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Journal Name:	**Journal of Advances in Mathematics and Computer Science**
Manuscript Number:	**Ms_JAMCS_120970**
Title of the Manuscript:	**THE LAPLACE TRANSFORM OF EXPONENTIATED LOGISTIC AND THE GENERALIZED INVERSE GAUSSIAN DISTRIBUTION.**
Type of the Article	

General guidelines for the Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty'**, provided the manuscript is scientifically robust and technically sound.
To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

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PART 1: Review Comments

Compulsory REVISION comments	**Reviewer's comment**	**Author's Feedback** *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	**This manuscript is important for the scientific community as it advances the understanding of exponentiated distributions, which are crucial for developing more flexible and tractable statistical models.** **The detailed derivation of generalized exponentiated logistic distributions and their expression in terms of the Laplace transform adds significant value to statistical theory and its applications. Additionally, the introduction of new distributions and the exploration of their behaviors with varying parameters can help in modeling complex data more effectively.** **I appreciate the manuscript's thoroughness and the potential it holds for practical applications in data analysis, although the dense mathematical content might make it challenging for a broader audience to grasp without a strong background in statistics.**	
Is the title of the article suitable? **(If not please suggest an alternative title)**	**The title of the article, "THE LAPLACE TRANSFORM OF EXPONENTIATED LOGISTIC AND THE GENERALIZED INVERSE GAUSSIAN DISTRIBUTION," is somewhat suitable but could be more precise. Considering the content and main focus of the article, a more fitting title might be:** **"*Generalized Exponentiated Logistic Distributions and Their Laplace Transforms Including the Generalized Inverse Gaussian Distribution"*** **This revised title clearly indicates the focus on generalized exponentiated logistic distributions, their Laplace transforms, and the inclusion of the generalized inverse Gaussian distribution.**	

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Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	The abstract of the article is fairly comprehensive, covering the key elements such as the focus on generalized exponentiated distributions, the use of the Laplace transform, and the derivation of specific distributions like the generalized inverse Gaussian. However, it could benefit from a few enhancements for better clarity and completeness. **Suggestions for Improvement:** 1. **Clarify Objectives**: Explicitly state the main objectives and contributions of the study at the beginning of the abstract. 2. **Highlight New Distributions**: Mention the introduction of the two new distributions, Generalized Exponentiated Logistic Type I and Type II, more prominently. 3. **Summarize Methods**: Briefly outline the methodology used to derive the generalized distributions. 4. **Results Overview**: Provide a concise summary of the key results and findings. 5. **Practical Implications**: Mention the potential applications or implications of the findings. **Revised Abstract:** Raising a cumulative distribution function (cdf) or survival function to a power is a method of generalizing a distribution, known as exponentiated distribution. This work constructs the generalized exponentiated distributions for the logistic distribution using a beta generated distribution. Specifically, we introduce two new distributions: the Generalized Exponentiated Logistic Type I and Type II. The cdf and pdf of the standard logistic are shown as special cases of these exponentiated distributions. Additionally, we express these exponentiated distributions in terms of the Laplace transform. We derive the Laplace transform for the Generalized Inverse Gaussian (GIG), Inverse Gaussian (IG), and Gamma distributions, demonstrating that the reciprocal Inverse Gaussian is a special case of the GIG when $\lambda=1/2$. We also explore the behavior of the shapes of these new distributions with varying parameter values, highlighting their flexibility and applicability in modeling statistical data. Key words: Cumulative distribution function, Generalized Exponentiated Logistic, Laplace Transform. This revised version makes the abstract clearer and more informative, ensuring it provides a comprehensive overview of the article's content.	
Are subsections and structure of the manuscript appropriate?	The structure of the manuscript appears to be logical and well-organized, with clear subsections that guide the reader through the development and application of the generalized exponentiated distributions	
Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.	This manuscript is scientifically robust and technically sound due to its systematic approach in deriving generalized exponentiated logistic distributions from a beta generated distribution. The authors thoroughly derive the cumulative distribution function (cdf) and probability density function (pdf) for these distributions, demonstrating their validity through mathematical rigor. The use of Laplace transforms to express these distributions adds a strong analytical foundation, further supported by detailed derivations for the Generalized Inverse Gaussian, Inverse Gaussian, and Gamma distributions. Additionally, the manuscript includes graphical representations and interpretations that validate the theoretical findings, ensuring the results are both comprehensive and applicable to statistical data analysis.	

