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The design of B2B system user interface for mobile systems

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Abstract

Mobility is playing an ever-increasing role in the life of contemporary business, providing the mobile workforce with a new level of communications freedom. The mobile revolution happening right now affects almost every manager or employee. Business people use mobile devices like smartphones and tablets as complementary services to their computers that are equipped with business applications as a new and productive user interface to their desktop management systems. Users need to access key data wherever they are, enabling them to act on information through simple, easy-to-use authorizations and acknowledgments, and to provide input and updates in real time from remote locations. In this context, the user interface on a mobile device must be easy to use and easily accessible. This is vital for the advanced management B2B systems, which meet the demands of modern business solutions.
The main objective of this article is to present the design of B2B system user interface for mobile systems based on technological and technical design recommendations that were developed based on the results of a study made on B2B user interface modelling to work on mobile devices. The study was conducted as part of research and development works for the development of a modern and advanced B2B systems based on Internet technologies.

Keywords: user interface (UI); B2B system; mobile technologies; mobile websites; mobile platform.

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1. Introduction

Currently, mobile systems and applications may be integrated with both desktop stations as well as complex cloud computer management systems due to the widespread access to wireless Internet technology. The pace of development of such solutions is primarily affected by the needs of current business environment requirements, the needs of users[1], and the specificity of services and applications. Creating the latter depends on the right tools, platforms for mobile systems. In other words, it has to be supported by a specifically developed architecture[2]. A large increase in applications for mobile computers (smartphones, tablets) in business practice involves the possibility of sharing data from desktop stations with mobile devices any place and time the user requires. Mobile devices act as permanent and direct access points, which generate huge amounts of data that have powerful business uses[3]. In the case of B2B systems, such solutions create a new trend in the implementation of external business processes.

Considering the above premises, the main objective of this article is to present the results of research from the last stage of industrial research devoted to B2B system user interface designing to work on mobile devices. The study was carried out as a part of project entitled "*The development of state of the art and advanced B2B system based on Internet technologies as a result of research and development works" implemented by OPTeam SA under the Regional Operational Programme of the Lubelskie Voivodship in 2007-2013”.*

Technological and technical design recommendations presented in this article constitute the basis for the concept of developing a mobile web interface to support B2B functionality.
The main objective allowed forming the following specific objectives:
1. Analysis of existing technologies on the market dedicated to mobile interfaces;
2. Analysis and assessment of popular mobile platforms available on the market;
3. Characteristics of mobile web browsers;
4. Analysis of patterns and techniques used in the design of mobile web interfaces.
Comparative analysis was used as a research method for technologies dedicated to mobile interfaces, the comparative analysis of functionality and the technology of objects that include mobile platforms and mobile web browsers.

2. Native mobile and web interfaces

Native mobile interfaces[4] are created as Windows programs and compiled into executable files of the operating system. These are typical applications implementing adequate functionality, not only focusing on reproducing stationary applications, but also often extending its capabilities to fit the user needs. They are created with a thought of a given platform, because they are directly related to the device and the system installed on them. They may run only on the operating system for which they had been written by programmers.

On the other hand, the mobile web interfaces[5] are actually websites that are designed to look like and act like a native application. Access to it is obtained via a browser on a mobile device. Each platform (Android, iOS, Windows Phone) has its own built-in browser, without the need to download and install additional software on the device. The user starts the browser, enters a URL, and receives assigned functionality.

2.1 Comparison of native and web applications

When designing a mobile interface for the B2B system, a key decision is the choice of creating mobile functionality as native or a mobile web application. The table presented below (Tab. 1) shows the main advantages and disadvantages of both types of applications, taking into account the following criteria: the user interface, production, possibilities, profitability, application versioning, and the method of application delivery.

Table 1. Comparative analysis of native and web applications.

