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# RECAST REQUIREMENTS SPECIFICATIONRECAST REQUIREMENTS SPECIFICATION

Regional Customer Allocation Support Tool

Zhikang Tian

Behrouz A. Mousavi

Cathal Heavey

Chirine Millauer

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|  |                    |
|--|--------------------|
| <b>1. INTRODUCTION.....</b>                          | <b><u>43</u></b>   |
| 1.1. Purpose of Document.....                        | <u>43</u>          |
| 1.2. Project Background.....                         | <u>43</u>          |
| <b>2. RECAST PROJECT .....</b>                       | <b><u>54</u></b>   |
| 2.1. Project Brief .....                             | <u>54</u>          |
| 2.2. ReCAST Context .....                            | <u>54</u>          |
| 2.3. Business Logic .....                            | <u>65</u>          |
| 2.4. Business Form.....                              | <u>86</u>          |
| 2.5. Development Planning and Methodology .....      | <u>108</u>         |
| <b>3. SYSTEM USERS .....</b>                         | <b><u>1210</u></b> |
| 3.1. User groups / System's Actors.....              | <u>1210</u>        |
| 3.1. User Quantity .....                             | <u>1210</u>        |
| 3.2. Permissions .....                               | <u>1210</u>        |
| 3.3. User States – RLC.....                          | <u>1210</u>        |
| <b>4. FUNCTIONAL REQUIREMENTS.....</b>               | <b><u>1412</u></b> |
| 4.1. Use Cases Diagram – RLC's functionalities ..... | <u>1412</u>        |
| <b>5. NON-FUNCTIONAL REQUIREMENTS .....</b>          | <b><u>2725</u></b> |
| 5.1. Usability .....                                 | <u>2725</u>        |
| 5.2. Security .....                                  | <u>2725</u>        |
| 5.3. Performance .....                               | <u>2725</u>        |
| 5.4. Browser .....                                   | <u>2725</u>        |
| <b>6. TECHNICAL REQUIREMENTS .....</b>               | <b><u>2825</u></b> |
| 6.1. Technologies Overview .....                     | <u>2825</u>        |
| 6.1. Continuous Deployment (or Delivery) .....       | <u>2826</u>        |

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|  |                             |
|--|-----------------------------|
| 6.2. Website Module Segmentation ..... | <a href="#">2826</a>        |
| 6.3. Maintenance requirements .....    | <a href="#">2927</a>        |
| <b>7. UI PROTOTYPE .....</b>           | <b><a href="#">3028</a></b> |

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# 1. INTRODUCTION

## 1.1. Purpose of Document

After carrying out the preliminary survey of ReCAST software requirements, this requirement specification is certain. In the requirement specification, we focus on the analysis of user types, user's expected functions, user interfaces, user interactions, and system performance, so that the members of the project could quickly understand the system.

So far, we've been building simple prototypes and meeting to stakeholders for validating requirements and contacting project managers, RLC, developers, and project consultants for getting prototype feedbacks, and modifying some of the user interaction operations and business processes based on the previous prototypes.

On the specification, the system specification and the subsequent design and development work ~~provided, are put forward.~~

Intended audience: customers, business requirements analysts, testers, user documentation writers, project managers.

## 1.2. Project Background

The enterprise information management system is an indispensable part of modern enterprise management, such as ERP or APS system. These systems play a role in resource allocation for enterprise production planning, thus improving productivity and maximizing profits.

However, when demand exceeds supply, there is a shortage to end customers., the problem comes out – how to ~~make a decision~~decide to allocate supply to customers. Based on ATP, APS provides allocation planning to customer's order. But that planning decision is made from APS with stochasticity and fuzziness in both orders and demands. Therefore, in real practice, it is impractical only to adopt decisions from APS without human intervention. Because customer relationships and negotiations need to be accomplished case by case, and the strategy is always being updated., ~~Also in addition,~~ the decisions are made hierarchically according to the structure of the value chain. ~~should be made by a higher level manager in some specific cases.~~

Thus, it needs the combination of human intervention and heuristics algorithms to achieve the flexibility of planning to find feasible optimal decisions regarding allocations.

~~In order to solve~~facilitate the above problems, ~~Universtiy of Limerick with support of Infineon Ireland and Infineon AG propose the project aims to present~~ a decision support tool based on mathematical optimization called ReCAST (Regional Customer Allocation Support Tools). The ReCAST ~~to support RLCs to analyze allocation scenarios for RLCs~~allocate regional products to customers in time of tight supply. The benefits of ReCAST are avoiding planners bias decisions, allocate product in a faster time, provide scenarios according to marketing or inventory strategies, increasing the customer satisfaction, decrease ATP consumption fluctuation, control the inventory, and making the allocation process tractable and measurable. ReCAST in fact is ~~Developing~~ a web-based user decision support tool ~~and developing based on a mathematical optimization model,~~ which will facilitate the decision-making processes of RLCs by decreasing time to develop an allocation plan. Finally to allocate optimal TAs to customers, increase customer satisfaction, and improve the efficiency of Infineon's allocation processes.

## 2. RECAST PROJECT

### 2.1. Project Brief

- The aim is to obtain optimal **Target Allocation ATPs** (TA) to be used within **FAPTAS-UI** as benchmarks by the **RLCs allocation managers** during their allocation planning.
- The generated **optimal solutions** by ReCAST ~~is~~ **are based on the RLC input configuration. These configurations comes from insights that RLCs have or gain from marketing, products, business situation, and etc. a global optimal based on the user's configuration.**
- Convenient and easy-to-use design: RLC is required to manually import a local Excel file, run the mathematical optimization model according to the tooltip, and finally output TA (result) to the Excel file

### 2.2. ReCAST Context

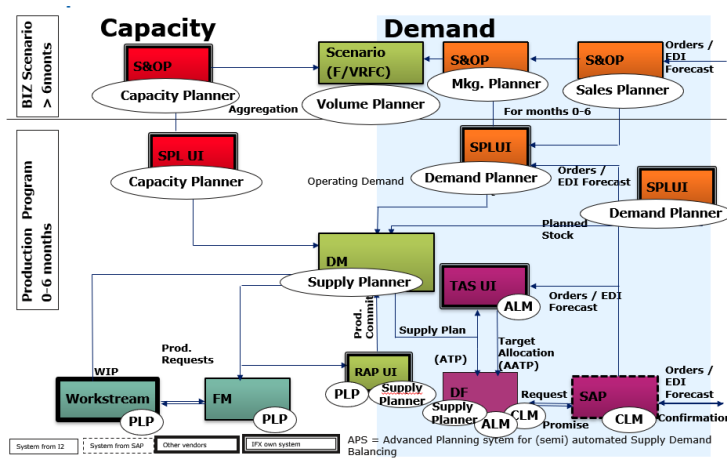


Figure 1. Modules Relationship in APS

SCOR Model consists of 5 management processes: Plan, Source, Make, Deliver, and Return. The planning process is divided into 5 sub-processes, which are Demand Planning, Capacity Planning, Supply Planning, Production Management, and Order Management as shown above. Production Program and Business Scenario follow the planning process.

For Order Management: TAS UI is used for allocation ~~corridor planning~~ **maintenance**. The tool DF from JDA is used for Demand Fulfillment and SAP is used for the final Order Management Proces. The ReCAST **is supporting RLCs for developing and implementing tight allocation plans that add to TAS-UI. tool system is developed as a part of DF.**

**Thus, DF has three types of users:** Generally, in IFX order management system there are four types of users: Supply Planner, ALM, RLC and CLM. In terms of the user of ReCAST, RLC is the primary user because the purpose of ReCAST is to get the optimal TA scenario, and it belongs to the business of RLC.

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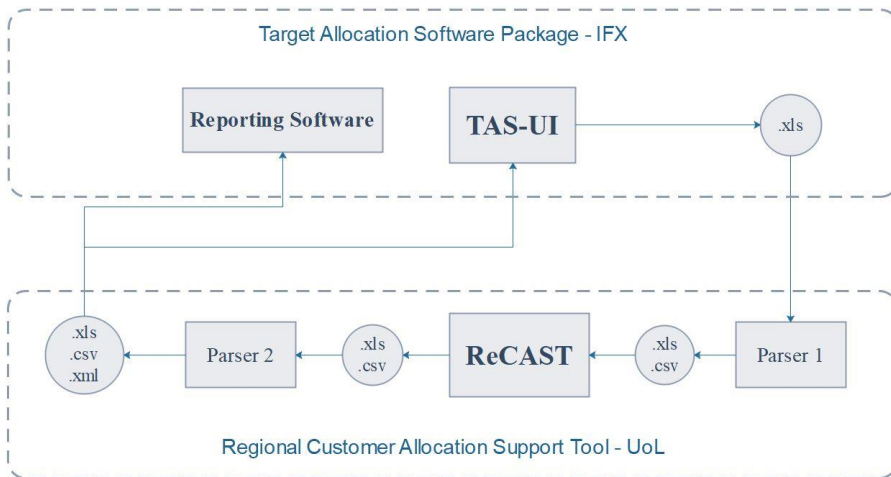
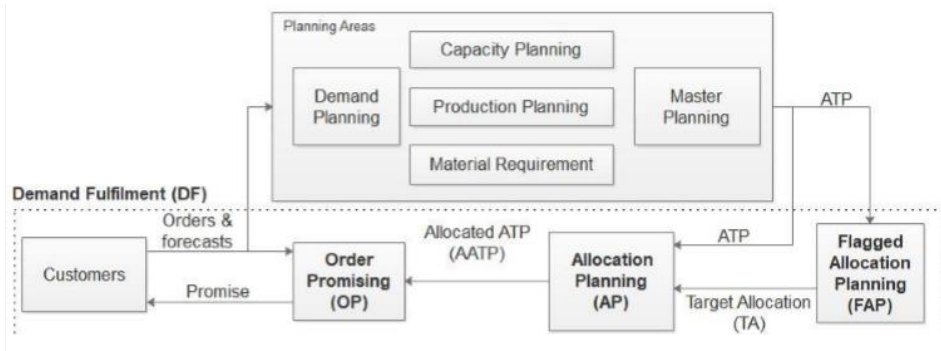


Figure 2. ReCAST connects to Others Module at APS

To execute the obtained optimal solution, the allocation plan should be inserted into TAS-UI. To avoid such manual work, the ReCAST output file should be parsed into another format to fit the import style of destination software. The output of ReCAST; not only add values to TAS-UI, but also it could be used by any other software of the global planning system of IFX like reporting tools for providing reports.

