



Resco Roadmap

for 2018 & beyond

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Mission Statement

Resco's goal, to put it simply – is to provide the ultimate tools for mobile businesses and their processes. An excellent, easy-to-use, visually appealing and full-featured tools for salespeople, service technicians, or anyone on the go. Boosting productivity and increasing the effectivity of your overall business.

In the following years, we will focus on the business **processes**. What are the needs and requirements of a **sales** organization that relies heavily on the mobile workforce? What are the tools of a successful **field service** operation? How are effective mobile **inspections** made? How to define efficient schedules and **route plans**? What are the ideal channels to utilize the interactions of **residents** of a city? We would like to help you answer these questions with the expertise and experience we have gathered throughout the years.

To help us achieve this goal, we are going to rely on our **Resco Cloud platform**. It is the root of all products in Resco's offering, providing the unparalleled mobile application. Document integrations and mobile reports, maps with route planning and advanced scheduling, air tight security and close integration with Dynamics 365 and Salesforce are all part of this feature packed framework for creating business applications.

Even though we firmly believe in our goal, please note that this roadmap might be subject to change. There are two main reasons why. The first is the ever-changing and fast-evolving mobile landscape. This forces Resco to constantly reconsider plans, to adjust and adapt to new technologies, operating systems, and challenges of mobile ecosystems. The second and most important reason is the input we gather from our partners and customers. These individuals and parties see valuable trends day-by-day, whether from their clients and outside sources. They submit requests, provide suggestions of new features, and hence, affect the prioritization of tasks. We listen to and value our customers/partners deeply — they push us forward and for that, we are very grateful.

Our Promise

One of the most important aspects of Resco's mobile app is the ability to provide the same feature set across all major mobile platforms. This way you can focus on the business needs and not on platform specifics and mobile development.

Therefore, we are always on the lookout for the latest advancements in technology, operating systems and mobile devices. We want and need to have these covered before you even realize you need them. So be it the latest iPad, new Android phone, completely new mobile platform, or a new IoT device, we will be working diligently to have our app readily available on all platforms, as soon as possible. Therefore, you can count on Resco that whatever new and latest technology you adopt, we will be there. That is our promise.

Roadmap for 2018



1. Platform

Resco's technology evolved from Mobile CRM (mobile solution for Dynamics 365/CRM) to a complex platform – Resco Cloud, covering different business processes ranging from Mobile Sales and Field Service to Inspections, Route Planning and other. The following section describes improvements to the platform on which all other products are based on, focusing on the platform in general as well as individual platform components.

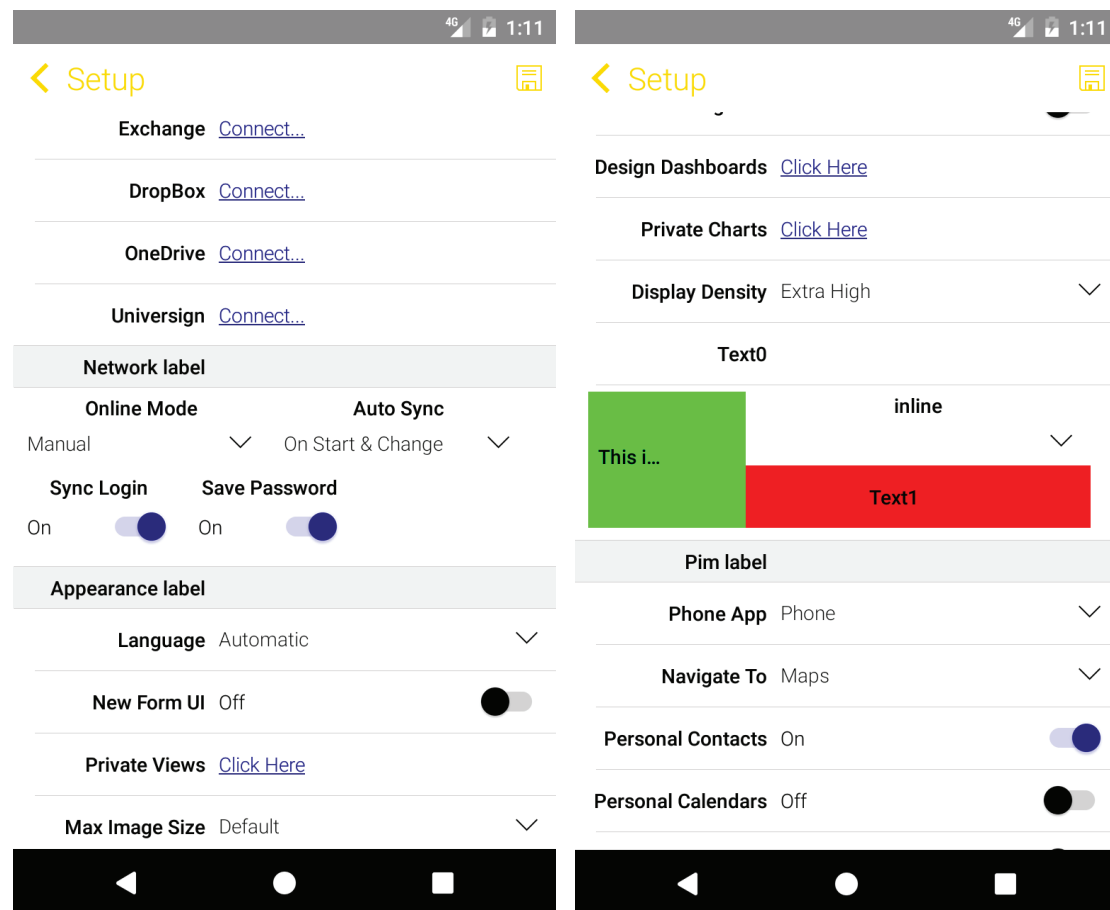
1.1. Mobile Application

Mobility is the core of Resco's business – all the processes that we address with corresponding products are based on mobility and people in the field, out of office. Therefore, the mobile application is at the center of what we do.

1.1.1. User Interface

In the forefront of our forthcoming updates is the User Interface. An important part of the overall mobile experience and crucial element for first impressions, it will receive a 'facelift' including a fresh set of icons and new visual themes incorporated to the default project. More so, this part of the application will experience a major shift in the overall philosophy. The goal is to **untangle metadata and user interface** dependencies, so that the visual elements (forms, fields on forms) does not have to represent a metadata item (entity, entity fields), but can be used independently.

The building blocks of this shift might be subtle, but significant. The overall flexibility of the design will be improved by the ability to **layout form elements in a grid**. This way, the designer would not be limited to the linear design of items and the fixed position of controls, but could position them on a grid (representing the form) in an almost arbitrary manner. For example, on the entity form multiple items (fields) can be present in one line/row or one item can span multiple columns.



Developer preview of items in grids

Also, the application's navigation will receive a flexibility enhancement with a dedicated **navigation toolbar** and the option to hide and show the **home form as a pop-up** – which is a standard in mobile applications these days. Even further extending flexibility, custom navigation can be provided as Iframe displayed on top of lists or as part of the title bar, always visible to the user. More control over the navigation will be administered by the option to **define the position of panels** (so admins will be able to define in which panel – left, middle, or the right, will the form or view should be displayed). Also, to provide an advanced structure to the navigation process, a **tree view** component will be introduced.

1.1.2. Forms

The application's forms are instrumental to dividing UI elements and metadata. We are going to implement **multiple forms for one entity** and mechanisms which will determine when to use which form. This means, that for a single entity (e.g. Account) it would be possible to define multiple visual layouts (entity forms) and rules that would select the corresponding form to the situation, additionally pre-filling values into certain fields. On top of that, we have already started creating **entity-less forms** (for our Questionnaires), these are forms not bound to any entity. Also, we are going to expose this for general use later, this year.

