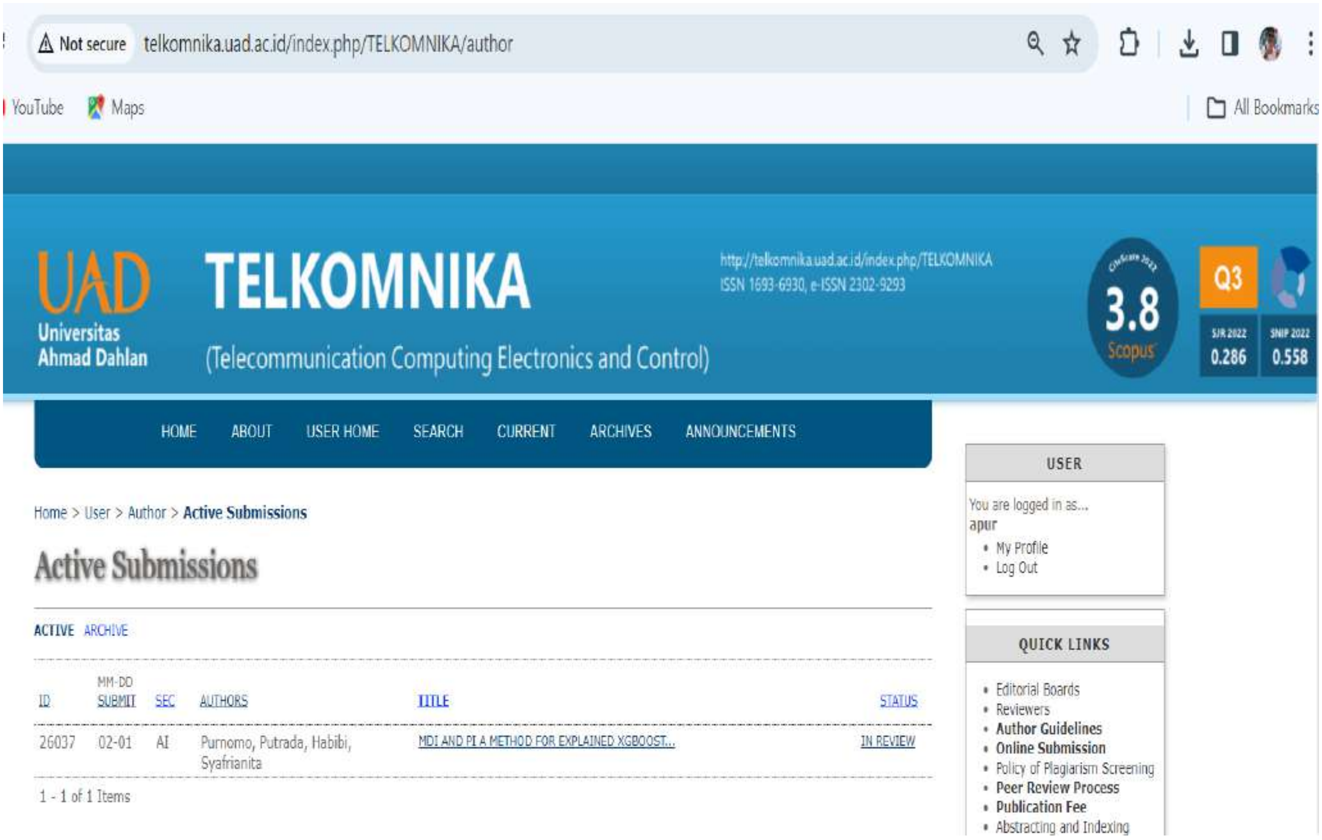
KOMUNIKASI DENGAN EDITOR JURNAL TELKOMNIKA, Scopus Q2

1. Submissions ke OJS Jurnal TELKOMNIKA tanggal 1 Februari 2024



Not secure telkomnika.uad.ac.id/index.php/TELKOMNIKA/author

YouTube Maps All Bookmarks

UAD Universitas Ahmad Dahlan TELKOMNIKA (Telecommunication Computing Electronics and Control)

http://telkomnika.uad.ac.id/index.php/TELKOMNIKA ISSN 1693-6930, e-ISSN 2302-9293

3.8 Scopus Q3 SJR 2022 0.286 SNIP 2022 0.558

HOME ABOUT USER HOME SEARCH CURRENT ARCHIVES ANNOUNCEMENTS

Home > User > Author > Active Submissions

Active Submissions

ACTIVE ARCHIVE

ID	MM-DD SUBMIT	SEC	AUTHORS	TITLE	STATUS
26037	02-01	AI	Purnomo, Putrada, Habibi, Syafrianita	MDI AND PI A METHOD FOR EXPLAINED XGBOOST...	IN REVIEW

1 - 1 of 1 Items

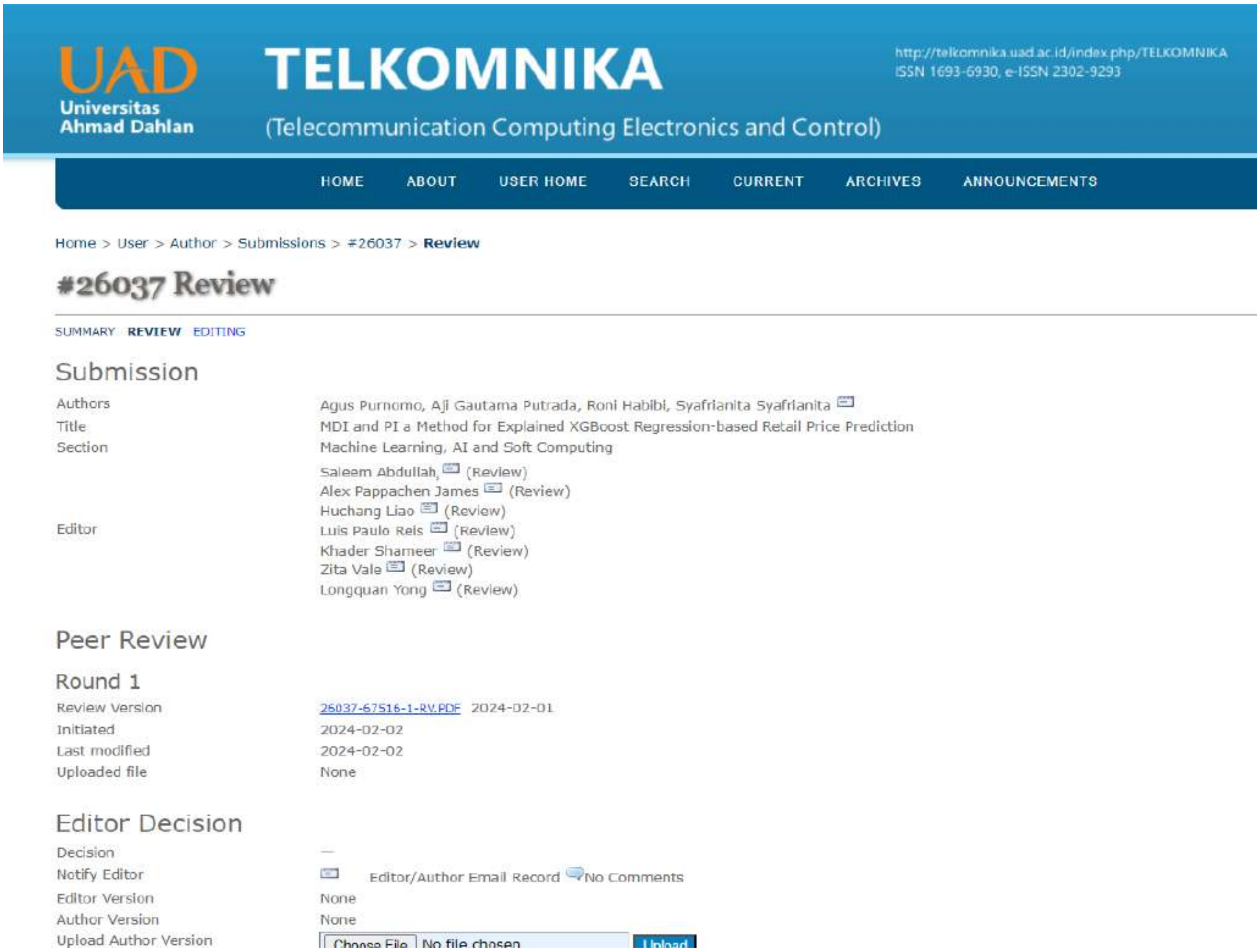
USER

You are logged in as... apur

- My Profile
- Log Out

QUICK LINKS

- Editorial Boards
- Reviewers
- Author Guidelines
- Online Submission
- Policy of Plagiarism Screening
- Peer Review Process
- Publication Fee
- Abstracting and Indexing



UAD Universitas Ahmad Dahlan TELKOMNIKA (Telecommunication Computing Electronics and Control)

http://telkomnika.uad.ac.id/index.php/TELKOMNIKA ISSN 1693-6930, e-ISSN 2302-9293

HOME ABOUT USER HOME SEARCH CURRENT ARCHIVES ANNOUNCEMENTS

Home > User > Author > Submissions > #26037 > Review

#26037 Review

SUMMARY REVIEW EDITING

Submission

Authors	Agus Purnomo, Aji Gautama Putrada, Roni Habibi, Syafrianita Syafrianita
Title	MDI and PI a Method for Explained XGBoost Regression-based Retail Price Prediction
Section	Machine Learning, AI and Soft Computing
Editor	Saleem Abdullah, (Review) Alex Pappachen James (Review) Huchang Liao (Review) Luis Paulo Reis (Review) Khader Shameer (Review) Zita Vale (Review) Longquan Yong (Review)

