

VSoft  
Mobile  
Workforce

Solution  
description



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## VSoft Mobile Workforce

VSoft Mobile Workforce is a Field Service Management (FSM) class tool. This application is dedicated to mobile employees, supporting their daily task done in a field and allowing faster submitting of activity performance reports. For their managers, it is perfect planning and monitoring tool allowing for better field organization of the workforce tasks. The main goal of the solution is to increase the efficiency of field workforce, which is translated into minimising costs for the company.

The basic functionalities of the application include handing down tasks to field employees and current reporting of the activities performed by them. The workforce monitoring function enables verifying their reliability, moreover it affects safety of mobile employees. The application ensures direct access

to updated task-related data, i.e. information about the client and his case, simultaneously ensuring personal data protection and process auditability.

With the VSoft Mobile Workforce it is possible to build a handling of multiple processes, where in each process there is defined a task, its handling and submitting of its results. It is possible to define different types of tasks - sale, enquiry, field visits, credit and insurance inspections, client verification etc. Thus the VSoft Mobile Workforce is dedicated to debt collecting companies, banks, insurance companies, lease companies, telecom operators and mass service providers, i.e. all companies where their employees carry out tasks in the field. The solution can be used by both company's own field workforce and also by outsourced one.

The VSoft Mobile Workforce application is available in English and Polish with the complete user and technical documentation.

### The key business advantages of using the VSoft Mobile Workforce application:



**reduced duration of the whole business process**, thanks to the real time access to all data during the task handling and instant report submitting when the task is completed,



**increased workforce efficiency min. 20%**, owing to the possibility of planning and optimising visit routes and effective task reporting,



**safety and control over workforce**, owing to monitoring their location and the route travelled,



**assured personal data protection** in tasks assigned (data encryption and access control) and full access auditability according to the GDPR regulations,



**minimising company costs**, by settling employee's accounts only based on the visits made and routes travelled.



## Solution description

The VSoft Mobile Workforce solution is based on two elements:



### Mobile application

operating on a mobile device (smartphone, tablet). Using the application, employee downloads assigned tasks, manages daily plan and arranges the routes to travel. For each field task completed, he/she submits a report, i.e. fills out a survey related to a given task and informs about additional activities, e.g. cash acceptance, repayment declaration, acquiring new contact details in the context of the client. Each employee can attach photos to the report and register his/her position. The report is sent immediately to the Administrator Application (the second element of the solution), from which the task has been sent. The mobile application is available to download from Google Play.



### Administrator application (WWW)

operating on the server, is responsible for the solution configuration and communication with mobile device. The user of administrator application can have administrator or/and manager permissions, thus can configure the system and monitor tasks of mobile users ( ordering task, designing surveys (report structures), reviewing reports). It is possible to track current positions and routes travelled of the mobile field workers in the context of each day. The administrators of the system have great options of configuration, thus each employee can see in his/her mobile device only forms and information dedicated to the specific task handled.

