Ergonomic Design of the Graphical User Interface of Integrated Software Systems for Business Management

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Topic Service, PLC
Sofia, Bulgaria

Summary

- Overview of user interface practices in integrated software systems for business management in Bulgaria

- An approach for ergonomic design of graphical user interface for such systems – FOI Smart Monitor

  – Main goal -> to overcome the weak sides of observed practices

The rules that should follow GUI design

- Emphasizing capabilities
- Identifying priorities
- Reaching consensus
- Correct problems' solving
- Helping orientation
- Accelerating decision-making
- Inspiring revolutionary innovation

(Markus, 1995) (Sollenberger, 2012) (Shishedjiev, 2015)

Requirements to the good user interface

- simple
- unambiguous elements with immutable meaning in time
- indicates whether an object is accessible or not
- subject and objected oriented
- context-oriented help information
- each form preserves the general idea of the entire program
- evocative use of colour and texture
- using of typography for creating hierarchy and clarity

(Martin, 2015)

External factors influencing the final look-and-feel of the user interface

- to what extend the technological capabilities of the software development environments and used programming interfaces allow compliance with of these rules;

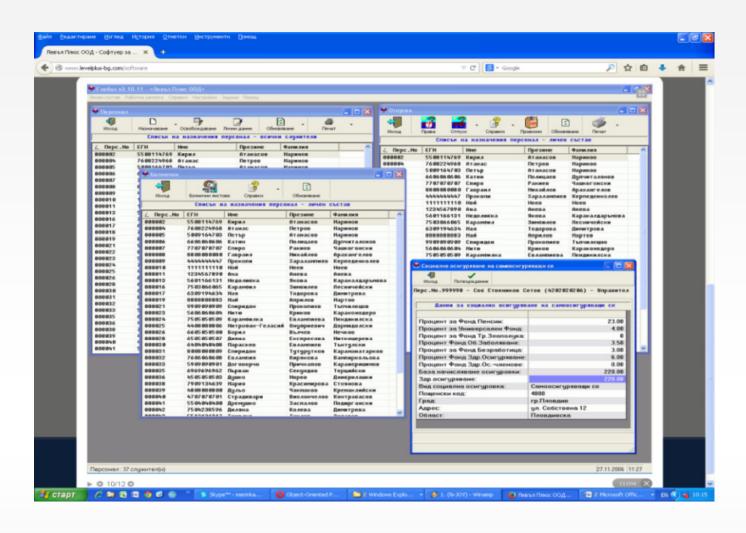- whether the software manufacturer has relevant knowledge and will to comply with these rules.

Observed characteristics
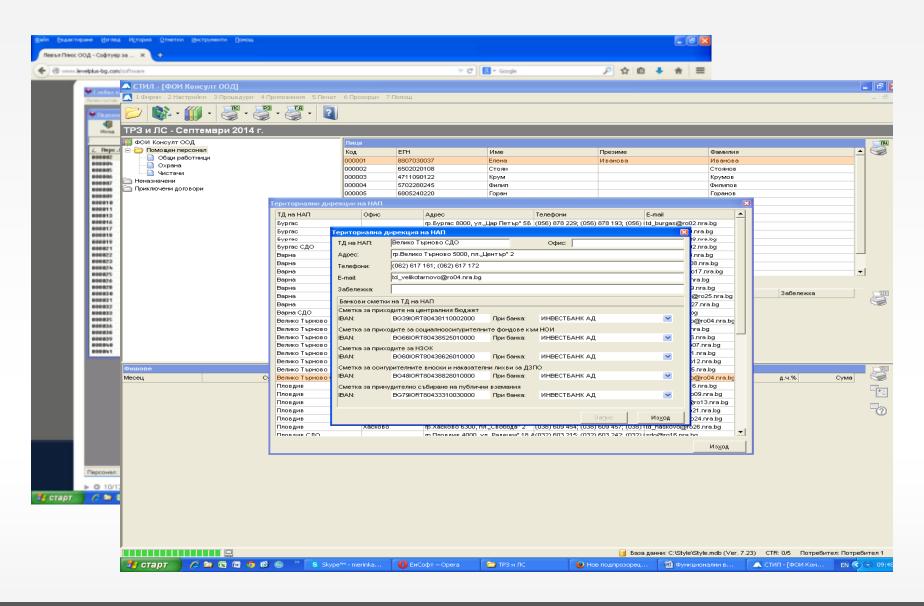# of the software from the studied class

