## TSC Category

**Evidence-based Practice**

## TSC

**Data and Statistical Analytics**

## TSC Description

Interpret and analyse data using statistical techniques to uncover trends and patterns to locate and define new process improvement opportunities

<table>
<thead>
<tr>
<th>TSC Proficiency Description</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
<th>Level 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify data collection procedures to assist in basic data collection and processing activities</td>
<td>Apply data analytical techniques to process and interpret data of limited complexity</td>
<td>Analyse data using statistical techniques to identify trends and patterns</td>
<td>Facilitate the development of new analytics solutions to address existing gaps in analytical tools</td>
<td>Devise the next generation of data science, with the use of big data analytics, to discover new process improvement opportunities</td>
<td>Transform the organisation through the use of big data analytics and data synthesis to drive solutions and improve business processes</td>
<td></td>
</tr>
</tbody>
</table>

### Knowledge

- Units of measurement
- Basic scientific and technical terminologies
- Procedures for coding, entering, storing, retrieving and communicating data
- Procedures for verifying data and rectifying errors
- Units of conversion
- Calculations involving fractions, decimals, proportions and percentages
- Procedures for maintaining and filing records, and securing data
- Unit of measurements
- Scientific and technical terminologies
- Statistics and scientific calculations
- Operations of statistical techniques such as mean, median, regression analysis
- Practices in records management
- Procedures for data management
- Data management platforms and software
- Statistical and scientific calculations
- Statistical Package for the Social Science (SPSS) functionalities
- Quality Assurance and Statistics (QAS)
- Data management platforms and software
- Procedures for data traceability
- Procedures for verifying data and rectifying mistakes
- Records management
- Operations of statistical techniques such as probability theory, probability distribution and hypothesis testing
- Test conditions required for various statistical techniques
- Interpretation of results from statistical modelling
- Modelling software
- Statistical data analysis applications
- Data analytics tools and techniques
- Strengths and limitations of various statistical techniques in evaluating big and complex data sets
- Methods of manipulating statistical techniques for customised big data analytics
- Factors that determine applicability of statistical models for big data analytics
- Relevance of big data analytics in improving business outcomes
- Impact and influence of data analytics in transforming business decision-making
- Mechanics of big data analytics working in tandem with other forms of business
<table>
<thead>
<tr>
<th>Abilities</th>
<th>Perform calculations and interpret tables, graphs and charts</th>
<th>Perform calculations of scientific quantities</th>
<th>Perform data computations</th>
<th>Formulate approaches used in big data analytics to more bespoke solutions addressing shortfalls in the current system</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Code and record data accurately</td>
<td>Use scientific notations</td>
<td>Analyse datasets using statistical techniques for identification of trends and/or problems</td>
<td>Influence stakeholders on the importance of big data analytics to discover solutions to improve business processes</td>
</tr>
<tr>
<td></td>
<td>Prepare accurate data in required formats</td>
<td>Apply concepts of metrology</td>
<td>Analyse statistics and graphical results</td>
<td>Synergise the use of big data analytics with other forms of business analytics to improve business processes</td>
</tr>
<tr>
<td></td>
<td>Recognise explicit trends in data</td>
<td>Interpret trends of data</td>
<td>Interpret data collected for categorisation into areas for process improvement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Identify areas for meaningful data collection</td>
<td>Identify correlation and regression models of data variables</td>
<td>Collaborate with stakeholders to identify additional and more specific data for further analysis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maintain confidentiality of data</td>
<td>Check accuracy of data</td>
<td>Ensure confidentiality of data</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enhance quality of data collected by scrubbing and removing duplicates</td>
<td>Document data</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maintain security and confidentiality of data</td>
<td>Maintain security and confidentiality of data</td>
<td></td>
</tr>
</tbody>
</table>

- Recognise significant trends in data and/or aberrant results
- Use statistical tests to estimate uncertainties and determine data acceptability
- Review datasets to uncover trends or patterns
- Identify and analyse potential causes of unacceptable data, or results, to troubleshoot performance
- Develop new methods to conduct analyses of large complex data sets
- Facilitate discussions on areas for application of big data analytics to examine issues

- Formulate approaches used in big data analytics to more bespoke solutions addressing shortfalls in the current system
- Influence stakeholders on the importance of big data analytics to discover solutions to improve business processes
- Synergise the use of big data analytics with other forms of business analytics to improve business processes