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### 2.3. Business Logic



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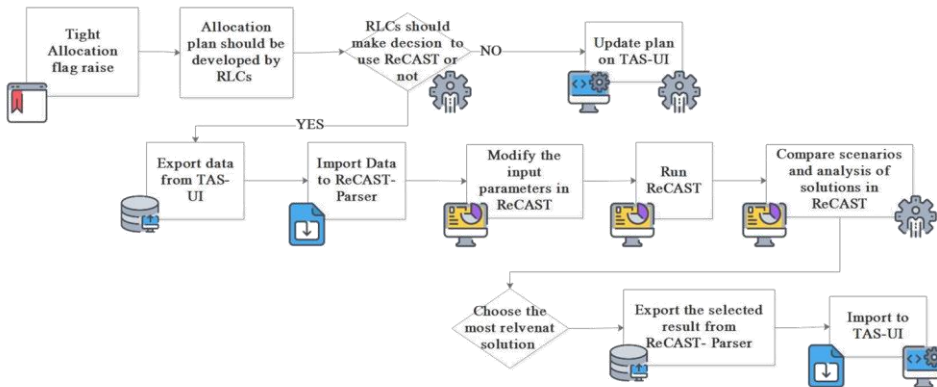


Figure 4. ReCAST Business Process

A tight allocation flag firstly is raised by ALM. Then RLCs should develop an allocation plan: if the plan is obvious, they can update on TAS-UI directly. Also, they can derive TA plan with the help of ReCAST:

1. Extract data from TAS-UI, and (format should be an Excel file).
2. Import Data to ReCAST.
3. Configure ReCAST mathematical optimal model parameters.
4. Run the configured ReCAST model.
5. Compare scenarios and modify parameters to get the best scenario.
6. Export the TA scenario as an Excel file for ReCAST output.
7. RLC manually updates TAS-UI by importing an output Excel file to TAS-UI.

## 2.4. Business Form

This section describes the system input and system output.

- Excel File Extracted from TAS-UI (System Input)

For the first step for running ReCAST, a user needs to import Excel file with the following format.

| Seller         | Measures                    | CW47      | CW48      | CW49     | CW50     | CW51      | CW52      | CW1       | CW2     |
|----------------|-----------------------------|-----------|-----------|----------|----------|-----------|-----------|-----------|---------|
| WF00           | Plant ATP                   | 0         | 0         | 0        | 0        | 801000    | 0         | 101500    | 0       |
|                | ATP vs. Net Target Alloc    | 0         | 0         | 0        | 0        | 631000    | -69000    | -26500    | -128000 |
|                | Sum AP Forecast             | 0         | 0         | 0        | 0        | 60000     | 150000    | 150000    | 150000  |
|                | Sum Target Alloc            | 270000    | 70000     | 240000   | 71000    | 240000    | 69000     | 128000    | 128000  |
|                | Sum Delivered               | 70000     | 0         | 70000    | 70000    | 70000     | 0         | 0         | 0       |
|                | Sum Orders (RMAD)           | 0         | 0         | 0        | 0        | 171000    | 68000     | 323000    | 68000   |
|                | Sum Conf Orders (CMAD)      | 0         | 0         | 0        | 0        | 171000    | 0         | 126000    | 118000  |
|                | AP Forecast vs Net TA       | 0         | 0         | 0        | 0        | -110000   | 81000     | 22000     | 22000   |
|                | ATP vs Net Target Alloc (C) | 0         | 0         | 0        | 0        | 631000    | 562000    | 535500    | 407500  |
| Seller         | Measures                    | 17/11/201 | 24/11/201 | 1/12/201 | 8/12/201 | 15/12/201 | 22/12/201 | 29/12/201 | 5/1/201 |
| A_4006047_WF00 | Consignment Inv.            | 0         | 0         | 0        | 0        | 0         | 0         | 0         | 0       |
| A_4006047_WF00 | Orders (RMAD)               | 0         | 0         | 0        | 0        | 170000    | 0         | 255000    | 0       |
| A_4006047_WF00 | Confirmed Orders (CMAD)     | 0         | 0         | 0        | 0        | 170000    | 0         | 60000     | 50000   |
| A_4006047_WF00 | Cum Coverage (RMAD)         | 0         | 0         | 0        | 0        | 0         | 0         | -195000   | -135000 |
| A_4006047_WF00 | Delivered                   | 0         | 0         | 0        | 0        | 0         | 0         | 0         | 0       |
| A_4006047_WF00 | Min. Run Rate               | 0         | 0         | 0        | 0        | 0         | 0         | 0         | 0       |
| A_4006047_WF00 | Target Allocation           | 200000    | 0         | 170000   | 0        | 170000    | 0         | 60000     | 60000   |
| B_WF00         | Consignment Inv.            | 0         | 0         | 0        | 0        | 0         | 0         | 0         | 0       |
| B_WF00         | Orders (RMAD)               | 0         | 0         | 0        | 0        | 0         | 68000     | 68000     | 68000   |
| B_WF00         | Confirmed Orders (CMAD)     | 0         | 0         | 0        | 0        | 0         | 0         | 66000     | 68000   |
| B_WF00         | Cum Coverage (RMAD)         | 0         | 0         | 0        | 0        | 0         | 0         | 0         | 0       |
| B_WF00         | Delivered                   | 70000     | 0         | 70000    | 70000    | 70000     | 0         | 0         | 0       |
| B_WF00         | Min. Run Rate               | 70000     | 70000     | 70000    | 70000    | 70000     | 70000     | 70000     | 70000   |
| B_WF00         | Target Allocation           | 70000     | 70000     | 70000    | 70000    | 70000     | 68000     | 68000     | 68000   |
| C_WF00         | Consignment Inv.            | 0         | 0         | 0        | 0        | 0         | 0         | 0         | 0       |
| C_WF00         | Orders (RMAD)               | 0         | 0         | 0        | 0        | 1000      | 0         | 0         | 0       |
| C_WF00         | Confirmed Orders (CMAD)     | 0         | 0         | 0        | 0        | 1000      | 0         | 0         | 0       |
| C_WF00         | Cum Coverage (RMAD)         | 0         | 0         | 0        | 0        | -1000     | 0         | 0         | 0       |
| C_WF00         | Delivered                   | 0         | 0         | 0        | 0        | 0         | 0         | 0         | 0       |
| C_WF00         | Min. Run Rate               | 0         | 0         | 0        | 0        | 0         | 0         | 0         | 0       |
| C_WF00         | Target Allocation           | 0         | 0         | 0        | 1000     | 0         | 1000      | 0         | 0       |

Figure 5. System Input Excel File Format

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It can be considered the file consisted of two parts, and there is an empty column between them for separation. The row circled by red rectangles are needed to be parsed and extracted:

1. Seller for WF00: Plant ATP.
2. Other Sellers: Min. Run Rate, Target Allocation.

#### ● Excel Template for Uploading to TAS-UI (System Output)

As the section 2.2 discussed, there are two ways to export the result of ReCAST to others module, the first one need to export to TAS-UI for an update; another is for exporting to others reporting software in APS. For the first one, the route from ReCAST to TAS-UI, according to the business process we have the following plan:

Generating an Excel file containing TA scenario for pushing back to TAS-UI for updating. ReCAST needs to fill out the following Excel template as the system output. RLC will upload the file manually to TAS-UI.

|         |           |         |            |
|---------|-----------|---------|------------|
|         |           |         | CW37       |
| PRODUCT | DF_SELLER | MEASURE | 09/05/2020 |
|         |           |         |            |

Figure 6. System Output Excel File Template

- **PRODUCT** Field Values can be either SalesProduct (SP) or Finished Product (MA)
- **MEASURE** Field values can be TARGET\_ALLOCATION or MIN\_RUNRATE

- **DF\_SELLER** should be Leaf Sellers at which Allocations has to be maintained.
- Time horizon Fields should be named starting with CW and its content will be filled with scenario's result

## 2.5. Development Planning and Methodology

The project was initially followed by a waterfall model, the ~~gant~~-Gantt diagram was prepared for planning according to the model.