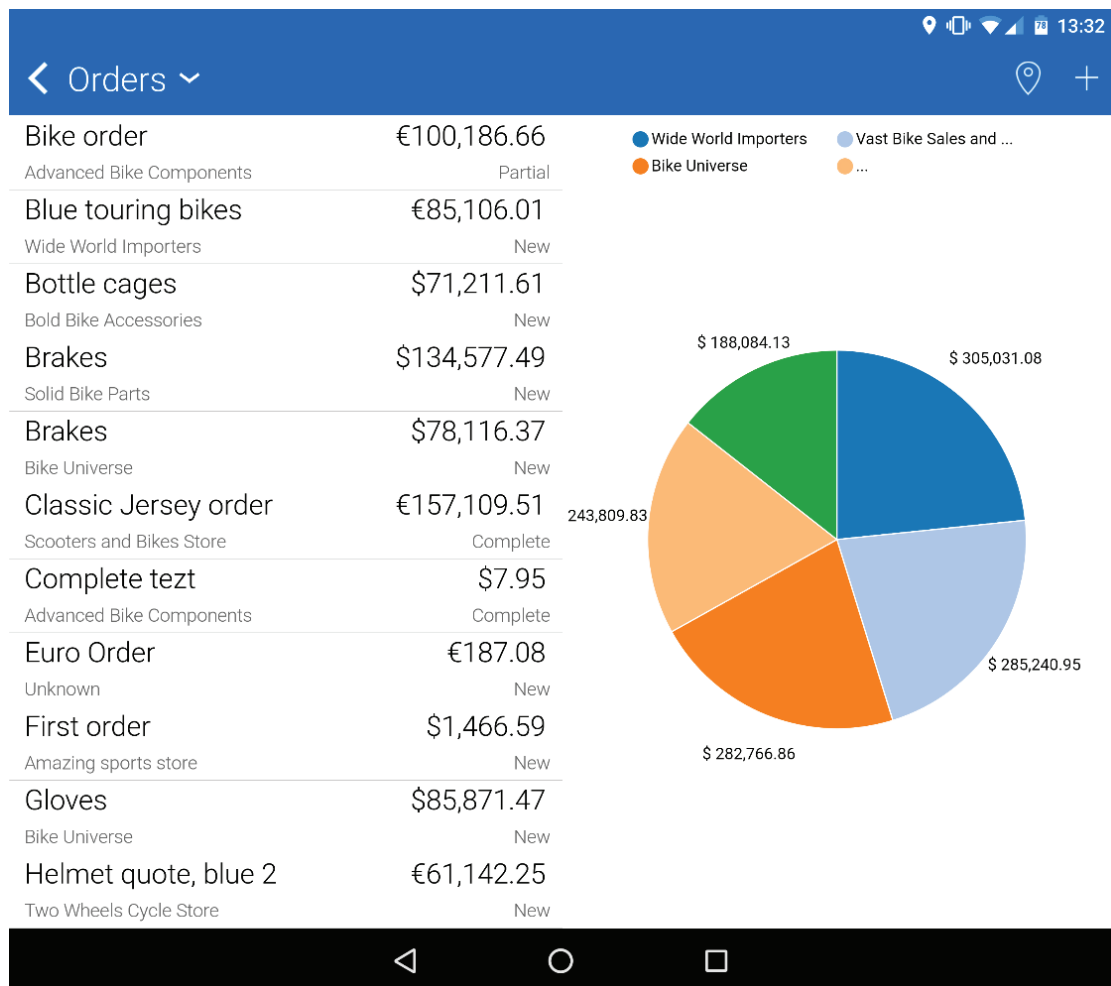
Of course, this will require improved management of the **multiple opened forms** and the ability to specify if the user should be **prompted to close an existing one before opening a new form**. Improvements in terms of new **item types** (e.g. image item with the ability to take or select a picture) and extended design options are planned as well.

1.1.3. Lists

Editable lists greatly improve the user experience; however, the administration experience lacks an easier set up of **validation rules**, with the option to **share the same rules** on forms and view. Currently, when an email field is exposed on a list/view as an editable cell, the validation if it is in fact an email can be done only via JavaScript – and if the same field is also present on a form, this logic must be provided twice. Our goal is to get rid of this redundancy and the need to use JavaScript.

Similarly, while the option to define the data portion of the view via JavaScript is impressively powerful, the ability to provide a visual addition to the view (**Iframe as view header**) is missing.

The usability in the analytics scenarios will be extended by the possibility to **display lists and charts side by side** to provide quick insight into which records constitute which portions of charts. This can be extremely useful in analyzing geographical relationships within data such as, the division of orders based on their locations.



Mockup of list and chart component

1.1.4. Charts

To visualize different data sets on one chart we are going to introduce “**chart-hubs**”, so data coming from multiple sources can be analyzed and compared. This means data coming from different entities or data filtered by different conditions (e.g. this year vs. previous year performance) can be displayed overlapped on one chart.

Multiple group-by should also improve usability as should **loading data trough JavaScript** – so if you can’t capture or calculate the data using standard tools and filters, you have virtually no limits using the JavaScript and custom fetches.

1.1.5. Synchronization

The backbone of offline functionality is synchronization – the ever evolving and ever improving part of our mobile app that handles download and upload of modified data, documents or new customization packages. Division of synchronization into **independent blocks** (data, documents, and customization) is our top priority for the coming months. This separation will be the basis of further enhancements

– it will allow **remote triggers** for each of those blocks (selectively choose if only customization synchronization or data synchronization should happen) and it will be possible to move **more synchronization parts to background** (e.g. data synchronization in foreground but document synchronization in the background, or document synchronization only on demand).

The document synchronization in general is expecting enhancements. The most important goal is to revisit the **document management and mapping**. We would like to redefine the way how a document structure in the cloud (SharePoint, Google Drive, Dropbox, One Drive ...) is mapped and associated to entities. The current approach expecting a certain folder structure on the cloud is simply not flexible enough, so we are preparing tools that would allow custom mappings and different structures to be defined. Additionally, the **document synchronization filters** are going to be extended, so more precise filters could be used on these large data blocks (e.g. download documents only for records with a certain status).

Finally, we understand that the task of supporting and troubleshooting the synchronization problems is a challenging one. Therefore, we've started adding **richer details** into the synchronization logs and started working on the mechanism, which would send the **logs directly to the server** as records during the standard synchronization (and not on demand by user action). This should significantly simplify the process of identifying the issue, since all the necessary information will be already present on the server.

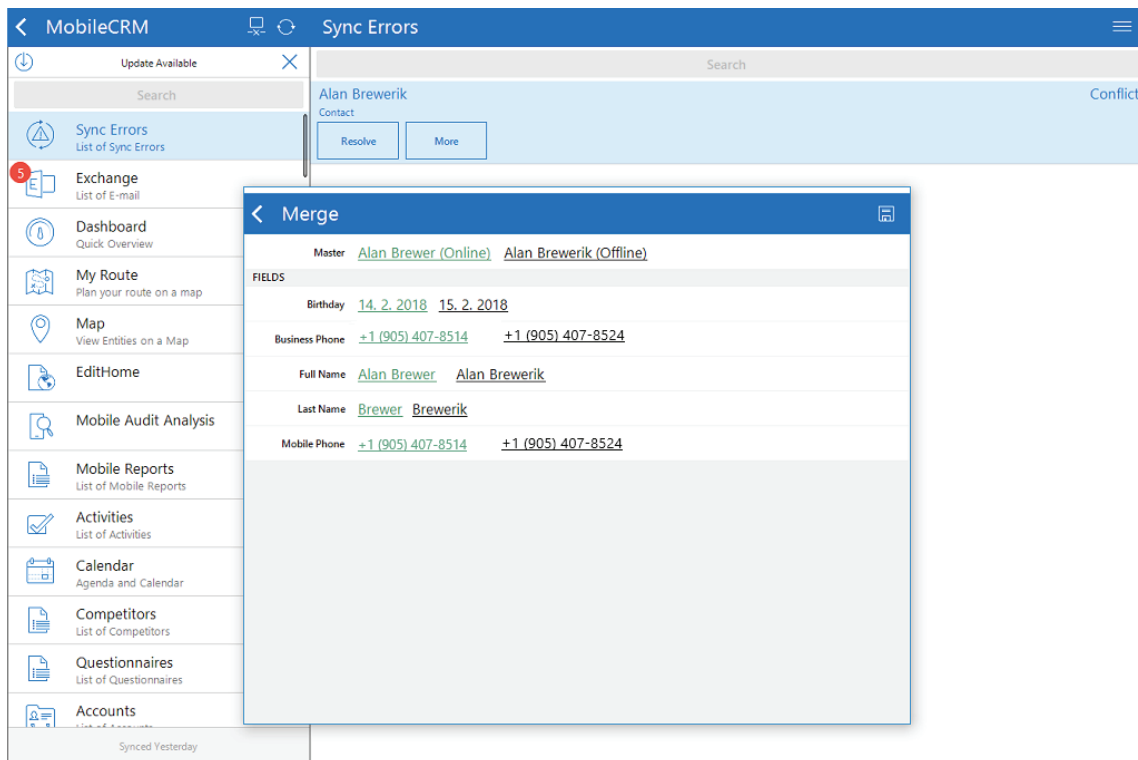
1.1.6. Miscellaneous

Interesting area of mobile ecosystems are **Push Notifications** - the ability to send notifications to a certain application, managed by the system. These notifications can be captured and processed by the application – if it is running, or are displayed by the system and stored in the notification section if the app is not started.

This notification mechanism is already utilized in our mobile app by the Resco Chat, but a separate mechanism for sending Push Notifications to Resco's mobile apps without the need to create Chat messages is in the works. This includes the server-side workflows for producing such messages as well as rules to define the business logic up to custom buttons on the notifications with a JavaScript API to capture them in the app. So, notifying users that a certain invoice is due or that an expense needs approval should be greatly simplified.

Part of the user experience even for the mobile app is data management, with **merging records and de-duplication** as part of the standard process. For this, we'll prepare a new user interface that we're going to reuse for **synchronization conflict**

merge resolution as well, to provide field level control over the merged record. In both cases, the user will be presented with the list full of fields from two or more records (records to merge). Then, the user will be able to select which value for every field will be saved into the merged record.



Developer preview of merging records

There is also part of the application which is private in the sense that it is the 'customization' of the app made by the user and not the administrator. Now, these modifications – like favorite records, user's charts or dashboards are accessible only on one device (the one where they have been created/defined). Our plan is to offer storing these **settings on the server** as well, so they could be easily migrated between devices and managed or prepared in advance.

Entity Hubs offer combining multiple views for different entities into one view (hub), but the use is limited to the lists accessible via Home Form. This feature would benefit from availability throughout the app - as associated lists on forms on dashboard and elsewhere – so full integration is planned. This way you can have a combined view of orders, opportunities and invoices associated to an account easily available.

It is not only in Field Service scenarios where we see the requirement to have a **check-in and check-out** option with a timer informing the user about the elapsed time spent on a job and the ability to control this via additional device e.g. a smart watch. It is quite common that users in mobile scenarios need to mark the start and end of their visits (which initiates processes in the background) and to see the time they spent on-site. Therefore, this component will be included in our next releases.

