conformity, delivery accuracy, quantity suitability and competitive prices.

This is in line with the RBV theory and dynamic capability which explains the benefits of technological capability in increasing competitive advantage and performance, by enabling companies to identify acquiring and applying external knowledge to develop operational competencies aimed at achieving competitive advantage (Salisu, 2019). Results of research by Hsu et al., (2014); Tzokas et al., (2015) also shows that technological capability affects performance and is very important because responding to dynamic market needs requires the development of new products that are based on technology development, so that they can accurately predict and adapt to technological changes (Salisu & Abu Bakar , 2019) by turning information into product innovation (Aydin, 2020).

So it can be concluded that technological capability in food and beverage packaging companies is an important resource for companies that must be managed effectively to develop products that are in line with market trends and to introduce new products from time to time (Guerra & Camargo, 2016). To maintain a competitive advantage, technological capability must be carried out on an ongoing basis to absorb and create technological knowledge from interactions with the environment and the accumulation of skills and knowledge possessed by a company to achieve a higher level of technical-economic efficiency (Reichert & Zawislak, 2014) to meet the needs customers while determining the success of new product development and performance improvement (Salisu & Abu Bakar, 2019)

J. The Effect of Social Capital on Absorptive Capacity

The significant test results for the third hypothesis prove that there is a positive influence of social capital on absorptive capacity as indicated by a p value or <0.05. This shows that in the food and beverage packaging industry, to utilize the knowledge gained through social capital, absorptive capacity is needed in order to become a competitive advantage.

In line with previous research by Alghababsheh & Gallear, (2020) stated that social capital can support and contribute to effective relationships between partners by increasing the exchange of knowledge, learning, resilience, responsiveness and innovation. Social capital also plays a key role in transferring knowledge from one stage to another in the absorption process (Aribi et al., 2015), while increasing the speed and extent of accumulation of prior knowledge through the willingness of partners to share knowledge by ensuring common goals, missions and vision so that each individual is easier to present, exchange, adopt, and even combine various ideas, thereby increasing their absorptive capacity to maintain sustainable innovation (Registreren et al., 2012).

K. Effect of Social Capital on Firm Performance

The results of the significant test on the fourth hypothesis prove that there is a positive influence of social capital on firm performance as indicated by the p value or <0.05. The results of this study contradict research conducted by Chuang et al., (2016); Tan, (2017); Zhang et al., (2016), which states that social capital has no effect on performance and competitive advantage. However, this research is in line with the results of Akintimehin et al., (2019); Gelderman et al., (2016); Ha & Nguyen, (2020); Leem & Rogers, (2017); Whipple, Wiedmer, & K. Boyer, (2015), where social capital has a positive impact on performance results, and directly affects operational performance which affects quality improvement, delivery speed and flexibility (Alghababsheh & Gallear, 2020).

One of the important elements to achieve competitive advantage is to collaborate with internal and external partners which aim to build trust and exchange information (Whipple, Wiedmer, & K. Boyer, 2015) as well as to facilitate collective action (Pillai et al., 2017) to improve performance. This relationship is a valuable resource that other companies may not have (Kittikunchotiwut, 2018) because it is rare, cannot be imitated and cannot be substituted. This is different from the opinion (Zhang et al., 2016), which states that in a simple distribution chain, companies do not need social capital processes, because the benefits of social capital are not in accordance with the investments made by companies to increase competitive advantage.

However, the management of relationships between partners in the food and beverage packaging industry is not simple but very complex, one of the reasons is the large number of employees, the supply chain which requires timeliness, quality and quantity according to standards, thus causing the relationship between internal partners to be managed in an integrated manner. effective to achieve maximum results. Understanding the role of each individual through the description of duties and responsibilities is important so that when coordinating each individual can provide input according to their role.

L. The Effect of Entrepreneurial Orientation on Absorptive Capacity

The results of the significant test on the fifth hypothesis prove that there is a positive influence of entrepreneurial orientation on absorptive capacity as indicated by a p value or <0.05. This is consistent with previous research conducted by (Hughes et al., 2017) which concluded that the implementation of entrepreneurial orientation benefits from learning through the process of absorptive capacity, so that absorptive capacity is proven to increase the effect of entrepreneurial orientation on company performance (Hernández-Perlines et al. ., 2017).

Entrepreneurial orientation is a company's strategic orientation that focuses on seeking and exploiting new opportunities through a process of innovation, risk taking and a level of proactivity towards market changes, but the end result of this strategic

orientation has the possibility of success or failure and the absorptive capacity process is able to determine the level of probability of success of strategic orientation. companies (Rodríguez-Serrano & Martín-Armario, 2019). So that the experience and knowledge possessed by employees can be the basic capital to gain new knowledge which aims to carry out risk analysis and take action to reduce risks that arise, to innovate new product development and to take initiatives and opportunities to anticipate dynamic market changes.