Peer Review

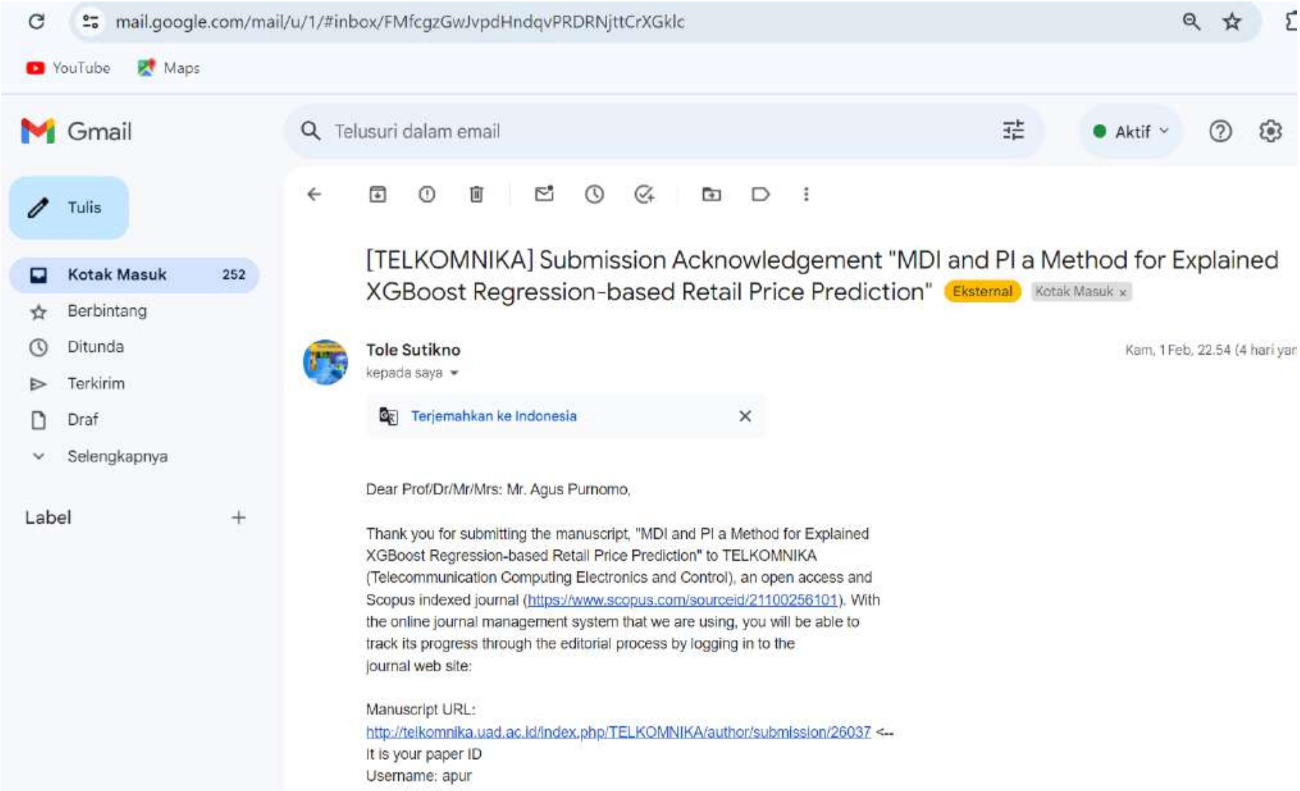
Round 1

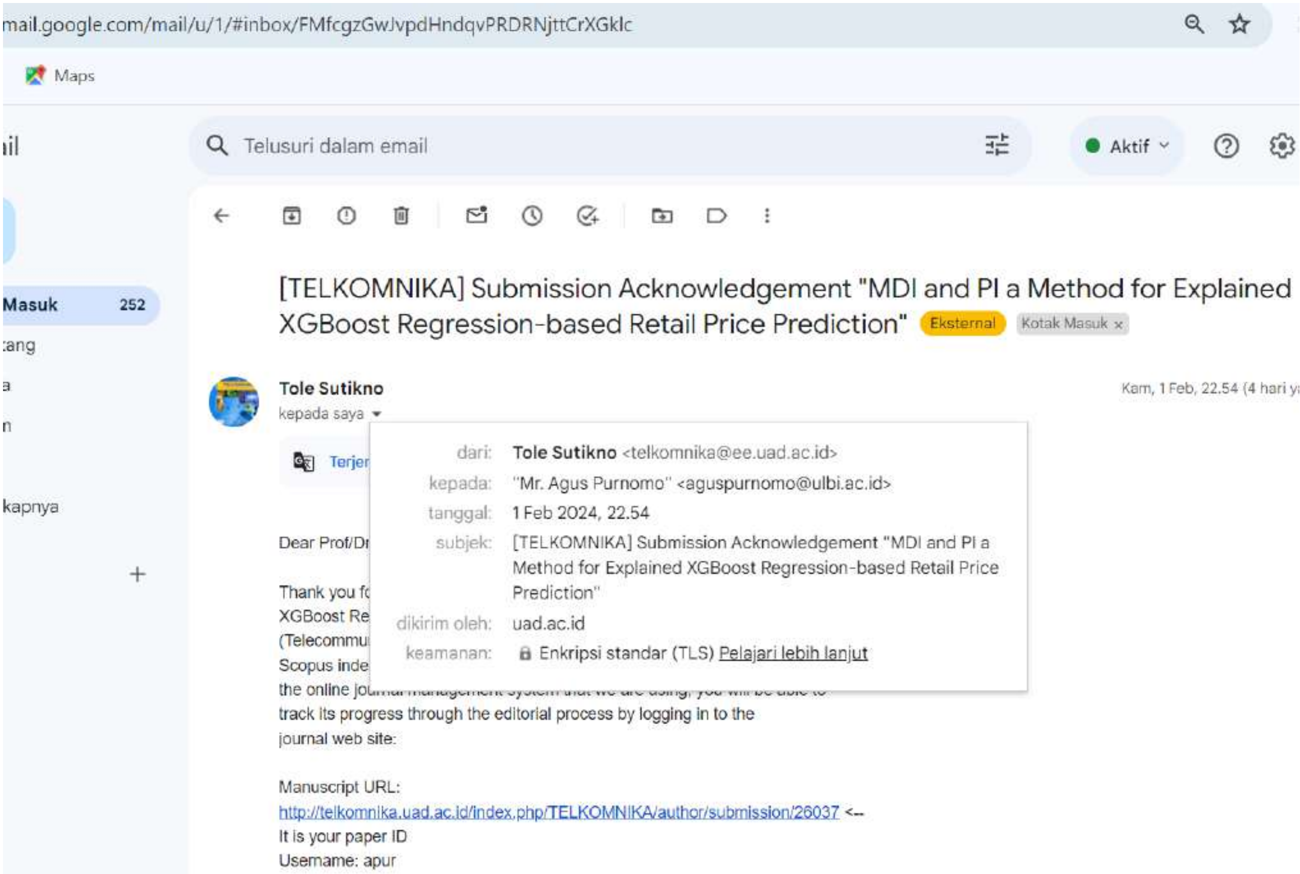
Review Version	26037-67516-1-RV.PDF 2024-02-01
Initiated	2024-02-02
Last modified	2024-02-02
Uploaded file	None

Editor Decision

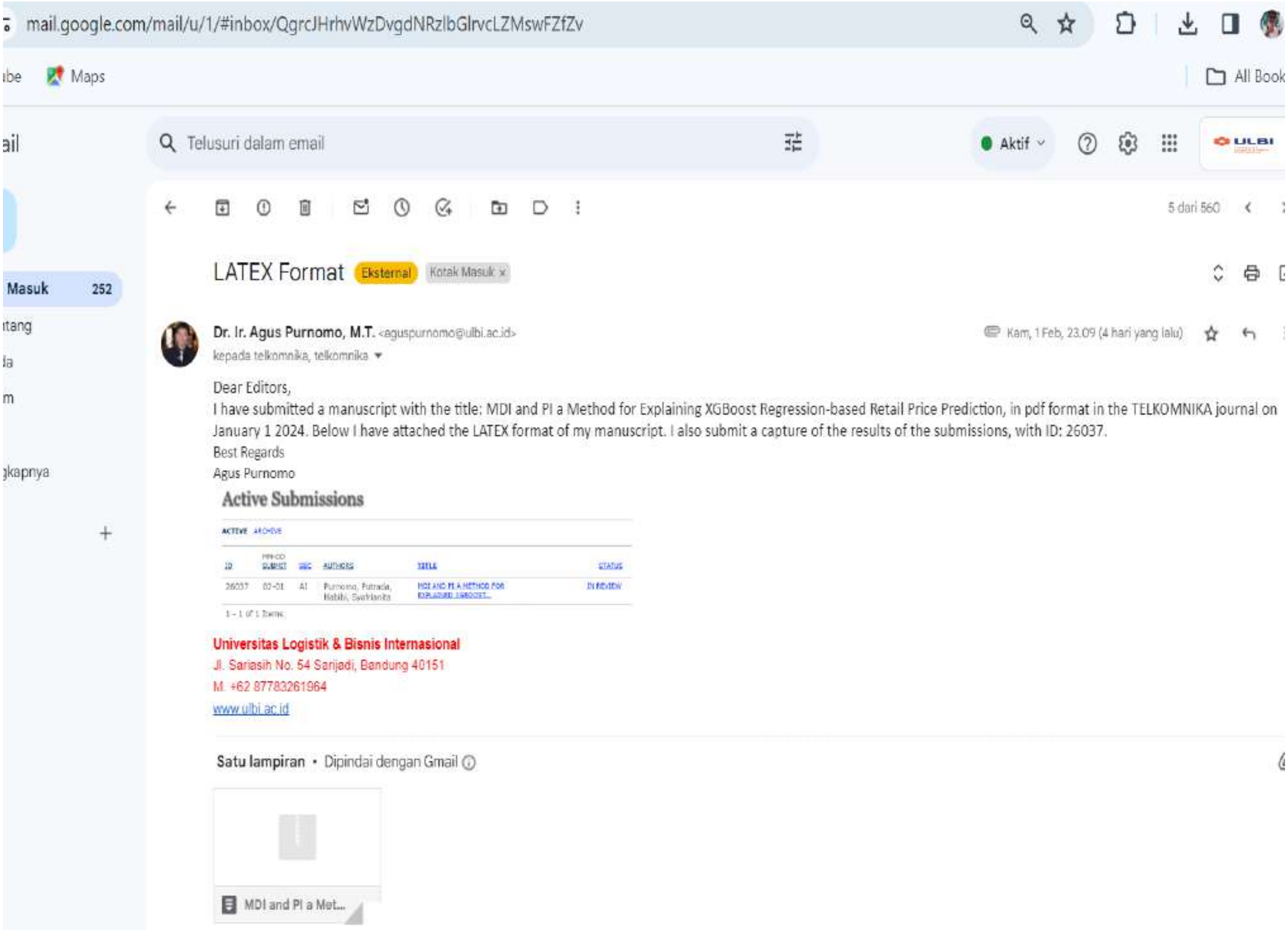
Decision	—
Notify Editor	Editor/Author Email Record No Comments
Editor Version	None
Author Version	None
Upload Author Version	Choose File No file chosen Upload

2. Notifikasi ke email tentang Submissions ke OJS TELKOMNIKA, tanggal 1 Februari 2024





3. Submit LATEX Format ke email: telkomnika@uad.ac.id tanggal 1 Februari 2024



mail.google.com/mail/u/1/#inbox/QgrcJHrhvWzDvgdNRzlbGlrvcLZMswFZfZv

LATEX Format Eksternal Kotak Masuk

Dr. Ir. Agus Purnomo, M.T. <aguspurnomo@ulbi.ac.id>

kepada telkomnika, telkomnika

Kam, 1 Feb, 23.09 (4 hari yang lalu)

Dear Editors,

I have submitted a manuscript with the title: MDI and PI a Method for Explaining XGBoost Regression-based Retail Price Prediction, in pdf format in the TELKOMNIKA journal on January 1 2024. Below I have attached the LATEX format of my manuscript. I also submit a capture of the results of the submissions, with ID: 26037.

Best Regards

Agus Purnomo

Active Submissions

ID	MM-DD SUBMIT	SEC	AUTHORS	TITLE	STATUS
26037	02-01	AI	Purnomo, Putrada, Habibi, Syafrianita	MDI AND PI A METHOD FOR EXPLAINED XGBOOST...	IN REVIEW

1 - 1 of 1 Items

Universitas Logistik & Bisnis Internasional

Jl. Sariasih No. 54 Sarijadi, Bandung 40151

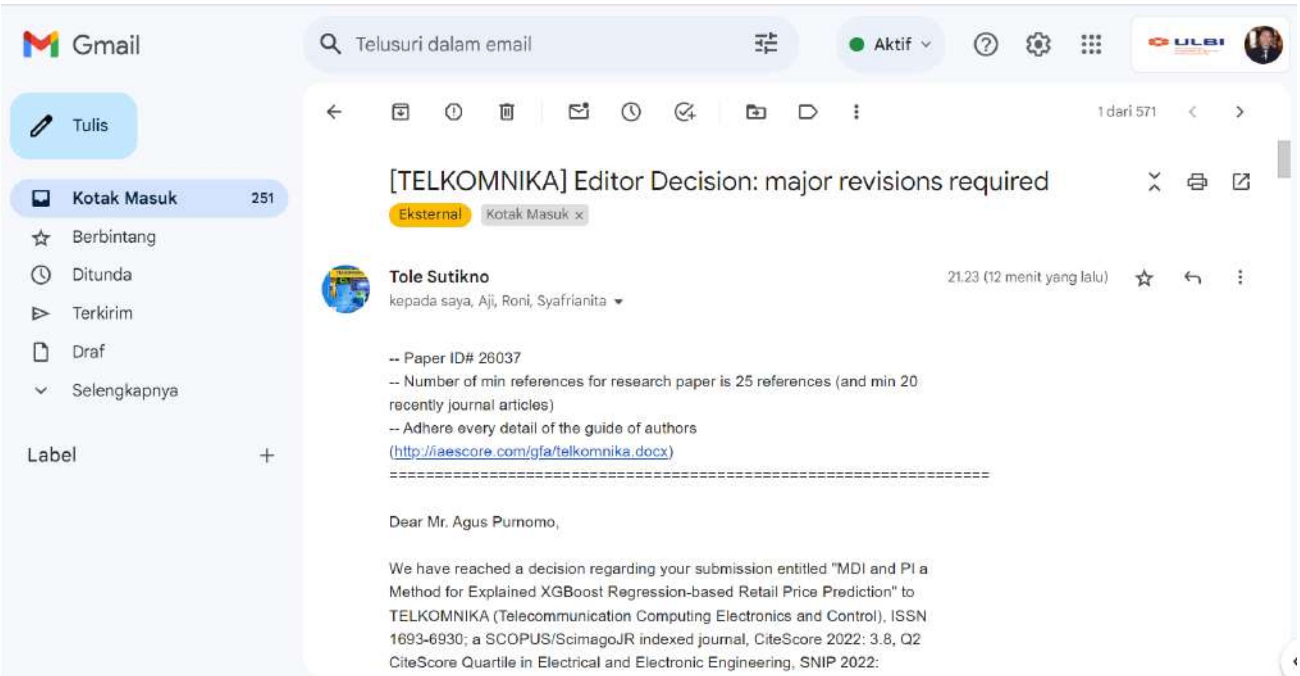
M. +62 87783261964

www.ulbi.ac.id

Satu lampiran • Dipindai dengan Gmail

MDI and PI a Met...