The mockup shows a mobile application interface for a 'Regular Visit @ Medissi...'. At the top, there's a status bar with 'Orange' carrier, signal strength, Wi-Fi, time '10:52', and 91% battery. Below the status bar is a navigation bar with a back arrow, the title 'Regular Visit @ Medissi...', and a menu icon. A toolbar below the navigation bar contains icons for 'Event', 'Check-In', 'Survey', 'Files', 'Signature', and 'VisitRep'. The main content area is divided into three sections: 'Survey' with three questions (Question 1: Yes, Question 2: No, Question 3: Yes), 'Files' showing a grid of two images (img_170919_162011@2x.jpg and obr1.jpg) with red circles highlighting specific features, and 'Signature' with a red circle icon and a 'Clear' button.

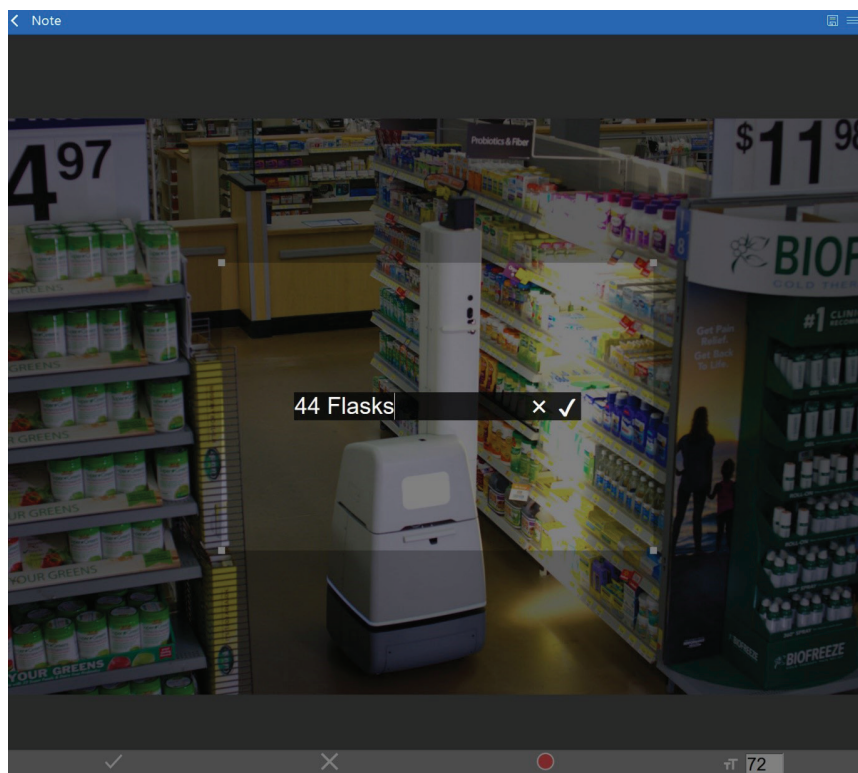
Mockup of Checkin / Checkout

1.2. Documents

Documents – whether in the form of photos, images or schemas, text documents, presentations, and PDFs – they are an integral part of mobile business processes. Due to being special in nature, they receive special treatment: dedicated synchronization mechanism, separate storage handling, and a tailor-made visual representation.

In line with the idea outlined in the Synchronization chapter, the main bulk of work regarding document synchronization is to provide better management of cloud document locations and the mapping of folder structures to the entity structure. This means, creating a custom Resco mechanism for defining the relationship entity-folder. Now, this does not have to necessarily be linear (e.g. multiple entities might have linked the same cloud folder) or follow the same guideline as in current implementation. The goal here is to provide a way of mapping the existing cloud document structure to entities without the need of creating new folders.

More tangibly, we have recently added an option to edit images directly in the application. This includes basic image manipulation like a crop or flip as well as the ability to draw lines, but we are planning to allow text edit (**text overlay**) on the image. This can be combined with more business oriented features like required **annotations**, so that information that needs to be associated with certain parts of the picture (e.g. shelf inspection that require associating product count to products on the picture) can be easily added.



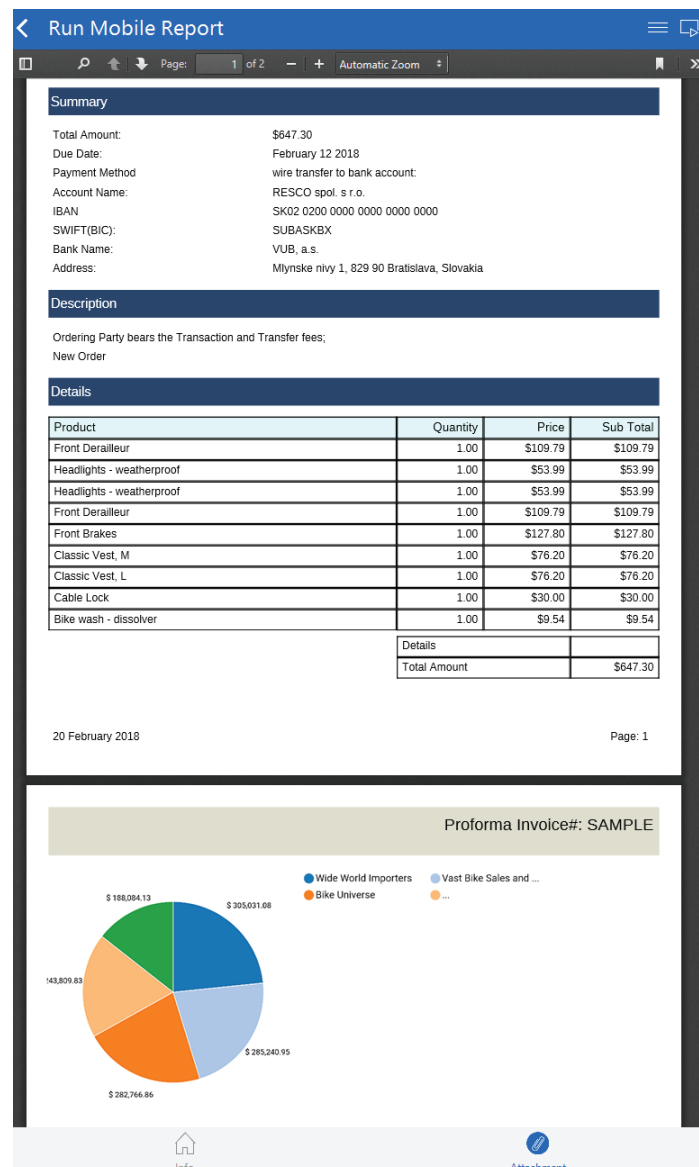
Developer preview of text overlay

Images generally represent a valuable data set, especially when combined with advances in the field of artificial intelligence. The already existing database of pictures of products, assets or machines can be used in conjunction with **image recognition** to identify the object captured in the photo. This can be then used in lookup fields to select the corresponding record (product, asset...) by taking a picture and/or to start the whole process by it. Utilizing Azure Machine Learning should provide a convenient technological basis to build this feature on.

1.3. Reports

Mobile Reports and the ability to generate documents locally on the mobile device without any connectivity greatly complements the rest of the offline Resco functionality. Thus far, the focus was on the report as a review document – to present the CRM data (for example a visit questionnaire) in a comprehensive and visual way that could be (e .g. shown to the customer for approval). And some situations will benefit from the ability to add **QR codes or barcodes** to these reports.

However, for 2018, the main objective is to work on the reporting aspect – reports as tools to analyze and aggregate the data, for which we'll add an easy way to include **charts and calculations** into these documents. This might also require **business rules** to be incorporated to show or hide elements conditionally or perform parts of the calculations. A challenging part will be our attempt to offer a **legally binding signature**, either in our own app or using 3rd party solutions like DocuSign.



Mockup of charts in reports

1.4. Security

Mobile device and application security is a topic of great importance in the recent years – companies seem to invest a great deal of money and resources into this area of security as mobile devices are ubiquitous and integrated into the workflow of many organizations.

Mobile Application Security is a priority for Resco as well. That is why we have an on-going process of **integration with the main Mobile Device Management** vendors (Mobile Iron, AirWatch ...) to incorporate the state of the art security features into our mobile app.

Security starts with the source code, and we have started the process of **app certification** with a 3rd party certification authority to ensure the app is 'safe from the inside' and there aren't any loopholes that would enable unintended access to sensitive data.

OAuth authentication protocol is already fully utilized in our application, but extending it to external users so they can also benefit from safe multi-factor authentication is also on our to-do list.