- arrangement of information on the screen;

- navigation during work /help;

- display / selection of features at work;

- completeness and effective functionality of the interface;

- functionality depending on different characteristics of terminals, with a view to maximizing available technological options;

- using colours (including for expression of semantics);

- default settings, with a recovery option after user intervention;

- Methods for storage and handling of information and types of databases;

- connectivity of fields and content structure of the information;

- labour protection of consumers with regard to the interface;
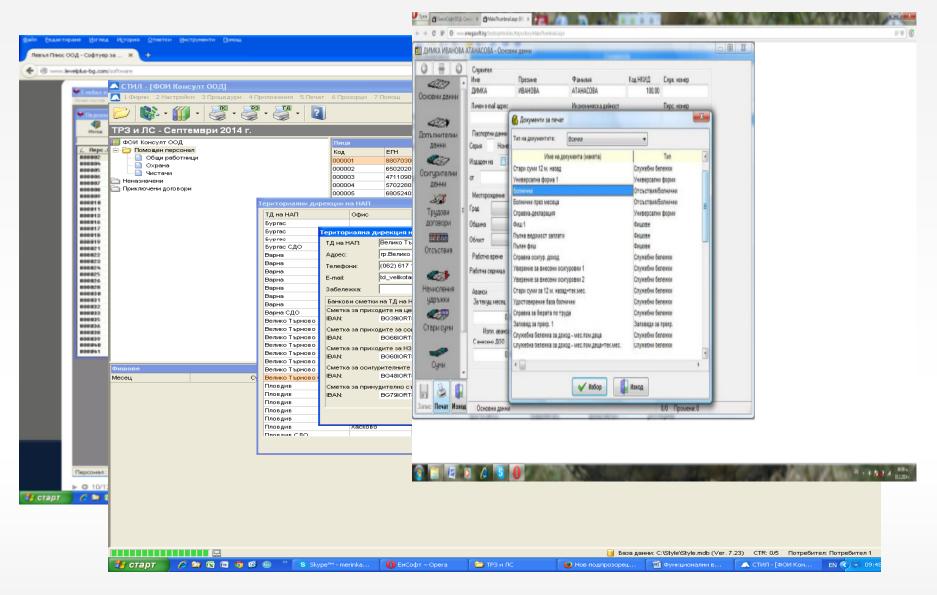
- data protection regarding the interface.

Observed weaknesses
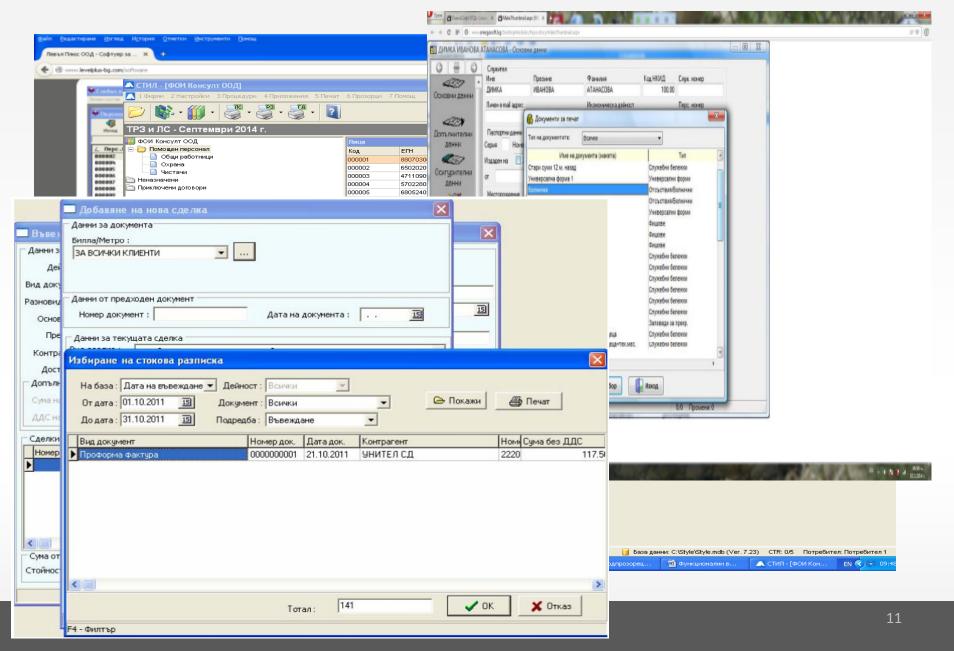# of some systems
in the Bulgarian market

