

Navigating Within Tables Used in SAP BW Mobile Reporting (WAP): Results of Usability Tests

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Abstract

We herein present three designs for navigating within tables used in SAP BW Mobile Reporting (WAP). The designs were tested by 15 ASUG conference participants. The testing situation closely resembled the mobile context of use for which the scenarios were developed. In addition to the scenarios and test results, we also describe the design ideas generated from the problems the participants encountered.

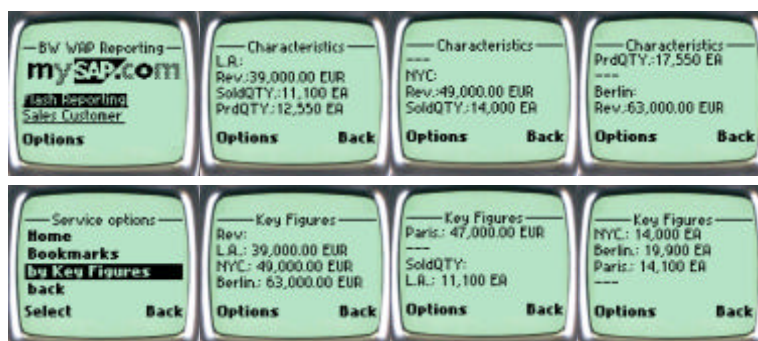
1 Usability Tests: Situation and Setup

Scenarios and participants: The user is a sales executive on a business trip who needs key sales figures to prepare for a meeting. The 15 participants of our usability tests were attendees of an Americas SAP Users' Group (ASUG) conference in October 2000; therefore, for them, the testing situation resembled a mobile context of use.

Testing materials and device: We used reports from SAP Business Information Warehouse (BW) Mobile Reporting. Since no U.S. phones (such as a PCS Sprint Phone) were available, we set up the application as an offline desktop scenario on a Nokia 7110 WAP phone emulator.

2 Test Results, User Problems, and Design Ideas

2.1 Usability Test Results for Scenario 1: Sales Figures Lookup (Table with 2 Columns, 4 Rows)



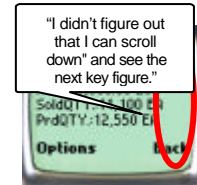
Note: Read screen shots from left to right.

2.1.1 Navigation Was Problematic

Users understood that they could switch between key figures and characteristics. However, there was no indication that you can scroll down in order to see more data/the next key figure. Users argued that this only works with a limited number of locations; a large number of locations would be hard to read.

Design Idea (DI): Provide a vertical scrollbar or an arrow that shows more.

DI: Display a preview of key figure titles at the top; “show the user what to expect,” revenue, then quantity produced, etc.

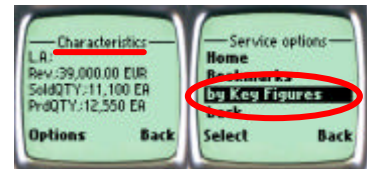


2.1.2 Options Were Unclear

Problem with *Key Figures* and *Characteristics*: Users correctly assumed that the item under *Options* was a display option. However, they didn't understand the option items, and were sometimes unsure of how to switch between them.

DI: Under *Options*, show both items at the same time: *By Key Figures*, *By Characteristics*.

DI: Use more precise terminology.

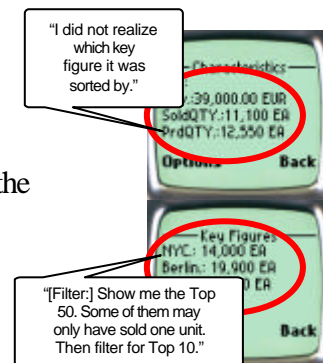


2.1.3 No Sort or Filter Provided

Problems occurred with sorting by key figures vs. characteristics: Users looked for a sort function, and did not grasp which key figure the report was sorted by.

DI: Provide the option of sorting by key figures, ascending/descending.

DI: Offer filtering capabilities (e.g., Top 10, Bottom 5).

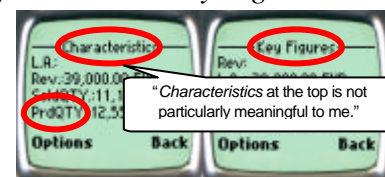


2.1.4 Terminology and Abbreviations Were Unclear

Some terms and abbreviations were not clear: PrdQTY (Produced Quantity) is not intuitive and could be misinterpreted, e.g., as “Predicted Quantity.” The terms *Key Figures* and *Characteristics* at the top were not meaningful.