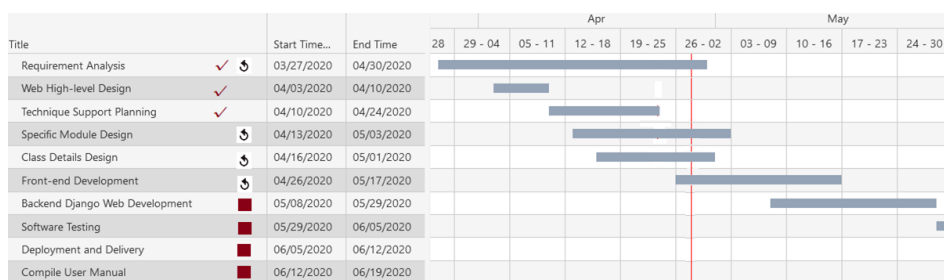


Figure 7. Gantt Chart for Waterfall Model

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Looking back at the last month, we have identified most of the requirements of RLCs. Next step, we need to analyze and further plan for other user types that might need ReCAST. Due to the limitations of the waterfall model, we cannot quickly respond to changes in software requirements, and writing code must wait until the requirements are confirmed before it can start, which results in a delay. Therefore, the project should be gradually converted from a waterfall model to an incremental development model. The development process includes many scrums, each of which is a five-step process:

### 1. Construct prototype and confirm requirements

With the cooperation of analysts and users, the basic requirements of the system are quickly determined, and a prototype should be implemented as soon as possible, and the prototype should meet the basic characteristics of the system as user's requirements described.

### 2. Quick analysis, draw the stator system module

~~On the basis of~~Based on quick analysis, according to the feedback of stakeholders, the correctness of the prototype business is ~~determined~~validated, and the system modules are divided.

### 3. Code running prototype

Quickly develop and test the identified modules.

### 4. Evaluation prototype

On the basis of operation, check and evaluate, analyze whether the operation effect meets the user's expectations, correct misunderstandings in the past interactions and errors in the analysis, and add new requirements.

### 5. Modify and accept

Modify according to the results of the evaluation prototype activities. If the user satisfaction is reached, the development of the module is completed.

The cycle repeats, the five processes are carried out in sequence, each process is a week or two weeks, and finally the integration test is carried out to deliver the product.

Although the development model has changed, ~~but~~ the duration of the project is still following the ~~gant~~Gantt chart, and the project will be delivered on time.

### 3. SYSTEM USERS

#### 3.1. User groups / System's Actors

In ReCAST, the primary user is RLC. Also, ALM, CLM and Supply Planner ~~should also be considered relative to RLC in business, which are defined as high-level user in ReCAST, and it might need to take them into consideration at the later.~~ Currently, we have successfully validated the business logic for RLC, and the ALM and product marketing should be defined as high-level users in ReCAST. Currently, we have successfully validated the business logic for RLC.

- ~~Normal User: RLC.~~ Normal User: RLC. (Primary user)
- ~~High-level User: ALM and Product Marketing.~~
- High-level User: ALM and Product Marketing. (Considered after RLC's functions finished)

#### 3.1.3.2. User Quantity

As the software ~~is purpose to~~ designed for internal use, there ~~are is~~ no big demand ~~on for~~ performance because user quantity is low. For RLC, based on the meeting we know they are not using ReCAST every day, generally once a week. And also, they wish their data before three months shall be erased, as they not usually login to ReCAST.

#### 3.2. Permissions

~~Normal user can only have the permission to access the data for themselves.~~

~~High-level user should have ability to view all historical data for RLC user. But the requirements and functions of high-level user's should be certain in further, we need to answer the following question:~~

- ~~Does ALM can define a few normal users as a group?~~
- ~~Will the permissions be granted automatically by the high-level user each time they login the ReCAST?~~
- ~~Does ALM have the ability to access/modify RLC's data?~~

#### 3.3. RCL User States—RLC

There are three states for an RLC when they are using ReCASTS:

- State A: unlogged state: At Login page, Register page, Forget Password.
- State B: logged state: At Index page, Initial Scenario page (Import Data from Excel file), Task Information page. Including All pages at state C
- State C: working state: At Config Optimal Model page, ReCAST Analysis Result page, Scenario Modification page.

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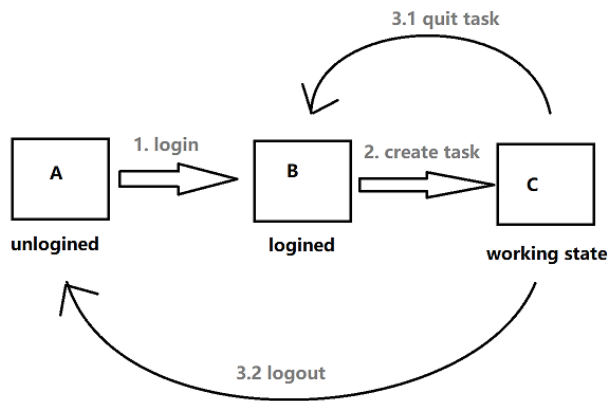


Figure 8. RLC User States.

- RLC State Transited (Webpage Jump Relations)

- A->B: From unlogged state to logged state, by triggering login event.
- B->C: By creating a task for running ReCAST. A task can be considered as a business logic flow for generating TA scenario.
- C->B: By quit the task or finish the task of RLC currently doing.
- C->A: By logout.

## 4. FUNCTIONAL REQUIREMENTS

This section provides information on all known ReCAST tool functions and services. It is more relevant to the specific functional descriptions related to business logic and all user interactions between the system.

Use case diagram is essential to describe functional requirements, based on the system's actor, showing the interaction for user in the system also represents the relationship between each function. Each circle in the figure represents a use case for a system boundary that describes a usage scenario context to capture the requirements for user interaction with the system.

### 4.1. Use Cases Diagram – RLC's functionalities

Here three use case diagrams are defined. In sequence, they describe all functionalities for RLC under unlogged state, logged state and working state. RLC can perform different functions in- different situations.

#### ● Unlogged State

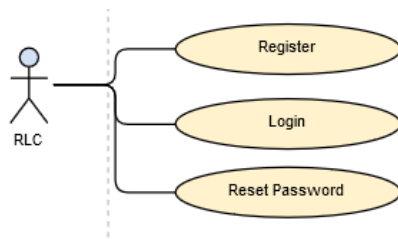


Figure 9. Use Case Diagram for RLC at Unlogged State

At unlogged states, RLC can only do the basic action to ReCAST: register. Login or reset password.

The following gives each of the use case description in detail, which demonstrate use case context scenarios, pre-conditions, use case outputs (post-conditions), event flows, user interactions, and so on. How RLC interact with ReCAST in a different state.

| Use Case 1   | Register   |
|--|--|
| Use Case Description   |  |
| Registration is one of the basic functions of the system. Every user entering the ReCAST system for the first time needs to register. The purpose is to identify the user to the legal identity. |  |
| Actor Action   | System Response  |
| 1 – Client (RLC) clicks register   | 2 – RLC's details check and stored in system                                       |
| Alternative Route  |  |
| 1(a) – RLC registers client  | 2(a) – None  |
| 1(b) – Details already on the system   | 2(b) – If credentials already associated with an account ask for different details |

|   |   |
|---|---|
|   |   |
| <b>Use Case 2</b>   | <b>Login</b>  |
| <b>Use Case Description</b>   |   |
| <p>Login is a way to identify the user's real identity, it is an essential part of system security.</p> <p>There are generally two ways to achieve user login:</p> <p>1. Checking Registered user information in ReCAST</p> <p>This kind of user can authorize login through the traditional login authentication</p> <p>2. SSO apply on existing users in ASP system</p> <p>This kind of users will be able to achieve rapid registration through SSO technology. In this way, the tedious account password detection steps during each login are avoided and the user experience is improved.</p> |   |
| Actor Action  | System Response   |
| 1 – Client (RLC) enter valid username and password  | 2 – Credentials are checked and log on welcome page     |
| <b>Alternative Route</b>  |   |
| <p>1(a) – Staff registers client</p> <p>1(b) – Details already on the system</p> <p>1(c) – User click ‘avatar’</p>  | 2(a) – Client credentials fail, error message displayed |

|   |                                 |
|---|---------------------------------|
| <b>Use Case 3</b>   | <b>Reset Password</b>           |
| <b>Use Case Description</b>   |                                 |
| <p>RLC request a one-time verification code by email, after receiving code, input new password and confirm password box for update.</p> |                                 |
| Actor Action  | System Response                 |
| 1 – Client (RLC) enter valid verification code and password   | 2 – Update password on database |



● Logged State:

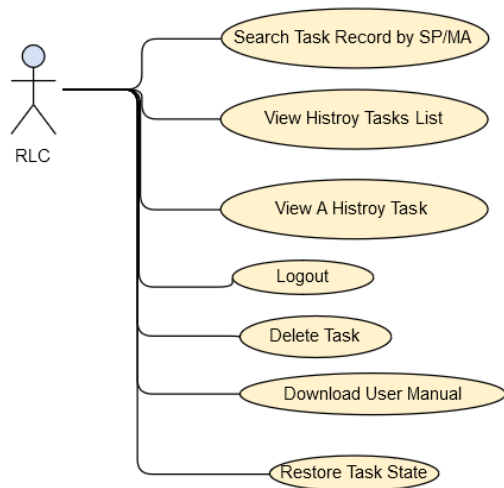


Figure 10. Use Case Diagram for RLC at Logged State

In ReCAST, a task stands for a process of running ReCAST for generating TA scenario. Each task can only import only one Excel file, also only one product can be analyzed.

