

**PROLOGA**

# Industry Solutions by PROLOGA – Planning and Dispatching



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## Abstract

The challenge when having to perform large (potentially tens of thousands) of service orders per day is obvious and is a challenge for any planning system: orders of different origin must – in the end – result in a plan combining them in optimally arranged routes fully serving each customer across service orders. PROLOGA is addressing that challenge within a new product.

Planning and dispatching of personnel, vehicles, equipment, and materials is a core prerequisite within the performance of timely and effective services to a customer. From an internal business perspective, planning and dispatching needs to deal with limited resources whilst identifying the most cost-effective way to perform them to the customer's satisfaction.

During execution of the plan, incidents and demand for additional services will dynamically occur. The goal associated with the Industry Solutions by PROLOGA – Dispatching and Planning – is to provide the ability to react to those and enable plan changes accordingly. The final stage of this new solution will automatically provide real time proposed plan changes to the planner/ dispatcher during plan execution.

Services in PROLOGA's business focus relate to waste collection as well as utilities related services. Our new Planning and Dispatching solution will therefore initially focus on use cases within this realm.

Following SAP's strategic moves as well as the software market internationally, this new solution is built to run in a SAAS/cloud environment S/4HANA Cloud, but will be deployable in S/4HANA Cloud, private edition environments.

With this approach, PROLOGA are offering an attractive new solution to SAP customers engaging in SAP's cloud products world. While it can still be used by those customers moving towards S/4HANA in a traditional on-premise world. Our technical and functional offering allows for hybrid scenarios solely running Planning and Dispatching in the cloud whilst contract management, logistical execution and billing are operated on-premise.

## **Industry Solutions by PROLOGA: Moving to the Cloud**

Without doubt, it is planning and dispatching that makes the economic difference for a service organization. Given economically solid contracts and under the assumption that all subsequent execution and billing / collection activities are performed well this statement is very true. The specific challenge for efficient logistical operations is that each order may consist of numerous tasks which – in the end – will have to result in a plan combining the tasks in optimally arranged routes fully serving each customer across service orders.

Given that fact, PROLOGA decided to build the new Industry Solutions by PROLOGA – Planning and Dispatching as the first solution component in a next generation product portfolio.

As a common design principle, PROLOGA will not re-invent the wheel: SAP's solution offering is broad and deep, therefore the design of Planning and Dispatching takes advantage of SAP functions, objects and technologies whenever possible. This is clearly to our customers' advantage as SAP continues to provide solution improvements as part of the software standard, an inherent aspect in software maintenance agreements.

SAP's and PROLOGA's solutions are offered globally and therefore follow global markets. Global demand is asking for SAAS solutions. Alongside with SAP, new products PROLOGA are offering need to be available as such. Consequently, Industry Solutions by PROLOGA are built as a cloud offering.

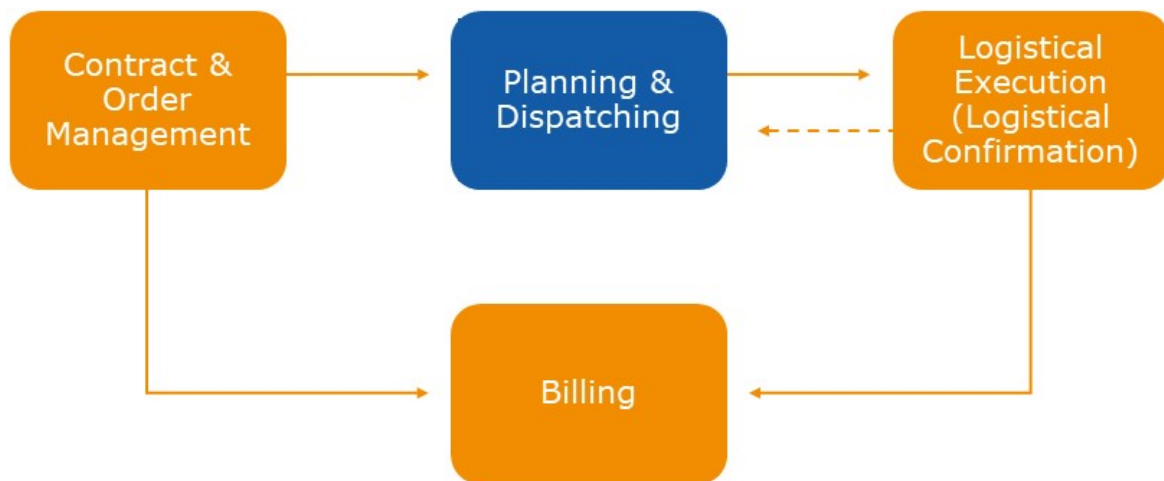
At the same time, customers demand attractive standard solutions from SAP and PROLOGA while still moving from ECC to S/4HANA.