examined:

- *> 60 systems
  (payroll software, accounting software, ERP systems)*

The overlapping screens effect

The overlapping screens effect

The overlapping screens effect
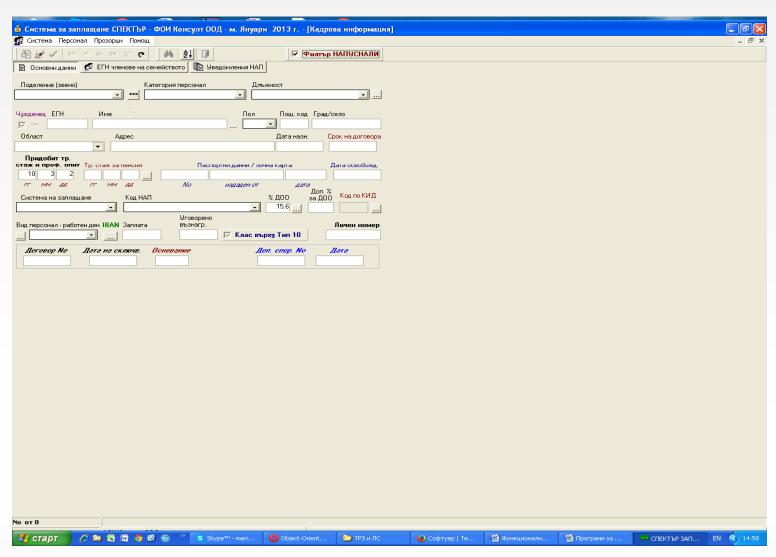
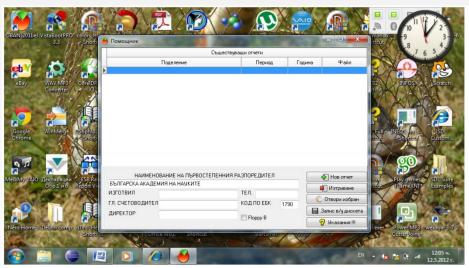# The overlapping screens effect

Icons, menus, function buttons

- great number of functional elements – a large part of them irrelevant to the current solved task

- random positioning of functional elements – leads to poor structuring of the action sequences

- many graphic buttons (icons) – often with unclear semantics

- current screen forms do not cover icons and buttons of rear forms – which menu/icon is currently active
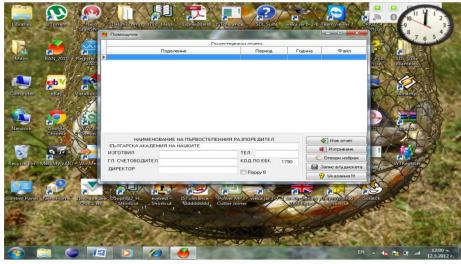
Displaying information on the screen form

- Undervalued graphical capabilities of screens

- No visibility of the whole information

- Overvalued ability for user reception of information from the screens

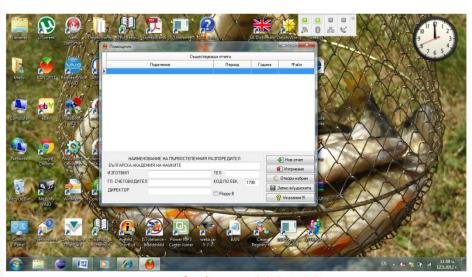- Using of typography and color – random OR restricted