The above diagram defines 7 functions of RLC at logged state. Each represents a different interaction between ReCAST.

| Use Case 4                    | Logout   |
|-------------------------------|--|
| Actor Action                  | System Response  |
| 1 – Client (RLC) click logout | 1 – Website forward current page to login page, and logout user state at the back-end server. (RLC transfer logged state to unlogged state.) |

| Use Case 5  | Download User Manual                |
|---|-------------------------------------|
| Use Case Description  |                                     |
| For the RLC first time login to system, they don't have too much ideas about how to use ReCAST. User-A user manual can tell them how to use it. |                                     |
| Actor Action  | System Response                     |
| 1 – Client (RLC) click the download button.   | 2 – User manual file is downloaded. |

|  |                                       |
|--|---------------------------------------|
| <b>Use Case 6</b>                          | <b>Delete Task</b>                    |
| Actor Action                               | System Response                       |
| 1 – Client (RLC) select task(s) and delete | 1 – The task is deleted from database |

|   |   |
|---|---|
| <b>Use Case 7</b>   | <b>Restore Task State</b>   |
| Actor Action  | System Response   |
| Pre-condition   |   |
| The task must be created and saved before restore it.           |   |
| 1 – Client (RLC) select a task <del>for</del> to restore        | 1 – ReCAST reload the task into the previous webpage where the user saved it. It can be at page of Modification, optimal parameter config page or ReCAST result page. (No need to run ReCAST math optimal model.) |
| Post-condition  |   |
| The task is restored as the previous state at the last time it. |   |

|  |  |
|--|--|
| <b>Use Case 8</b>  | <b>Search Task Record by SP/MA</b>   |
| <b>Use Case Description</b>  |  |
| After RLC click ' <del>History</del> History Scenario' for importing data, webpage route to a search page, where there is one input box, both MA and SP can be input. (where the product ID starting with SP should be searched in box SP; similarly, if that starts with MA, should be searched by MA input box.) Then, RLC clicks search button for jumping to search result page. |  |
| <b>Pre-condition</b>   |  |
| 1. User must be logged in.<br>2. Input valid Product ID.   |  |
| <b>Actor Action</b>  | <b>System Response</b>   |
| 1– RLC input valid Product ID<br>2– RLC click 'Search'   | 2- Search result with specific product ID displayed on the search page (Only for their own account records). |
| <b>Alternative Route</b>   |  |

|  |  |
|--|--|
| 1- RLC gives an invalid input<br>2- RLC gives a SQL Injection statement.<br>3- RLC click 'Back'                              | 1- Prompts error message near to input box.<br>2- System should act same as 1.<br>3- Back to welcome page. |
| <b>Post-condition</b>  |  |
| Data for selected scenario is updated  |  |
| <b>Exceptions</b>  |  |
| 1 – RLC simulate a fake HTTP request with SQL Injection, as input content, sending to server for query others' account data. | 1 – Server side need to check validity of input string in case of the SQL Inject.                          |

|   |                                   |
|---|-----------------------------------|
| <b>Use Case 9</b>   | <b>View A History Task</b>        |
| <b>Use Case Description</b>   |                                   |
| User select one history task on search page and click 'view details'. Website will jump to task information page whose display structure contains all input parameters. If the current task is a finished task, the last exported scenario should be displayed as well. |                                   |
| <b>Pre-condition</b>  |                                   |
| 1. User must be logged in.  |                                   |
| <b>Actor Action</b>   | <b>System Response</b>            |
| 1- RLC click 'view details' button for a history task   | 1-Task information page displayed |

|  |   |
|--|---|
| <b>Use Case 10</b>   | <b>View History Task List</b>                                       |
| <b>Use Case Description</b>  |   |
| On the ReCAST History Task module, RLC can view their history and also any history can be restored as the previous saved state so that RLC can keep the analysis work continuous as before. It can save time and efforts for RLC by avoid input all parameters again if they leave at halfway. |   |
| <b>Pre-condition</b>   |   |
| 1. User must be logged in.   |   |
| <b>Actor Action</b>  | <b>System Response</b>  |
| 1- RLC choose import data from history tasks   | All tasks for the RLC are read from database and load into webpage. |

| Event                               |                                 |
|-------------------------------------|---------------------------------|
| 1 –RLC click view ‘on-going task’ - | 1 – display all on-going tasks. |
| 2 –RLC click view ‘finished task’   | 2 – display all finished tasks. |
| 3 –RLC click view ‘all task’        | 3 – display all tasks           |

● Working State:

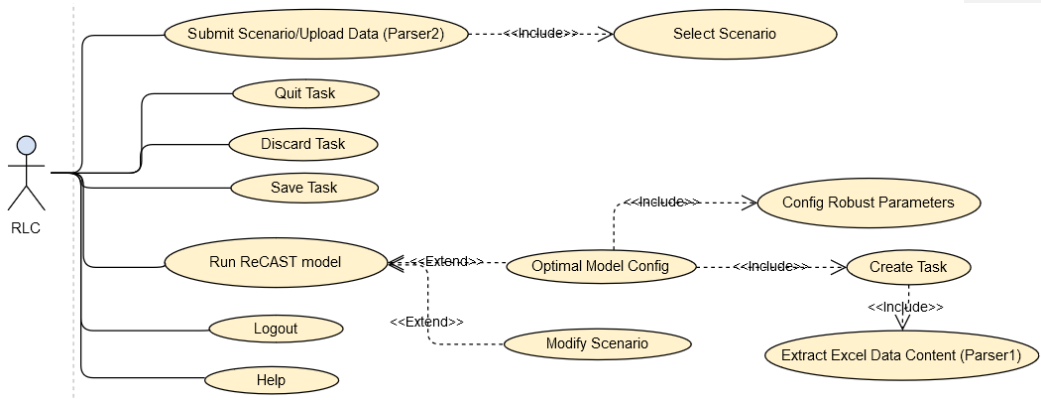


Figure 10 Use Case Diagram for RLC at Working State

Among them, there are two type of relationship between some of use cases:

1. Extend: The use case indicated by the arrow, as shown in the figure, provides an interface that can be implemented by a use case that either arrow starts.
2. Include: The use case that starts with the arrow in the figure invokes the use case that ~~are-is~~ directly referred to.

For uses cases Run ReCAST model, it provides an interface to the other two use cases: Optimal Model Config and Modify Scenario, which means there are two ways s for running ReCAST model. At optimal model config pages or modify scenario page, both can invoke ReCAST use case.

Also, we can say the use case ‘Submit Scenario/Upload Data (Parser2)’ include use case ‘Select Scenario’, which means the former can not be executed before the latter executed. Similarly, ‘Optimal Model Config’ include 2 use cases, and both of them should be executed ahead.

|  |  |
|--|--|
| <b>Use Case 11</b>   | <b>Extract Excel Data Content (Parser1)</b>  |
| <b>Use Case Description</b>  |  |
| The use case is used for importing data from TAS-UI Excel file. Firstly, RLC upload file and input parameters manually; and then, the file with parameter will be post to server. Server then check file and parameter's validity and extract all data from that file by an Excel file parser. Then, server responses result to browser for updating image or showing error message. |  |
| <b>Pre-condition</b>   |  |
| User must be logged in.  |  |
| <b>Actor Action</b>  | <b>System Response</b>   |
| 1-Client (RLC) clicks Browse from PC and select TAS-UI Excel file for uploading to server.   | 1- Excel Picture is updated or give an error message   |
| <b>Post-condition</b>  |  |
| Excel image at webpage is updated  |  |
| <b>Exceptions</b>  |  |
| 1 -RLC input an invaluse TAS-UI format Excel file, when click 'next'.  | 1 -An alert information appears 'invalid Excel file Format, please upload a valid Excel file as the above structure' |

|   |                              |
|---|------------------------------|
| <b>Use Case 12</b>  | <b>Create Task</b>           |
| <b>Use Case Description</b>   |                              |
| Anytime when to run ReCAST model, a task should be created firstly. In case of RLC confuses the past task activities and have a better understanding, the taskname and description should be marked for that. Because each time for running ReCAST may analysis different Product, so a task is the most basic business flow at ReCAST. |                              |
| <b>Pre-condition</b>  |                              |
| 1. User must be logged in.<br>2. Excel image at webpage is updated (Must import The Input Excel File)   |                              |
| <b>Actor Action</b>   | <b>System Response</b>       |
| 1 - Client (RLC) enter valid task name code and task description and CW, Sscenario weight.  | 1 - A ReCAST task is created |

|   |   |
|---|---|
| 2- RLC input Time Horizon and RLC configure weight parameter<br>3- RLC click 'Next' | 2 -Check the validity of input value for each input box and give an error message if necessary.<br>3 - Display navigation bar |
| <b>Post-condition</b>   |   |
| RLC transfer into working state.  |   |
| <b>Exceptions</b>   |   |
| 1 - RLC input value out of range, when click 'next'                                 | 1 -An alert information appears 'invalid input information, re-input again'   |

|  |  |
|--|--|
| <b>Use Case 13</b>   | <b>Save Task</b>                             |
| <b>Use Case Description</b>  |  |
| When RLCs want to leave at halfway, and they may do not want to re-input the previous parameter. They can click 'Save task' option at the navigation bar. And this task is persisted into database so that to be reloaded for next time when they come back. |  |
| <b>Pre-condition</b>   |  |
| 1. User must at working state.   |  |
| <b>Actor Action</b>  | <b>System Response</b>                       |
| 1- RLC click 'save task' option  | 1-All Task information are saved in database |