The results of this study indicate that food and beverage packaging companies have a tendency not to take risks, this is considered reasonable for company management due to the uncertainty factor due to the COVID-19 pandemic, but companies are still actively looking for new opportunities to maintain business continuity and conduct experiments. to innovate new products to meet consumer needs. To ensure which opportunities can be acted upon as well as which consumer needs can be met, the absorptive capacity process plays a very important role in interpreting information obtained from market intelligence, competitor activities and combining it with existing knowledge to help evaluate opportunities and detect errors during the product innovation process. Ibarra-Cisneros et al., 2021)

M. Effect of Social Capital on Firm Performance

The results of a significant test of hypothesis six proved that there was a positive influence of insignificant entrepreneurial orientation on firm performance indicated by p value or > 0.05. This hypothesis shows that entrepreneurial orientation does not affect the company's performance in the food and beverage packaging industry. In the loading factor full model, the entrepreneurial orientation variable has the smallest value of its effect on firm performance, and the risk taking dimension has the smallest value of its effect on the dimension of the entrepreneurial orientation variable.

This is contrary to previous research which concluded that entrepreneurial orientation has become a widely accepted way to improve innovation and company performance (Aljanabi, 2017; Hernández-Perlines et al., 2017; Zhai et al., 2018).

However, this research is in accordance with research conducted by Onwe et al., (2020) which found the results of entrepreneurial orientation have a positive but not significant effect, which means that entrepreneurial orientation is beneficial for company activities but not very important because companies without entrepreneurial orientation can still perform well. The main cause is that the resulting product is an imitation of another product and there are problems in the socio-cultural area and the lack of individual motivation underlying the desire to maintain or improve performance. So it is concluded that environmental factors and corporate culture can affect the relationship between entrepreneurial orientation and company performance.

N. The Effect of Absorptive Capacity on Firm Performance

Significant test results against hypothesis seven proved a positive influence of absorptive capacity on firm performance indicated by p value or < 0.05. This is in line with research conducted by (Hernández-Perlines et al., 2017; Hughes et al., 2017; Nazeer et al., 2021; Sáenz et al., 2014; Tzokas et al., 2015) which stated that absorptive capacity has a positive impact on improving operational performance such as improving the timeliness of delivery and specifications of the products produced, saving production costs and the speed of new product development (Xin et al., 2020) and competitive advantage (Chuang et al., 2016).

Absorptive capacity aims to gain new knowledge based on the knowledge possessed and then integrated into the organizational structure, thus allowing the

incorporation of developed products and services, resulting in higher company competitiveness (Zahra & George, 2002), while increasing the possibility of winning the competition (Zhang et al., 2015). This study proves that absorptive capacity can affect performance improvement, especially in food and beverage packaging industry companies by absorbing information from external partners so that companies can carry out sustainable innovations.

It can be concluded in this study that the absorptive capacity process which involves the process of sequential knowledge acquisition ranging from exploratory, transformative to exploitative originating from the external environment or derived from relationships between individuals and between organizations (Lane et al., 2006), is able to improve efficiency and performance in the food and beverage packaging industry.

O. Effect of Technological Capability on Firm Performance mediated by Absorptive Capacity

The role of absorptive capacity in mediating the relationship between technological capability and firm performance can be seen from the large direct influence of technological capability on firm performance, which is 0.26, the indirect influence of entrepreneurial orientation on firm performance through absorptive capacity of 0.042 and the total influence of technological capability on firm performance through absorptive capacity of 0.304. Then it can be said that direct influence is stronger than indirect influence.

Based on the results of the sobel test, it shows that the influence of technological capability on firm performance through absorptive capacity is positive and significant, so it can be concluded that absorptive capacity acts as a mediator in the relationship between technological capability and firm performance.

In line with research conducted by Nazeer et al., (2021), which states that absorptive capacity can act as a mediating factor between technological capability and firm performance, as well as being the main driver of technological capability and the performance of manufacturing companies through the exploratory, transformative and exploitative process of new knowledge related to technology so as to improve company performance (Tzokas et al., 2015), thus enabling the company to carry out production cost reductions, product repairs, effective inventory management, and increased efficiency in production systems (Poudel et al., 2020).

P. Effect of Social Capital on Firm Performance mediated by Absorptive Capacity

The role of absorptive capacity in mediating the relationship between social capital and firm performance can be seen from the large direct influence of social capital on firm performance, which is 0.28, the indirect influence of social capital on firm performance through absorptive capacity of 0.064, and the total influence of social capital on firm performance through absorptive capacity of 0.344. Then it can be said that direct influence is stronger than indirect influence. Based on the results of the sobel test, it shows that the influence of social capital on firm performance through absorptive capacity is positive and significant, so it can be concluded that absorptive capacity acts as a mediator in the relationship between social capital and firm performance.