Native application	Web application
The user interface	
If user interface is well designed in terms of the general appearance and way of functioning, the differences are slight. One may design a coherent interface that gives the impression of the same application.	
Production	
Each mobile application start up platform requires its own productive process. If one plans to use the three platforms (Android, iOS and Windows Phone), it is necessary to start three separate projects created in different tools.	It requires a browser in the mobile device. Each system has its own built-in browser, so the mobile web application runs without the need for installing additional tools.
Each mobile application start up platform has its own native programming language Java (Android), Objective-C (iOS), and Visual C ++ (Windows Mobile), etc.	Mobile applications are written in HTML5, CSS3, JavaScript, and languages on the server side or application web frameworks in accordance with the choice of developer (e.g. PHP, ASP.NET, Python).
Unified software development kit (SDK), development tools and main user interface elements (buttons, data input fields) are usually supplied by the creator of the platform.	There are no standard software development kits (SDK), which the developers should use to create a mobile application.
Possibilities	
It may use specific features of the device, and have full access to hardware e.g. to a camera and accelerometer.	It may have an access to a limited number of specific features of a device (orientation, geolocation, media, etc.).
Profitability	
There are mobile advertising platforms such as AdMob. There exist limitations imposed by the manufacturer of a device.	Web applications may bring a profit through ads on a website and charges for subscription.
Intermediaries have the possibility to charge a fee for downloading the app and stores typically are focused on the management of the payment process the in return for a percentage of sales.	Charging the users for using web applications requires to set up their own paywall module or a system based on subscription.
Application versioning	
Some users may choose to ignore updates, which, in turn, causes that different users use a different version of the application.	All users have the same version.
Application delivery method	
Downloaded on mobile device.	Available via web browser on a mobile device.
It is installed and acts as a freestanding application (no web browser is required).	There is no need to install a new software.
The users have to manually download and install applications updates.	Updates are made at the server without the participation of the user.
There are stores and portals that help the users to find an application.	Because of the fact that there is no store with web applications, it may be more difficult to find an application.

3. Analysis and assessment of mobile platforms available on the market

The constant and rapidly growing popularity of mobile devices[6],[7] and mobile systems requires the B2B system to have solutions allowing for easy access to it from such devices. According to the analysis[8] of the sales results of mobile devices and systems when designing mobile interfaces, it is necessary to consider the three most popular platforms: Android, iOS, and Windows Phone.

3.1 Android

Android is Google's open platform available under open source license terms. It has a free version. No certification of this software is required. From the point of view of programming work[9],[10], Android is a well-known and inexpensive tool. Android applications may be written in such operating systems as Windows, Mac OS X, and Linux. The Android operating system is based on Linux version 2.6, which provides support for the lowest layers (basic services), including security, memory, processes, network, and driver management. The higher layer of this system consists of libraries, responsible, among other, things for media (support of audio, video, and images), 2D and 3D graphics (OpenGL), fonts (FreeType), and access to the database (SQLite). The operating environment for applications is the Dalvik virtual machine. The highest layers of the system constitute application framework and the applications themselves.

The browser in the system is the Android Browser. It is inseparable with the system. It is based on the mechanism of tabs, and content search starts from the position of address bar. There is a possibility to view a page in offline mode or surf in a PC browser-compatible mode. Compared to the competitive solutions, this browser lacks a download manager, bookmark manager, and advanced customization options that allow the user to adjust the browser to his own preferences. However, the Android system, because of its openness, allows the user to install on a device any other chosen browser, e.g. Chrome, Firefox, or Opera. The browser uses the WebKit engine, which is an open source project and allows the web browser to render web pages.