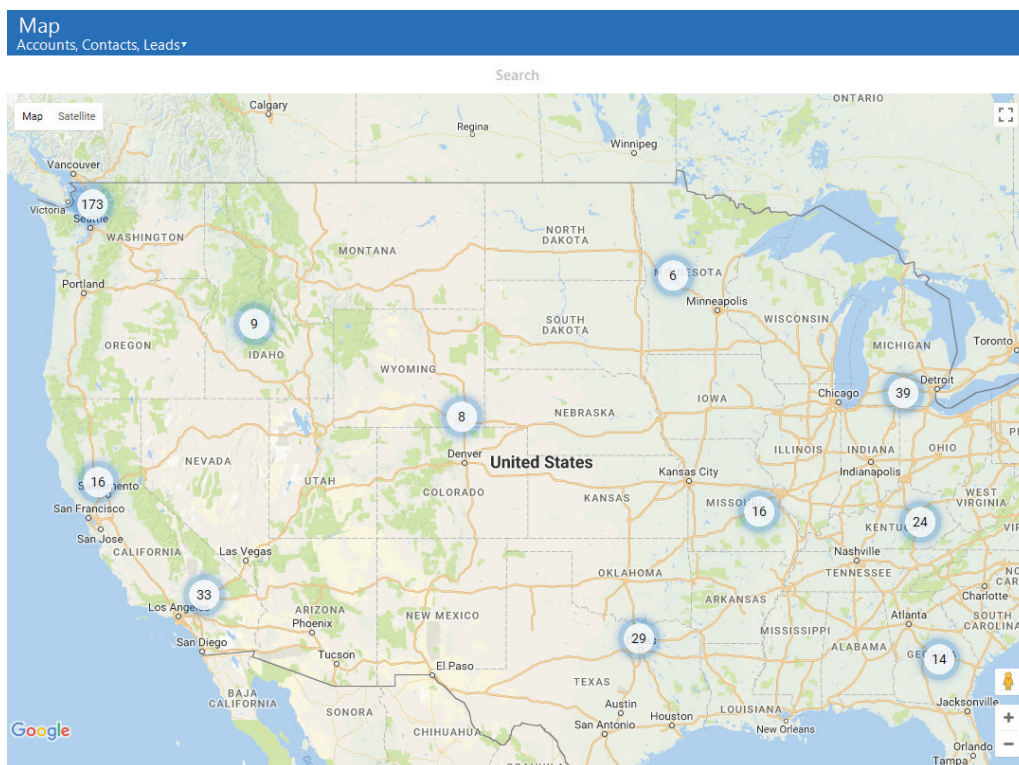
Sometimes, security is achieved with a custom application. Today's technology offers a means to build such custom applications remotely and automatically – without the need to manually run the build process by a developer. That is why one of the points for the near future is a **Self-Service Portal** – a web-based tool for wrapping, branding, and generating custom applications out of our standard app with custom branding and features.

1.5. Maps

Maps are essential for effective mobile operations - the ability to outline records on the map based on geographic information present in records is a stand out feature of the Resco Mobile client as it provides immediate value to the mobile workforce.

From a technological perspective, there are different map providers offering (more or less) different sets of functionalities/APIs and maps of a similar perspective. Recently, it seems that Google Maps gained a slight advantage in terms of APIs and map quality in most regions. To unify the map experience on all mobile devices we are going to offer **Google Maps everywhere**, with the possibility to draw **overlays** on top, alongside the platform specific implementation of maps (e.g. Apple Maps on iOS or Bing Maps on Windows), which we currently have. Google is also our provider of choice for server-side map components detailed in chapter Route Plans.

The effective use of maps doesn't rely only on the provider. If the map is displaying significant amount of data (thousands of records), it might become cluttered and won't offer much insight. To tackle this problem, we are incorporating **different levels of zoom** which would offer combined pins (multiple records combined into one pin with a number indicating how many records are 'hidden behind' that pin) segmenting the data in a meaningful way. Another useful representation is a **heatmap**, which plots data on a continuous scale rather than showing discrete map pins. Additionally, a **legend** on the map can provide necessary explanation to different types of pins (pin icons), especially if there is larger amount used.

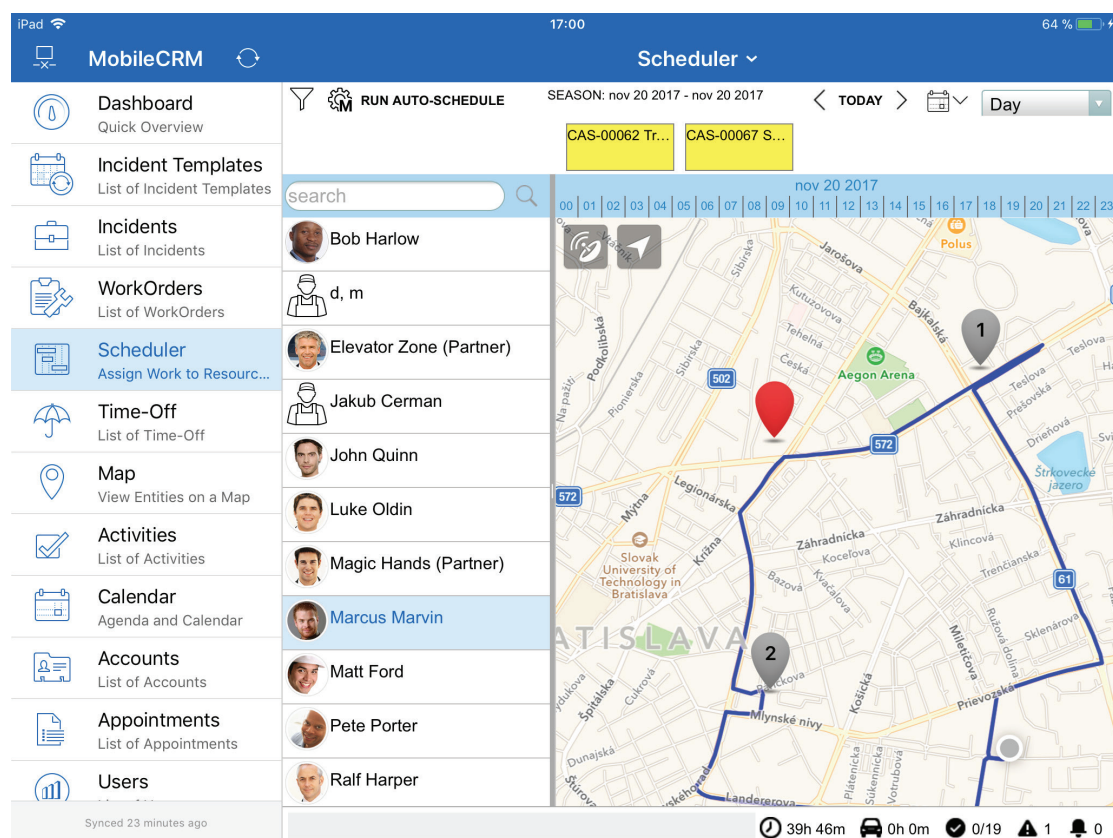


Developer preview of Combined Pins on Map

1.6. Scheduler

Scheduler is a component typically associated with field service and dispatching. The standard use case would be to see available technicians (their calendar and availability) and assign jobs to them. However, this component has greater usability and the planning doesn't have to be service related at all (e.g. it can be used to schedule sales visits for a mobile sales team). One of our goals for the upcoming months is to provide this as a **separate component that accepts any configuration** (any entity in place of either resource, job or visit) and provides output: manual, semi-automatic or automatic scheduling. Part of the planning should also be the option to plan for **multiple resources or teams** at once (groups of technicians / users working together or a combination of machines and users), so even complex jobs could be addressed with just one assignment.

The scheduler is usually a **server component** hosted as a web application, yet now in Resco it is predominantly mobile/web component for Resco Cloud servers. Our plan is to provide it as a standalone component for Dynamics 365 and other use cases as well. This component – due to the nature of the data it represents – would greatly benefit from **pairing with a map**, where the visits are simultaneously overlain on the map to increase the effectiveness of planning by using location awareness and geographical relationships between jobs/records.



Mockup of pairing with map

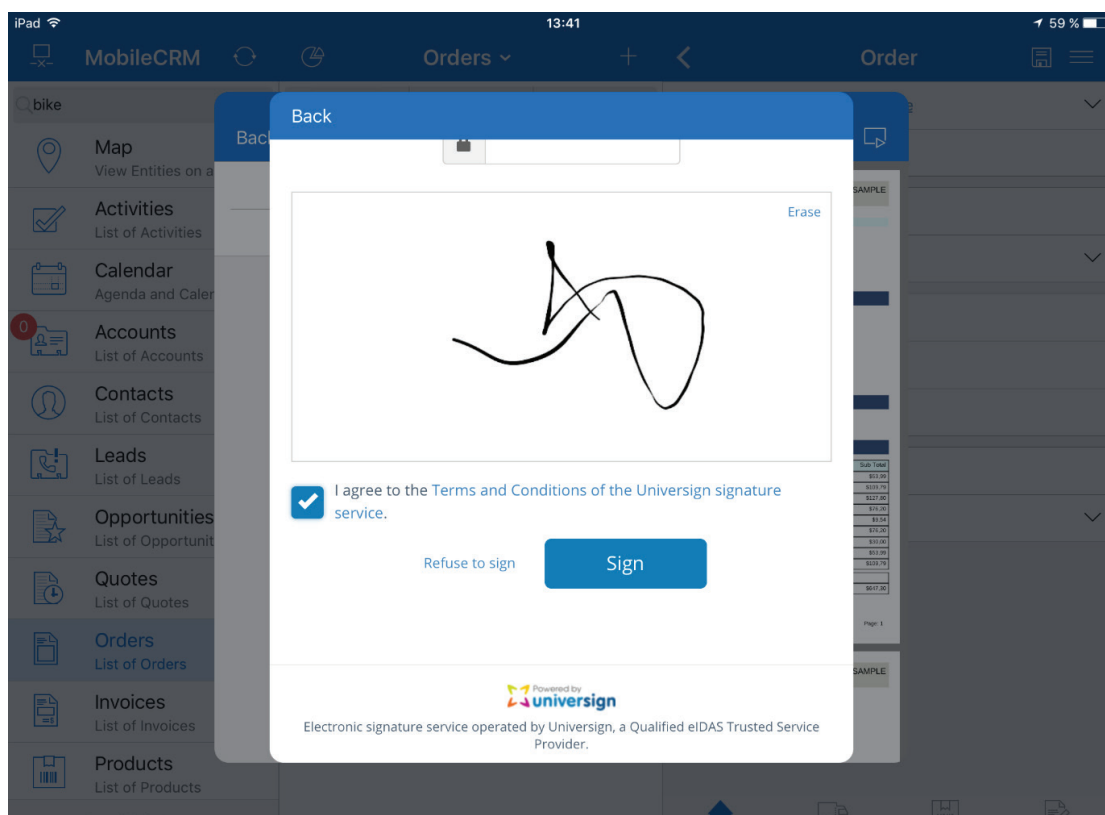
1.7. Dynamics CRM/365

Integration with Microsoft Dynamics CRM/365 provides a seamless experience for users and administrators. Our approach in general is to embrace and support all the latest features of Dynamics CRM/365 features as they are requested by our partners and customers, so in the first quarter of 2018 we expect to have support for **Virtual Entities** and **multi-selection in picklists**. To be specific, we are going to provide an **API for triggering a plugin via a web service** and resolve the situation when **users are added or removed to a team**, most likely by an additional plugin (this needs to be reflected in synchronization and a local record cleanup).