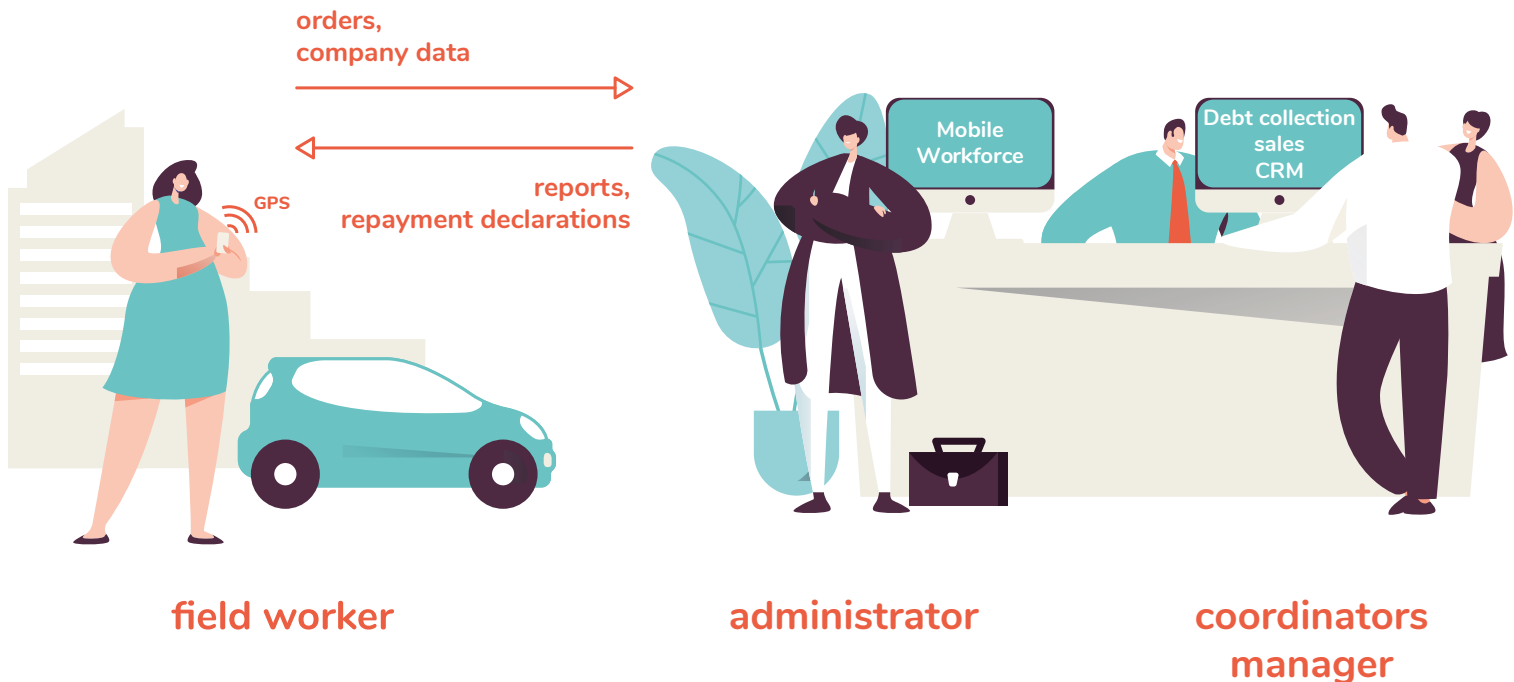


Figure 1. Solution architecture



## Functionalities of Mobile Application

Basic functionalities of VSoft Mobile Workforce supporting a field employee.



### Tasks downloading

The mobile application downloads tasks each time it is started, as well as at a frequency defined by the administrator. However, the user can also synchronize data manually at any time.

As an optional functionality, 'push' notifications about new tasks can be displayed on the phone or tablet.

All tasks receive status depending on the date of service and the degree of task execution - e.g. pending, for which the date has not yet been set, scheduled - i.e. to be completed on a specific day. Completed tasks remain visible on the mobile device for the number of days specified by the administrator.

By default, the application presents a list of all user tasks with option of filtering.



### Field work planning

Tasks defined in the VSoft Mobile Workforce can have the following statuses:

- ▶ **Pending** – tasks without the handling date set.
- ▶ **Scheduled** – tasks with set date of handling.
- ▶ **Overdue** – tasks for which previously set handling date has passed.
- ▶ **In progress** – tasks where the handling process has been started (e.g. task where the user has started filling out of the report).
- ▶ **Completed** – tasks where the execution report has been sent (tasks are being stored in the mobile device for the number of days defined by administrator).