4. Email dari Editor Decision: major revisions required, tgl 24 Februari 2024



Gmail

Tulis

Kotak Masuk 251

Berbintang

Ditunda

Terkirim

Draf

Selengkapnya

Label

1 dari 571

[TELKOMNIKA] Editor Decision: major revisions required

Eksternal Kotak Masuk

Tole Sutikno

kepada saya, Aji, Roni, Syafrianita

21.23 (12 menit yang lalu)

-- Paper ID# 26037

-- Number of min references for research paper is 25 references (and min 20 recently journal articles)

-- Adhere every detail of the guide of authors (http://iaescore.com/gfa/telkomnika.docx)

==

Dear Mr. Agus Purnomo,

We have reached a decision regarding your submission entitled "MDI and PI a Method for Explained XGBoost Regression-based Retail Price Prediction" to TELKOMNIKA (Telecommunication Computing Electronics and Control), ISSN 1693-6930; a SCOPUS/ScimagoJR indexed journal, CiteScore 2022: 3.8, Q2 CiteScore Quartile in Electrical and Electronic Engineering, SNIP 2022:

Gmail

Telusuri dalam email

Aktif

Tulis

Kotak Masuk 251

Berbintang

Ditunda

Terkirim

Draf

Selengkapnya

Label

1 dari 571

Method for Explained XGBoost Regression-based Retail Price Prediction" to TELKOMNIKA (Telecommunication Computing Electronics and Control), ISSN 1693-6930; a SCOPUS/ScimagoJR indexed journal, CiteScore 2022: 3.8, Q2 CiteScore Quartile in Electrical and Electronic Engineering, SNIP 2022: 0.558, SJR 2022: 0.286

Our decision is to major revisions required.
Why did you do the study? Why is the study relevant? What did you do? What approach did you use? What did you find? What did you conclude?

Please find below the comments from the peer reviewers and editors.

Checklist for preparing your paper for publication:
http://telkomnika.uad.ac.id/index.php/TELKOMNIKA/about/editorialPolicies#custom-2

TELKOMNIKA Guide of authors: http://iaescore.com/gfa/telkomnika.docx

I look forward for hearing from you

Thank you

Best Regards,
Prof. Dr. Ir. Tole Sutikno, ASEAN Eng.

Gmail

Telusuri dalam email

Aktif

Tulis

Kotak Masuk 251

Berbintang

Ditunda

Terkirim

Draf

Selengkapnya

Label

1 dari 571

-- Editor-in-Chief Comments

When revising your paper, keep the following points in mind:

1. Authors should have made substantial contributions to:
(a) the conception and design of the study, or acquisition of data, or analysis and interpretation of data
(b) drafting the article or revising it critically for important intellectual content

2. Introduction section
Explain the context of the study and state the precise objective
An Introduction should contain the following three parts:
- Background: Authors have to make clear what the context is. Ideally, authors should give an idea of the state-of-the art of the field the report is about.
- The Problem: If there was no problem, there would be no reason for writing a manuscript, and definitely no reason for reading it.
So, please tell readers why they should proceed reading. Experience shows that for this part a few lines are often sufficient.
- The Proposed Solution: Now and only now! - authors may outline the

Gmail

Telusuri dalam email

Aktif

Tulis

Kotak Masuk 251

Berbintang

Ditunda

Terkirim

Draf

Selengkapnya

Label

1 dari 571

contribution of the manuscript. Here authors have to make sure readers point out what are the novel aspects of authors work. Authors should place the paper in proper context by citing relevant papers. At least, 10 references (recently journal articles) are used in this section.

3. Results and Discussion
The presentation of results should be simple and straightforward in style. This section reports the most important findings, including results analyses as appropriate and comparisons to other research results. This section should be supported suitable references.

4. Conclusion
Your conclusion should make your readers glad they read your paper. Summarize sentences the primary outcomes of the study in a paragraph (NOT in numbering).

5. References and Citations
We usually expect a minimum of 25 and 50 references primarily to recent journal papers for research/original paper and review paper, respectively. Each citation should be written in the order of appearance in the text [1], [2], [3], [4], ... (Sequential order!!) URGENT: SELF CITATION from same author or group authors is MAX 10%.

Gmail

Telusuri dalam email

Aktif

Tulis

Kotak Masuk 251

Berbintang

Ditunda

Terkirim

Draf

Selengkapnya

Label

1 dari 571

numbering).

5. References and Citations
We usually expect a minimum of 25 and 50 references primarily to recent journal papers for research/original paper and review paper, respectively. Each citation should be written in the order of appearance in the text [1], [2], [3], [4], ... (Sequential order!!) URGENT: SELF CITATION from same author or group authors is MAX 10%.

6. Paragraph
A paragraph is a sentence or group of sentences that support one main idea. Many authors have presented paragraphs in very long terms. Author should use simple sentences which are grammatically correct, but too many can make your writing less interesting. Every paragraph in a paper should be:
- Unified: All of the sentences in a single paragraph should be related to a single controlling idea (often expressed in the topic sentence of the paragraph).
- Clear: The sentences should all refer to the central idea of the paper.
- Coherent: The sentences should be arranged in a logical manner and should follow a definite plan for development.
- Well-developed: Every idea discussed in the paragraph should be adequately explained and supported through evidence and details that work together to explain the paragraph's controlling idea.

Gmail

Telusuri dalam email

Aktif

Tulis

Kotak Masuk 251

Berbintang

Ditunda

Terkirim

Draf

Selengkapnya

Label

1 dari 571

-- Associate Editors Comments

Please provide responses and explanations for the following questions.

1. What is the scientific question you are addressing?
2. What is the key finding that answers this question?
3. What is the nature of the evidence you provide in support of your conclusion?
4. What significance do your results have for the field and the broader community?
5. Is there additional information that we should take into account?

Attention Please! Method section

The experimental/method section is a straightforward description of what you did in your research and how you did it, with each stage being clear and detailed. A detailed method section makes your article reproducible, allowing other researchers to trust and build on your work.

- A more detailed description of the experimental setup is required. A thorough explanation of all methodologies, instruments, materials,

Gmail

Telusuri dalam email

Aktif

Tulis

Kotak Masuk 251

Berbintang

Ditunda

Terkirim

Draf

Selengkapnya

Label

1 dari 571

- A detailed description of the data analysis and decisions to exclude certain data and include others.

Writing a discussion can be a delicate balance between summarizing your results, providing proper context for your research and avoiding introducing new information. Remember that your paper should be both confident and honest about the results!

Reviewer A:

This paper entitled "MDI and PI a Method for Explained XGBoost Regression-based Retail Price Prediction" is interesting, but revisions are needed.

Introduction: The first section of the main text should describe the problem, any existing solutions you know about, and the major constraints. Also, explain what you hope to achieve through your research.

Gmail

Telusuri dalam email

Aktif

Tulis

Kotak Masuk 251

Berbintang

Ditunda

Terkirim

Draf

Selengkapnya

Label

1 dari 571

Method: Every article should include a detailed Method section that provides the reader with enough information to determine whether the study is valid and reproducible. Include enough information for a knowledgeable reader to reproduce the experiment. However, use references and additional materials to emphasize previously published procedures.

Results and Discussion: In this section, you will present the key or primary findings of your study. Summarize major findings in tables, be concise, and use online supplement tables or figures to keep the paper manageable in size. You should also explain to your readers what the results mean. Explain how the findings are related to the study's objectives and hypotheses, as well as how they compare to those from other studies. Describe all possible interpretations of your findings, including the study's limitations.

Conclusion: Your conclusion is more than just a recap of what you've already written. It should improve your paper by answering any outstanding questions. Summarize your research findings and propose potential applications and extensions. The most important question in your conclusion should be, "What do my findings mean for the research field and my community?"

Gmail

Telusuri dalam email

Aktif

Tulis

Kotak Masuk 251

Berbintang

Ditunda

Terkirim

Draf

Selengkapnya

Label

1 dari 571

Reviewer B:

"Results and Discussion" section:

In most cases, it makes sense to combine the Results and Discussion sections because most readers will find the results meaningless without an explanation. After creating the data charts, tables, and/or visualizations, explain the information presented. Strive to answer the question, "What have I learned?" Ensure that the evidence supporting your claims is visually presented and organized in a logical sequence. At this point, you can explain something that should be obvious in a straightforward manner. Figure X shows that... The discussion, not the results, is central to any research paper. To show that your findings are worthy of publication, you must now answer the all-important So what? question. The success of your paper will ultimately depend on how well you perform this task.

What makes for an effective discussion?
When you're ready to write your discussion, you'll have already stated the purpose of your research and given a detailed description of the

Gmail

Telusuri dalam email

Aktif

Tulis

Kotak Masuk 251

Berbintang

Ditunda

Terkirim

Draf

Selengkapnya

Label

1 dari 571

What makes for an effective discussion?
When you're ready to write your discussion, you'll have already stated the purpose of your research and given a detailed description of the
methodology. The discussion informs readers about the broader implications of your study's findings. Highlighting these implications without overstating the findings can be difficult, especially if you're submitting to a journal that prioritizes novelty or potential impact. The discussion section, regardless of the journal to which you submit, always serves the same purpose: to summarize the significance of your study's findings.
A successful discussion section contextualizes your findings. It should include:
- the results of your research,
- a discussion of related research, and
- a comparison between your results and initial hypothesis.

Suggestions for organizing a discussion!!
Attempting to condense a full discussion into a single paragraph can add unnecessary stress to the writing process. If possible, give yourself two or three paragraphs to give the reader a thorough understanding of your research as a whole. Here's one approach to organizing an effective discussion:
1. First paragraph:

Gmail

Telusuri dalam email

Aktif

Tulis

Kotak Masuk 251
Berbintang
Ditunda
Terkirim
Draf
Selengkapnya

Label

1 dari 571

- a comparison between your results and initial hypothesis.

Suggestions for organizing a discussion!!
Attempting to condense a full discussion into a single paragraph can add unnecessary stress to the writing process. If possible, give yourself two or three paragraphs to give the reader a thorough understanding of your research as a whole. Here's one approach to organizing an effective discussion:

1. First paragraph:
   - Provide essential interpretation based on key findings.
   - Include a key piece of supporting evidence.
2. Second paragraph:
   - Compare and contrast with previous studies.
   - Highlight the study's strengths and limitations.
   - Discuss any unexpected results.
3. Last paragraph
   - Summarize the study's purposes.
   - Emphasize the importance of the study.
   - Discuss the unanswered questions and potential future research.