1.8. Salesforce

With our presence in the Salesforce ecosystem growing, we are on the road to a deeper integration with this type of backend as well. The main points we need to address are **validation rules** – how the import and executions take place directly from Salesforce. In addition to, the full support for **multiple record types** with corresponding forms/layouts and picklist initializations is also going to be factored in.

We've already been requested to support **e-signatures via Universign and DocuSign**, so this integration is already on its way. In the long term, we are going to provide a full **questionnaire** support (editor, execution...) as described in the Inspections chapter.

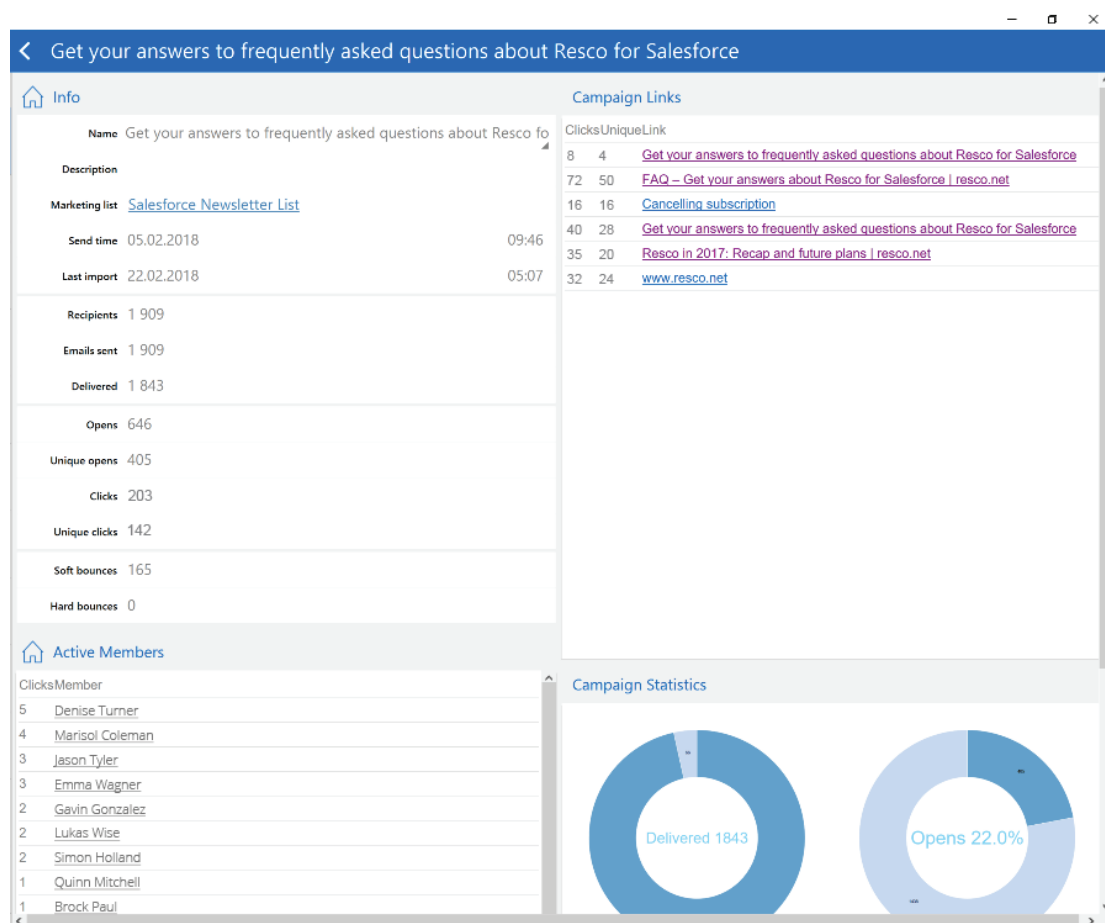


Developer preview of Universign integration

1.9. Resco Cloud CRM

Resco Cloud is a solution for companies looking for a mobile oriented system and for processes like mobile sales, field service, or even inspections. This backend – developed and managed by Resco – receives four updates yearly, along with our mobile application and in the forthcoming months we have set the following goals.

To fully support the sales activities, we are preparing improvements for a marketing module: most notably **MailerLite and a GetResponse.com integration**. For authentication, utilizing **Azure AD**, would make the integration and hosting of our cloud instances in the Azure ecosystem much easier. Last but not least, we are going to address discrepancies between our **mobile and web applications** and offer the same functionality to both.



Developer preview of MailerLite integration

1.10. Woodford

Woodford as the configuration and management tool is constantly growing in capabilities. It goes past the mobile project customizations and offers user and device management, report definition, user audit and much more. That is why it is essential to conclude our transition from Silverlight to **HTML/TypeScript** in the first half of 2018, so that this technological debt is dealt with.

To mitigate the growing demands on the actual management of projects with Woodford, we have plans to include **project versions** (each project will have a version that keeps increasing with every publish) and user statistics, so admins can see which users are using which versions of the mobile project. The overall workflow shall be improved by a **TFS** integration or another form of version control tools.

On the other hand, a feature that should greatly expand the uses of not only Woodford, but Resco technology in general, is the ability **to generate web pages** from a Mobile Project. This means that a web application with the same properties, features and functions as the mobile application should be generated with a single click (publish), using the same definition as a mobile app and providing coherent experience.

<div><div>New</div><div>Edit</div><div>Delete</div><div>Properties</div><div>Activate</div><div>Show Users</div><div>Deactivate</div><div>Projects</div></div> <div><div>Import</div><div>Export</div><div>Clone</div><div>Derive</div><div>Restore</div><div>Recover</div><div>Check User Tools</div></div> <div>Data</div>					
Administration					
Mobile Projects					
Security					
Mobile Users					
Localizations					
Geocoding					
Mobile Reports					
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Profile					
Logs					
About					
Mobile Projects					
Refresh					
Project Name					
Priority					
Parent					
Published On					
Type					
Default_QViews					
Dynamics CRM JS					
Extended Project					
Extended_365					
Extended_QViews					
GastroTest					
New UI Proj					
Parent Project					
Patrik_new1					
Questionnaire					
Real Estate App					
Real Estate App_init					
Real Estate project					
RealEstateApp					
RealEstateHTML					
RestaurantTemplate					
RestaurantTemplateDemo					
RestaurantTemplateDemo2					

HTML Woodford



2. Mobile Sales

Resco is delivering excellence in mobile sales processes – truly, most of our customers are using Resco technology to support their sales teams on the move, out of the office, and visiting customers. In turn, these teams become extremely efficient and provide increased value to their organizations.

2.1. Continuous Improvements

The boost of effectiveness comes with utilizing **planning tools** (calendars, route planners), increased awareness for potential opportunities (maps overview, notifications), integrated email (Exchange, Google), documents (from cloud or generate offline) and many other features which come with Resco solutions. Therefore, these are areas of continuous improvements for us.

2.2. Dynamics CRM, Salesforce & Backend Systems

The mobile sales processes rely on a direct integration with the backend system, so the business processes and operations defined on the server can be translated and utilized on a mobile device. For the details of the improvements to integrations with the most commonly used systems – Dynamics CRM/365 and Salesforce, please see the respective chapters.

2.3. Business Intelligence

Business Intelligence is vital to a successful sales processes – it makes sense of collected data and provides actionable insights. To achieve this, we've seen several of our partners and customers prepare an HTML component on the dashboard which displays aggregated statistics (e.g. number of completed visits or the volume of sales required vs completed). Simply put, to support and manage such a component, we've decided to include it as part of the standard Resco Dashboards.

Charts are usually employed for business intelligence visualization. However, the data these charts display range from simple queries to extremely complex calculations including a combination of several data sources. To accommodate for even the most challenging data sets, we've decided to open charts to our JavaScript API, so that any data can be fed to the chart (more details in the Charts chapter). Since the location relationships matter also, there will be a new type of chart that puts data into a geographical perspective (**'map chart'**) with definable regions is on the to-do list.