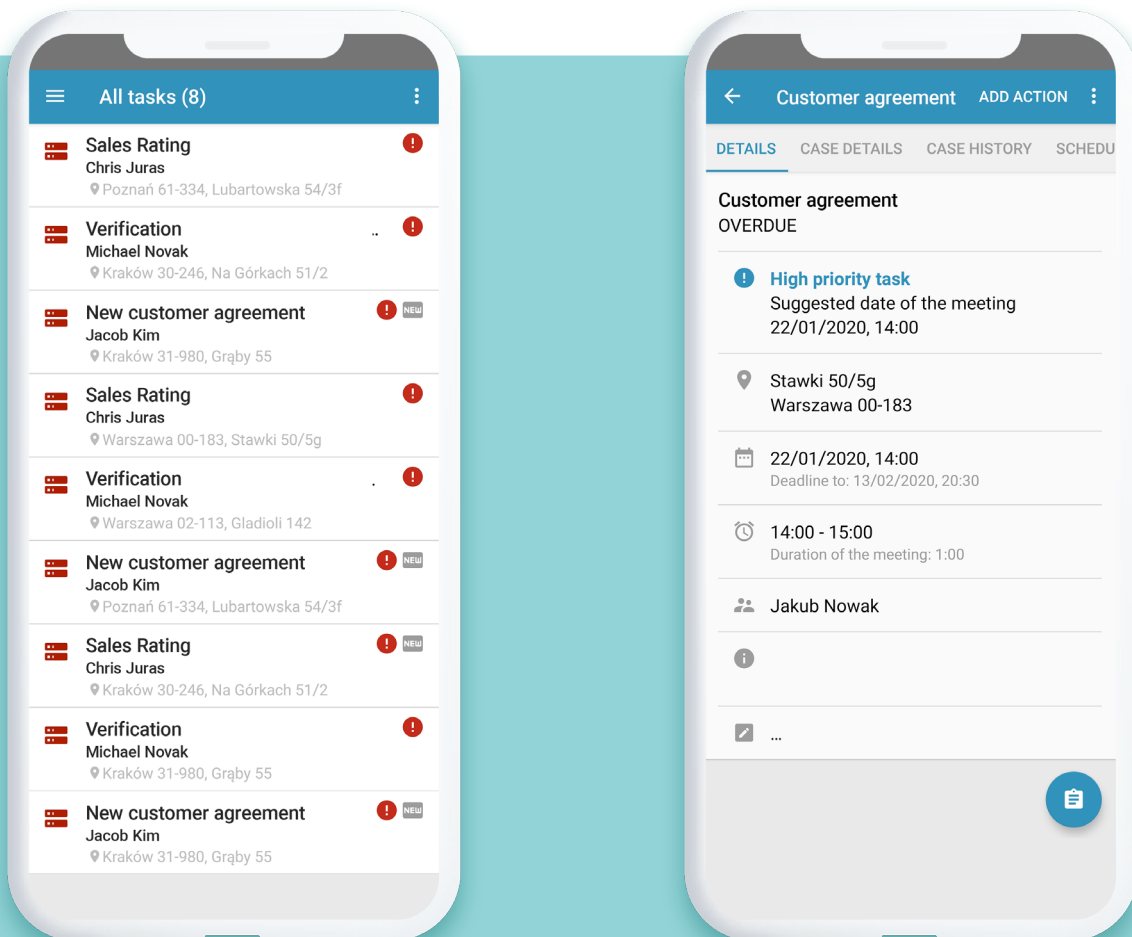


Figure 2. Mobile Workforce – list of tasks and task details

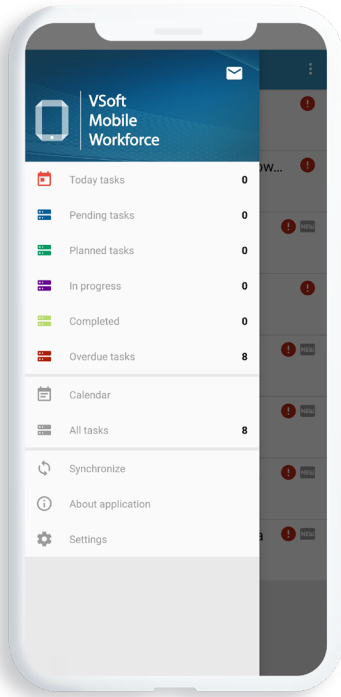


Figure 3a. Mobile Workforce – main menu

Once the tasks to be handled are downloaded, it is possible to define a plan for the specific days.

For tasks with **,pending'** status, mobile worker can set the date and time of their execution or simply reject them. If the downloaded tasks already have an execution date set by the administrator, they receive status **,scheduled'** in the mobile application.

Tasks can be handled from the list of tasks (broken down into scheduled, in progress, today, all, etc.) or by using a calendar or a map with the addresses of the task to handle that are already marked.

**An advanced filter** allows to display all tasks with a specific status or depending on many other parameters.

If necessary (lack of time, new circumstances), a **field employee may reject tasks planned by the manager**, change the execution date or specify further steps of proceeding.

**The calendar** with the tasks of the mobile employee is also available to his manager from the perspective of the administrator application.

**The mobile application user** when handling a task can see all necessary data related to it, broken down into tabs (e.g. the debtor's contact details, current debt balance or repayment schedule). The number and content of tabs is fully configurable by the manager. It is also possible to access the scans of documents related to the task.

**The application has the functionality of an assistant**, which in case of received calls or text messages checks if a sender is not associated with the supported task in Vsoft Mobile Workforce. If the data of the incoming phone call is found, the application user is informed and the assistant proposes to register the appropriate contact action. Similarly, after making a phone call to the client or sending a text message, application via its notifications mechanism will display a message informing about the possibility of saving the contact with the client in VSoft Mobile Workforce.

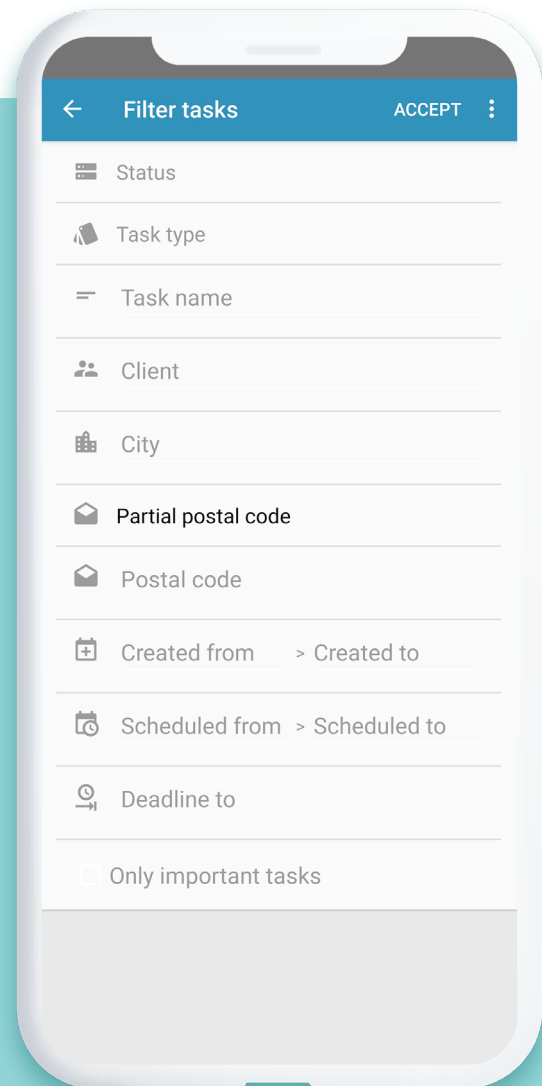


Figure 3b. Mobile Workforce – tasks filter



## Route planning

VSoft Mobile Workforce allows the field employee to download tasks placed on the map as further route points. The employee can also create such a route himself/herself based on the suggested date of completion and the estimated duration of the task.