|  |  |
|--|--|
| <b>Use Case 14</b>   | <b>Discard Task</b>  |
| <b>Use Case Description</b>  |  |
| When RLCs want to discard the current task, might because a reason like import a wrong Excel file. |  |
| <b>Pre-condition</b>   |  |
| 1. User must at working state.   |  |
| <b>Actor Action</b>  | <b>System Response</b>   |
| 1- RLC click 'discard task' option   | 1-All Task information are discarded, and no data persist in database, although this task is saved previously. |

|  |  |
|--|--|
| <b>Use Case 15</b>   | <b>Save Task</b>                                       |
| <b>Use Case Description</b>  |  |
| The only different between Discard task and this use case is that: if user click 'quit task', any history task record at database will not be deleted. |  |
| <b>Pre-condition</b>   |  |
| 1. User must at working state.   |  |
| <b>Actor Action</b>  | <b>System Response</b>                                 |
| 1- RLC click 'quit task' option  | 1- Load to index page and nothing changed on database. |

|  |  |
|--|--|
| <b>Use Case 16</b>   | <b>Help</b>  |
| <b>Use Case Description</b>  |  |
| For assist RLC use ReCAST, most of input box config a explanation help. In normal case, it will not open, only when user click 'help', in this case user's mouse over the quesiton mark, it will come out the explanation. |  |
| <b>Pre-condition</b>   |  |
| 1. User must at working state.   |  |
| <b>Actor Action</b>  | <b>System Response</b>   |
| 1- RLC click 'Help' option   | 1-Toggle quesitons marks.  |
| <b>Event</b>   |  |
| 1 – RLC's mouse hover question mark  | 1 – There is a box appear on that place showing what is the meaning for this item, and giving the range for its value. |

|   |   |
|---|---|
| <b>Use Case 17</b>  | <b>Select Scenario (Data Visualization)</b> |
| <b>Use Case Description</b>   |   |
| In order to display the visualized scenario, a data panel is applied for RLC selecting scenario. Different customer represented by different color. |   |
| <b>Pre-condition</b>  |   |
| 1. User must be logined.  |   |

|  |   |
|--|---|
| 2.All valid scenarios result come out.   |   |
| <b>Actor Action</b>  | <b>System Response</b>  |
| 1-RLC click different radio button on data visualization panel for switch scenario | 1-Data visualization panel content changed.<br>2- The corresponding scenario button will be highlighted and |
| <b>Alternative Route</b>   |   |
| 1 -RLC select a scenario by click 'Select'.  | 1 -The button of selected scenario is high-lighted<br>2 -And data panel changed correspondingly             |
| <b>Event</b>   |   |
| 1 -RLC's mouse hovers any one value point on data panel.                           | 1 - A tiny label come out showing its value, and the point will be bold and enlarged.                       |
| <b>Post-condition</b>  |   |
| A scenario is selected   |   |

|   |  |
|---|--|
| <b>Use Case 18</b>  | <b>Submit Scenario/Upload Data (Parser2)</b>   |
| <b>Use Case Description</b>   |  |
| The use case is used for exporting select scenario data to a template Excel file for uploading to TAS-UI. After all scenario results displayed, RLC select a scenario, then click 'Export'. The browser will post data to server. And server will run parser 2 for generating an Excel file back to browser. Then also server will write all result and product information to database for the convenient use of the next time |  |
| <b>Pre-condition</b>  |  |
| 1.User must be logged in.<br>2.A scenario is selected.  |  |
| <b>Actor Action</b>   | <b>System Response</b>   |
| 1 - RLC clicks 'Export'   | 1 -Output Excel file<br>2 -All scenario data and product information will be written in database |
| <b>Post-condition</b>   |  |
| Output expected Excel file (for importing TAS-UI)   |  |



|   |   |
|---|---|
| <b>Use Case 19</b>  | <b>Modify Scenario</b>  |
| <b>Use Case Description</b>   |   |
| On 'Modification' page, the table of scenario information can be modified by RLC. A-ATP and A-Stock are editable but sum is a fixed number. (There is a relationship between these three parameters: A-ATP+A-Stock = Sum.) After that, user click 'Check', browser post data to server for running ReCAST optimal model and then result data shall be responded for updating data panel. If user do not click 'Check', there will be no data updated. |   |
| <b>Pre-condition</b>  |   |
| 1. User must be logged in.<br><br>2. All valid scenarios result come out and a scenario is selected for modifying. (at 'Modification' page)   |   |
| <b>Actor Action</b>   | <b>System Response</b>  |
| 1- RLC can modify content at scenario table<br>2- RLC click 'Check'   | Data panel for dual visualization is updated; also, if user go back the previous page for scenario visualization, the corresponding scenario should be same as the latest version at dual visualization page. |
| <b>Alternative Route</b>  |   |
| 1- RLC can modify content at scenario table<br>2- RLC click 'Back'<br>3- RLC click 'Export'   | 2- Nothing updated.<br><br>3- do use case 'Submit Scenario' but there is no data changed.   |
| <b>Event</b>  |   |
| 1 - RLC's mouse click a cell at scenario table (for column A-ATP or A-Stock)<br><br>2 - RLC's mouse double-click a cell at scenario table (only for column A-ATP or A-Stock)<br><br>3 - RLC click table header or the header of a row   | 1 - The cell will be high-lighted and .<br><br>2 - The cell shall be editable.<br><br>3 - The whole column or row will be selected in color of shadow.  |
| <b>Post-condition</b>   |   |
| Data for selected scenario is updated   |   |
| <b>Exceptions</b>   |   |
| 1 - RLC input value out of range, when click 'next'<br>2 - RLC input an invaluse TAS-UI format Excel file, when click 'next'.   | 1 -An alert information/ alert window appears 'invalid input value, try again'<br><br>2 -An alert information appears 'invalid Excel file Format, please upload a valid Excel file as the above structure'    |

|   |   |
|---|---|
| <b>Use Case 20</b>  | <b>Optimal Model Config</b>   |
| <b>Use Case Description</b>   |   |
| To run ReCAST optimal model, there are some parameters should be filled firstly. In this case, RLC can enable Rubost Factor. If it is enabled, use  |   |
| <b>Pre-condition</b>  |   |
| 1. User must be logged in.<br>2. TAS-UI Excel file must be imported into ReCAST   |   |
| <b>Actor Action</b>   | <b>System Response</b>  |
| 1- RLC can modify content at scenario table<br>2- RLC click 'Check'   | Data panel for dual visualization is updated; also, if user go back the previous page for scenario visualization, the corresponding scenario should be same as the latest version at dual visualization page. |
| <b>Alternative Route</b>  |   |
| 1- RLC can modify content at scenario table<br>2- RLC click 'Back'<br>3- RLC click 'Export'   | 2- Nothing updated.<br>3- do use case 'Submit Scenario' but there is no data changed.   |
| <b>Event</b>  |   |
| 1 – RLC's mouse click a cell at scenario table (for column A-ATP or A-Stock)<br>2 – RLC's mouse double-click a cell at scenario table (only for column A-ATP or A-Stock)<br>3 – RLC click table header or the header of a row | 1 – The number in cell and content background color will be high-lighted.<br>2 – The cell shall be editable.<br>3 – The whole column or row will be selected in color of shadow.                              |
| <b>Post-condition</b>   |   |
| Data for selected scenario is updated   |   |
| <b>Exceptions</b>   |   |
| 1 – RLC input value out of range, when click 'next'<br>2 – RLC input an invaluse TAS-UI format Excel file, when click 'next'.   | 1 – An alert information/ alert window appears 'invalid input value, try again'<br>2 – An alert information appears 'invalid Excel file Format, please upload a valid Excel file as the above structure'      |

|  |   |
|--|---|
| <b>Use Case 21</b>   | <b>Run ReCAST Model</b>   |
| <b>Use Case Description</b>  |   |
| User select one histroy scenario on search page and click 'restore'. Website will jump to scenario restore webpage whose display structure contains all content structure of ReCAST result webpage plus the table for the last exported scenario on the first paragraph for webpage (if No scenario exported, there is no table on the above). |   |
| <b>Pre-condition</b>   |   |
| 1. User must be logined. Or at working state<br>2. At least one valid histroy scenarios record come out.   |   |
| <b>Actor Action</b>  | <b>System Response</b>  |
| 1- RLC select one histroy scenario record and click restore  | Data panel for dual visualization is updated; also, if user go back the previous page for scenario visualization, the corresponding scenario should be same as the latest version at dual visualization page. |
| <b>Alternative Route</b>   |   |
| 1- RLC can modify content at scenario table<br>2- RLC click 'Back'   | 2- Back to welcome page.<br>3- do use case 'Submit Scenario' but there is no data changed.  |
| <b>Event</b>   |   |
| 1 – RLC's mouse click a cell at scenario table (for column A-ATP or A-Stock)<br>2 – RLC's mouse double-click a cell at scenario table (only for column A-ATP or A-Stock)<br>3 – RLC click table header or the header of a row  | 1 – The cell will be high-lighted and-.<br>2 – The cell shall be editable.<br>3 – The whole column or row will be selected in color of shadow.  |
| <b>Post-condition</b>  |   |
| Data for selected scenario is updated  |   |
| <b>Exceptions</b>  |   |
| 1 – RLC input value out of range, when click 'next'<br>2 – RLC input an invaluse TAS-UI format Excel file, when click 'next'.  | 1 – An alert information/ alert window appears 'invalid input value, try again'<br>2 – An alert information appears 'invalid Excel file Format, please upload a valid Excel file as the above structure'      |

## 5. NON-FUNCTIONAL REQUIREMENTS

Non-functional requirements here is referring to the operation requirements supporting ReCAST business running, especially to system quality.