3.2 iOS

The user interface in this system is based on the idea of direct manipulation by means of touch. It offers the user a multi-touch technology, which means that the user may use several fingers simultaneously to choose many functions at the same time. Furthermore, it has a built-in accelerometer, allowing automatic detection of the position of the device, and controlling its functions while moving. The interface of the system is fast and responsive. The iOS system[11] provides four layers of abstraction frameworks to which a programmer may refer: *Cocoa Touch* is a library of user interface with the use of a touch screen; *Media* is a library used while accessing 2D and 3D graphics, audio and video files; *Core Services* is a set of core libraries to manage the applications and thread work, network management, database support (SQLite), and others whose activity is not directly visible for the user; and Core OS contains a fundamental operating system interface and the definitions of low-level data types. iOS is a platform for the world's largest collection of applications for mobile devices. The structure of each application has Apple "DNA code." Creating applications is made through the use of an Xcode integrated development environment. In the iOS system, a native browser for each iPhone, iPad, or iPod Touch user is the Safari browser. Its main advantages are the page loading speed, smooth scrolling, and menu navigation. It has a common intelligent search field. It supports basic gestures and allows the user to synchronize bookmarks and display open tabs on other devices that use the same Apple ID.

3.3 Windows Phone

Microsoft Windows Phone[12] is designed for mobile platforms. This system differs significantly from other mobile systems (Apple, Google), because the whole project of the application and operating system has been defined in new Metro design language. Unlike other mobile systems, the startup screen contains a list of icons (*Live Tiles*) that are not divided into pages but are included in a scroll down list. Each *Live Tile* may also contain information about the application. One of the major distinguishing features of Windows Phone is the use of heads-

up displays (HUDs). They are based on providing "a starting point" that allows the user to be curious about what is available next in an application. HUD technology may take the form of projecting information in parts. The screen of a device is like a panoramic window through which the user may see only a part of the application. Going step by step through the screens, it allows him to see particular parts of a large application.

Windows Phone system architecture consists of the following components: Windows Kernel enriched with network security layers and data storage and memory paging, Application Model, User Interface Model, Cloud Integration, and Application (runtime application environment).

Windows Phone screen is divided into three sections through which the user may communicate with his phone: system tray, logical client area, and the application bar. As part of the designed B2B system, the application shall exist primarily in customer logic area. All data and interaction points with the user should be included in it. In the Windows Phone system, Internet Explorer Mobile (IE Mobile) is responsible for the net search. It is a compact browser optimized for devices with small displays that allows 3D effects display and text and graphic elements shading. It has system-accelerated transitions and animations, which are to ensure the smoothness of content display.

4. Mobile Web Browsers

A variety of tools have been implemented to support user interface design and development for several platforms, and a series of applications in diverse domains have been developed to validate the theoretical approach and its supporting tools, including web browsers.[13],[14]

Studies carried out by Gemius[15] have shown that, in a Polish network in 2013, the interest in mobile browsers has grown up 200% compared to 2012. In December 2012 it remained at 4%, while at the end of 2013 it reached the value of 9%. The largest market share belongs to browsers based on the WebKit engine (6% share).

According to Gemius studies, the largest increase in interest, on a yearly basis, belongs to Chrome Mobile. During the year, the share of this browser increased from 0.2% to 1.3%. The growing popularity of Android, which has this browser installed by default, is also of great importance. In contrast, the largest decline was in the use of Nokia Browser. Table 2 shows a review of most popular mobile browsers.

Table 2. A review of most popular mobile browsers.

Web browser	Chrome	Firefox	Opera	Dolphin	Maxthon
Editor	Google	Mozilla	Opera Software	MoboTrap	Maxthon International Limited
Web browser engine	WebKit	Gecko	WebKit	WebKit	WebKit/ Trident
Access to platforms	Android (4.0+), Apple iOS, Linux, Chrome OS, OS X, Windows	Android (4.0+), Apple iOS, Linux, OS X, Windows	Android (4.0+), Apple iOS, Linux, OS X, Windows	Android, Apple iOS	Android (1.6+), Apple iOS

The free Chrome browser[16] has the ability to synchronize settings, favourite websites, and personal bookmarks between devices based on different operating systems. It allows one to save a web page to a mobile phone and browse it on the device in an offline mode. What is more, it offers voice search, text translator, and gesture control. This browser is equipped with an incognito mode, that allows one to browse sites while maintaining privacy and without history saving.

