**COMPARISON OF NEW ACHIEVEMENT STANDARD 3.8 USING INZIGHT AND EXCEL**

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|  | **OLD AS 3.1 Time Series** | **NEW DRAFT AS 3.8 Time Series** | **NEW DRAFT AS 3.8 Time Series** | **PROPOSED AS 3.8 Time Series** |
| **Achievement Level/Software** | **EXCEL** | **EXCEL** | **iNZight** | **iNZight** |
| **Achieved** | 1. Calculate CMM,ISE,ASE  2. Plot raw, smoothed + linear regression equation. Small labelling errors allowed.  3. Describe trend in context. | 1. Calculate CMM,ISE,ASE for one series  2. Plot raw, smoothed + linear regression equation. Small labelling errors allowed.  3. Calculate >=1 forecast not necessarily in context. Correct units given.  4. Describe trend and seasonal pattern not necessarily in context. Use gradient to quantify trend. | 1. Calculations performed by iNZight.  2. Produced automatically as well as seasonal effects, average seasonal effects, predictions and residuals.  3. Produced automatically  4. Describe trend and seasonal pattern not necessarily in context. (Read first and last trend values from graph to quantify trend). | 1. Select one time series to analyse using iNZight. 2. Produce plots of raw data, seasonal effects, residuals, fitted values and predictions including prediction intervals. Comment on trend, seasonal pattern, residuals and any unusual features. 3. Write a statement in context describing long term trend.   ( Read first and last trend values from graph to quantify trend).   1. Evaluate contribution of components to overall series variation. |
| **Merit** | 1. Calculate at least one forecast in context. | 1. As above 2. As above, but NO labelling errors 3. As above but in context and details of calculation to be provided 4. As above but in context 5. Comment on accuracy of prediction. Fit of model, consistency of seasonal pattern | 1. Not required 2. Produced automatically 3. Produced automatically. Context required. 4. As above but in context 5. Confidence Intervals provided for predictions. Visual inspection of fit of model & consistency of seasonal pattern. | 1. Analyse a second time series using iNZight. Comment on similar features as above. 2. In addition quantify at least one trend as a rate per appropriate time period. 3. Comment on prediction intervals. 4. Compare features of the TWO series and comment on similarities and differences |
| **Excellence** | As Above  Comment on at least two further features of the time series  Comment on three of the following   1. Relevance & usefulness of forecasts 2. Appropriateness of model 3. Improvements to model 4. Limitations of analysis 5. Interpretation of seasonally adjusted data | As Above  Comment on three of the following   1. Accuracy of forecasts 2. Unusual features 3. Improvements 4. Other relevant variables 5. Deeper understanding of model   ASSUME three of these five considered sufficient for Excellence.  New draft AS unclear. | As Above   1. Use C.Is to assess using next 3 data points.   Be aware that inconsistent seasonal pattern affects accuracy of Holt- Winters.   1. Unusual features. Use residual plot. More than 10% of overall data range = unusual. Conjecture about possible explanations. 2. Improvements covered under accuracy 3. And 5.Deeper understanding and other relevant variables could include the following   Comparison between two related series.  Comparison between series and computed series ( sum, difference or ratio of series).  Comment on research findings that confirm or dispute analysis  ASSUME three of these five considered sufficient for Excellence. New draft AS unclear. | 1. Create a third time series and analyse using iNZight as above.   Third series could be a sum, difference or ratio of given series. Other transformations possible but not expected.   1. Compare features of NEW variable with those already analysed 2. Given the next three actual values comment on model’s capability for prediction purposes 3. Discuss contextual information or research findings that support or dispute your analysis.   THREE SUFFICIENT ? |

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