2.4. Scheduler for any Entity

Scheduling and visit planning can “break or make” the effectivity of a sales team. The scheduler component (more details in the Scheduler) – originally intended for dispatching service technicians – that can be utilized for sales appointments planning as well. The input: customers requiring a visit (within a cycle) and available salesmen, the output: appointments. Not only that, since we plan to open the scheduler component for all entities, manual or automated planning is open for any use case.

2.5. Advanced Quoting

Support for standard quotes in our mobile app is sufficient, however, when it comes to complex product hierarchies with product dependencies, relationships and recommended products, here we offer only the basics. To improve, we'll provide the tools that define these product relationships and rules, while at the same time offer meaningful visualization options to users.



3. Field Service

It seems that the consolidation of technology in field service and rapid advancements in mobile technology caused a recent boom of interest in digital transformation of field service organizations, with profound effects. The current approach to optimal field service is unimaginable without the strong and direct utilization of mobile technologies, which is a natural domain of Resco's solutions.

3.1. Microsoft Field Service

Last year's growth of Microsoft's Field Service for Dynamics 365 was unparalleled – the number of organizations and users has grown more than 300%. The adaptation of Resco's mobile technology enabled all these customers to employ their field service technicians with a powerful application that is indispensable in their day-to-day tasks – from planning their visits to tracking the work done.

However, utilization of the latest features available in Resco Mobile CRM was impeded by the need to maintain and update the Microsoft mobile application for field service, which was happening at the pace of major Dynamics updates and was not in sync with the fast-evolving mobile landscape.

In the first half of 2018, this inconvenience will be addressed by the **unification of Resco and Microsoft mobile applications**. We can't disclose the details for the time being, but this update would mean not only a Field Service application on the same version as the latest Resco, but also continuous upgrades every time Resco releases a new version.

3.2. Resco Cloud

For Microsoft Field Service for Dynamics 365, Resco provides mobility, but with Resco Cloud we address the field service processes as a whole – covering all the aspects from scheduling and dispatching to field service technicians.

The **scheduling component** will provide map integration for easier management of spatial planning topped with the option to use different entities and not only the standard ones (more details in the Scheduler section). This will complement already existing features like route optimization and automatic scheduling rendering this component generally usable for activity scheduling and monitoring, making it one of the core elements of our new Route Planner module.

The day of a field technician requires good **overview and management of spare parts**, often located in a van or car, outside of the customer's site. This will be addressed by a new sub-module offering the quick overview of parts available as well as, the option to use them directly on the current Work Order. Additionally, the technicians will be able to track their time more effectively with a dedicated **Check-in and Check-out buttons**, with a timer displaying time already spent at the job site and an optional geo fencing initiation and close (automatically triggering the check-in when entering the site and performing a check-out when leaving).

The **customer's** satisfaction will be improved by direct **access to the CRM data**, providing insight into previous and planned work schedules, or visibility into the position of a dispatched technician. Integration of **IoT** devices will also enable the service to be faster and more efficient by offering remote monitoring and automatic actions (e.g. trigger a service request when monitored asset signals failure).



4. Inspections

The second half of last year was dedicated to inspection scenarios and associated processes in Resco. It resulted in the development of a completely new Questionnaire module with a respective designer application and provided the foundation of this much requested functionality. In the coming months, it will be our foremost priority to provide a holistic approach to inspections and improve and complement Questionnaires with functionality for other roles in the Inspection process such as Reporting or Scheduling.

4.1. Standalone Mobile App & Web Application

Inspection scenarios might or might not be part of the standard CRM context. Support for any of the use cases will be reflected in containerization of the respective functionality into a **dedicated mobile application**. This will enable to use the tools and processes in almost any situation and provide separate flexible licensing on top of that.

Even early response to the inspection module made it clear that utilization of this technology goes beyond mobility and that web counterparts to the mobile components would greatly extend the current use. This includes answering the questionnaires also in a Dynamics 365 web application (and web apps in general), or analyzing the questionnaire reports within the Salesforce web interface (and analytics in general). Consequently, this could be integrated into processes which are essentially non-mobile like providing a **portal for external users and sending a link** to a predefined questionnaire to contacts present in a marketing list and go beyond the scope of inspection.

4.2. Questionnaires

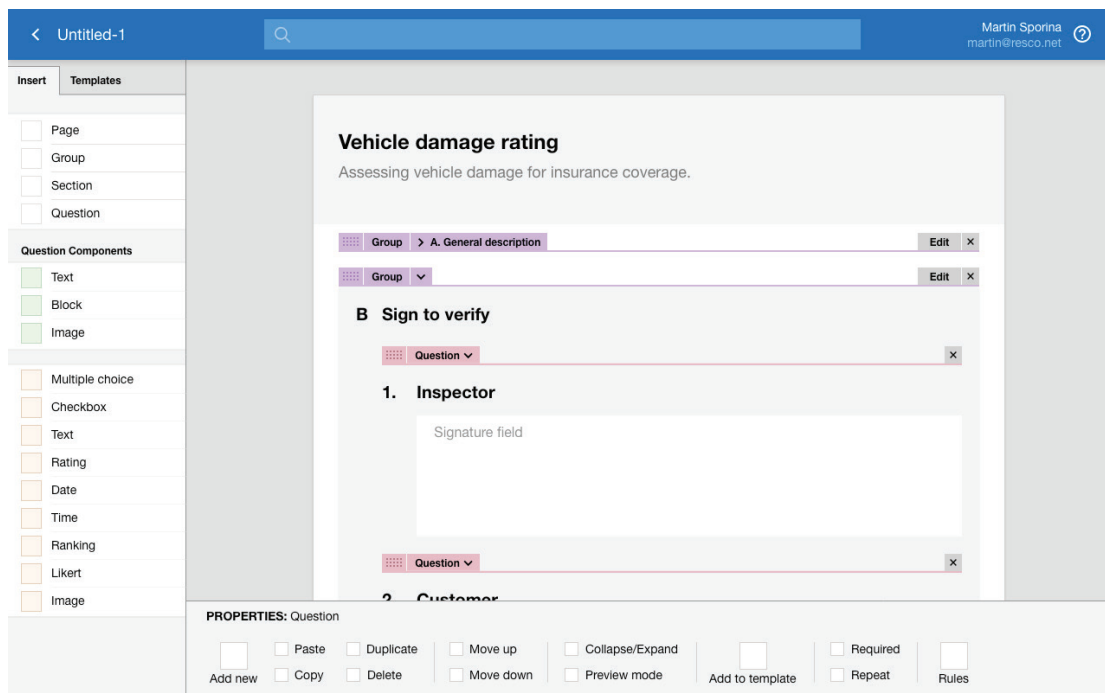
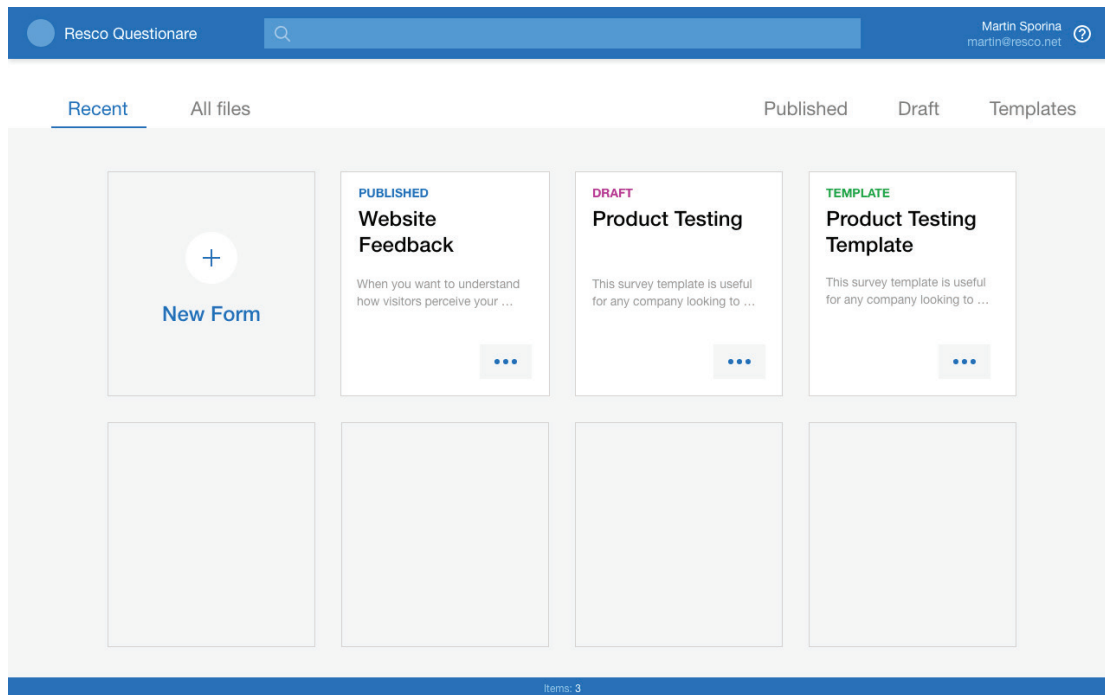
The heart of any inspection is a questionnaire – it could be a list of predefined questions to ask a customer or a list of tasks to be performed at the site . In any of its forms, it will be present in the process.

These questionnaires can be defined in a dedicated Designer that is targeted to and can be operated by a non-technical non-admin role. Everyone with a deep knowledge of business processes should be able to use the Designer even without much technical knowledge.

This Designer can be already used to define questions and groups for a Questionnaire template, but a better support is needed for **folders and a tagging** system to organize a larger volume of templates. Also, support for multiple languages in a single questionnaire will be added to support of multi-lingual environments, so the same template can be used regardless of the user's language.