Mozilla Firefox Web browser[17] moves all the benefits of browsing the Internet from a desktop computer to a mobile device. Changes that have been recently made to equipped the browser with a tabs management system, browsing in privacy mode, and the possibility to synchronize and personalize it via add-ons.

The Opera browser[18] is dedicated to the latest devices. It has a built-in Internet file download manager, intelligent scrollbars, and it automatically determines the size of the page. In Opera, emphasis is put on the speed of downloading. This application has an interesting interface. Access to additional features is made by a drop-down

menu in the form of icons. Just like in the Dolphin browser, the user may add a favourite website to bookmarks at the starting screen of the browser.

The Dolphin browser[19] is a free browser with many functions that facilitate the use of the Internet. It provides a very convenient navigation even on devices with small screens. The browser offers a minimalistic appearance and access to functions from a drop down menu. Similarly as in Chrome browser, content search starts right at the moment the user types it into the address bar. The browser makes it possible to search in Amazon, Wikipedia, eBay, YouTube, Facebook, and Twitter. Its user may open a large number of bookmarks at the same time, and control activities using gestures or voice. Dolphin is also the app store.

Maxthon[20] is a fast, secure, and easy-to-use browser. It gains more and more popularity in the market. It allows synchronizing bookmarks to cloud service, has an RSS reader widget, file download manager, and supports gesture control. It also has an advanced bookmark management that provides a maximum possible screen surface availability for data display. A distinguishing feature includes a good degree of personalization possibilities (among other things, Avatars).

5. Technological recommendations for the project

In the decision-making process concerning mobile application development for B2B systems, two possibilities of creating mobile interfaces shall be considered. The decision shall have consequences in terms of using completely different technologies and tools to create mobile interface. As a result of research, two options are recommended:
1. Creating a native mobile application, downloaded and installed on a device, which should have implemented basic functionalities of the platform with the possibility to exchange data with the platform online if Internet connection is provided or offline, e.g., at a specified time interval;
2. Creating appropriate interfaces within the web structure of B2B system that should present the customer key functionalities of the B2B system properly and in a transparent way. Interfaces are created in the form of web pages designed for smaller screens (mobile web application). Due to the limitations of technology, these interfaces can operate only online.
  Before making a final decision on the choice of the method and technology of the mobile interface for the B2B system creation, it is important to discuss the following problems:
- The cost of the project and the cost of its subsequent maintenance;
- Whether the goal of the mobile application creation includes its suitability to all mobile devices or it will be limited only to chosen ones;
- Whether the goal of the mobile application creation includes its suitability to various operating systems or limiting it only to chosen systems;
- Whether the application will require the use of special features or add-ons (e.g. the use of a camera, accelerometer, or flash);
- Whether the application is to operate when there is no Internet access;
- What programming languages are used in the company;
- Assessment of the efficiency and speed of the application.
  Because of the fact that B2B system is made in ASP.NET technology by means of C# language, it is recommended to use the same technologies to create the mobile interface.

Despite the fact that B2B system itself may be launched in browsers on mobile devices, where the screen size and resolution of a typical phone or tablet is small, web interface designed for a typical computer screen becomes unreadable and very uncomfortable to use. Therefore, the project must cover the development of an interface model that would be intuitive and provide quick access to basic functions of the system. Additionally, it should be easy to handle on devices with small screens, smaller than in the case of starting the main B2B system in mobile browsers.

The analysis of OPTeam resources allowed to form a conclusion that it would be inappropriate to recommend the creation of a mobile interface as native applications. It should provide a team skilled in programming languages that support systems described in the 3'rd chapter of the article (Android, iOS and Windows Phone), since each of these systems requires programming in a different language.