### 5.1. Usability

Usability is important for a tool-based web application. It should be easy-to-use and user-prompted. This tool improves software usability by:

1. Provide user manual: The user can download the ReCAST user manual for usage guidance.
2. Enhanced user interaction: The webpage should prompt a little window while the user's mouse over question marks.
3. User interaction should be obvious and easy-to-understand.
4. If there is an interface for implementing the Single Site-On function, it may need to be implemented. But it needs to be discussed with TAS-UI developer for getting TAS-UI interface document / APS document. If there is no ready-to-use interface, it probably can not be implemented on time.

### 5.2. Security

1. The user's password must be hashed in a database.
2. The user uploaded file should be checked on the ~~server-server~~-side for detection legality and safety.
3. While RLC register on ReCAST, firstly must obtain the permission from the project manager (Controversial) or ALM.
4. In case of SQL Injection for searching product by ID, an input check should be put on server side.

### 5.3. Performance

1. Optimal model running time as little as possible, maximum system response times should be less than 5 seconds. If it is too long, showing the process bar on screen.
2. The opening webpage should less than 2 seconds.
3. Ajax data dynamically pushed to the background must not cause the browser to fake death (Not Responding).
- 4.

### 5.4. Browser

Need to be compatible with IE6,7,8; Firefox3.5 or above; Typical Webkit kernel browsers such as chrome

## 6. TECHNICAL REQUIREMENTS

### 6.1. Technologies Overview

The software like auxiliary tools is more focus on their usability and business logic, rather than content display. That means the interaction requirements are the core of development.

User volume level: low (RLC use it once a week).

Data volume level: low (RLC's data before 3 months are deleted automatically).

Overall, ReCAST as a tool website, each webpage at ReCAST should as little as possible for improving performance. For meeting requirements, it should be developed as fast as possible. To implement business logic is the first priority followed by usability, performance and security in sequence.

### 6.1. Continuous Deployment (or Delivery)

For rapid response to demand, our development model should not always follow the waterfall model as its hypothesis is stable and non-changeable requirements. Therefore, it is necessary to deliver our product online in a certain period, so that user can use it from time to time and give the feedback on time for modifying requirements in time and improving user's satisfaction on the product.

Here we adopt the AWS cloud computing platform for continuous deployment. The up-to-date ReCAST development situation will be published on that for letting project members have a better understanding of ReCAST by access a specific IP address.

### 6.2. Website Module Segmentation

The website is divided into three modules: frontend, backend, and server. The frontend is used for presentation, the backend is used to provide business and data, and the server provides accessibility and connectivity.

The front-end shall be implemented by HTML+CSS+JavaScript; Website backend business shall be supported by the Django framework of Python; Server connectivity support by AWS, The Django built-in server uWSGI can be used for development.

Most of frontend user interaction implemented by Javascript framework JQuery.js and style design implemented by CSS framework Bootstrap. Also, for improving the scalability and maintainability of ReCAST, development frameworks adopt a more advanced version, technique stack proposal as the following:

Backend: Python 3.6 (Django 3.0)

Front-end: HTML5, CSS3, Javascript 5 (JQuery.js: 2.6; Echarts.js: 4.7; D3.js: 4.0;)

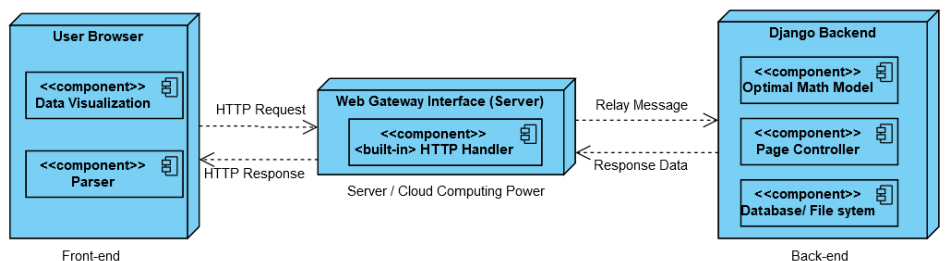


Figure 11System Modules Deployment Diagram

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For some groups of functions at the system, we call them components, its main purpose to provide a specific business. The main components include Data Visualization and Parser component at the front-end, HTTP Handler component at the server, Database, Optimal Math Model and Page Controller.

The data visualization module provides RLC scenario visualization so that RLC can compare different scenarios results intuitively. It should be placed on the front end and implemented using JavaScript. Currently available options are: Echarts.js, D3.js, DataTable.js. etc.

The parser is the input and output module of the system, which provides functions for processing Excel. Among them, the input module can use DataTables.js to implement the display effect in the front end; the system output can use the pandas framework to generate the Excel file in the back end.

Django's built-in uWSGI can be used as a server to quickly implement access functions by combining with cloud computing platforms. And that is the HTTP access request processing function.

Optimal Math Model provide core business algorithm to generate Target Allocation scenarios by invoking the Gorubi mathematical API interface

Page Controller defines a webpage jump relationship (route logic) by the Django framework.

The database module provides system persistence ability, user's history task records all stored in here. By default, Django provides a built-in database SQLite also with the ORM module to achieve persistence.

### 6.3. Maintenance requirements

Current server development environment: Linux Ubuntu (on AWS) + Django built-in database.

It may need the support of the supplier when the ReCAST is up and running – need more powerful could server for deploying ReCAST on that.

## 7. UI PROTOTYPE

An RLC page relationship diagram is put forward based on the above business. According to the three states of RLC, three corresponding modules are developed. Each module contains three to four pages. There are eleven pages, of which the Index page is not part of any module.

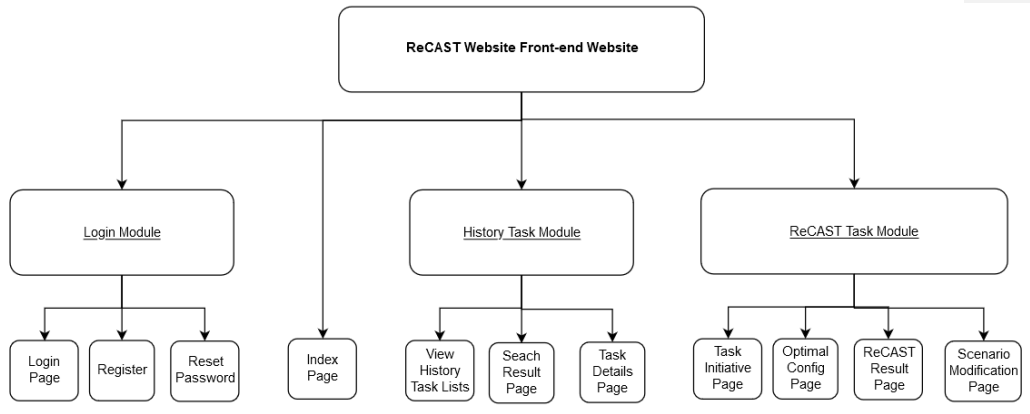


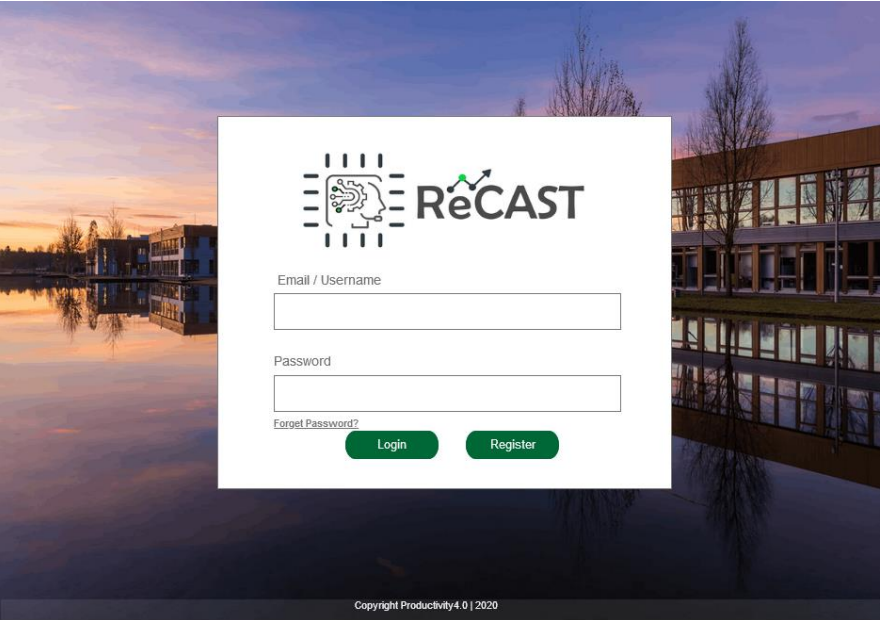
Figure 12RLC’s User Module and Visible Pages

In Login Module: It includes Login Page, Register Page, Reset Password Page.

In History Task Module: View History Task Lists Page, Search Result Page, Task Details Page.

In ReCAST Task Module: Task Initiative Page, Optimal Config Page, ReCAST Result Page and Scenario Modification Page.