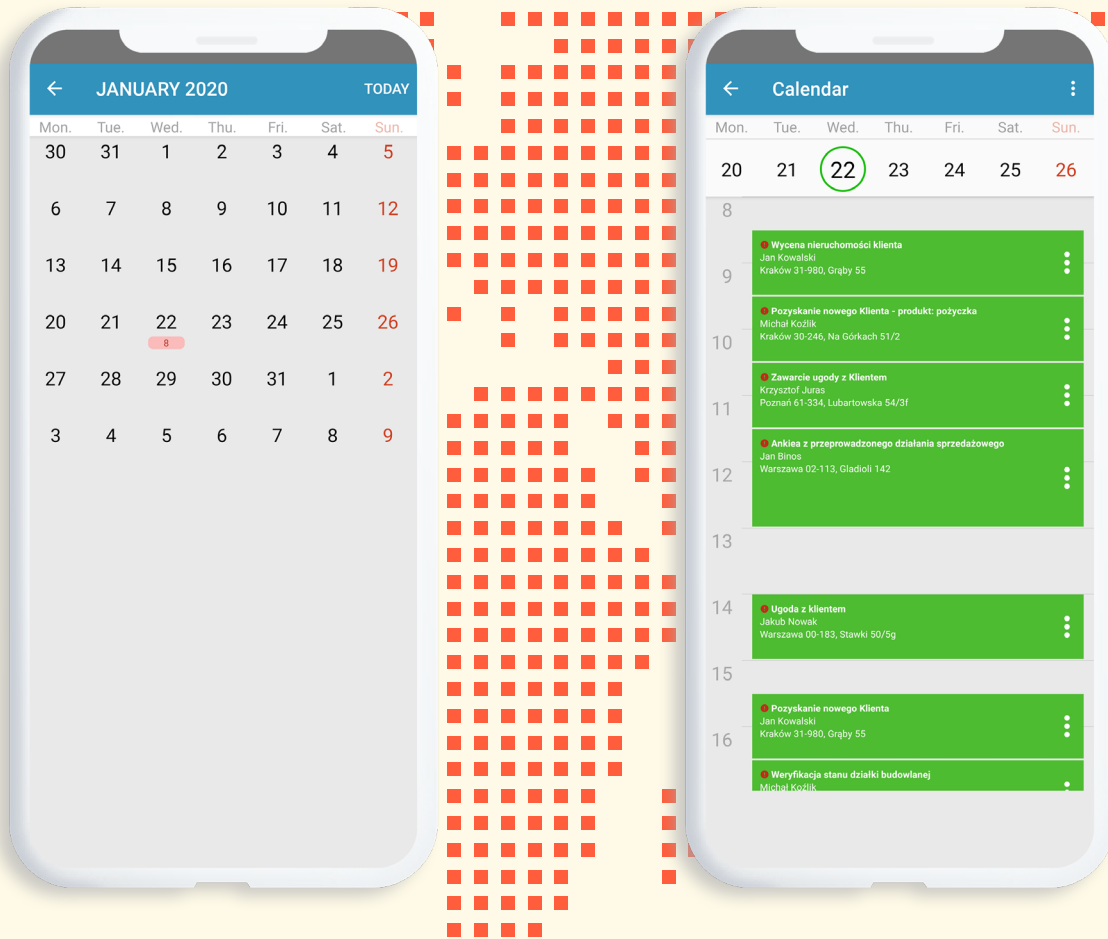


Figure 4. VSoft Mobile Workforce – calendar view (month, day)

Moreover, the employee can plan the handling of ordered task using the functionality of the automatic planning according to the shortest route. The optimization algorithms verifies addresses of all tasks planned for a given day, and then, based on the results, modifies the order of the tasks and present them as a new plan for a given day in the employee's calendar.

Directions to the address assigned to task are provided by navigation installed on the mobile device, which is used by the VSoft Mobile Workforce application. Entering the map mode is possible from many contexts in the application (from the list of tasks, from the calendar or task details).



## Reporting of task performance

Once the task is completed, the application enables reporting of the result by filling out a survey consisting of questions (single-answer, multiple choice, open-ended).

If the task has not yet been completed, it is possible to submit a partial report. Thanks to this functionality, one task can be handled for a longer time and subsequent information to be sent in batches.

It is also possible for a mobile employee not to fill out a survey – he/she can also send a note along with GPS position, date and time.