In line with research conducted by Chuang et al., (2016), which concluded that the absorptive capacity element mediates the effect of social capital on performance and companies must invest resources to build social capital capabilities to maximize the company's absorptive capacity. Gölgeci & Kuivalainen, (2020), state that social capital allows the process of obtaining knowledge through relevant external information higher than customers, competitors, suppliers and other institutions because it can identify and

assimilate new knowledge and the ability to transform and exploit new knowledge gained and renew their knowledge and understanding to carry out better selection and retention (Xin et al., 2020).

Q. Effect of Entrepreneurial Orientation on Firm Performance mediated by Absorptive Capacity

The role of absorptive capacity in mediating the relationship between entrepreneurial orientation and firm performance can be seen from the large direct influence of entrepreneurial orientation on firm performance, which is 0.038, the indirect influence of entrepreneurial orientation on firm performance through absorptive capacity of 0.078, and the total influence of entrepreneurial orientation on firm performance through absorptive capacity of 0.115. then it can be said that indirect influence is stronger than direct influence.

Based on the results of the sobel test, it shows that the influence of entrepreneurial orientation on firm performance through absorptive capacity is positive and significant, so it can be concluded that absorptive capacity acts as a mediator in the relationship between entrepreneurial orientation and firm performance. This shows that in the food and beverage packaging industry, risk-taking, proactive and innovation development actions must go through a process of exploration, transformation and exploitation in order to improve company performance.

Consistent with the research conducted by (Hernández-Perlines et al., 2017), which states that absorptive capacity can act as a mediating factor between entrepreneurial orientation and firm performance that is effective in obtaining superior performance. Absorptive capacity is also able to improve information processing in the entrepreneurial orientation process in the face of opportunities, both observed and unobserved (Makhloufi et al., 2021).

According to Engelen, (2014) there is one condition where absorptive capacity largely determines the relationship between entrepreneurial orientation and firm performance, namely in times of high environmental uncertainty, in that condition the effectiveness of entrepreneurial orientation in the form of innovation, risk-taking and proactive actions depends on the company's ability to absorb and disseminate knowledge of its resources to make superior strategic decisions as part of the application entrepreneurial orientation (Hughes, Hodgkinson, Hughes, & Arshad, 2018).

**Conclusion**

Conclusion Based on the results of research and discussion in general, companies in the food and beverage packaging industry need social capital and technological capability to increase their absorption capacity and firm performance, while entrepreneurial orientation needs to be considered more deeply by considering environmental uncertainty factors and the level of competition between companies in the food and beverage packaging industry. In detail, the conclusion of the results of this study is that there is a positive and significant influence of technological capability on absorptive capacity.

The most dominant dimension of technological capability is the Research and Development dimension. This shows that product engineering, new product development and getting feedback from consumers are most influential to increase absorptive capacity. There is a positive and significant influence of technological capability on firm performance. The less dominant dimension is the Human Resources

dimension. This shows that training and multi-tasking charged to employees have the least impact but can still improve firm performance.

There is a positive and significant influence of social capital on absorptive capacity. The most dominant dimension of social capital is cognitive capital. This shows that the same goals, equality and understanding of the same vision and mission will increase absorptive capacity. There is a positive and significant influence of social capital on firm performance. The social capital dimension gets almost the same score. This shows that internal interaction, understanding of responsibility duties, equality, understanding the same vision and mission and attaching importance to the success of cooperation will improve firm performance. There is a positive and significant influence of entrepreneurial orientation on absorptive capacity. The most dominant dimensions of entrepreneurial orientation are innovativeness and proactiveness. This shows that conducting experiments, promoting new products, anticipating market changes and taking initiatives will increase absorptive capacity.

Entrepreneurial orientation to firm performance has no significant effect. The most dominant dimension of entrepreneurial orientation that affects significance is risk taking. This shows that choosing a business strategy that tends to take risks and invest in high-risk projects does not significantly improve firm performance. There is a positive and significant influence of absorptive capacity on firm performance. Each of the dimensions of absorptive capacity has almost the same score. This shows that the process of exploration, transformation and exploitation of new knowledge will improve firm performance.

There is a mediating effect of absorptive capacity in increasing the influence of technological capablity on firm performance. This shows that absorptive capacity plays a very mediating role in increasing the influence of technological capability on firm performance. There is a mediating effect of absorptive capacity in increasing the influence of social capital on firm performance. This shows that absorptive capacity plays a very mediating role in increasing the influence of social capital on firm performance. There is a mediating effect of absorptive capacity in increasing the influence of entrepreneurial orientation on firm performance. This shows that entrepreneurial orientation plays a very important role as mediation in increasing the influence of social capital on firm performance.

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