Given the above, it is reasonable to create a solution using the same technology that was used to build the basic version of the B2B system (ASP.NET and C# language), because this brings significant savings in the subsequent

development of the platform. The application will be a stand-alone application, independent from the system used, with the ability to be maintained with no Internet access. The use of ASP.NET technology and the creation of a simplified mobile web interface meet all criteria and significantly lower the cost of production compared to native versions for each mobile operating systems. Because of the fact that the project required the division of B2B applications into layers and database layer separation from the graphical user interface, one should use the same design patterns that have been adopted for the construction of the main B2B applications taking into account assumptions concerning mobile version of the system that would be discussed below.

The study shows that it is not necessary to support features that are not available in the B2B system. A sufficient solution is to create in B2B system of appropriate web interfaces for mobile browsers. The main problem with native applications for smartphones is the need to produce the same tool for at least 3 now major platforms: Android, iOS, and Windows Phone.

As presented in previous paragraphs that discuss particular mobile platforms to create such application that will run on 3 different systems, one should use other programming tools, programming languages, and test platforms, which are connected with additional costs. Another argument in favour of the creation of mobile web interfaces in the B2B system is the means of the application distribution. In the case of Android, one is able to install external applications. Creating applications on iOS and Windows Phone is associated with technological difficulties, fees for registration, and the need to publish the application and its certification. Such an application would have to be generally available in stores. Although Windows Phone has tools for software distribution only within a particular company, the process is quite difficult. It may also be assumed that the mobile application should work with the access of a device to the Internet, especially if its main purpose is to view data. Additionally, new the standard for HTML 5, officially published in 2014, allowed taking a closer look at browser solutions and the possibilities of introducing native application support for advanced graphics and media (video) display. Thus, the recommended choice for building the user interface is a web-based mobile application.

6. Technical design recommendations for the project

Because of the fact that the companies to which OPTeam is going to sell its software products already have websites with a well-established brand image, the company should provide a consistent design of its modernized mobile and desktop website version. However, due to the limitations of the mobile version, one should not focus strictly on copying all of the elements of the desktop website version.

The B2B system will be publicly available through websites on devices such as laptop or desktop computers. It is assumed that the mobile version of the system will be used only for viewing data. The small sizes of mobile device screens would make it hard for customers to order goods or fill-in complaint forms. Therefore, such options will be provided only in the basic version of the B2B system. This will simplify the construction of the mobile version made available to customers. If, in the future, customers request a version with the possibility to place orders or make complaints, the project will be extended. The same is with viewing data. It would be always possible to launch the full version of the website on a device with a small screen and use its full functionalities.

While working on the interface model, one should simplify it to the form of a lists of sites based on shallow structure. This is to give users a solution that gives them the possibility to view the data in the most ergonomic way.

When designing an interface to a mobile device, one must consider the resolution of popularly used smartphones. One should take into consideration the following scale of the screen sizes: Desktop computers> 1280px, Tablets 1024 - 768px, and mobile devices 480 - 320px.

7. Design of the mobile web interface to support functionalities of the B2B system

As a result of the research, the basic assumptions and limitations of the mobile interface for the B2B system are defined. It is assumed that due to the small size of smartphones screens will be minimized a graphic design as well as some of the functionalities available in the full version of the website. The interface will be made in ASP.NET technology as a mobile web application being a part of the B2B system, but placed in a separate design catalogue. The mobile version will be based on the following assumptions:

1. Using the ASP.NET and C # programming language.
2. The user interface has to provide an access to the functionality of the desktop B2B system.
3. The mobile interface should support only those functions that retrieve and display data. The desktop B2B system is for the full interaction.
5. A mobile part of the system should support the most commercially available mobile devices.
6. Navigation should be based on the selection list. One should divide a screen in a vertical line. The menu should be based on main form with all modules.
7. Due to limited efficiency of mobile systems, the mobile interface should have a line structure.
8. Tabulated data should be presented in the simplest form.
9. The page should be free of complicated construction and graphics, which slows down the application and data retrieval.
10. Graphics may not be the main medium of information, but only its complement.
11. The mobile application should be a part of the B2B system. This allows to install one version of the system and use only one address and one port of the server. The device recognition displays before the first login. The application itself decides on what kind of a device it will be running properly and redirects requests to the right pages.
12. The mobile pages should be marked prefix 'm_'. For example, a form called 'mydata.aspx' in the mobile version should be marked as 'm_mojedane.aspx'.
13. Each page should contain a fixed template header with a small logo and buttons *Log out* and *Back*.
14. The name of a module should depend on a module where the user currently is located. The *Back* button should take the user to the previous page. The individual modules will correspond to the buttons in the menu form.
15. Menu positions should be arranged vertically one below the other to allow the simplest touch operation. They should be appropriately scaled depending on the device resolution. The menu should always be started first after logging into the system.
16. For the mobile system, it is designed only the interface. From the server point of view, all functionalities and calls remain unchanged and will be supported by the full version of the B2B system.

When designing the mobile version of the B2B system, one should take into consideration a number of limitations:

1. A variety of used equipment;
2. A small screen and various resolutions of devices (smartphone, tablet);
3. Difficult interaction with a device – the lack of a stylus or a mouse;
4. Signs enter from the keyboard is not very comfortable and imprecise;
5. Much lower effectiveness of mobile devices compared to computers;
6. The prototype of the B2B interface to work on mobile systems will be designed for use as a web application.

One should consider a different behavior of the same components (including graphics) in different browsers. Therefore, one should carry out final tests of the application behavior presented in these browsers.

Taking into account the above assumptions and limitations, a design of the mobile interface homepage of the internet B2B system is as follows Table 3, Fig. 1.

Table 3. Elements description of the application main menu.

No	Component name	Purpose	Field type	Editable
1	My data	*My data* form running	Button	No
2	Documents	*Documents* form running	Button	No
3	Payments	*Payments* form running	Button	No
4	Orders	*Orders* form running	Button	No
5	Product catalogue	*Product catalogue* form running	Button	No
6	Not executed orders	*Not executed orders* form running	Button	No
7	Complaints	*Complaints* form running	Button	No
8	Newsletter	*Newsletter* form running	Button	No