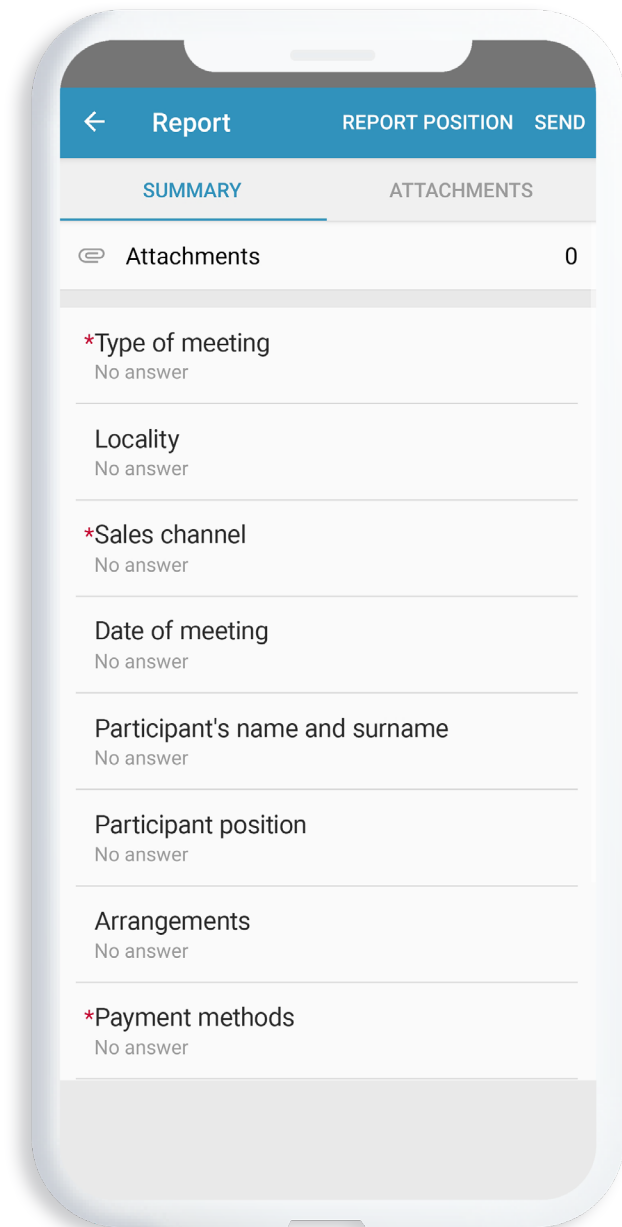


Figure 5. Mobile Workforce – final report screen

All reporting methods can be configured in the administrator application and allow, among others to:

- ▶ **answering questions** (single-answer, multiple choice, open-ended),
- ▶ **attaching photos** and scans to the report,
- ▶ **receiving repayment declarations,**
- ▶ **receiving payment by cash,**
- ▶ **generating the payment schedule** as a way of amicable debt collection proposal,
- ▶ **contact details updating** (modification of the existing ones and adding new ones),
- ▶ reporting **GPS location,**
- ▶ **adding notes** to a task,
- ▶ **voice based text entering** of open-ended questions,
- ▶ **sending to clients e-mails** or text messages with arrangements confirmation.

A task performance report is sent to the **sale, debt-collection, credit** or any other source system, where the tasks were being created and ordered.

**The result of a visit determines further actions.** In case of a repayment declaration, it will be the creation of a repayment declaration and the beginning of the process of its monitoring in the source system. In case of a credit opportunity – initiation of appropriate actions related to loan verification and its granting. Finally, in case of online payment it could be a verification if a bank account was debited. Those actions are defined in the source system.





## Functionalities of the Administrator Application (WWW)

This chapter presents the basic functionalities of VSoft Mobile Workforce available to the administrator and/or manager who monitors the implementation of tasks in the field. These roles can be separated or performed by one person.

### System administration and employees management

The VSoft Mobile Workforce provides extensive business and technical configuration options for the server and mobile application. It allows to change settings for communication between the server and the application as well as communication with external systems.

Thanks to the organization function, it is possible to create parts of the application that are fully separated in the scope of configuration, managing of managers and users as well as reports, thus using one instance of the application it is possible to create many separate units.



With Administrator role in the VSoft Mobile Workforce it is possible to:

- ▶ managing VSoft Mobile Workforce users,
- ▶ setting parameters for communication with field workforce,
- ▶ defining external systems,
- ▶ authorising or blocking mobile devices,
- ▶ configuring and monitoring of the GPS position,
- ▶ monitoring of application operation.



With Manager role in the VSoft Mobile Workforce it is possible to:

- ▶ creating and reviewing tasks for users,
- ▶ receiving reports with insight into GPS position ,
- ▶ reviewing summary statistics (e.g. number of tasks completed or estimated number of kilometres made in the selected period),
- ▶ import tasks form external files,
- ▶ export report data to a file (in order to use it in some external system).



**administrator**

**coordinators  
manager**

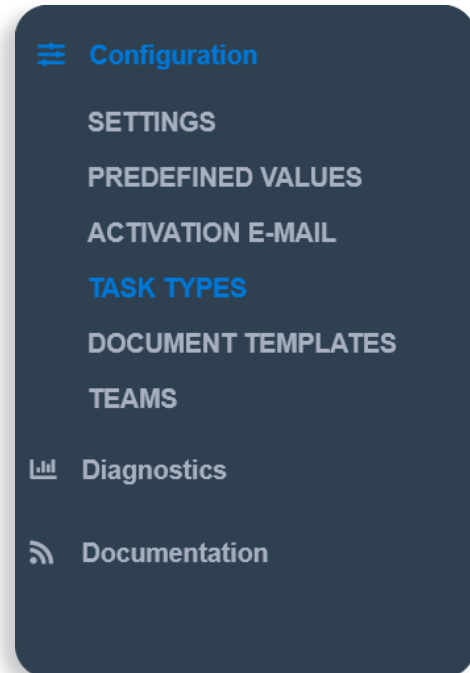


## Configuration of tasks and reports

The **administrator** configures types of tasks, i.e. gives them names and modifies the tabs (screens) that the user sees on a mobile device. **Then the manager** assigns various types of tasks to field employees. Configuration of the task type means changing the number and order of tabs (e.g. task history, repayment schedule, data verification, documents) and its content (one can create any number of screens with any set of information). The administrator can also configure a new task type based on an existing one (copying part or all of it).