To easily manage the questions and the entire questionnaire, we'll add an option to **copy or clone** and provide a form of **visualization** for the structure of questions and the rules that control the flow of the questionnaire. **New types of questions** including position/map, Iframe will be incorporated to enhance the functionality as will be the image recognition (to recognize certain types of objects in photos such as product images) or image annotations (mandatory labeling of a photo for e.g. shelf product assessment).

More importantly, we are going to introduce a **complex or composite type of question**. This is an advanced element of the questionnaire that consists of compositions of multiple labels, inputs, images – so basically multiple questions in one. The idea is to create this 'rich' question once, together with rules and other logic, and reuse it throughout the questionnaire. A typical example is machine inspection, where there are multiple parts that need to be inspected. Yet, all of these parts have same properties to be entered into a questionnaire (value, if it is faulty and if faulty description field should become visible), so composite question can be created and reused.



Mockup of new questionnaire designer

For some scenarios the function to copy a completed questionnaire and to **pre-populate question answers automatically** from a previously completed questionnaire of the same type might come handy. Here, the users also might benefit from Check-in and Check-out buttons with timer displays and possible Geo Fencing utilization (trigger the functionality by location).

4.3. Reporting & Analytics

The questionnaire design and execution are the core to inspections, yet without insight on the collected data it can serve only a limited purpose.

The basic reporting will be provided in the form of a **document summarizing a specific Questionnaire** – the answers can be then presented to a customer for a signature confirming their validity. For advanced reporting, we'll provide a **dynamic dashboard** for a specific questionnaire template, user base and timeframe. Such a dashboard will then display an overview of the performance – how many questionnaires were answered, what are the types of answers to each question (visually, on a chart) and allowing to analyze the content.

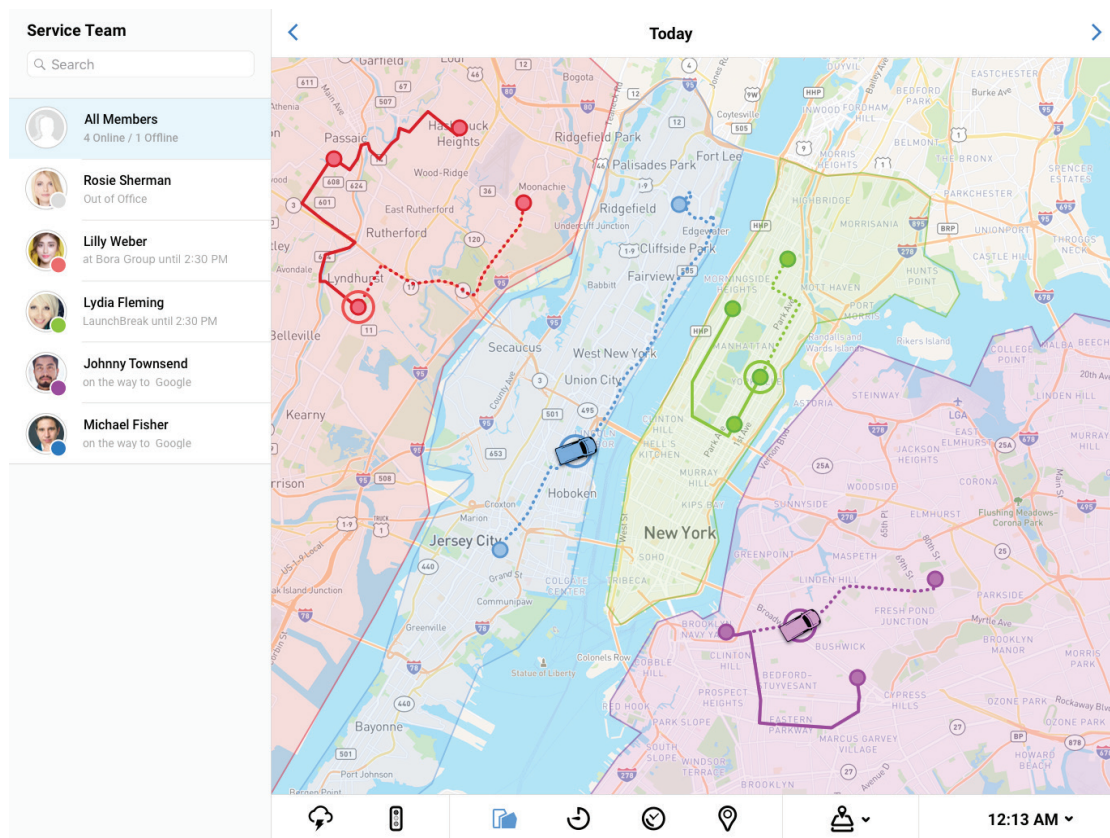


5. Route Planning

To perfectly understand the work performed outside of the office, we must have a deeper understanding of the preceding phases – most notably planning, scheduling, and monitoring. The inherent nature of these processes and their interconnectedness with mobility requires our involvement in all the stages and provides an opportunity for a new module.

5.1. Location, Address and Territory Management

To utilize the full potential of maps and routing in general, it is necessary to rely on accurate location data such as customer locations and job addresses. The task to provide this data and/or enhance existing data with GPS positions was left to the customer, but it turns out being a bigger challenge. To streamline this process, we are going to provide the necessary tools for easy and effective **geo coding** of existing data as well as simple setup for capturing location data for newly created records. Lo and behold, we aren't stopping there, once the location data is present. If the reliable data set is established **territory management** can be utilized defining regions and territory rules, managing for example, automatic assignment of new leads to corresponding salesmen based on the location/address of the lead.



Mockup of territories

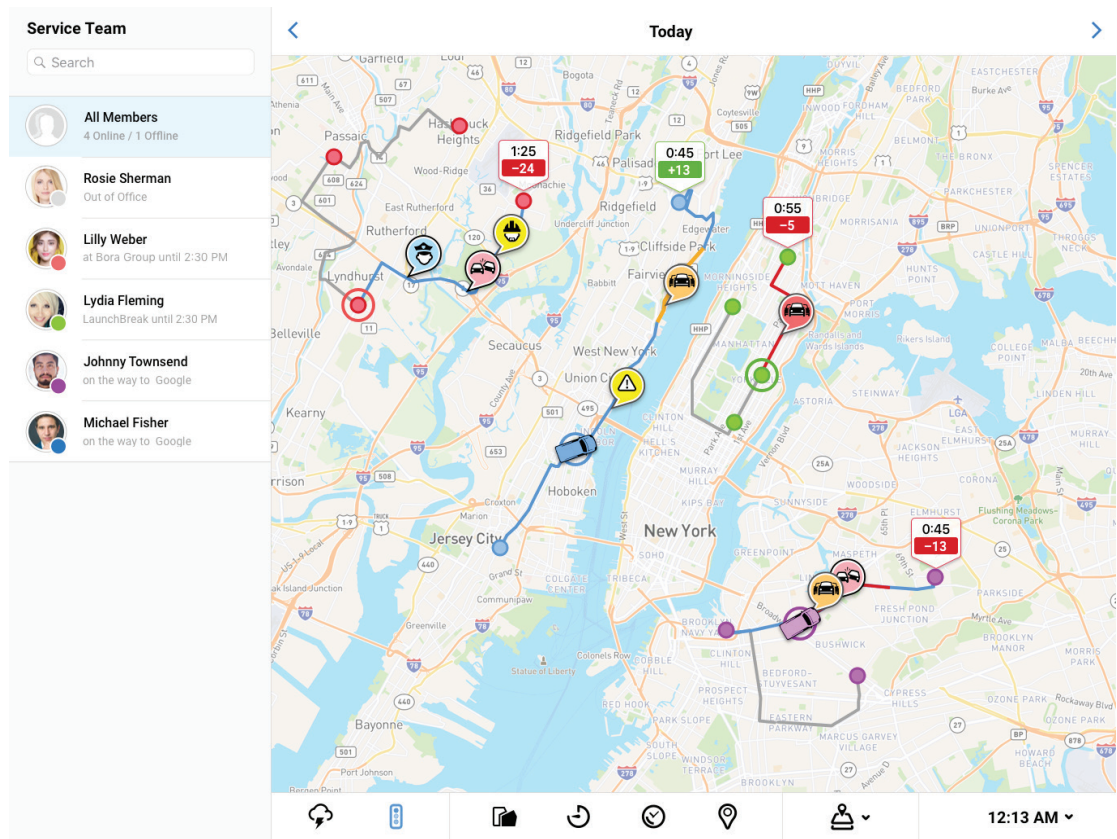
5.2. Map, Route Planning & Scheduling

Building on the same data set can either visualize the data on the **map** (statically), or use the map as the backbone for **planning routes**. Combining the two approaches together is the Scheduler component, where the user's calendar will be complemented by map information so the spatial relationships are immediately visible (more details in Scheduler) and used for effective planning and scheduling.