In general, we are using state-of-the-art SAP technology while building a new solution extending SAP's standard product portfolio using PROLOGA's extensive product know-how, programming skills and experience. Initially, PROLOGA will provide the plannable objects, the planning algorithms and core functionality as the standard product core. Industry Solutions by PROLOGA – Planning and Dispatching's core will be independent from the source of service to be planned and dispatched. We achieve the independence by providing PROLOGA-built standard APIs integrating Planning and Dispatching with the required SAP data source. The subsequent execution will also be built flexibly allowing for a choice of the executional system. Planning and Dispatching will continue to use the standard Planning and Dispatching core functionality and gains its flexibility from the connecting APIs and hand-over points to the logistical execution systems. A set of standard UIs will be provided along with the product.

As a first use case, we will build the standard API for single customer collection in SAP Waste & Recycling. The first stage of the product-build will connect the planning results with a mobile order management solution. Other use cases will follow, customer individual use cases can be realized as custom projects along with custom UIs.

## First Use Case: Planning and Dispatching

Planning and dispatching of services are not isolated software requirements. Its prerequisite is always a contractual agreement between a customer and the provider of services. Within the contract the involved parties will agree on the specifics of a service, for example its price and a frequency in which the services will be performed (e.g. waste collection). Other recurring or even one-time services might occur in reference to a primary service (e.g. gas / water / electricity meter readings / connecting services).



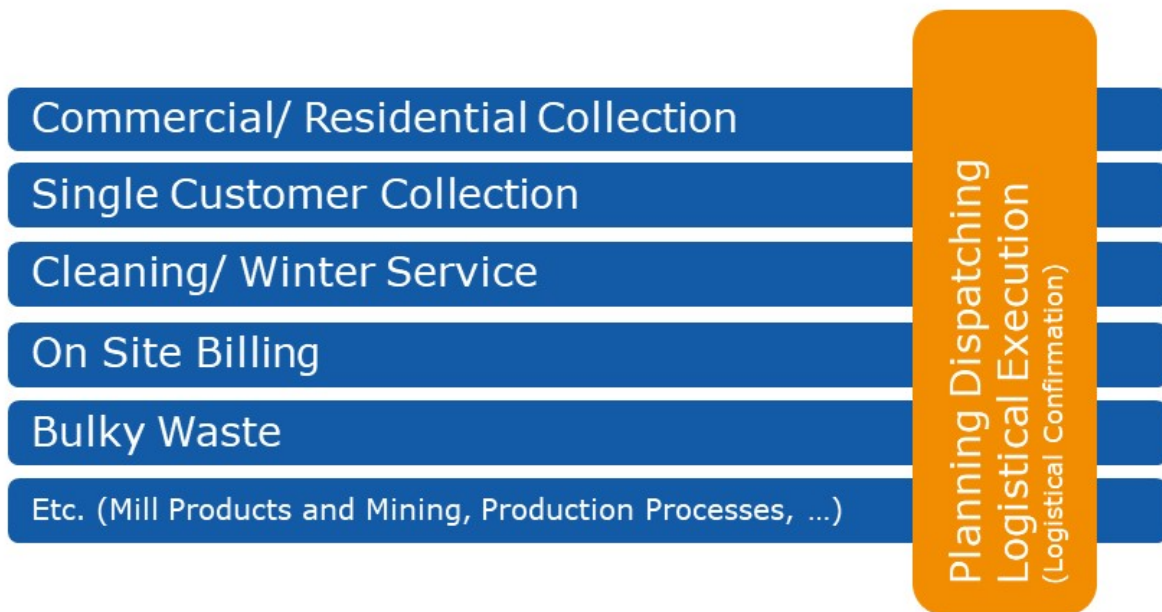
Planning and dispatching will, on the other end, result in the physical services performance and completion. The resulting information serves as the basis for billing or is used within the planning and dispatching process again.

In any case, Planning and dispatching are core functions when considering customer satisfaction as well as corporate efficiency as part of the end-to-end process.

Planning and dispatching are also not restricted to a certain business process.

Therefore, Industry Solutions by PROLOGA – Planning and Dispatching works as a switchable module which can be applied for various use cases by having different plugins available.

The solution is released step by step. The first release focuses on order management of the circular economy, especially for collection of waste material and its recycling.