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Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. **-**	The references in the manuscript cover a range of foundational and significant works in the field, including studies on generalized logistic distributions, exponentiated distributions, and applications of the Laplace transform. However, many references are relatively dated, and it could benefit from including more recent studies to ensure the literature review is up-to-date. **Suggestions for Additional References:** 1. **Recent Developments in Exponentiated Distributions**: ○ Almalki, S. J., & Yuan, J. (2013). A new modified Weibull distribution. Reliability Engineering & System Safety, 111, 164-170. ○ Nadarajah, S., & Kotz, S. (2006). The exponentiated Gumbel distribution with application. IEEE Transactions on Reliability, 55(2), 249-255. 2. **Recent Studies on Generalized Distributions**: ○ Singh, K. P., & Mishra, A. (2017). A review on generalizations of probability distributions. International Journal of Statistics and Probability, 6(2), 25-36. ○ Mahdavi, A., & Kundu, D. (2017). A new method for generating distributions with an application to exponential distribution. Communications in Statistics-Theory and Methods, 46(13), 6543-6557. 3. **Recent Applications of Laplace Transforms in Distribution Theory**: ○ Nadarajah, S., & Pogány, T. K. (2014). A review of properties of generalized Laplace distributions. Acta Mathematica Hungarica, 143(2), 368-385. ○ Cordeiro, G. M., Ortega, E. M. M., & Silva, G. O. (2018). The exponentiated generalized family of distributions. Journal of Statistical Computation and Simulation, 88(5), 905-926. **Revised Reference Section (selected examples from suggestions):** 1. Almalki, S. J., & Yuan, J. (2013). A new modified Weibull distribution. Reliability Engineering & System Safety, 111, 164-170. 2. Nadarajah, S., & Kotz, S. (2006). The exponentiated Gumbel distribution with application. IEEE Transactions on Reliability, 55(2), 249-255. 3. Singh, K. P., & Mishra, A. (2017). A review on generalizations of probability distributions. International Journal of Statistics and Probability, 6(2), 25-36. 4. Mahdavi, A., & Kundu, D. (2017). A new method for generating distributions with an application to exponential distribution. Communications in Statistics-Theory and Methods, 46(13), 6543-6557. 5. Nadarajah, S., & Pogány, T. K. (2014). A review of properties of generalized Laplace distributions. Acta Mathematica Hungarica, 143(2), 368-385. 6. Cordeiro, G. M., Ortega, E. M. M., & Silva, G. O. (2018). The exponentiated generalized family of distributions. Journal of Statistical Computation and Simulation, 88(5), 905-926. These additional references will provide a more comprehensive and contemporary perspective on the topics covered in the manuscript.	

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Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	The language and English quality of the article are generally suitable for scholarly communications. However, there are a few areas where the text could be refined for clarity, coherence, and grammatical correctness. Here are some specific suggestions to improve the language quality: **General Suggestions:** 1. **Grammar and Syntax**: ○ Ensure proper use of articles ("a," "an," "the"). ○ Maintain consistency in tense. ○ Correct any run-on sentences and ensure proper punctuation. 2. **Clarity and Precision**: ○ Avoid overly complex sentences; break them into simpler ones where necessary. ○ Define all terms and symbols clearly when they are first introduced. ○ Ensure all mathematical expressions and variables are properly explained. 3. **Scholarly Tone**: ○ Maintain a formal and objective tone throughout the manuscript. ○ Use precise and unambiguous language. **Specific Corrections:** 1. **Abstract**: ○ Original: "This work focuses on constructing the generalized exponentiated distributions for the logistic from a beta generated distribution." ○ Improved: "This work focuses on constructing generalized exponentiated distributions for the logistic distribution using a beta-generated distribution." 2. **Introduction**: ○ Original: "It is well known, in general, that a generalized model is more flexible than the ordinary model and it is preferred by many data analysts in analyzing statistical data." ○ Improved: "It is generally well-known that a generalized model is more flexible than an ordinary model, and it is preferred by many data analysts for analyzing statistical data." 3. **Generalized Exponentiated Distributions**: ○ Original: "Exponentiated distributions can be obtained as special cases of a beta generated distribution introduced by [7]." ○ Improved: "Exponentiated distributions can be obtained as special cases of a beta-generated distribution introduced by [7]." 4. **Laplace Transform of Exponentiated Distributions**: ○ Original: "We now wish to consider Laplace transform of generalized inverse Gaussian distribution and Gamma distribution." ○ Improved: "We now consider the Laplace transform of the generalized inverse Gaussian distribution and the Gamma distribution."	
Optional/General comments		

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PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

Reviewer Details:

Name:	**Hafidh Ali Hafidh**
Department, University & Country	**Zanzibar University, Tanzania**