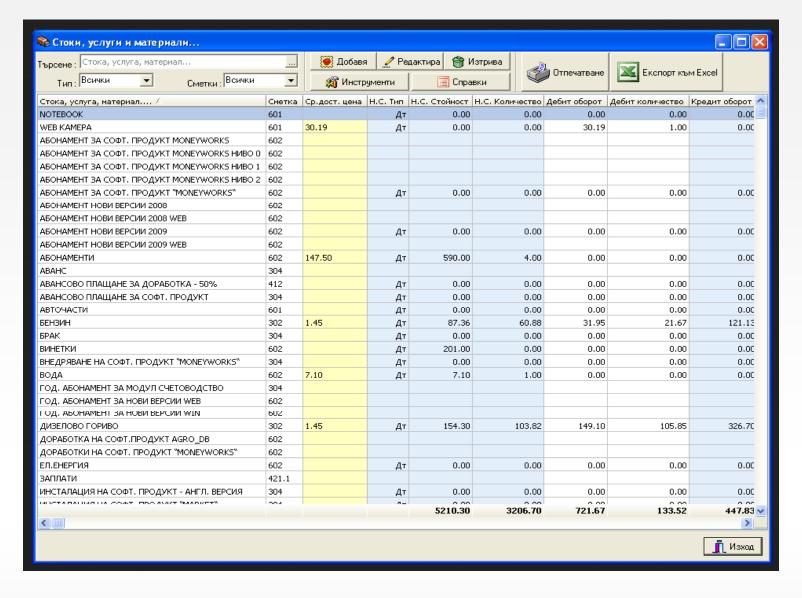*High screen resolution – small system workplace !!!*