● Login Page



The login page features a background image of a modern building at sunset. A white login form is centered on the page. At the top of the form is the ReCAST logo, which consists of a stylized brain icon with circuit lines and the text 'ReCAST'. Below the logo are two input fields: 'Email / Username' and 'Password'. A link for 'Forgot Password?' is located below the password field. At the bottom of the form are two green buttons: 'Login' and 'Register'. A copyright notice 'Copyright Productivity4.0 | 2020' is at the very bottom of the page.

ReCAST

Email / Username

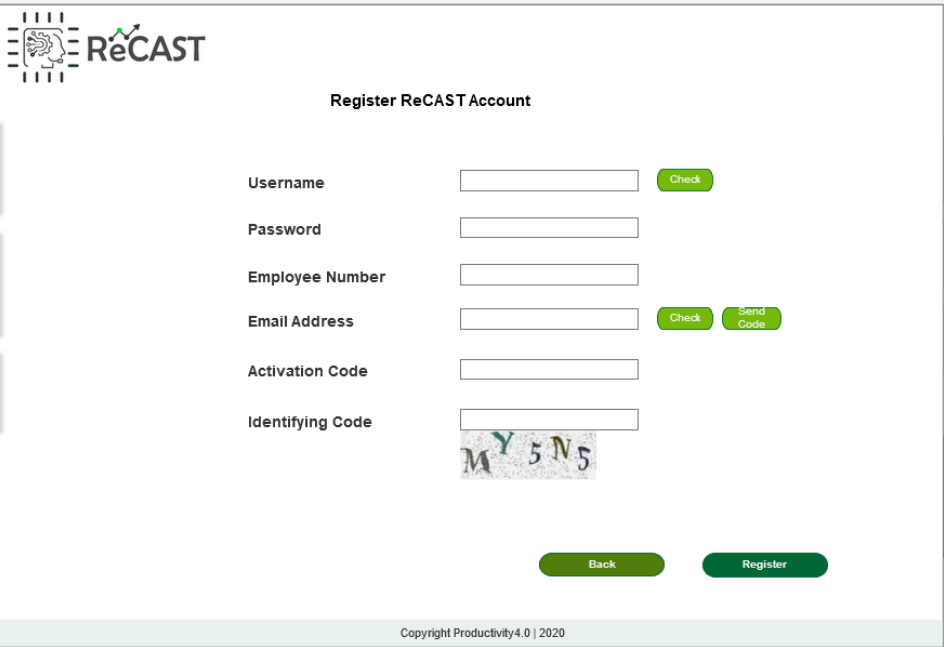
Password

[Forgot Password?](#)

Login Register

Copyright Productivity4.0 | 2020

● Register Page.



The register page has a white background with the ReCAST logo at the top left. The title 'Register ReCAST Account' is centered. Below the title are several input fields for registration: 'Username', 'Password', 'Employee Number', 'Email Address', 'Activation Code', and 'Identifying Code'. To the right of the 'Username' field is a green 'Check' button. To the right of the 'Email Address' field are two green buttons: 'Check' and 'Send Code'. Below the 'Identifying Code' field is a CAPTCHA image showing the letters 'M Y 5 N 5'. At the bottom of the form are two green buttons: 'Back' and 'Register'. A copyright notice 'Copyright Productivity4.0 | 2020' is at the bottom of the page.

ReCAST

Register ReCAST Account

Username

Password

Employee Number

Email Address

Activation Code

Identifying Code

Check


Check Send Code

Back Register

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● **Reset Password Page.**



**Reset Password**

ReCAST has sent an email to your registered address  
Please finish password reset within 1 mintues

Activation Code

59 s

Resend


New Password

Back

Confirm

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● **Inde Page**



Please import data from the following for generating target allocation:

TAS-UI Excel file


History Scenario

[Need Help? Click here to get user manual](#)

[Logout](#)

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● Task Initiative Page



# ReCAST

Help

Logout

## Initial and Scenario Configuration

| Week                         | 1          | 2          | 3          | 4         | 5          | 6          | 7          |
|------------------------------|------------|------------|------------|-----------|------------|------------|------------|
| From                         | 12/19/2018 | 12/26/2018 | 1/2/2019   | 1/9/2019  | 1/16/2019  | 1/23/2019  | 1/30/2019  |
| To                           | 1/4/2019   | 1/11/2019  | 1/18/2019  | 1/25/2019 | 2/1/2019   | 2/8/2019   | 2/15/2019  |
| Plant ATP                    | 101500     | 0          | 115500     | 83500     | 113000     | 118000     | 150000     |
| Item orders (2 weeks)        | 120000     | 110000     | 68000      | 0         | 75000      | 210000     | 170000     |
| Item orders (24 weeks)       | 112000     | 68000      | 68000      | 0         | 62000      | 112000     | 87000      |
| Start Date                   | 1/8/2019   | 1/15/2019  | 1/22/2019  | 2/5/2019  | 2/12/2019  | 2/19/2019  | 2/26/2019  |
| End Date                     | 1/8/2019   | 1/15/2019  | 1/22/2019  | 2/5/2019  | 2/12/2019  | 2/19/2019  | 2/26/2019  |
| Buffer Stock                 | 110000     | 107000     | 40000      | 118000    | 118000     | 118000     | 118000     |
| Customer A                   |            |            |            |           |            |            |            |
| Open Qty                     | 210000     | 0          | 0          | 0         | 0          | 340000     | 0          |
| Scheduled Qty                | 60000      | 50000      | 0          | 0         | 0          | 350000     | 30000      |
| Original Requested Week      | W1         | W1         |            |           |            | W6         | W6         |
| Planned Order Date           | 10/13/2018 | 10/13/2018 |            |           |            | 11/13/2018 | 11/13/2018 |
| Max run rate                 | 0          | 0          | 0          | 0         | 0          | 0          | 0          |
| Qty                          | 60000      | 60000      | 30000      | 30000     | 30000      | 30000      | 30000      |
| Qty not promised             | 0          | 0          | 0          | 0         | 0          | 340000     | 0          |
| Qty promised but not planned | 0          | 0          | 30000      | 30000     | 30000      | 30000      | 0          |
| Customer B                   |            |            |            |           |            |            |            |
| Open Qty                     | 60000      | 60000      | 60000      | 0         | 60000      | 180000     | 80000      |
| Scheduled Qty                | 60000      | 60000      | 60000      | 0         | 70000      | 70000      | 70000      |
| Original Requested Week      | W1         | W1         | W1         |           | W6         | W6         | W6         |
| Planned Order Date           | 10/13/2018 | 10/13/2018 | 10/13/2018 |           | 11/13/2018 | 11/13/2018 | 11/13/2018 |
| Max run rate                 | 70000      | 70000      | 70000      | 70000     | 70000      | 70000      | 70000      |
| Qty                          | 60000      | 60000      | 60000      | 0         | 70000      | 70000      | 70000      |
| Qty not promised             | 0          | 0          | 0          | 0         | 0          | 0          | 0          |
| Qty promised but not planned | 0          | 0          | 0          | 0         | 0          | 0          | 0          |

**Upload Excel File:** Browse from PC

\* Note: the uploaded excel file content structure should follow by the above picture

**Task name:**

Optional item. Give a name for distinguishing different ReCAST task

**Task description:**

Optional item. Describe what the case used for

**Choose Time Horizon:** CW  — CW

**Weight the scenarios:**

|   | Customer Weight  | Stock Weight  |
|---|--|---|
| S1  | <input style="width: 40px;" type="text" value="1"/>    | <input style="width: 40px;" type="text" value="0"/> <span>⊖</span>    |
| S2  | <input style="width: 40px;" type="text" value="0"/>    | <input style="width: 40px;" type="text" value="1"/> <span>⊖</span>    |
| S3  | <input style="width: 40px;" type="text" value="0.25"/> | <input style="width: 40px;" type="text" value="0.75"/> <span>⊖</span> |
| <span style="border: 1px solid #ccc; padding: 2px 5px; background-color: #e0f0e0;">+</span> |  |   |

\* Note: value range in [0,1]

Quit

Next

- **Optimal Config Page**



Current Task: Task4-1

Options

Help

Logout

### Math Optimal Model Config

Max Delay 

\*Min. Buffer Stock

\*Reserve Buffer Stock  

|                      | CW1 | CW2 | CW3 | ... | CW_N |
|----------------------|-----|-----|-----|-----|------|
| Min. Buffer Stock    |     |     |     |     |      |
| Reserve Buffer Stock |     |     |     |     |      |

Clean

### Allowance of Using from Stock

| Customer   CW. | CW1 | CW2 | CW3 | ... | CW_N |
|----------------|-----|-----|-----|-----|------|
| A_4006047_WF00 | Yes | Yes | Yes | ... | Yes  |
| B_WF00         | Yes | Yes | Yes |     | Yes  |
| C_WF00         | Yes | Yes | Yes |     | Yes  |
| ...            |     |     |     |     |      |

Note: each row is a seller/customer, and each column is a time unit.