**It is possible to create tabs** where data is displayed dynamically by appropriate indication, e.g. special information about a task or a client, task indications in the source system, etc. Tasks assigned to field employees may contain information visible only to the manager (visible only in the administrator application). For each category of task, administrator configures report screens.

Once defining a task, administrator can select the option “Partial reports”, hence a field employee can send partial report and continue handling his/her task with the option of batch reporting.



The **report configuration** enables parameterisation of report appearance and its content in the mobile application, separately for each kind of task.

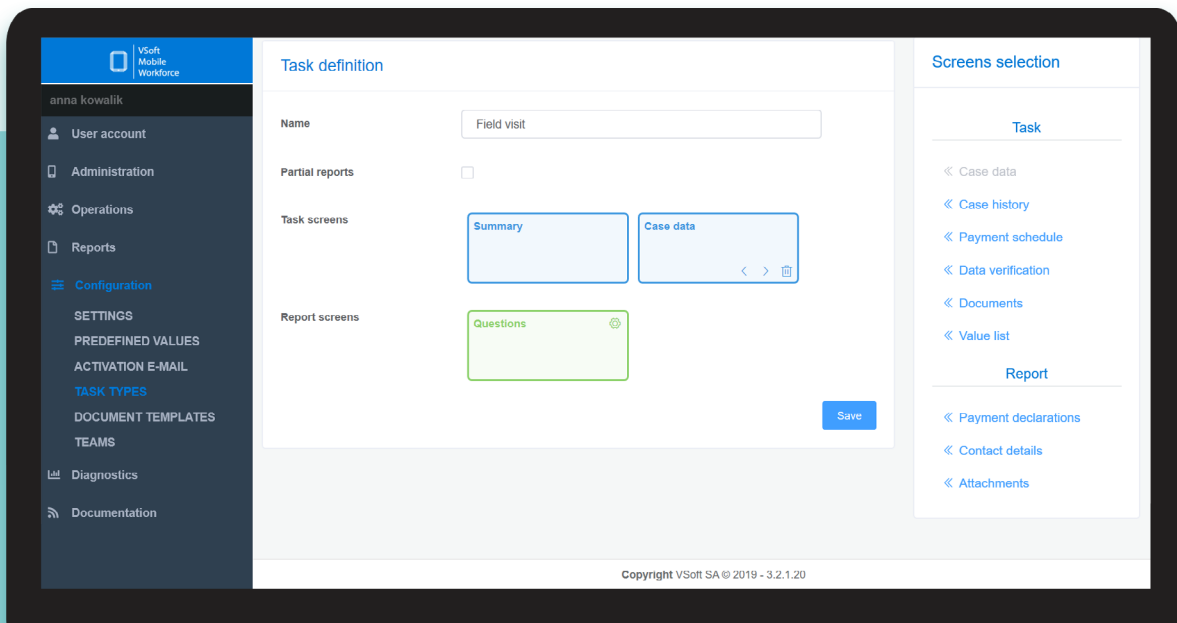


Figure 6. Task configuration – dynamic definition of task tabs and report.



When defining a report it is possible to configure:

- ▶ Content change of the questions in the survey, which the field employee fills in during (partial report) or after completing the task. The survey can contain mandatory or non-mandatory questions, open-ended questions (you can enter any text) and closed-ended questions – single-answer or multiple choice. It is possible to create questions where required answer is a date or a number, as well as grouping questions (depending on the answer given, further questions appear).

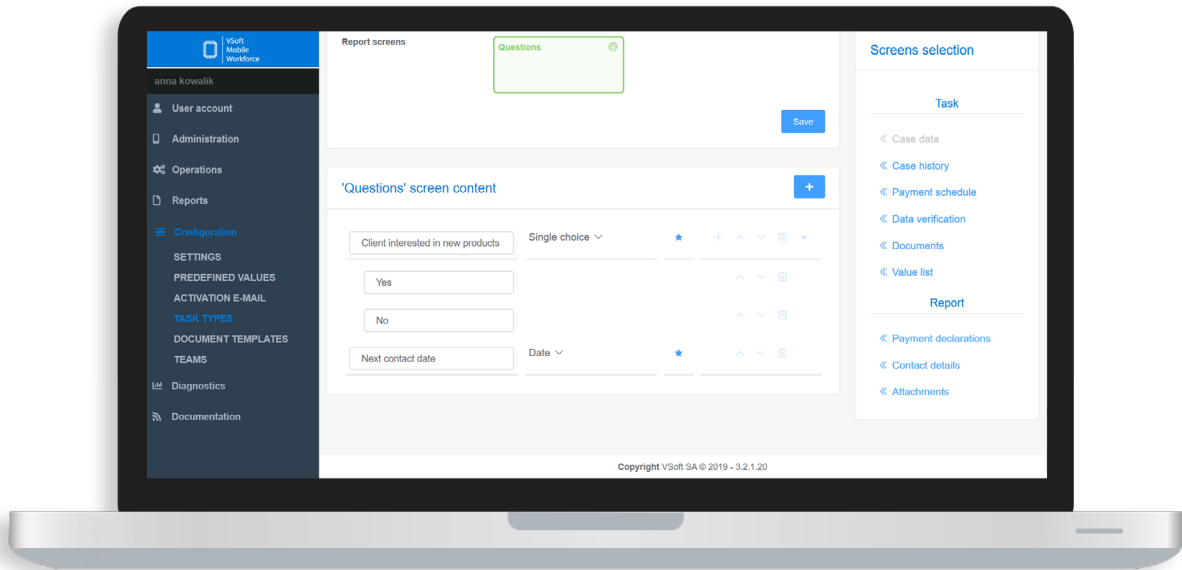


Figure 7. Report configuration – configuration of questions in the report

- ▶ Add different report's tabs that allow to enter other relevant information (repayment declarations, changing or adding new contact details, attachments, photos).