Gmail

Telusuri dalam email

Aktif

Tulis

Kotak Masuk 251
Berbintang
Ditunda
Terkirim
Draf
Selengkapnya

Label

1 dari 571

Reviewer C:

Ethics (Plagiarism, Fraud, Other ethical concerns)
- If you suspect that an article is a substantial copy of another work, please let the editor know, citing the previous work in as much detail as possible.
- It is very difficult to detect the determined fraudster, but if you suspect the results in an article to be untrue, inform it
- Has there been a violation of the accepted norms in the ethical?
Please provide your detailed comments to the Author(s) on the following.:

Does the title of the paper accurately reflect the major focus contribution of this paper?:
Yes

If No, please suggest change of the title as appropriate within 10 words:

Is the abstract an appropriate and adequate digest of the work?:
Yes

Is the paper clear, concise, and well organized?:

Gmail

Telusuri dalam email

Aktif

Tulis

Kotak Masuk 251
Berbintang
Ditunda
Terkirim
Draf
Selengkapnya

Label

1 dari 571

Is the abstract an appropriate and adequate digest of the work?:
Yes

Is the paper clear, concise, and well organized?:
No

Structure and Presentation (Layout and format, Title, Abstract, Introduction, Method, Results and Discussion, Conclusion, Language). Please provide your detailed comments to the Author(s) on the following:

Do authors place the paper in proper context by citing relevant papers? Is the paper free from obvious errors, misconceptions, or ambiguity? Is the paper written in correct English? Please note grammatical errors and suggest corrections:

Previous Research: If the article builds upon previous research does it reference that work appropriately? Are there any important works that have been omitted? Are the references accurate? Do authors place the paper in proper context by citing relevant papers? Please provide your detailed comments to the Author(s) on the following.:

Gmail

Telusuri dalam email

Aktif

Tulis

Kotak Masuk 251
Berbintang
Ditunda
Terkirim
Draf
Selengkapnya

Label

1 dari 571

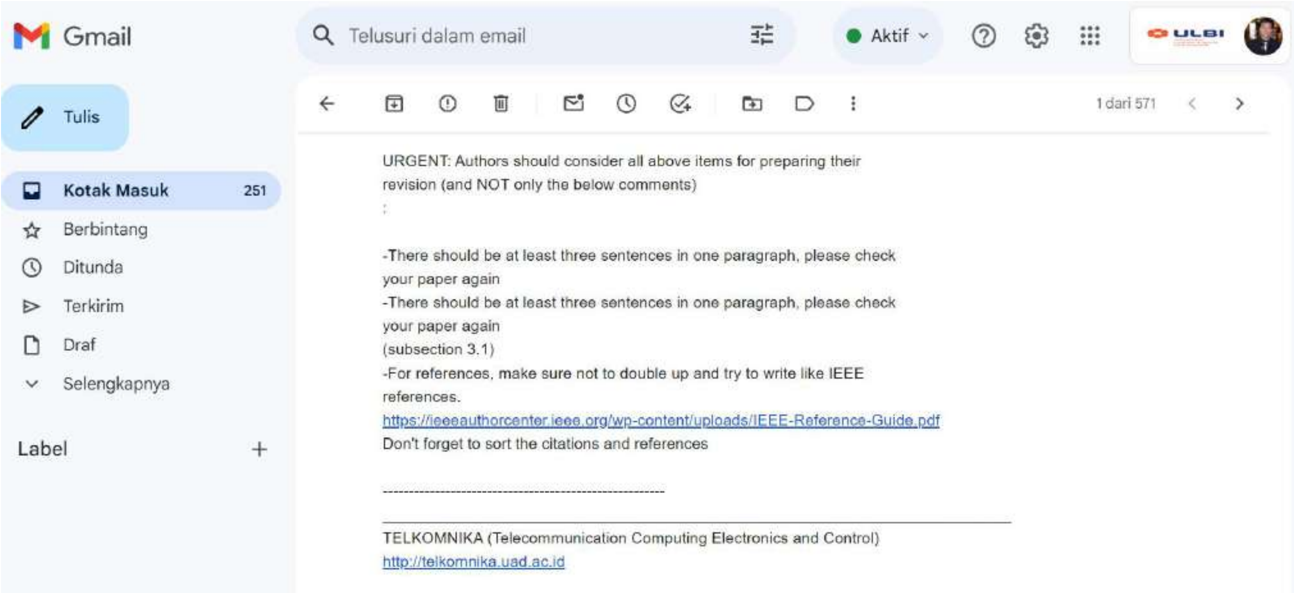
Rate of the contribution strength to the field and the scientific quality is represented in this paper?:
Good

Please mark appropriate scale for the overall grade for this paper?:
Good

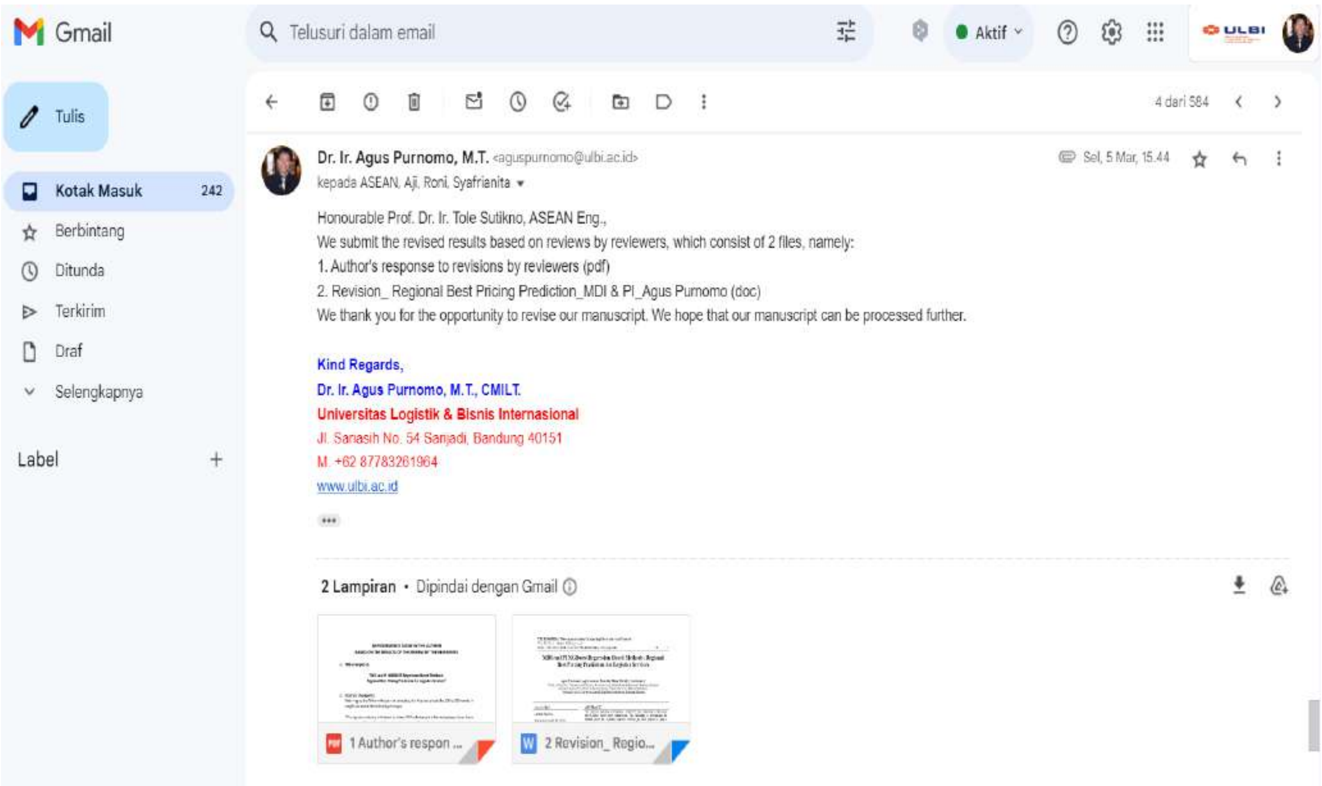
Reviewer's comments and suggestions how to improve the paper. (If it is not possible, kindly please use separate sheets or a copy of the paper for comments and suggestions for revision. Indicate whether revisions are mandatory or suggested. Please use word processing type format if possible, and then upload in next step or submit via email: telkomnika@uad.ac.id)

URGENT: Authors should consider all above items for preparing their revision (and NOT only the below comments)
:

-There should be at least three sentences in one paragraph, please check your paper again
-There should be at least three sentences in one paragraph, please check your paper again



5. Author mengemail Editor untuk menyampaikan hasil revisi pada tgl 5 Maret 2024



Author respone terhadap revisi dari para reviewer adalah sebagai berikut:

IMPROVEMENTS MADE BY THE AUTHOR
BASED ON THE RESULTS OF THE REVIEW BY THE REVIEWERS

1. Title changed to:

"MDI and PI XGBOOST Regression-Based Methods:

Regional Best Pricing Prediction for Logistics Services"

2. **Abstract changed to:**

   Referring to the Telkomnika journal template, the Abstract should be 100 to 200 words in length; we made the following changes:

   "The logistics industry in Indonesia, where PT Pos Indonesia is the main player, faces fierce price competition. The challenge is determining the optimal price for regional logistics services in each region to gain a competitive advantage and increase revenue. This complex task involves local market conditions, competition, customer preferences, operational costs, and economic factors. This research proposes using machine learning to overcome the complexity of price prediction. The price prediction model developed uses the Extreme Gradient Boosting Regression (XGBR), Support Vector Machine, Random Forest, and Logistics Regression algorithms. This research contributes to using MDI (Mean Decrease in Impurity) and Permutation Importance (PI) to explain how machine learning models make the best price predictions. The results can help company management better understand how to make optimal pricing decisions. The test results show 0001, 0.005, 0.458, 0.009, and 0.9998. Using machine learning techniques and explanatory models, PT Pos Indonesia can more effectively determine optimal prices in each region, increase profits, and compete in the growing regional market."

3. **Introduction:**

a. **Summary of review results:**

   "The first part of the main text should explain the problem, any solutions you know of, and the main constraints. Also, explain what you hope to achieve through your research."

b. **Author response:**

   The improvements made are as follows:

   "The best pricing of PT Pos Indonesia's logistics services in different regions could be more optimal, so it loses sales competition with other logistics providers. The non-optimal price is because PT Pos Indonesia has not used the best price prediction method in determining the regional best prices, which includes relevant factors such as the variable total price of competitors, the number of customers, the freight price, the number of competitors and the product score given by the customer. As a result, the price of logistics services set from period to period becomes uncompetitive and loses competition with the prices of other logistics service providers. Therefore, the problem in this study is how to create the best logistics service price prediction model by including relevant factors that can be used for each region of PT Pos Indonesia to compete with other logistics service providers. Inspired by the gap that has been explained, our research aims to create the best regional best price prediction for logistics services by including relevant factors with a high level of explanation so that PT Pos Indonesia can be competitive with other logistics providers.

   We suggest using MDI and PI to provide the expected level of explanation based on relevant factors. We used XGBoost Regression (XGBR) to predict the price of logistics services and compared it with eight other regression models. The model performance is then evaluated using R-squared, MSE, RMSE, or MAPE. Furthermore, the best machine learning model is used to make optimal price predictions for each region based on relevant factors. This research uses local consumer behavior data analysis and machine learning approaches to help companies such as PT Pos Indonesia understand consumer preferences and behavior in different regions. Finally, we use MDI and PI methods to improve the interpretation of PT Pos Indonesia's local consumer behavior analysis. To the best of our knowledge, no research uses machine learning to analyze local consumer behavior for optimal regional pricing, especially for logistics service providers. The contributions of this research are, therefore, as follows:

1. To create an optimal price prediction model for logistics services using XGBR that can be applied in different regions so that the company can be competitive with its competitors in terms of price.
2. Produce a logistics services price forecasting model that can be explained by MDI and PI, illustrating the sensitivity of the model to various relevant factors.

The remainder of this paper is presented in several parts. Section 2 contains a review of previous research that supports our findings and the research design and methodology. The results of our research are presented in Section 3. Finally, section 4 summarises and highlights the main points of our contribution."

4. Method:

a. Summary of review results:

"Every article should include a detailed Method section that provides the reader with enough information to determine whether the study is valid and reproducible. Include enough information for a knowledgeable reader to reproduce the experiment. However, use references and additional materials to emphasize previously published procedures."

b. Author response:

"We have presented the detailed methodology in full in section 3. Research design and we even explained the proposed methodology in section 2. The other four reviewers did not object to the method presented by the author, so we concluded that the method was clear enough to solve the problem and achieve the research objectives. However, we combine the Research design and the proposed methodology into "Method" referring to the Telkomnika journal template."

5. Results and Discussion:

a. Summary of review results:

Summarize the main findings in tables, be concise, and use online supplement tables or figures to keep the paper a manageable size. You should also explain to your readers what the results mean. Explain how the findings relate to the research objectives and hypotheses, as well as how they compare with other research.