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┌─────────────────────────────────────┐
│  ┌─────────────────────────────┐     │
│  │                    Log out   │     │
│  │                              │     │
│  │      COMPANY LOGO            │     │
│  └─────────────────────────────┘     │
│  ┌─────────────────────────────┐     │
│  │                              │     │
│  │                   << Back    │     │
│  └─────────────────────────────┘     │
│  ┌─────────────────────────────┐     │
│  │          My data >>          │     │
│  └─────────────────────────────┘     │
│  ┌─────────────────────────────┐     │
│  │         Documents >>         │     │
│  └─────────────────────────────┘     │
│  ┌─────────────────────────────┐     │
│  │         Payments>>           │     │
│  └─────────────────────────────┘     │
│  ┌─────────────────────────────┐     │
│  │          Orders >>           │     │
│  └─────────────────────────────┘     │
│  ┌─────────────────────────────┐     │
│  │      Product catalogue >>    │     │
│  └─────────────────────────────┘     │
│  ┌─────────────────────────────┐     │
│  │     Not executed orders >>   │     │
│  └─────────────────────────────┘     │
│  ┌─────────────────────────────┐     │
│  │         Complaints >>        │     │
│  └─────────────────────────────┘     │
│  ┌─────────────────────────────┐     │
│  │         Newsletter >>        │     │
│  └─────────────────────────────┘     │
└─────────────────────────────────────┘
```
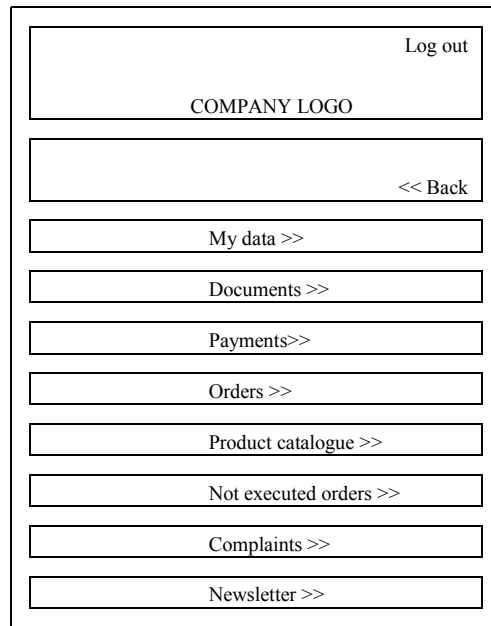
Fig. 1. Application main menu for the B2B system service.

Each subpage will contain a content that characteristics are shown in Table 4.

Table 4. Characteristics of the application components.

No	Component name	Description
1	My data	- Basic data of a login person and a business partner associated with the login user. - A credit limit. - The value of required liabilities.
2	Documents	-List of sales documents of a login partner. It will be limited to data and a date search in comparison with the form displayed in a web platform. If there is a need to create appropriate filters in the future, they can be easily made. Due to the fact that with the assumed width of a screen, the list of documents in a form of a list placed in one record will not be possible, one should put a few controls in one section. - Display of all sections representing each sales document headers. In each section, there will be a button or a link redirecting to the details of the document.
3	Payments	Payments will be equivalent to the payments module of the desktop B2B version. The form will contain basic data to identify the user correlated with the payment document and has data related to its value, date, a form of payment. Documents will be displayed in scrollable sections.
4	Orders	List of orders that a user made in the system. The orders should be stacked in scrollable sections.
5	Product catalogue	The main groups presentation, selection one of the groups and moving the user to sub-groups or to the list of products in the case of direct assignment to products. The list of products will be presented in the form of a section list with the basic data. In the B2B system, the catalogue will be presented in the form of a tree of catalogues.
6	Not executed orders	Data of not executed orders from multiple orders. They will be arranged in a list section.
7	Complaints	Sections list with basic information about complaints and the state of their realization. The section is only for data viewing.
8	Newsletter	Messages presentation pre-defined in the B2B system. It is for loggin users.

Using the responsive form, the B2B system contains too much data to be able to divide them into sections displayed depending on the screen size of a device. It is assumed that due to the reduction of some of the mobile devices functionalities in relation to the main page, a selection of separate mobile interfaces will be more optimal. It allows to respond quickly to needs of future users by developing only a mobile or a main part of the B2B system.

8. Conclusions

The mobility trend in enterprises is entering a more mature phase. It is seen as a business enabler to exceed mangers' and employees' expectations on business productivity and software usability. The main idea of mobile systems seems obvious - any time and wherever the business user is, he can do business processes and has access to real data. Therefore, to ensure the effective communication between a mobile solution and the back-end software is a user interface required.

Mobility as a solution has moved from being a voice-centric to a data-centric solution focusing on smartphones and tablets with access to corporate data, and this is creating a whole new set of challenges for CIOs and IT managers. Taking into account current business needs, mobile solutions are advanced systems that should be equipped with friendly user interfaces connected with desktop systems.

Studies carried out as part of the project have shown that, in the case of the B2B system, the possibility of developing a B2B interface accessible via mobile devices of only one type is ineffective. It is necessary to enable efficient use of the interface operating in a mobile environment. Due to the small physical area of mobile devices, one should treat the application functions as a priority. There is no space for additional unnecessary functions, distracting elements, or secondary options, especially if they make it more difficult for users to quickly complete the basic task in a business process, which sometimes needs to be done in a hurry or at an inconvenient place.

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