DI: Use *By Key Figures*, *By Characteristics* at the top.

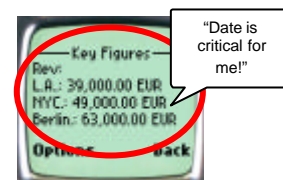
DI: Use the abbreviation *QtyProd* (“Quantity Produced”; “Produced Quantity” is a Germanism) instead of *PrdQTY*.



2.1.5 No Date Information Provided

There was no date information indicating how up to date the data was. However, users regarded the date as critical.

DI: Display date in header line.



2.1.6 No Currency Conversion Available

Displaying all values in a single currency was well received; however, an option for

converting currencies (e.g., EUR⇔USD) should be provided.

DI: Provide option for currency conversion.

2.2 Usability Test Results for Scenario 2: Billed Items Lookup (Table with 5 Columns, > 20 Rows)



Note: Read screen shots from left to right.

2.2.1 Navigation Was Problematic (1)

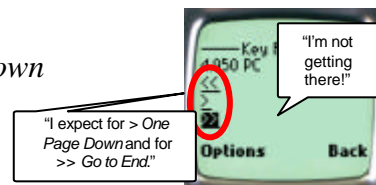
Users encountered *severe* navigation problems with scenario 2. They argued that people would need to “know the landscape.” A graphic showing the table layout would be nice.

Symbols were confusing. “>>” and “<<” imply going to the end/beginning; users would have expected right/left arrows for changing the column.

Rather than “>” and “<,” users would have expected *Arrow Down* and *Arrow Up* for displaying the next couple of data rows.

DI: Display gridlines (key line, values).

DI: Use down/up arrows instead of “>” and “<,” or use text (*pgdown/pgup*) instead.



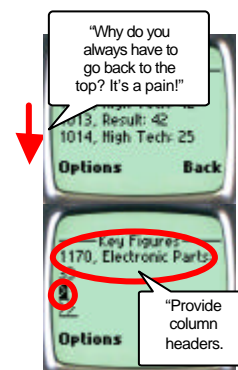
2.2.2 Navigation Was Problematic (2)

Too much scrolling involved: Users heavily criticized that they had to go all the way to the bottom to be able to switch one column to the right. If they wanted to switch two or more columns, this procedure had to be repeated zigzag-style and was therefore particularly cumbersome. Also, column headers were no longer displayed after the user had scrolled down.

DI: Have “>>” at the top and bottom, and/or under *Options*.

DI: To avoid zigzag navigation, enable consecutive scrolling to the right, e.g., by placing “>>” under *Options*.

DI: Provide column headers at all times.



2.2.3 Options Were Unclear

Users tried to search for options. However, no options were available.

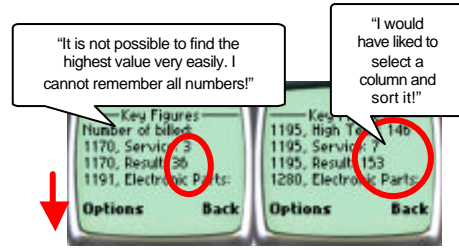
DI: Place functions/links on the screen under *Options* as well.

DI: Provide the option of setting a default column.

2.2.4 No Sorting Provided

Testers assumed they would be able to sort by key figures, as people usually look for highest and lowest values.

DI: Provide a sort function for key figures (ascending or descending).

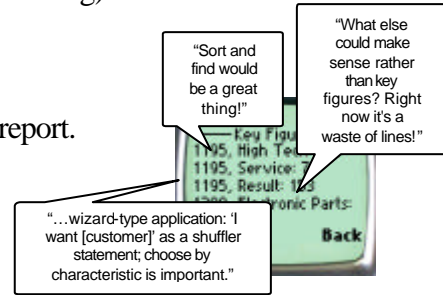


2.2.5 No Search or Filter Available

Users complained that they could not search or filter in this report.

DI: Provide a filter - e.g., Top 10, Bottom 5, by region, or by product line - and use localization information.

DI: Offer shuffler search (find XYZ) as for scenario 3.

