**Supplemental File A**

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| **Algorithm 1. Normal wiggly hesitant fuzzy element** | |
| **FUNCTION** | *//A hesitant fuzzy element form the input for the function.* |
| number of values in the HFE  mean of values in the HFE  Standard deviation of the values in the HFE |  |
|  | *//Wiggly range for all the values in the HFE, is defined in (1).* |
| If          If ()    End  Elseif    End | *//Real preference degree for the HFE* |
|  | *//Normal wiggly element* |
| Return  **End FUNCTION** | *//Normal wiggly hesitant fuzzy element is the 2-tuple containing the HFE and the NWE* |

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| Algorithm 2. **NWHFS-FWZIC** | |
| **Function**    numerical scale | *//An expert decision array is the input of the FWZIC\_NWHF function, together with a set of HFEs, used for fuzzification.*  *// is the number of experts and is the number of evaluation features considered.*  *//Each entry in the input array is mapped to a numerical value following Table II.* |
| For from 1 to  For from 1 to      End  End | *// Each entry in the numerical decision matrix is replaced with a HFE using the given , then the NWHFE is created using function.* |
| For from 1 to  End | *// Aggregate the NWHFEs for different experts using the averaging operator given in (6). Then calculate the score of the aggregated element using (5)* |
|  | *//The scores for the aggregated NWHFEs are sorted in nondecreasing order.* |
| For from 1 to  If then      Else    If    End    End  End | *//Compute the comparative significance of the mean value () and the initial weights ().* |
|  | *//Scale the initial weight then distribute the obtained weights on their associated features following the sorting index.* |
| Return  **End FUNCTION** |  |

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| Algorithm 3. **RAFSI method** | |
| **FUNCTION** | *// A decision matrix (), weight coefficients (), features type (), ideal and anti-ideal coefficients (), and the endpoints of the features interval () are the inputs of the function.* |
|  | *//Calculate the arithmetic and the harmonic means.* |
|  | *// is the number of alternatives and is the number of the evaluation features.* |
| For from 1 to  For from 1 to  If is benefit      Elseif is cost      End  End  End | *//Calculate the standard decision matrix and the normalized decision matrix () following the type of the evaluation features and using the function defined in (9)* |
| For from 1 to    End | *//Calculate the score of each alternative by computing the weighted sum of the standard decision matrix.* |
| rank the alternatives based on | *//Rank the alternatives based on the obtained scores in nondecreasing order and with duplication.* |
| Return  **End FUNCTION** |  |

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| **Algorithm 4.** **Intelligent MCDM approach** |  |
| Identify , | *// represents the expert decision array on the evaluation features, represents the HFEs values given in Table II,* |
|  | *// Call the function to get the features weight coefficients.* |
| Identify , , , , , | *// represents the initial decision matrix of alternatives vs evaluation features. is an array containing the type of each feature (all are benefit-type in this study), are the ideal and anti-ideal coefficients, and are the endpoints of the features interval.* |
|  | *//Call the function to rank the frameworks.* |
| Identify        For from 1 to        End | *//Run sensitivity analysis as described in Section IV. is a vector containing different values of variation parameter.* |
| Output , |  |