

## The Analysis of The On-line Analytical Processing Methods For The Information Processing

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**On-line training methods while training the specialists in the higher school is analysed; visual data analysis in information systems is considered; methods of qualitative evaluation of the on-line analytical processing methods effective use are presented. Basing on the analysed material we drew a conclusion that the advantages of combining consist in the combination of different methods of visualization in order to overcome disadvantages of one o them.**

**Key words:** on-line methods, data analysis, efficiency evaluation.

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During his reporting on the Information Development Council, the president of the RF D. A. Medvedev emphasised that “no progress and modernisation are possible without information technologies, as well as without the training of teaching staff to use these technologies”. One of such technologies is the on-line technology. On-line technology is the software which operates in the user interaction dialogue mode and allows managing the training process.

Evaluation of the effective use of on-line analytical processing methods in information systems

Today there are widely used such methods of the on-line training, as: interaction via commands and manipulations using human-machine interface; different formats data exchange (audio, video, graphics etc.); use of interactive board during the training process. In order to

conduct scientific investigations during the last years of the Bachelor’s programme, as well as during the Master’s programme or research degree, it is necessary to add on-line analytical processing methods (visual data analysis, statistical data analysis, data mining methods) to these methods<sup>1-3</sup>.

Visual data analysis is especially useful while analysing data of telecommunication systems. In this case there isn’t much information available and the goals of investigation are not completely clear. This often occurs while scientific investigation carrying out. Table 1 presents the classification of data, which are suitable for visualization means<sup>1</sup>.

In order to visually represent data types, listed in Table 1 we study the following methods of visualisation: standard 2D/3D-images - histograms, line charts; geometric transformations - scatter diagrams, parallel coordinates; icons display - needle icons and star icons; pixel-oriented methods - fractal patterns, cycle segments; web-documents visualisation; hierarchic images - treemaps and extent overlapping<sup>4-12</sup>.

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**Table 1.** Data classification for visual analysis

Data type	Examples of data
univariate data	single-dimension arrays, time-series
bivariate data	two-dimensional chart points, geographical coordinates
multivariate data	finance indexation, empirical data
texts and hypertexts	newspaper articles, web-documents
hierarchical and constrained data	reporting structure in an organisation, e-mail correspondence of people, documents hyperlinks
algorithms and programmes	information flows, debugging operations

**Table 2.** Evaluation of effective use of on-line analytical processing

Bases for evaluation performing	Description of the reasons for evaluation Revealing success factors for evaluation of effectiveness Comparing the evaluation of effectiveness and evaluation of value
Indices selection and updating	Revealing of the possible effectiveness indices Preparation of the criteria list for good indices Explanation of connecting indices with the tasks of organisation Presentation of determination of indices priority from the list Forming of the indices package containing such parameters as “who”, “what”, “how”, “where” and “when” for each index
Effectiveness evaluation	Description of the good experience for data collection Revealing of the data sources Preparation of the problems list referring to the data which are to be solved
Data analysis	Description of several methods for data analysis which allow to interpret the results of the effectiveness evaluation Revealing of a number of tools which can be used for the data analysis concerning effectiveness.

Today the scientists develop innovative systems for on-line reporting, visualized data analysis and information delivery.

### CONCLUSION

There exist a lot of visualisation methods for on-line data processing, but all of them have both advantages and disadvantages. The main idea of combining is the combination of different visualisation methods in order to overcome disadvantages of one of them.

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