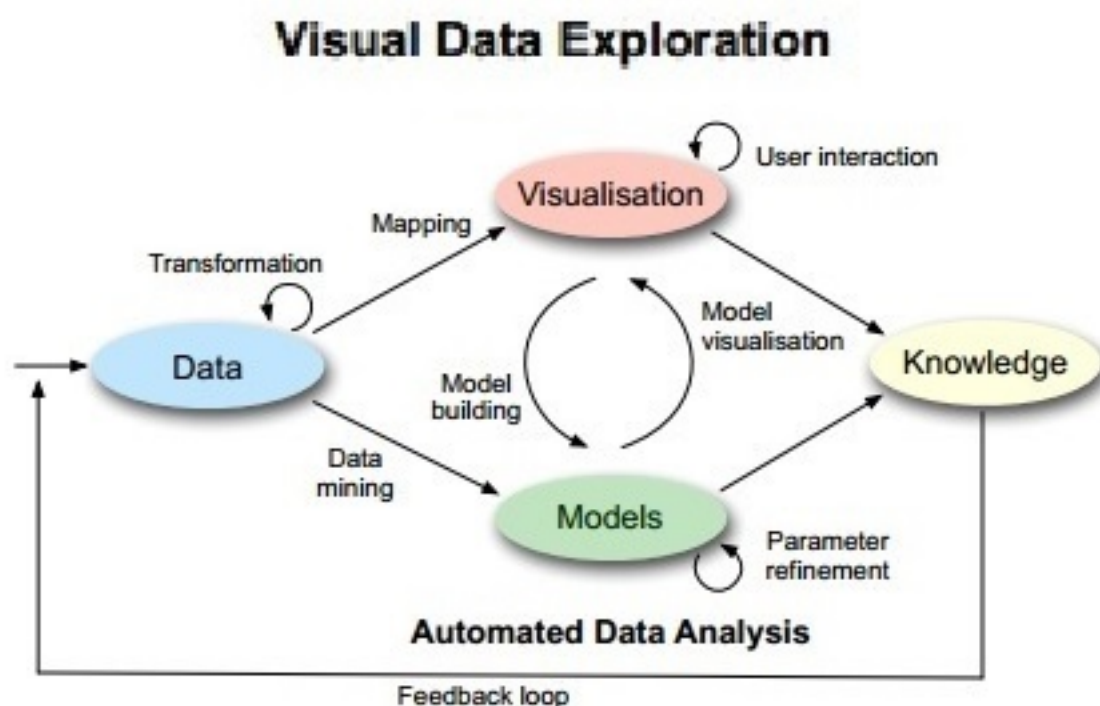## : What is visual analytics?

by Daniel J. Power

Editor, DSSResources.COM

Visual analytics combines automated analysis techniques with interactive visualisations to support decision making using very large and complex datasets.

Visual Data Exploration

The visual analytics process is characterised through interaction between data, visualisations, models about the data, and the users in order to discover knowledge

www.vismaster.eu/wp-content/uploads/2010/11/chapter-2.pdf

According to http://www.visual-analytics.eu/, visual analytics is a process.
"In many application scenarios, heterogeneous data sources need to be integrated before visual or automatic analysis methods can be applied. Therefore, the first step is often to preprocess and transform the data to derive di fferent representations for further exploration (as indicated by the Transformation arrow in the figure). Other typical preprocessing tasks include data cleaning, normalisation, grouping, or integration of heterogeneous data sources."

"After the transformation, the analyst may choose between applying visual or automatic analysis methods. If an automated analysis is used first, data mining methods are applied to generate models of the original data. Once a model is created the analyst has to evaluate and refine the model, which can best be done by interacting with the data. Visualisations allow the analysts to interact with the automatic methods by modifying parameters or selecting other analysis algorithms. Model visualisation can then be used to evaluate the findings of the generated models. Alternating between visual and automatic methods is characteristic for the visual analytics process and leads to a continuous refinement and verification of preliminary results. Misleading results in an intermediate step can thus be discovered at an early stage, leading to better results and a higher confidence. If visual data exploration is performed first, the user has to confirm the generated hypotheses by an automated analysis. User interaction with the visualisation is needed to reveal insightful information, for instance by zooming in on dierent data areas or by considering dierent visual views on the data. Findings in the visualisations can be used to steer model building in the automatic analysis. In summary, in the visual analytics process, knowledge can be gained from visualisation, automatic analysis, as well as the preceding interactions between visualisations, models, and the human analysts."

http://www.vismaster.eu/wp-content/uploads/2010/11/chapter-2.pdf

Author: Daniel Power
Last update: 2013-06-12 02:38