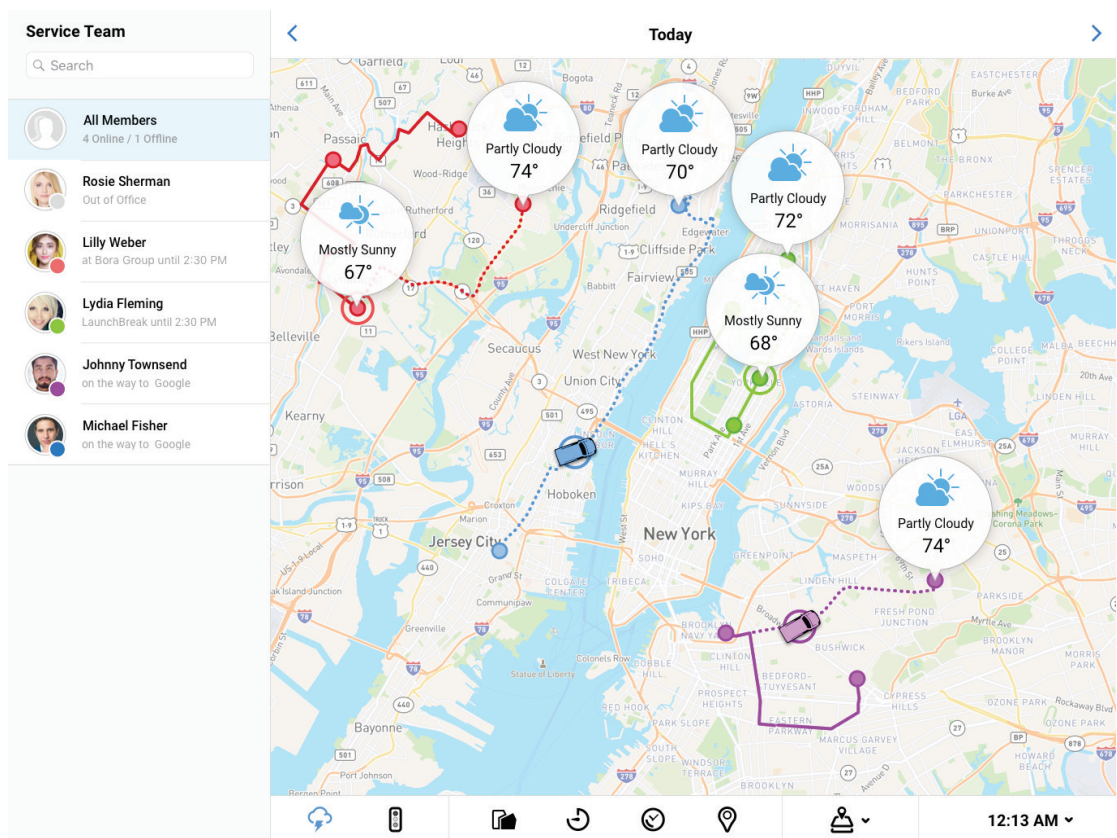
5.3. Monitoring

Once the plans for the users are scheduled the activities need to be monitored and reacted upon, updated, changed, and new tasks added. This will be the job of a new Monitor component.

Again, the main premise is a combination of geo information with time information. Plotting the activities of the users on a map, but this time with the focus on displaying start times, end times and durations should provide visibility into where users are now, where they have been and what are their plans. This component will include **real-time positions** as well as the ability of "**time shift**", to look at previous positions (at exactly specified time) and glimpse into the future for the expected location. This can be complemented with additional information like **territories, weather or traffic data** for effective real-time user management.



Mockup of pairing with traffic data



Mockup of pairing with weather data

5.4. Independent Web Components

All these activities are not inherently mobile, so the main target for all the components is a web application – whether Resco Cloud, Dynamics 365, or Salesforce. This includes the already existing mobile components (map, route plan) as well as new components (scheduler, monitor).



6. Audit

Based on the data collected by mobile applications, Resco can offer unique insights on the operation of people in the field. Mobile devices can collect usage data which can be later analyzed for efficiency, overview or tracking and offer actionable insights. Mobile Audit – already built into Resco's mobile application – serves as the gateway to these processes and will be improved and built upon, eventually offered as suite of tools available as a new product in the future.

6.1. Sync Details & Analysis

Synchronization details are the first data sets that will offer a look in the application used by mobile teams. More details on the synchronization improvements can be found in the section Synchronization, but for the Auditing purposes, it might be interesting to understand that the extended synchronization details will collect data such as, which entities have been synchronized, how many synchronizations have users made (and additionally filter those in selected dates). Analysis of this data set will be made easy by dedicated synchronization charts showing average duration, record count, or overall data-size – so managers or admins can immediately spot anomalies on comprehensive synchronization dashboards considering their users.

6.2. Mobile Audit Analysis update

Last year we've introduced a component for **analyzing collected mobile audit data** (who, when and where performed open, save, modify and similar actions on entity records). The component – Mobile Audit Analysis – offers aggregation of the audit data compared against records. This aims to answer questions such as how many visits were performed for a certain customer by selected users in a selected

time frame. Quickly determining the customers not receiving enough appointments can crucially improve business operations.

In the coming months, we are going to provide also different types of reports. First, we have to visit based reports – where we pair actions with visits / user location, similarly to what we already have implemented. Extending filtering and plotting actions distribution over accounts, contacts is on the task list for the next updates. Later, we'll also add segmentation (to see different properties based on e.g. customer level or type) or effectiveness reports (to see which actions have the most impact).

6.3. Geo Fencing

The audit data can be used in the different direction as well. Instead of providing ex-post analysis, they can be used for triggering actions on the mobile device in the moment of execution. This falls generally into category of so-called Geo Fencing.

The main two types of uses are **actions based on location** and **feature restriction** to certain locations only. A typical example would be functionality (e.g. completing a visit) that will be enabled only at a customer's location, or automatic pre-selection of customers for a lookup field when creating a new visit.

We are going to provide support for both types of geo fencing activities by including new types of geo rules that are triggered by location (with additional precision setting). Using these rules, it should be possible to achieve both restriction and action trigger be it on entity forms or throughout the app.



7. City Smart Services

Cities, municipalities, local and state governments have experienced an unusual growth of interest regarding to digital transformation. The proposed projects range from parking and fare management to citizen engagement and connected services. And it seems that the time is right – technology is abundant and available, citizens are equipped with powerful computational devices almost always connected to internet and the advent of IoT devices opens new horizons for management and monitoring of assets.

Resco's City Smart Services is targeted towards cities, municipalities or local governments that want to equip citizens with a mobile app for reporting incidents (e.g. potholes, broken lamps ...) and provide them with a new – direct and immediate – form of communication. Although, the mobile app and citizen aspect is only one part of the solution. After gathering incidents, the municipality can act and mark them for resolution (where field service processes would take over) or disqualify them (as redundant, not applicable or impossible to resolve). The user/citizen would be notified about progress right away as the app would offer immediate feedback and tracking capabilities. Targeting the incident management in its entirety, Resco provides a cloud solution that employs the best in mobility for both the citizens and field service technicians complemented by management capabilities for municipality officials and scheduling boards for dispatchers.

7.1. Web Application

Web access is necessary for these types of scenarios – mobile application is our primary focus, but the citizens might prefer to add certain types of incidents via browser, or at least manage the statuses of already reported issues. This shouldn't be provided only for registered/identified citizens, but also a completely anonymous access for reporting.

7.2. Reports

Even though Resco Cloud offers powerful reports to be created, it would be beneficial to prepare some of the reports in advance – e.g. how many incidents were resolved in a certain period, what was the average resolution time and possibly also costs involved. This would make the case for investing into this type of solution significantly stronger as pre-packaged dashboards would visualize the added value of implementing this solution to municipality officials and mayors or governors. The automatic reports could be also used as overview of activities provided by the officials to citizens on their behalf.

7.3. MS AppSource & Marketplace availability

City Smart Services is a cloud solution based on Microsoft Azure. Soon, we'll improve the discovery and deployment of this solution by listing City Smart Services on Microsoft's AppSource and Azure Marketplace.

7.4. Extended Use

City Smart Service solution in the current state should be considered as an entry to the Smart Cities segment. There are several improvements that are on the horizon, most notably integration with IoT devices (to track certain types of incidents in advance, e.g. overflowing trash bins or damaged street lights) and trash management (to automatically tackle incidents related to trash and to provide trash removal services on demand).



8. Rapid Mobile Application Development

Resco Cloud now supports processes that go beyond the standard CRM use cases and scenarios. This includes building custom applications quickly and target any business needs. We want to support these use cases and provide tools for mobile business application development outside of CRM scenarios. The target is not standard development via coding, but rather rapid application development using existing components connected and configured for a new use.

8.1. Web & Mobile Applications

At the heart of this idea is using the same or similar configuration tools as Woodford to generate applications. Primarily mobile, and as it has been outlined also in Woodford chapter, this should be used to create web-based applications based on the same configuration package (equivalent to mobile project). These apps should be easy to prepare and more importantly fast to deploy.

8.2. Azure Ecosystem Integration (Azure AD)

Part of the app development today is the necessary integration with other systems. Our target for the RMAD apps is primarily Azure and the underlying ecosystem, where providing support for the use of Azure AD might help with the overall inclusion of these solutions to the already-existing architecture and infrastructure.

8.3. Easier Custom Branded App in Stores

Finally, the result of the RMAD process is an application and in case of mobile applications this usually needs to be a custom and branded application. The state of technology allows creating such applications automatically, remotely. That is why we are going to introduce a self-service portal, where these actions can be made, custom branding images can be imported and an application for target mobile platforms generated all without involvement of Resco developers and manual building of such apps.

Afterword

The years spent building our solutions have been very busy, but also very rewarding. What started as a simple application has grown into a set of powerful tools with almost unlimited customization options. In the coming years, we want to move our solution to the next level, building the ultimate mobile business tool. We hope that you will accompany us on the way.