Suggestions for organizing a discussion:

1. First paragraph:
   - Provide essential interpretation based on key findings.
   - Include a key piece of supporting evidence.
2. Second paragraph:
   - Compare and contrast with previous studies.
   - Highlight the study's strengths and limitations.
   - Discuss any unexpected results.
3. Last paragraph
   - Summarize the study's purposes.
   - Emphasize the importance of the study.
   - Discuss the unanswered questions and potential future research.

b. Author response:

The improvements made are as follows:

3.1. Result

In the first test, we analyzed the retail price periodically. Here, the total price is aggregated monthly by summing every value. We plot a regression line between total price and aggregate customers (also summed up monthly) from the dataset. This can model the relationship between these two variables. Figure 2 shows the linear relationship between total price and customers. We can interpret the linear relationship objectively with the r-squared value, which is 0.98. That number is considered very high because it approximates the best value of r-squared, 1.0. The p-value of the regression line is 0.01, meaning the null hypothesis is rejected.

In regression analysis, rejecting the null hypothesis means there is a significance in the slope of the regression line and that the two variables are strongly related. In normative terms, the increase in total price is related to the increase of customers that visit the store.

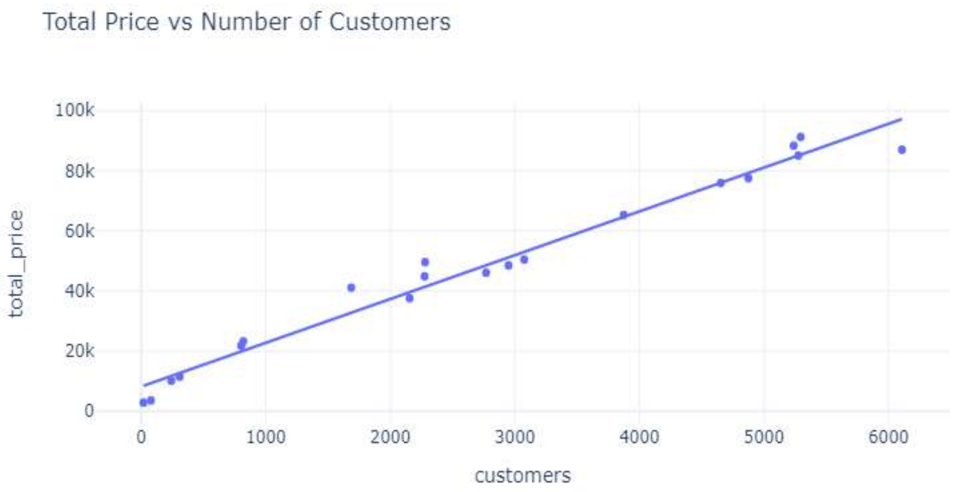


Figure 2. Linear regression and customer per-month analysis; Total price vs customers

In the second test, we plot a regression line between the total price and the number of weekends per month from the dataset to observe the relationship between these two variables. Figure 3 shows the linear relationship between total price and customers. The r-squared value of the regression line is 0.86. That number is considered high, however, it is not as high as the previous result. On the other hand, the p-value of the regression line is 0.01, meaning the null hypothesis is also rejected, which leads to the conclusion that the null hypothesis is rejected. There is still a significance in the slope of the regression line, while the two variables are strongly related. In normative terms, the increase in total price is correlated to the increase in the number of weekends per month of retail.

Figure 3. Linear regression and customer per-month analysis; Weakly analysis of total

Analysis of the customer per-month bar chart can be useful for several things, including trend analysis, churn, market effectiveness, customer planning, and prediction. Figure 4 shows that the most customers were in November 2017, and the fewest were in January 2017. After conducting data exploration, we carry out the data pre-processing stage. At this stage, we group data between average and total. The data grouped to calculate the average is 'product id,' 'month year,' 'comp1 diff,' 'comp2 diff,' 'comp3 diff,' 'fp1 diff,' 'fp2 diff,' 'fp3 diff,' 'product score,' and 'unit price.' Meanwhile, the data that is grouped to calculate the total amount is 'product id,' 'month year,' 'total price,' 'freight price,' and 'customers.'

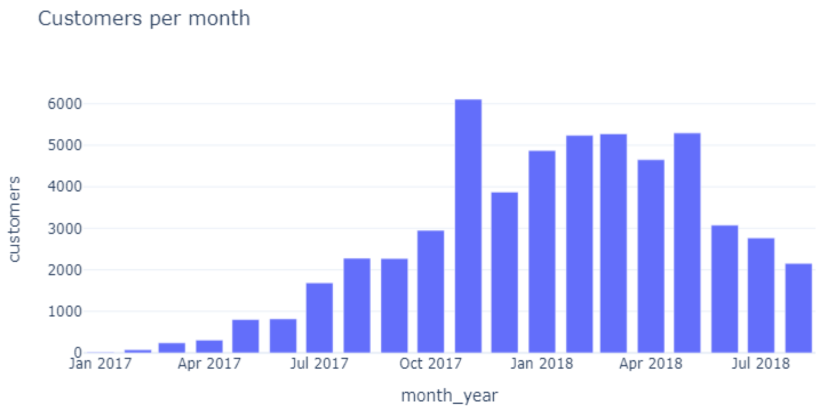


Figure 4. Linear regression and customer per-month analysis; Customer per-month

After the data has been grouped into average and total, the next step is to calculate the average and total of the two data groups. The results of these calculations are stored in two variables, namely, product mean and product sum. Next, after getting the average and total results, the two are combined into one data frame, which contains information about the average and total based on 'product id.' The final stage in the feature engineering process is calculating the logarithm of the variable to be predicted, namely 'unit price,' and the results will be stored in the variable y log, which contains the logarithm values from 'unit price.' The next step is Modelling. At this stage, eight regression models are compared to get the best prediction value. The table 1 displays the evaluation value of each regression model. The XGBR model has the best results compared to other regression models, with an MSE value of 0.0001, MAE of 0.005, MAPE of 0.458, RMSE of 0.009, and R-Square of 0.9998.

Table 1. Regression model performance comparison

Model	Evaluation Metrics				
	MSE	MAE	MAPE	RMSE	R2
LR	0.1121	0.258	28.193	0.335	0.7243
RR	0.1127	0.263	28.082	0.336	0.7229
Lasso	0.1525	0.333	35.971	0.390	0.6250
RFR	0.0149	0.101	10.212	0.122	0.9633
GBR	0.0016	0.031	3.117	0.040	0.9961
ABR	0.0148	0.097	9.728	0.122	0.9645
XGBR	**0.0001**	**0.005**	**0.458**	**0.009**	**0.9998**
KNR	0.1008	0.253	25.286	0.318	0.7520
SVR	0.1503	0.294	34.944	0.388	0.6302

The explainability model stage is to explain and describe why the XGBR model produces certain decisions and results. The MDI graph in Figure 5 shows the relationship between feature values and their impact on predicted values. MDI values on the y-axis (vertical) play a crucial role in understanding the significance of features in the prediction-making process. The elevation of MDI values indicates the level of importance each feature holds in influencing predictions. Visualized as bars on the graph, each feature's bar height signifies the magnitude of its impact. The emphasis should be placed on bars with the highest

MDI values, as these features are deemed the most pivotal in shaping the model's predictions. Features characterized by elevated MDI values play a substantial role in minimizing impurity during the construction of decision trees. Furthermore, a positive MDI value signifies a positive correlation between the feature and the prediction outcome. In simpler terms, higher values of the feature generally support higher predictions. This analysis aids in comprehending the pivotal features that contribute significantly to the accuracy of the model's predictions.

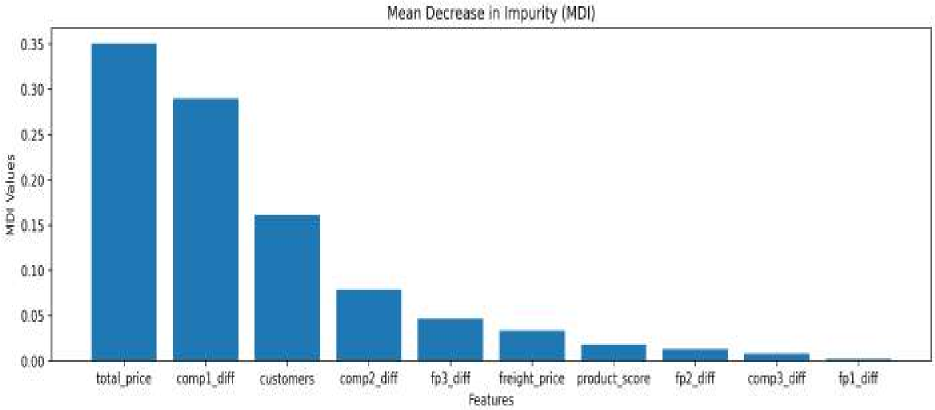


Figure 5. MDI Summary Plot

The Permutation Importance (PI) value serves as a valuable metric for understanding the impact of features on a model's performance when their values are randomly permuted. In Figure 6 and Table 2, we present the PI results, wherein feature names are arranged based on their weight magnitudes. Subsequently, we compute the maximum and minimum error values derived from the PI analysis. It is noteworthy that the features of the highest PI weight correspond with the MDI, specifically the 'total price.' This consistent alignment indicates that 'total price' significantly influences both MDI and PI, underscoring its importance in predicting outcomes.

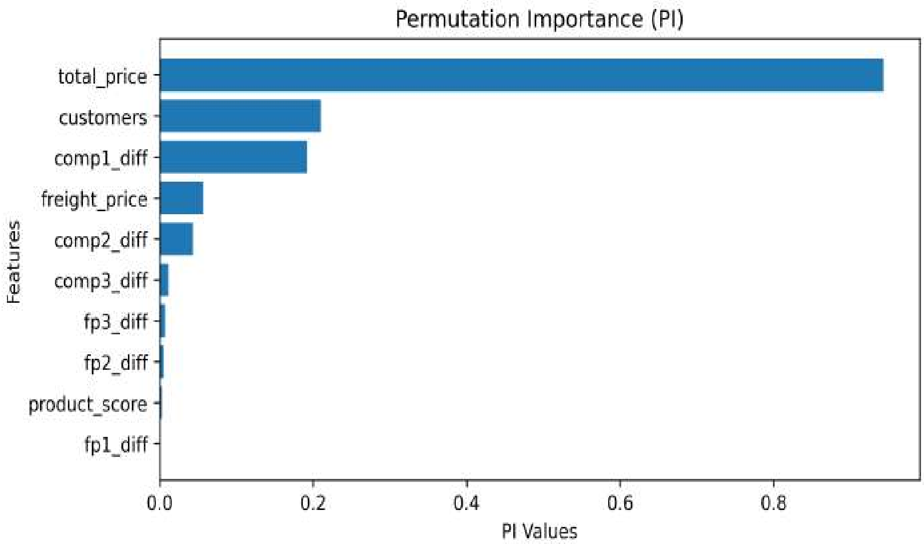


Figure 6. PI Summary Plot

However, disparities arise when comparing the lowest weight in PI with the MDI score. While PI identifies 'fp1 diff' as the feature with the lowest weight, MDI designates 'freight price' as having the lowest MDI value. This discrepancy highlights the nuanced nature of PI, which is inherently model-specific. In In this particular instance, the model under examination is XGBoost (XGBR), revealing that PI results can be influenced by the intricacies of the underlying model. A comprehensive understanding of these differences enhances our insight into how features contribute to model performance, taking into account both MDI and PI perspectives.

Table 2. The PI Result

Weight	Feature
0.9896 ± 0.2898	'total'
0.1006 ± 0.0450	'comp2'
0.0966 ± 0.0172	'comp1'
0.0845 ± 0.0341	'customers'
0.0302 ± 0.0231	'comp3'
0.0123 ± 0.0025	'product'
0.0119 ± 0.0057	'fp2'
0.0084 ± 0.0013	'fp3'
0.0048 ± 0.0022	Freight'

3.2. Discussion

Several studies have carried out price predictions with various regression models. Shahrel et al. [34] proved that SVR is better than linear regression in price prediction. Durganjali et al. [35] proposed ABR for house price prediction. Finally, Bonamutial et al. [36] demonstrated that RFR is better than KNR in smartphone price prediction. Our research shows that XGBR has better overall performance than LR, RR, Lasso, RFR, ABR, KNR, and SVR in predicting retail prices. Our research contribution is an optimum retail price prediction using XGBR.