**Robust Factors** ☒ Enable

|                    | CW1                                       | CW2                                       | CW3                            | ... | CW_N                                      |
|--------------------|---|---|--------------------------------|-----|---|
| Plant ATP          |   |   |                                |     |   |
| Vulnerable ATP     | <input checked="" type="checkbox"/> Apply | <input checked="" type="checkbox"/> Apply | <input type="checkbox"/> Apply |     | <input checked="" type="checkbox"/> Apply |
| Possible Gain/Loss |   |   |                                |     |   |

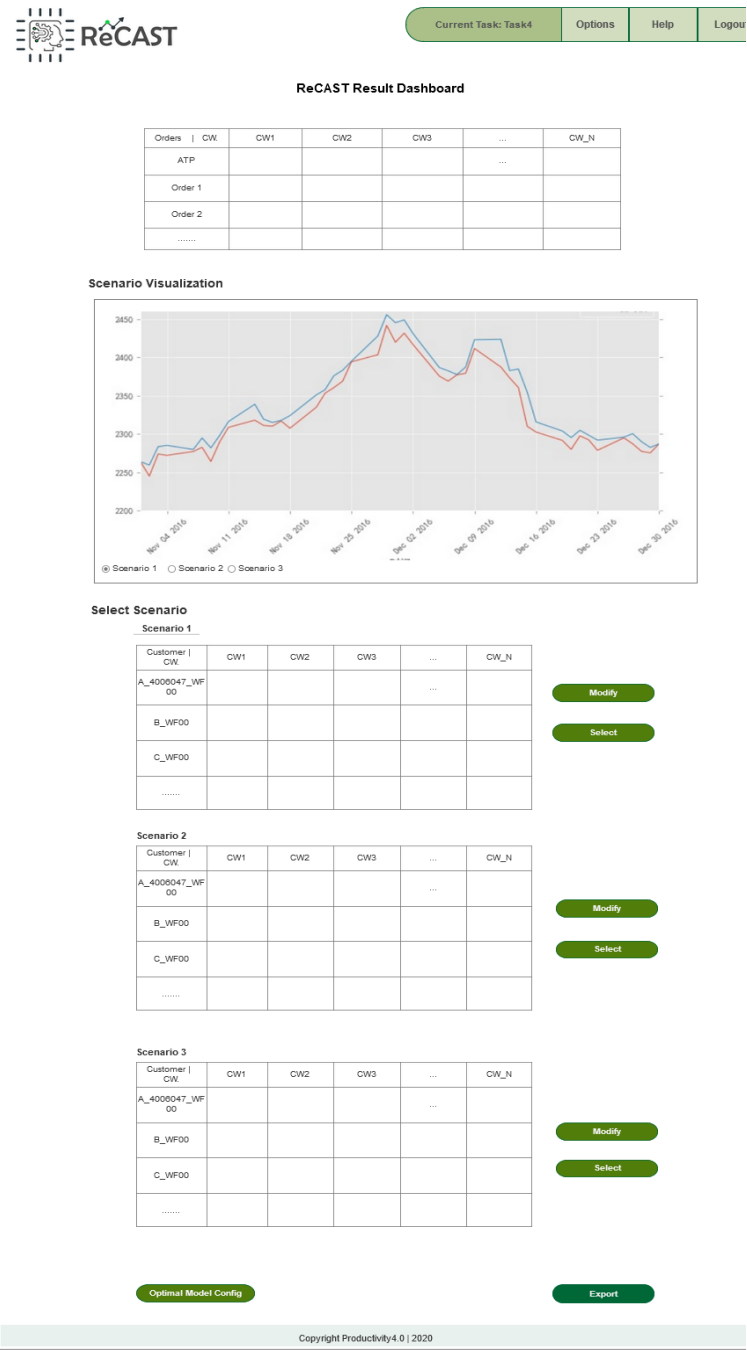
Scenario Config

**Advanced Option**

Run ReCAST

## Robust Run

● , ReCAST Result Page

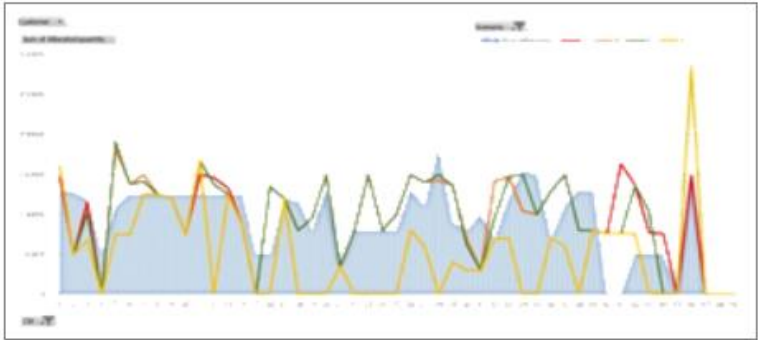


● Scenario Modification Page



Modify Scenario

Dual Visualization



Scenario Info

| Customer       | CW | CW1   |         |     | CW2   |         |     | ... | CW_N  |         |     |
|----------------|----|-------|---------|-----|-------|---------|-----|-----|-------|---------|-----|
|                |    | A-ATP | A-Stock | Sum | A-ATP | A-Stock | Sum |     | A-ATP | A-Stock | Sum |
| A_4008047_WF00 |    | 90    | 10      | 100 | 90    | 10      | 100 | ... | 90    | 10      | 100 |
| B_WF00         |    | 90    | 10      | 100 | 90    | 10      | 100 |     | 90    | 10      | 100 |
| ...            |    |       |         |     |       |         |     |     |       |         |     |

| Orders       | CW | CW1 | CW2 | CW3 | ... | CW_N |
|--------------|----|-----|-----|-----|-----|------|
| ATP          |    |     |     |     | ... |      |
| Buffer Stock |    |     |     |     |     |      |
| Order 1      |    |     |     |     |     |      |
| ...          |    |     |     |     |     |      |

Check

Back

Expert

● View History Task Lists Page



Scenario Histroy

Input Product ID:

Please enter SP code or MA code

Search

\*NOTE: Tasks are sorted starting with the latest time

| Display   | Task Name   | Task Digest   | Operations  |
|---|---|---|---|
| <div>All Task</div> <div>Finished Task</div> <div>On-going Task</div> <div>* List all tasks have been saved in ReCAST</div> | <div><input type="checkbox"/> Task 4</div> <div><input type="checkbox"/> Task 3</div> <div><input type="checkbox"/> Task 2</div> <div><input type="checkbox"/> Task 1</div> | <div>SP000001000<br/>Created on 29/04/2020-15:00:00<br/>Demonstrate Business Flow</div> <div>SP001000020<br/>Created on 22/04/2020-10:29:00<br/>The thrid time try (Task Description)</div> <div>SP001000020<br/>Created on 22/04/2020-10:29:09<br/>The Second time try</div> <div>SP001000020<br/>Created on 22/04/2020-10:29:09<br/>The first try</div> | <div>View Details</div> <div>View Details</div> <div>View Details</div> <div>View Details</div> |
| <div>Back to Index</div> <div>Batch Delete</div>  |   |   |   |

● Search Result Page



Search Histroy

Input Product ID:

Please enter SP code or MA code

Search

History Scenarios

Product ID: SP001000020

Task 3

On going: No Scenario Exported  
Created on 22/04/2020-10:29:00  
The thrid time try (Task Description)

View Details

Task 2

Finished: Target Scenario Exported  
Created on 22/04/2020-10:29:09  
The Second time try

View Details

Task 1

On going: No Scenario Exported  
Created on 22/04/2020-10:29:09  
The first try

View Details

Back

● Task Details Page



Task Information Descriptions

Task Name: **Task 4**      Product ID: **SP000001000**      Descriptions: **Demonstrate Business Flow**  
Created on **22/04/2020-10:29:59**

Time Horizon: **CW 2 - CW 12**      Max Delay: **10**

Scenarios weight:

|            | Customer Weight | Stock Weight |
|------------|-----------------|--------------|
| Scenario 1 | 0.1             | 0.9          |
| Scenario 2 | 1               | 0            |
| Scenario 3 | 0.5             | 0.5          |

Buffer Stock Config Table

|                      | CW1 | CW2 | CW3 | ... | CW_N |
|----------------------|-----|-----|-----|-----|------|
| Min. Buffer Stock    | 100 | 100 | 100 | ... | 100  |
| Reserve Buffer Stock | 200 | 200 | 200 | ... | 200  |

Allowance of Using from Stock

| Customer   CW  | CW1 | CW2 | CW3 | ... | CW_N |
|----------------|-----|-----|-----|-----|------|
| A_4008047_WF00 | Yes | Yes | Yes | ... | Yes  |
| B_WF00         | Yes | Yes | Yes |     | Yes  |
| C_WF00         | Yes | Yes | Yes |     | Yes  |
| .....          |     |     |     |     |      |

Robust Factors

|                    | CW1                            | CW2                            | CW3                            | ... | CW_N                           |
|--------------------|--------------------------------|--------------------------------|--------------------------------|-----|--------------------------------|
| Plant ATP          | 0                              |                                | 80000                          |     | 900                            |
| Vulnerable ATP     | <input type="checkbox"/> Apply | <input type="checkbox"/> Apply | <input type="checkbox"/> Apply |     | <input type="checkbox"/> Apply |
| Possible Gain/Loss | 100                            | -20                            |                                |     | 1                              |

Exported Scenario: Scenario 2

| Customer   CW  | CW1   |         |     | CW2   |         |     | ... | CW_N  |         |     |
|----------------|-------|---------|-----|-------|---------|-----|-----|-------|---------|-----|
|                | A-ATP | A-Stock | Sum | A-ATP | A-Stock | Sum |     | A-ATP | A-Stock | Sum |
| A_4008047_WF00 | 90    | 10      | 100 | 90    | 10      | 100 | ... | 90    | 10      | 100 |
| B_WF00         | 90    | 10      | 100 | 90    | 10      | 100 |     | 90    | 10      | 100 |
| .....          |       |         |     |       |         |     |     |       |         |     |

Back to List

Delete Task

Restore