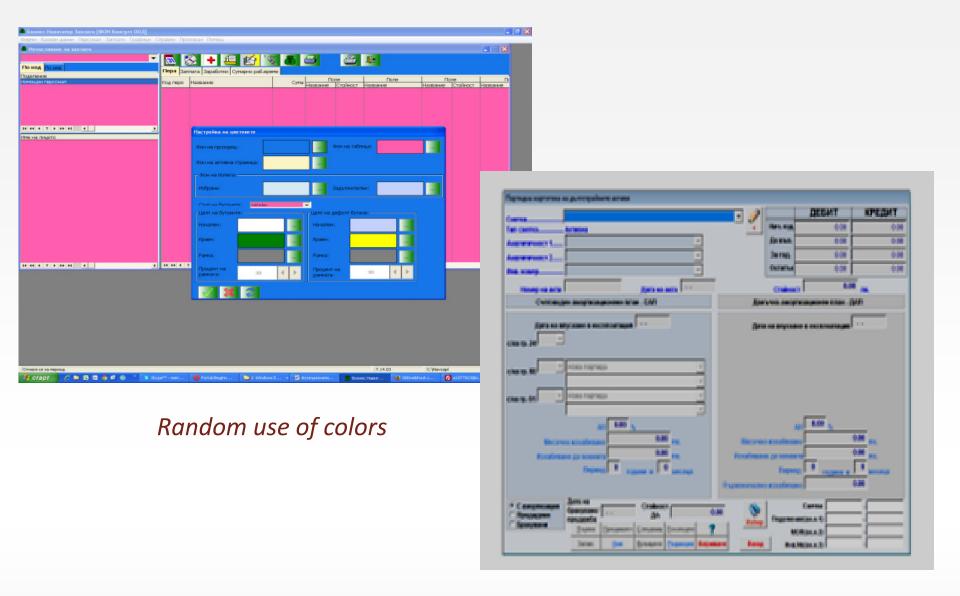resolution: 1021x600

resolution: 1024x768
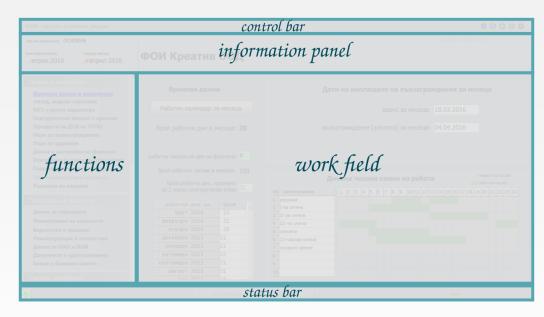

resolution: 1280x720

resolution: 1920x1080
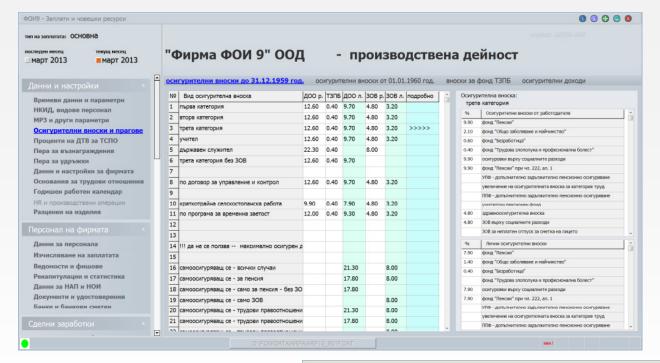
Unseen important information !!!

Random use of colors

Wrong semantic in font colors

FOI Smart Monitor

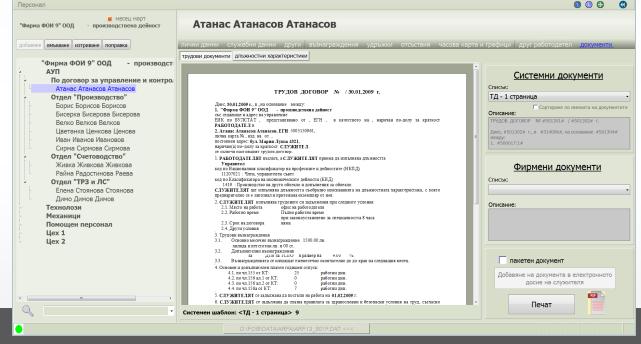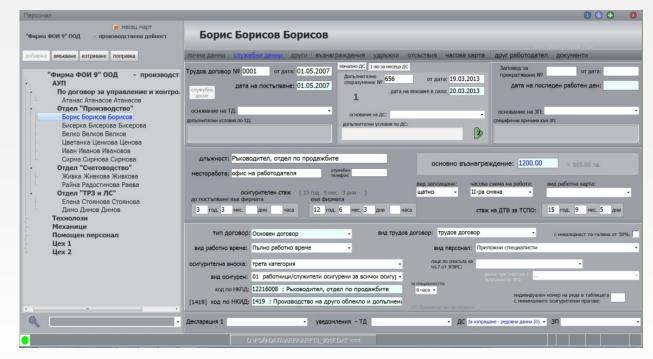- Organization of the information panels of ISSBM forms

  – Avoid the overlapping screens effect

  – Use effectively the entire working area of the screen

  – Minimize use of icons

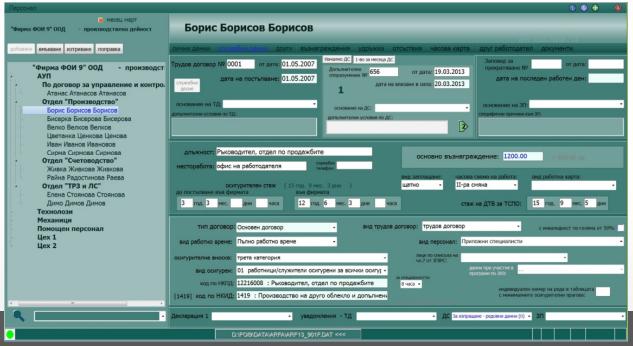- Mechanism for data protection from unintended modification

- Look and feel design

FMS:

Snapshots on the screens with different resolutions

The effect of Gradient mechanizm

Conclusion

The proposed approach for building the user interface of ISSBM is a part of the complex concept aimed to assure all functionalities of software systems for business management intended for mass use.

The concept for developing complex software systems at the programming and technological levels is implemented in the software environment ArmSBuilder. Using ArmSBuilder enables small teams to develop complex integrated business applications very fast. Programs can run on all kinds of computer configurations, local and global networks. They are low-cost and do not depend on external support programs. These characteristics are of great importance for the implementation of this type of software products in Bulgarian SMEs.

Thank you for your attention

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