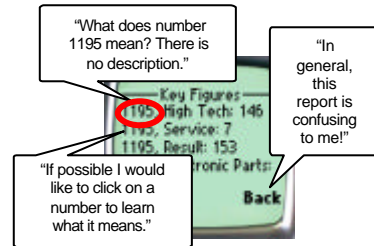


2.2.6 Terminology and Abbreviations Were Unclear

Because there were no column headers, users did not understand what the columns meant.

Division was self-explanatory. *Payer*, which was displayed as a number, was very hard to understand.

DI: Offer an option of viewing numbers or description. If this is not technically feasible, display column descriptions/table layout in a *Help* function under *Options*.



2.2.7 No Date Information Provided

There is no date information indicating how up to date the data is. However, users regarded the date as critical.

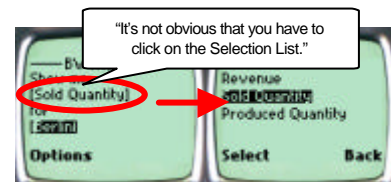
DI: Display the date in the header line.

2.3 Usability Test Results for Scenario 3: Sales Figures Lookup ("Shuffler"-Style Search)



Note: Read screen shots from left to right.

2.3.1 Selection List Was Unwieldy (1)



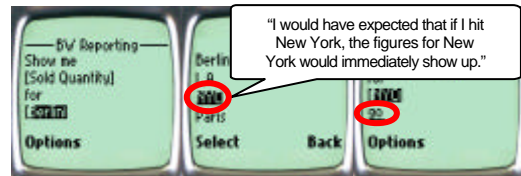
Users were confused about how to use the *selection list*. They did not understand that the brackets indicate that the entry can be changed.

In general, the users liked the selection list. However, they argued that it would not work if there were too many attributes to select from; for this reason, they suggested keeping the number of codes to a minimum.

DI: Use an asterisk (*); users know that they will get a dropdown list box if they hit “*”.

2.3.2 Selection List Was Unwieldy (2)

One user was also assuming that the search would automatically be started after he had selected an entry from the last selection list.

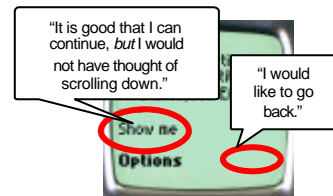


DI: Place Go under Options as well, so there is no need to scroll down.

2.3.3 Navigation Was Problematic

The shuffler search was well received. There were only a few small navigation problems: Users did not expect to be able to scroll down in order to start the next search. Rather, after executing the search, they expected a *Back* function.

DI: In addition to the repeated search option, provide a *Back* function after the user has executed a search.



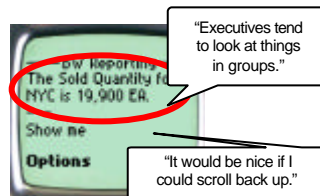
2.3.4 No Comparison, Sorting, or Filtering Provided

Users wanted to be able to compare figures, and sort and filter them.

DI: Use a *multiselection list* to allow the user to select one or more *Key Figures* and one or more *Locations* for comparison (result: e.g., *Sold Quantity* figures for both Berlin and New York on a single screen).

DI (paper prototype sketched by user):

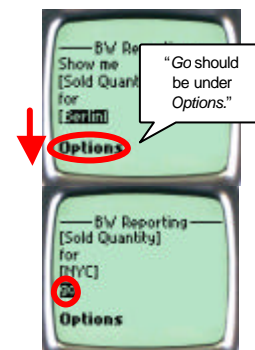
- [Selection list for char.: - Customer Channel
- Product Group
- Material Type
- Top 10]



2.3.5 Options Were Unclear

Users expected to have *Go* as an entry under *Options*. However, they had to scroll down first to start the search.

DI: Place functions/links on the screen under *Options* as well.



3. Summary

Scenario 1: Users liked the navigation provided by the options *By Characteristics* or *By Key Figures* (report with 2 columns, 4 lines).

Scenario 2: Severe problems occurred when users tried to navigate in a large table. As a result, they requested filtering (e.g., Top 10, Bottom 5) and sorting capabilities (e.g.,

descending / ascending by key figure).

Scenario 3: The shuffler search was well received, which resolves the navigation problem.