In our research, we highlight the different interpretations offered by Mean Decrease in Impurity (MDI) and Permutation Importance (PI) techniques in analyzing features. These interpretations, when combined, contribute to a more comprehensive Explainable Artificial Intelligence (XAI). While both methods score features based on their contribution to predictive power, MDI goes a step further by providing insight into the positive/ negative impact of each feature. In contrast, PI offers error values that indicate the sensitivity of features and their influence on overfitting. Our dual contribution is to improve the explanation of retail price prediction models through PI techniques and to leverage MDI and PI to analyze influential features, especially 'total price'. Our analysis underscores the important role of 'total price,' 'comp1 diff,' and 'customer' in model development, with 'total price' being the most influential. The choice between MDI and PI depends on the research needs. Overall, the findings emphasize the importance of 'total price' in forming an optimized pricing model. Our research contributions are summarised in Table 3 by comparing them with state-of-the-art research in retail price prediction.

Table 3. A comparison of state-of-the-art research on the retail price prediction

Reference	Prediction Model	R-Squared	Explainability Method	
			MDI	Permutation Importance
Shahrel et al. [34]	SVR	0.6302	✗	✗
Durganjali et al. [35]	ABR	0.9645	✗	✗
Bonamutial et al. [36]	RFR	0.9633	✗	✗
Proposed Method	**XGBR**	**0.9998**	✓	✓

6. **Conclusion:**

a. **Summary of review results:**

"Your conclusion is more than just a recap of what you've already written. It should improve your paper by answering any outstanding questions. Summarize your research findings and propose potential applications and extensions. The most important question in your conclusion should be, "What do my findings mean for the research field and my community?"

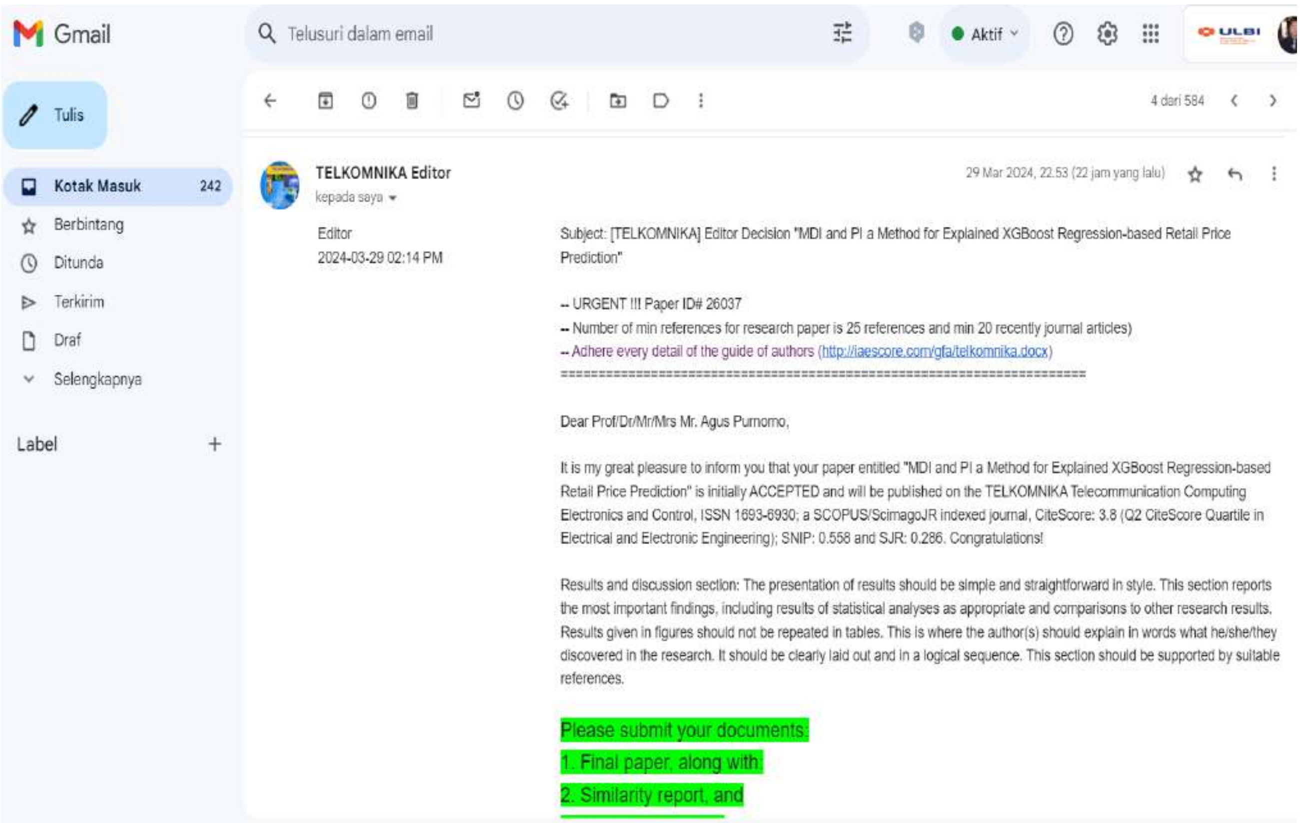
b. **Author response:**

The improvements made are as follows:

"In this study, we successfully built a regional best price prediction model for logistics services using XGBoost Regressor (XGBR) and its explanation model to improve the interpretation of price prediction. To compare the analysis of the relevant factors influencing the model, we tested XGBR with LR, RR, Lasso, RFR, GBR, ABR, KNR, and SVR, and also with two eXplainable Artificial Intelligence (XAI) methods, namely Mean Decrease in Impurity (MDI) and Permutation Importance (PI). The test results show that XGBR is superior to the benchmark method, as evidenced by the MSE, MAE, MAPE, RMSE, and r-squared values of 0.0001, 0.005, 0.458, 0.009, and 0.9998, respectively. In addition, based on the MDI and PI explanatory models, total price emerged as the most influential relevant factor in predicting the optimal regional best price prediction for logistics services. This study demonstrates that XGBR outperforms eight other regression models, making it the most effective method. Furthermore, it has practical implications for the logistics industry, as companies can use it to determine the optimal Regional Best Pricing Prediction for Logistics Services, giving them a competitive edge over their competitors and boosting sales and profits.

This study suggests two avenues for future research to improve the accuracy of Regional Best Pricing Prediction as a price competitive advantage strategy in the logistics industry. Firstly, we recommend using datasets directly from the company to improve the accuracy and relevance of the model to the actual conditions of the company. For model development, we propose incorporating constraint functions to support complex decision-making strategies in determining the optimal Regional Best Pricing Prediction for Logistics Services. This can be achieved through the application of evolutionary algorithms, allowing the model to adapt to changing market dynamics."

6. Editor mengemail Author pada tanggal 29 Maret 2024, tentang Accepted paper dan meminta Author untuk mengirim Final Paper, Similarity report dan Payment Evidence.



Editor
2024-03-29 02:14 PM

Subject: [TELKOMNIKA] Editor Decision "MDI and PI a Method for Explained XGBoost Regression-based Retail Price Prediction"

-- URGENT !!! Paper ID# 26037
-- Number of min references for research paper is 25 references and min 20 recently journal articles)
-- Adhere every detail of the guide of authors (http://iaescore.com/gfa/telkomnika.docx)
==

Dear Prof/Dr/Mr/Mrs Mr. Agus Purnomo,

It is my great pleasure to inform you that your paper entitled "MDI and PI a Method for Explained XGBoost Regression-based Retail Price Prediction" is initially ACCEPTED and will be published on the TELKOMNIKA Telecommunication Computing Electronics and Control, ISSN 1693-6930; a SCOPUS/ScimagoJR indexed journal, CiteScore: 3.8 (Q2 CiteScore Quartile in Electrical and Electronic Engineering); SNIP: 0.558 and SJR: 0.286. Congratulations!

Results and discussion section: The presentation of results should be simple and straightforward in style. This section reports the most important findings, including results of statistical analyses as appropriate and comparisons to other research results. Results given in figures should not be repeated in tables. This is where the author(s) should explain in words what he/she/they discovered in the research. It should be clearly laid out and in a logical sequence. This section should be supported by suitable references.

Please submit your documents:
1. Final paper, along with
2. Similarity report, and

Gmail

Telusuri dalam email

Aktif

Tulis

Kotak Masuk 242
Berbintang
Ditunda
Terkirim
Draf
Selengkapnya

Label +

4 dari 584

If you need more time, please send a request to this email. We can give you 7 weeks at the most.
Note: Authors should write "research grant or contract" in the acknowledgement section.

I look forward for your response

Thank you

Sincerely yours,
Prof. Dr. Ir. Tole Sutikno, ASEAN Eng.
Universitas Ahmad Dahlan
telkomnika@ee.uad.ac.id

:: M.Eng. (S2) in Electrical Engineering (Intelligent Systems Engineering) ::

Want to study Master's Program of Electrical Engineering at Universitas Ahmad Dahlan, Yogyakarta?

We are pleased to announce that the Indonesia Ministry of Education, Culture, Research, and Technology has approved (https://s.id/1G0RL) the establishment of the Master of Electrical Engineering in Intelligent Systems Engineering (ISE) Program at Universitas Ahmad Dahlan. In our Master in Intelligent Systems Engineering, you will gain technical expertise in computational engineering and artificial intelligence—the future of engineering and problem solving. Please take a look at the attached flyer #1 (https://s.id/1G0O8) or flyer #2 (https://s.id/1G0On).

************ PLEASE PAY ATTENTION! ************

Gmail

Telusuri dalam email

Aktif

Tulis

Kotak Masuk 242
Berbintang
Ditunda
Terkirim
Draf
Selengkapnya

Label +

4 dari 584

The payment should be made by bank transfer (T/T):

Beneficiary's Account Name (please be exact): TOLE SUTIKNO
Bank Name: Bank Syariah Indonesia*
Branch Office: Yogyakarta Kusumanegara
City: Yogyakarta
Country: Indonesia
Bank Account #: 6410950070
SWIFT Code (BIC): BSMDIDJAXXX

or through PayPal (as an alternative of bank transfer) to email: tole@ee.uad.ac.id

---

Bank's detailed address:
Bank Syariah Indonesia
Jl. Kusumanegara No.117, Muja Muju
Kec. Umbulharjo
City: Yogyakarta
Province: D.I. Yogyakarta (DIY)
Country :Indonesia
Post Code: 55165
Indonesia, Phone:+62 274 417222

The Beneficiary's address:
D2, Griya Ngoto Asri, Bangunharjo, Sewon
City: Bantul
Province: D.I. Yogyakarta

7. Author mengemail Editor pada tanggal 30 Maret 2024, dengan melampirkan Final Paper, Similarity report dan Payment Evidence.

Gmail

Telusuri dalam email

Aktif

Tulis

Kotak Masuk 238

Berbintang

Ditunda

Terkirim

Draf

Selengkapnya

Label

11 dari 568

Dr. Ir. Agus Purnomo, M.T. <aguspurnomo@ulbi.ac.id>

kepada TELKOMNIKA

Sab, 30 Mar, 07.41

Honorable Prof. Dr. Ir. Tole Sutikno, ASEAN Eng,

We are writing to follow up on the Editor's email regarding the acceptance of our paper. Please find attached the following documents:

1. Final version of the paper
2. Similarity report
3. Payment evidence

We kindly request confirmation from the Editor regarding the receipt of these documents and any updates on the publication schedule for our paper.

Thank you for your valuable cooperation.

Best Regards,
Dr. Ir. Agus Purnomo, M.T., CMILT.
Universitas Logistik & Bisnis Internasional
Jl. Sariasih No. 54 Sarijadi, Bandung 40151
M. +62 87783261964
www.ulbi.ac.id

3 Lampiran • Dipindai dengan Gmail

MDI & PI XGBoost Regional Best Pricing

Tole Sutikno −US$429,41

30 Maret 2024 . Pembayaran Terkirim

Dibayar dengan

Kartu Debit VISA x-4448 US$429,41

Anda akan melihat "PAYPAL *tole" pada laporan kartu Anda.

ID Transaksi

6V7075943B396163V

Informasi kontak

Pesan Tole Sutikno

Catatan

Payment of publication fee for paper (ID# 26037, title: MDI and PI XGBoost Regression-Based Methods: Regional Best Pricing Prediction for Logistics Services) to the TELKOMNIKA Journal. Authors: Agus Purnomo, Aji Gautama Putrada, Roni Habibi, Syafrianita

Perincian

Dikirim ke Tole Sutikno	US$415,00
Biaya	US$14,41
Total	**US$429,41**

8. Staf Telkomnika Journal mengemail Author pada tanggal 18 Juni 2024, tentang final revisi untuk penerbitan paper pada issue berikutnya.