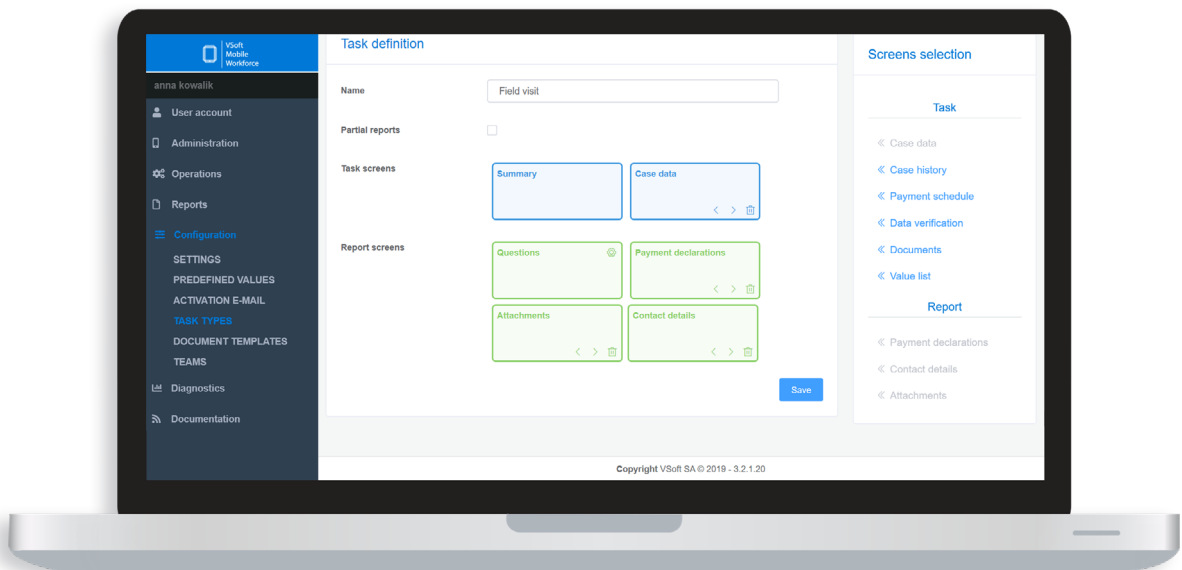


Figure 8. Report configuration - definition of report's tabs visible in the mobile application



## Monitoring of employees' location

The VSoft Mobile Workforce monitors and records an employee location. The application saves the GPS position of the employee, which allows for displaying his/her routes.

It is possible to show the current location of all employees, the route travelled by a single employee and places where report was submitted. All data from GPS monitoring of employee's location can be exported to an Excel or CSV file.



## Management of teams and external systems

One of the functionality offered by the application is possibility to configure it separately for each team – so called **Team Management** – where settings dedicated to a given team take precedence over global settings. Thanks to this functionality with the Mobile Workforce system it is possible to increase the possibilities of regionalization.

**The administrator application** allows to assign mobile users, managers and external systems to a given team. Simultaneously, the manager and the mobile user can belong to many teams.

**External systems** have access to Mobile Workforce via the public API (for more information, see „Integration” section).

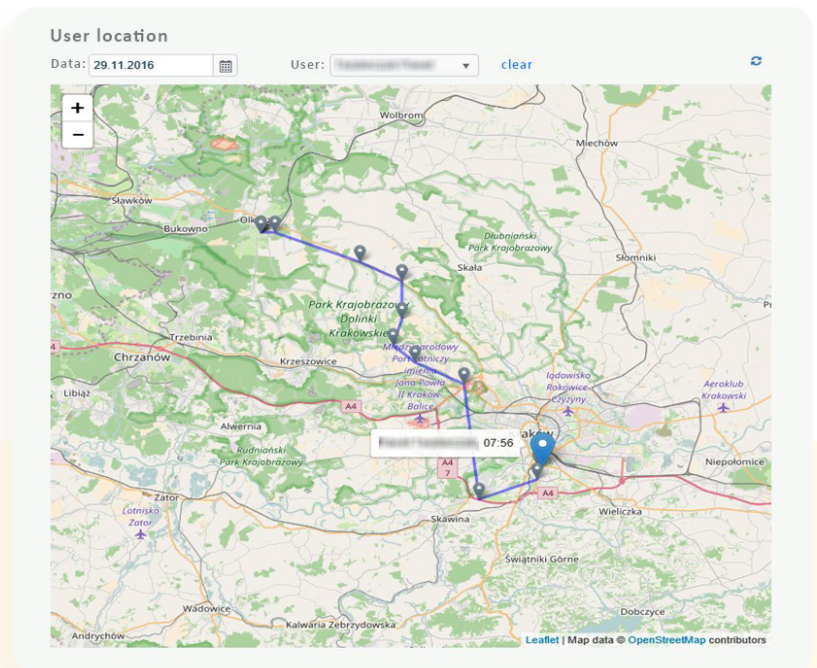


Figure 9. Mobile Workforce – view of a field employee's route



## Text message and e-mail templates

In the administrator application it is possible to define templates for text messages that can be used to define message or generate document to print in the context of mobile application.