Industry Solutions by PROLOGA – Planning and Dispatching is cloud native. At the same time, it is deployable in hybrid scenarios or on-premise, a technological advantage of the chosen SAP S/4HANA Cloud, ABAP Environment.

SAP standard objects were valued and, if appropriate, used within the Planning and Dispatching solution. By this, we make sure our customers continue to benefit from general solution improvements provided by SAP.

A good example for this is the use of the Service Order (already available at SAP systems) to collect customer order. In case the whole order-to-cash process is used within the cloud, the service order has a crucial role for generating orders which are necessary for the logistical process. Customers having the SAP for waste and recycling, environmental services add-on by PROLOGA in place where the disposal order item is used, a seamless integration with the new Planning and Dispatching will be ensured.

The service order needs a service description as it is essential for the planning process. Planning data (services) will be created from the service description. To ensure correct and smooth accounting processes it is key that the service order saves billing-relevant data as well. This will be realized by using configured products within the service order. Their configuration can be set at the Advanced Variant Configuration in SAP S/4HANA.

Every order which is relevant for planning and is collected within a service order is captured with its service description and service order items. In the next step, necessary service information is determined from this data. Illustrating with a specific example for container services, a service order item "replace container" will be split into two services: "deliver container to customer" and "get container from customer". These services will again be split into detailed service tasks (e.g. into "get empty container from depot", "deliver empty container to customer", "get full container from customer" and "deliver full container to facility"). In general service tasks are detailed activities that must be done by someone or something and belong to a certain service. At least one service task is always created from a service. They are grouped by rulesets and configuration options. Service tasks can be connected to each other.

Service tasks and their needed time frames are considered in following processes. Attributes and constraints of orders have to be considered, too. All these information is influencing the choice of the best suited existing tour or tour template to which the service and its service tasks will be dispatched. Tour templates are blueprints which act as a placeholder for tasks and additional data such as resources. If a tour template is used, a new tour is created based on the template and the information are processed the same way as using an existing tour. If an existing tour is used the service tasks and possible tour tasks will be updated automatically within the tour. Tour tasks are activities that occur during a tour such as refueling the vehicle or taking a break.



Existing and created tours can be edited, saved and released manually at any time. Service tasks can be switched within a tour and between different tours. If a tour is released, all data of the tour will be sent to a mobile device to communicate the information to the driver. The tour data is constantly synchronized between the mobile device and the module Planning and Dispatching of the Industry Solutions by PROLOGA. Therefore, during execution the planner continuously keeps an overview of the confirmation data and is able to replan in time if necessary.

All data fed back from the mobile device will be processed within the Industry Solutions by PROLOGA – Planning and Dispatching where the logistical data is confirmed. The data can be manually checked or if necessary post-edited by a user. Afterwards within the logistical confirmation process all data will be transferred to the service order confirmation.

# Immediate Benefit and Outlook

By using a cloud native solution, the customer does not have to care about the operation and maintenance of the server. These tasks will be provided by the host who is also responsible for data backups and ensures the reliability of the system which is a crucial benefit.



The Industry Solutions by PROLOGA – Planning and Dispatching allows planners to work within guided planning processes using tasks that follow basic rulesets (e.g. finding a tour for a service). Furthermore, those rulesets will be expanded to an automation process. The added value is to reduce the manual planning effort even though complexity of the planning scenarios is rising continuously.

By using the service order as a component, other processes (e.g. billing) can be implemented easier in the future. The PROLOGA solution also uses a modern Fiori UX as well as SAP ABAP RESTful Application Programming Model (in short RAP).

Step by step further functionality will be added to provide a tool which does give a holistic view on the order-to-invoice process by covering for example logistical execution, legal documentation, material inbound/outbound as well.

Altogether, the Industry Solutions by PROLOGA solves a planning problem by using one platform to perform all logistical process steps while providing complete flexibility and dynamization. After implementation of the single customer collection more use cases within the waste and recycling realm but also for Utilities, Smart Cities and the Circular Economy will follow.



## PROLOGA GmbH

PROLOGA is an IT company with more than 20 years of experience in developing, implementing, and operating SAP software solutions. The company has extensive experience in developing practice-oriented, high-performance software solutions within the field of utilities and waste & recycling. Various projects are managed based on comprehensive industry know-how. Furthermore, the company is an SAP development and cooperation partner. PROLOGA has a diversified customer range including public institutions, medium-sized enterprises, as well as multinational corporations. Together with its partner SAP, the company also operates successfully at an international level.

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