Gmail

Telusuri email

Aktif

Tulis

Kotak Masuk 241

Berbintang

Ditunda

Terkirim

Draf 1

Selengkapnya

Label +

8 dari 123

[TELKOMNIKA] Revision Required list of accepted ID 26037

Eksternal | Kotak Masuk ×

Staff TELKOMNIKA Journal <telkomnika.layout@gmail.com> Sel, 18 Jun, 15.53

kepada saya, ajigps, roni.habibi, syafrianita, TELKOMNIKA, Sutikno

Jangan terjemahkan Inggris ×

Dear Sir/Madam,

I am Arif writing on behalf of the layout and editing team, under the auspices of the TELKOMNIKA team. We are pleased to inform you that your manuscript is being screened for possible publication in a future issue of the journal. Your cooperation for final checking and/or updating your paper is required.

Please find the attached file (including comments and/or marked parts) to take further action, and reply to the comments there.

Please send the revised paper with the reply to all emails previously sent. Kindly submit your updated paper **within 3 days.**

Note: use the attached file below to revise and reply to all the comments on your paper, this will help our editors to do a final check on your paper. Paper revisions that do not comply with the above rules will not be processed.

Please note that this email is only assigned for layout and editing purposes. For other communication purposes, reach us through the principal contact of the journal.

Your cooperation is highly appreciated.

Best regards,
Arif Hidayat
Layout and Editing Team

--

TELKOMNIKA Journal
Telecommunication, Computing,
Electronics, and Control

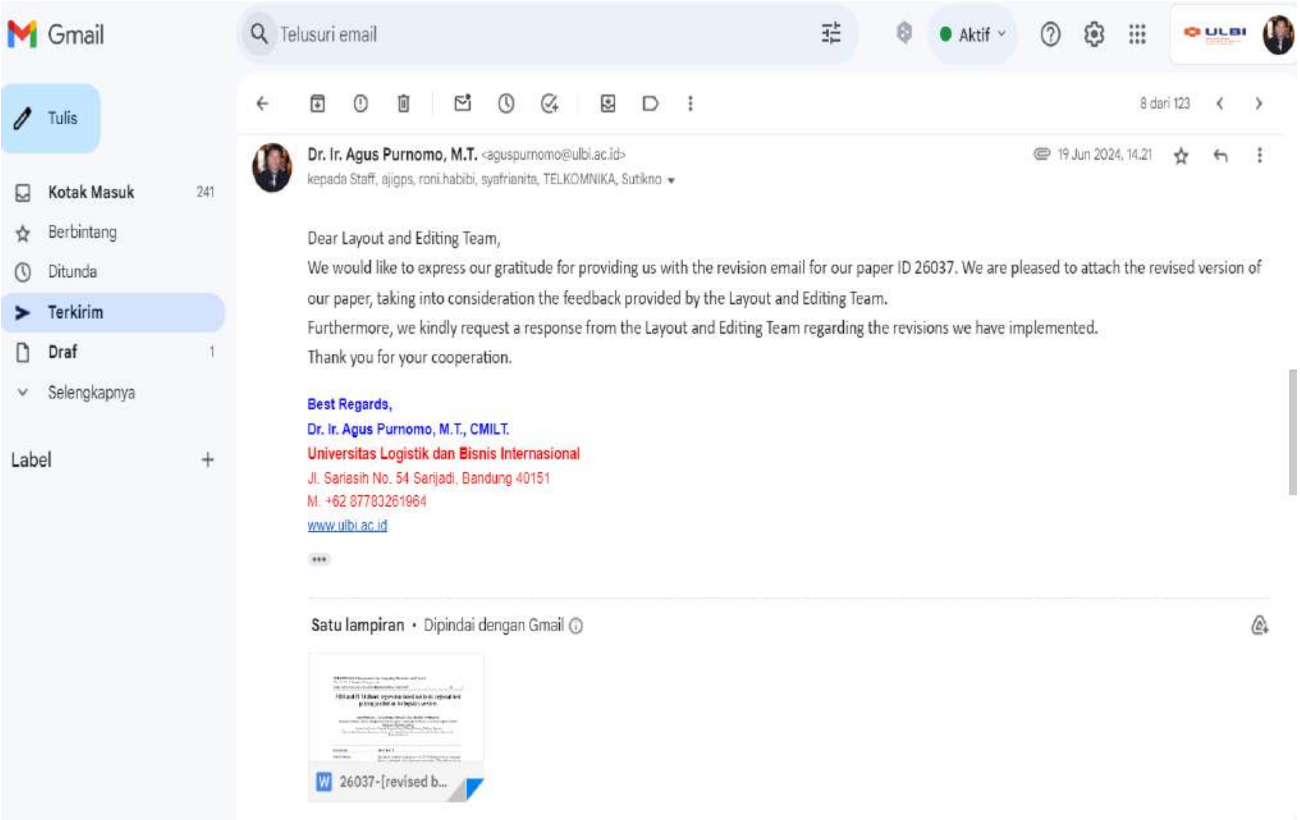
Editor in Chief: telkomnika@ee.uad.ac.id
Staff: staff@journal.uad.ac.id
cc: telkomnika@uad.ac.id,
telkomnika@journal.uad.ac.id

Universitas Ahmad Dahlan, 4th Campus,
Ringroad Selatan St., Kragilan, Tamanan, Banguntapan, Bantul,
Yogyakarta, Indonesia 55191

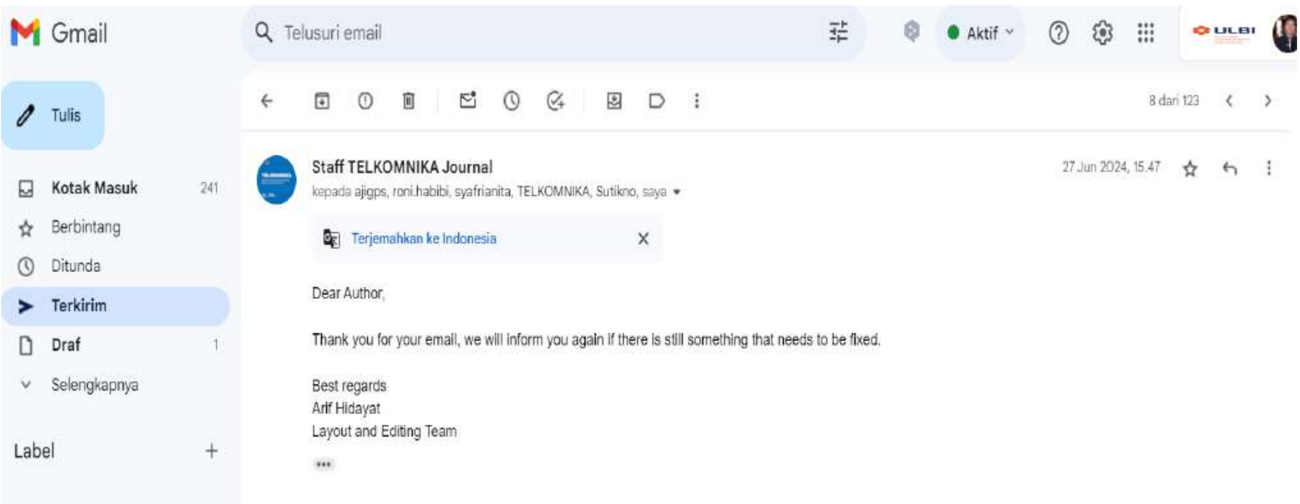
Website :
http://telkomnika.uad.ac.id/index.php/TELKOMNIKA/index

Satu lampiran • Dipindai dengan Gmail

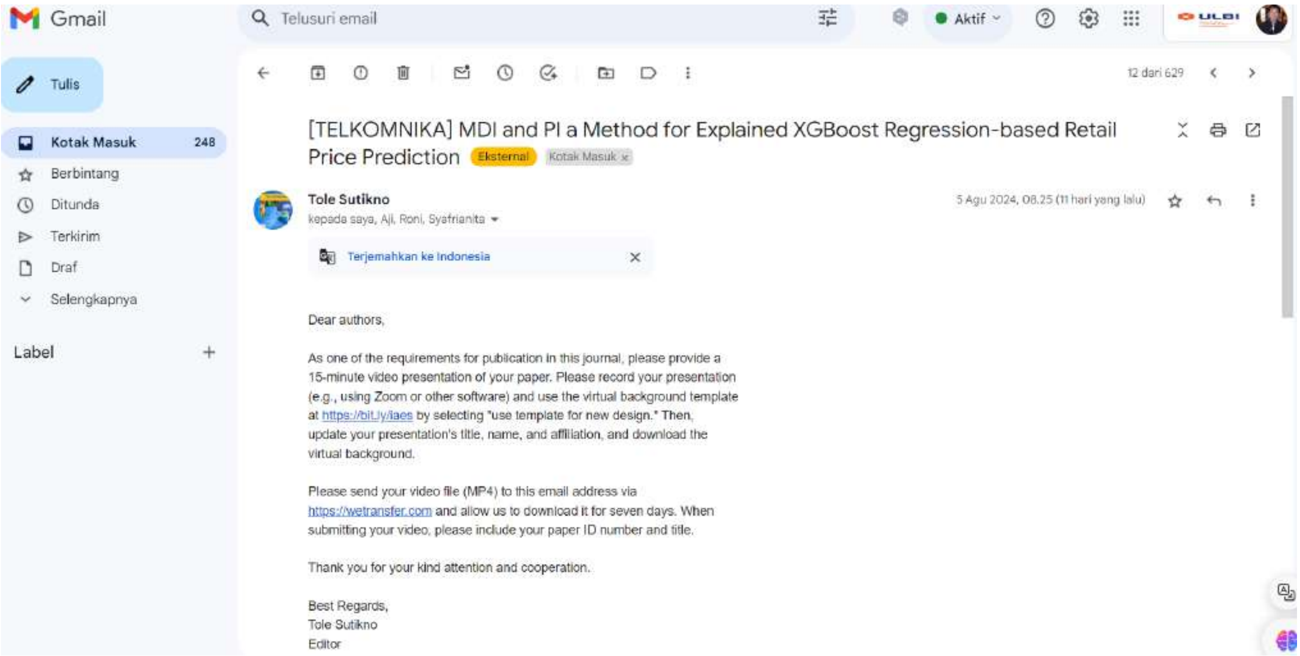
9. Author mengemail Staf Telkomnika Journal pada tanggal 19 Juni 2024, dengan melampirkan Final revisi paper.



10. Staf Telkomnika Journal mengemail Author pada tanggal 27 Juni 2024, tentang email final revisi telah diterima dan akan diinformaikan jika ada yang perlu diperbaiki lagi.



11. Editor mengemail Author pada tanggal 5 Agustus 2024, tentang kewajiban membuat video presentasi dari paper sepanjang 15 menit sebagai syarat akhir untuk dipublikasikan.