## Security

### Device authorization

Communication between the mobile device and the VSoft Mobile Workforce system requires a one-time device authentication process that confirms that the device is trusted.

### Secure communication

Data exchange between the mobile device and the server is done by a secure SSL channel.

### PIN code protection

The access to the mobile application on a device requires entering the PIN code. On the other hand, the PIN code can also be required when sending a report for completed task. It is possible to configure the application for verifying the PIN code on the server side.

### User logging

The administrator application supports the WebAuthn (Web Authentication API) standard approved by W3C, which allows to log in using authentication devices (e.g. USB keys using biometric data or PIN access for user verification). Logging in is done without entering the username and password. With the VSoft Mobile Workforce it is also possible to use the authentication devices as a strong second login component in case the login is done with a password. The application also supports logging in using ActiveDirectory accounts and the OAuth 2 protocol in the public API.

### Data encryption

All task data stored in a mobile device is encrypted using the Advanced Encryption Standard (AES-256) which is used e.g. by the NSA to protect confidential information. The system also supports the digital signature for e-mails sent.

### Auditability

In the registry of the application there are saved all events in its context, device authorization and communication between the mobile device and a server.

## Data storage

A business administrator and an application user can delete all data stored on the mobile device and download it again. The data associated with the task is automatically deleted after it is completed (based on the configured parameter concerning the storage period) and the report is submitted.

## Security standard

The WEB layer of the application has been secured in accordance with the OWASP security standard (Open Web Application Security Project) in the category ASVS number 4, level 2. The mobile application has been adapted to the mASVS category number 1, level 2.

## Personal Data Protection

The VSoft Mobile Workforce meets the requirements of the General Data Protection Regulation (GDPR) in accordance with the following assumptions

- ▶ Users have access to the application only after rights are correctly authenticated and verified (art. 32, recital 83). Appropriate information resulting from the processing of personal data is logged in. All users with appropriate rights have access to logged data (Article 5, Article 32, Recital 83).
- ▶ Connections, data transfers or the exchange of other information with application components are encrypted using SSL (Article 32, Recital 83).
- ▶ Personal data has a defined processing period, taking into account the relationships between them, after which it is deleted or anonymized (Article 5, Article 17). For this purpose, anonymization mechanism is available from the level of WWW application and web services.
- ▶ The application supports performing anonymization of data after restoring the backup, ensuring an appropriate implementation procedure and access to the anonymizing mechanism (Article 4 point 5, Article 25, Article 32 points 1 and 2; Recitals 26, 28, 29).
- ▶ The implementation procedure supports the maintenance of the effectiveness of technical and organizational means, which allows for security of personal data.



## Integration

The integration of the VSoft Mobile Workforce with external task ordering systems is done via the API in a form of Web services provided as JSON REST API.

In case of integration with a .NET-based system, it is possible to use a ready-made library which provides a client for calling VSoft Mobile Workforce and includes definitions of the interfaces to be implemented in order to receive notifications. The solution documentation also includes an example of integration with the system via node.js.

The VSoft Mobile Workforce allows to exchange data (ordering tasks, downloading task performance reports) with external systems via xslx (Excel) files or a set of csv files.



## Global access

The solution supports the usage of the mobile application and the server part in different time zones. The mobile application is available in several language versions - Polish, English and Ukrainian. The administrator application (WWW) is available in Polish and English. The whole solution supports multi-currency as well as adding and storing data in various languages. Technical and user documentation is available in Polish and English.



**Additional information about  
Mobile Workforce**



## Technical requirements

### Hardware requirements for mobile devices

Android system from version 5.0 or iOS system from version 11, GPS module, camera, display with a diagonal min. 4.7 inches, the minimum memory required for application installation - 20 MB, data storage - 10 MB, attachments and photos - depending on the number of photos taken, min. 0.3 GB.

### Hardware requirements for the server part

A single server or virtual machine with the following parameters: CPU 4 cores, 8GB RAM, 30 GB disk space for system data, application and its data.

### Server part of the system platform

The server application runs on the Windows platform (MS Windows Server 2019) or on the Linux platform (Debian, centOS). The VSoft Mobile Workforce uses the MS SQL Server 2016 Express Edition (free version) or PostgreSQL (version 11) database.

### System platform of the mobile device

The mobile application works on the Android platform from version 5.0 and iOS platform from version 11.

### Maps

The VSoft Mobile Workforce uses the cartographic data of the free OpenStreetMap.org database (OSM) available under the terms of the Open Database License (ODbL). The application can also work with paid HERE Maps.

### Battery consumption

Assuming normal work intensity on the Mobile Workforce application (completing about 20 tasks per day) and registering the GPS position on the device every 5 minutes, the phone's battery power consumption is about 18% during the whole working day.



**E-mail contact:** [mobileworkforce@vsoft.pl](mailto:mobileworkforce@vsoft.pl)



**Product website:** [www.vsoftmobileworkforce.com](http://www.vsoftmobileworkforce.com)