# An Integrated Method for multi-attribute group decision-making based on the linguistic Z-number and MSM operators

**Bo Chen**
Sichuan Normal University
**Qiang Cai**
Sichuan Normal University
**Guiwu Wei** ( weiguiwu1973@sicnu.edu.cn )
Sichuan Normal University
**Zhiwen Mo**
Sichuan Normal University

**Research Article**

**Keywords:**

**Posted Date:** November 12th, 2022

**DOI:** https://doi.org/10.21203/rs.3.rs-2255164/v1

# Abstract

This paper mainly researches OWA operator and its combination with MSM operator under the environment of linguistic Z-number (LZN). For the weight of data, this paper gives consideration to both the preference of attributes and the distribution of data itself, gives the interval distribution induced OWA operator (IDIOWA), and combines the weight of attributes to obtain the LZIDIHWA operator in LZN environment. Then, it introduces some good properties of this operator. At the same time, the LZIDIWMSM operator is obtained by combining LZIDIOWA operator with the LZWMSM operator, which makes up for the defect that LZWMSM cannot be used for data integration alone. Finally, the two operators are used for multi-attribute group decision-making (MAGDM), and their effectiveness is verified by comparative analysis.