Gmail

Telusuri email

Aktif

Tulis

Kotak Masuk 248

Berbintang

Ditunda

Terkirim

Draf

Selengkapnya

Label

12 dari 629

[TELKOMNIKA] MDI and PI a Method for Explained XGBoost Regression-based Retail Price Prediction Eksternal Kotak Masuk

Tole Sutikno
kepada saya, Aji, Roni, Syafrianita

5 Agu 2024, 08.25 (11 hari yang lalu)

Terjemahkan ke Indonesia

Dear authors,

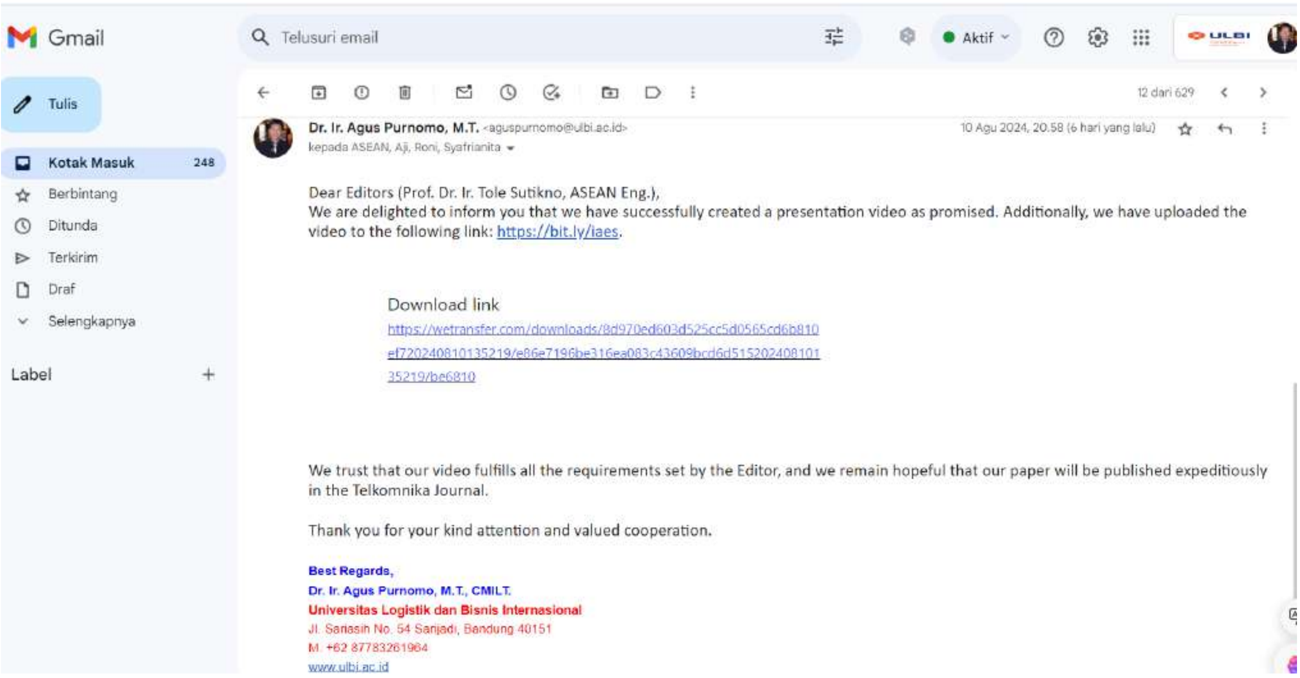
As one of the requirements for publication in this journal, please provide a 15-minute video presentation of your paper. Please record your presentation (e.g., using Zoom or other software) and use the virtual background template at https://bit.ly/iaes by selecting "use template for new design." Then, update your presentation's title, name, and affiliation, and download the virtual background.

Please send your video file (MP4) to this email address via https://wetransfer.com and allow us to download it for seven days. When submitting your video, please include your paper ID number and title.

Thank you for your kind attention and cooperation.

Best Regards,
Tole Sutikno
Editor

12. Author mengemail Editor pada tanggal 10 Agustus 2024, dengan menyampaikan link upload file presentasi.



Gmail

Telusuri email

Aktif

Tulis

Kotak Masuk 248

Berbintang

Ditunda

Terkirim

Draf

Selengkapnya

Label

12 dari 629

Dr. Ir. Agus Purnomo, M.T. <aguspurnomo@ulbi.ac.id>
kepada ASEAN, Aji, Roni, Syafrianita

10 Agu 2024, 20.58 (6 hari yang lalu)

Dear Editors (Prof. Dr. Ir. Tole Sutikno, ASEAN Eng.),
We are delighted to inform you that we have successfully created a presentation video as promised. Additionally, we have uploaded the video to the following link: https://bit.ly/iaes.

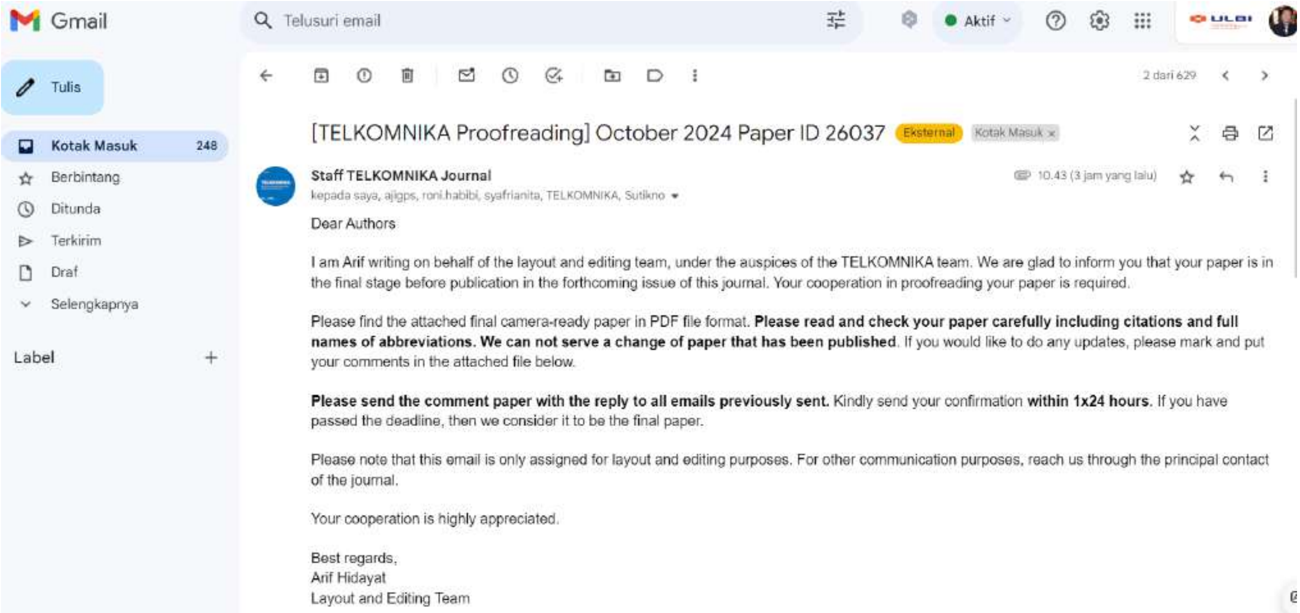
Download link
https://wetransfer.com/downloads/8d970ed603d525cc5d0565cd6b810ef720240810135219/e86e7196be316ea083c43609bcd6d515202408101 35219/be6810

We trust that our video fulfills all the requirements set by the Editor, and we remain hopeful that our paper will be published expeditiously in the Telkomnika Journal.

Thank you for your kind attention and valued cooperation.

Best Regards,
Dr. Ir. Agus Purnomo, M.T., CMILT.
Universitas Logistik dan Bisnis Internasional
Jl. Sariasih No. 54 Sarijadi, Bandung 40151
M. +62 87783261964
www.ulbi.ac.id

13. Staf Layout Telkomnika mengemail Author pada tanggal 16 Agustus 2024, untuk meminta Author meneliti ulang (proofreading) paper sebelum diterbitkan .



[TELKOMNIKA Proofreading] October 2024 Paper ID 26037 Eksternal Kotak Masuk

Staff TELKOMNIKA Journal
kepada saya, ajigps, roni.habibi, syafrianita, TELKOMNIKA, Sutikno
10.43 (3 jam yang lalu)

Dear Authors

I am Arif writing on behalf of the layout and editing team, under the auspices of the TELKOMNIKA team. We are glad to inform you that your paper is in the final stage before publication in the forthcoming issue of this journal. Your cooperation in proofreading your paper is required.

Please find the attached final camera-ready paper in PDF file format. **Please read and check your paper carefully including citations and full names of abbreviations. We can not serve a change of paper that has been published**. If you would like to do any updates, please mark and put your comments in the attached file below.

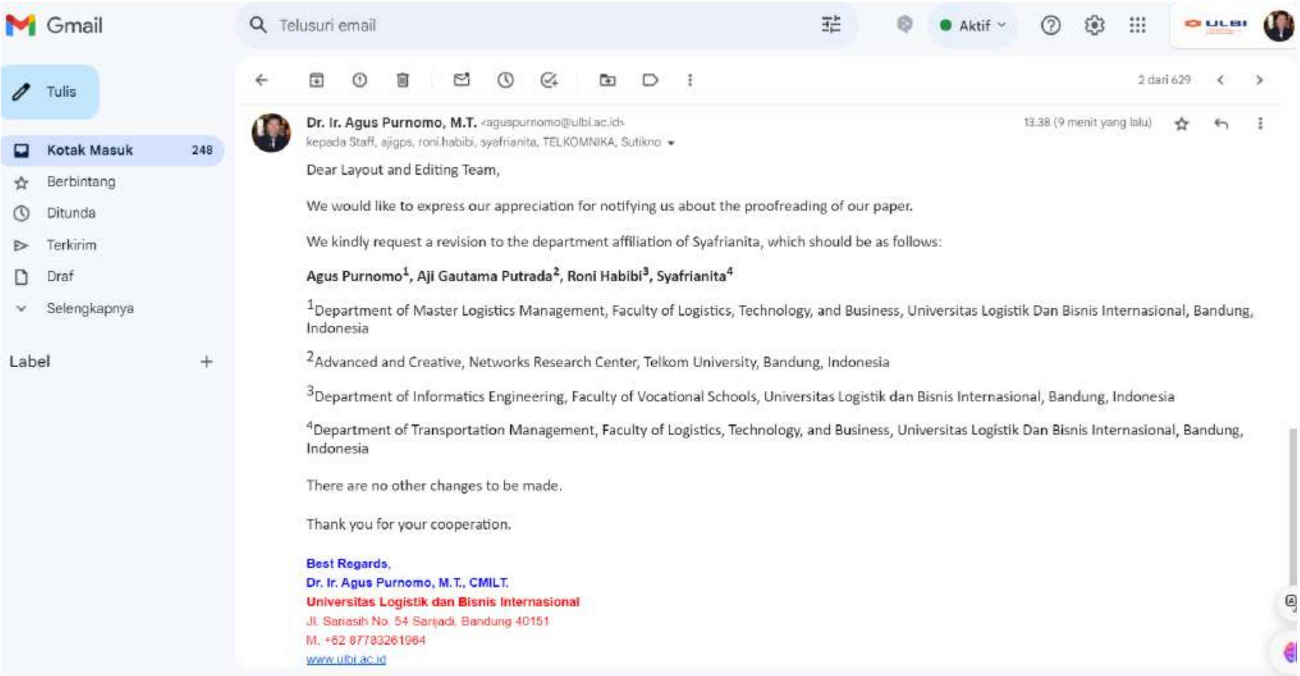
Please send the comment paper with the reply to all emails previously sent. Kindly send your confirmation **within 1x24 hours**. If you have passed the deadline, then we consider it to be the final paper.

Please note that this email is only assigned for layout and editing purposes. For other communication purposes, reach us through the principal contact of the journal.

Your cooperation is highly appreciated.

Best regards,
Arif Hidayat
Layout and Editing Team

14. Author mengemail Staf Layout Telkomnika pada tanggal 16 Agustus 2024, dengan menyampaikan sedikit perbaikan tentang afiliasi.



Dr. Ir. Agus Purnomo, M.T. <aguspurnomo@ulbi.ac.id>
kepada Staff, ajigps, roni.habibi, syafrianita, TELKOMNIKA, Sutikno
13.38 (9 menit yang lalu)

Dear Layout and Editing Team,

We would like to express our appreciation for notifying us about the proofreading of our paper.

We kindly request a revision to the department affiliation of Syafrianita, which should be as follows:

Agus Purnomo[1], Aji Gautama Putrada[2], Roni Habibi[3], Syafrianita[4]

[1]Department of Master Logistics Management, Faculty of Logistics, Technology, and Business, Universitas Logistik Dan Bisnis Internasional, Bandung, Indonesia

[2]Advanced and Creative, Networks Research Center, Telkom University, Bandung, Indonesia

[3]Department of Informatics Engineering, Faculty of Vocational Schools, Universitas Logistik dan Bisnis Internasional, Bandung, Indonesia

[4]Department of Transportation Management, Faculty of Logistics, Technology, and Business, Universitas Logistik Dan Bisnis Internasional, Bandung, Indonesia

There are no other changes to be made.

Thank you for your cooperation.

Best Regards,
Dr. Ir. Agus Purnomo, M.T., CMILT.
Universitas Logistik dan Bisnis Internasional
Jl. Sariasih No. 54 Sarijadi, Bandung 40151
M. +62 87783261964
www.ulbi.ac.id