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Process Definition

Document

ESQ Data Processing

Robotic Process Automation (RPA) to increase productivity, improve data integrity and reduce incidences of errors in data processing

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# INTRODUCTION



## Purpose

The Process Definition Document outlines the business process chosen for automation. The document describes the sequence of actions performed as part of the business process, the conditions and rules of the process prior to automation (**AS IS**) as well as the new sequence of actions that the process will follow as a result of preparation for automation (**TO BE**).

**The PDD is a communication document between:**

* The RPA Business Analyst and the SME/Process Owner. The goal is to ensure that the RPA Business Analyst has the correct understanding of the process and has represented it accurately.
* The RPA Business Analyst and the Development team (represented by the Solution Architect and RPA Development Lead). The goal is to ensure that the process is documented appropriately and to a sufficient level of detail so that the Solution Architect can then create the solution based on the PDD content.

## Objectives

The business objectives and benefits expected by the Business Process Owner after automation of the selected business process are:

* Reduce processing time per item by 85 - 90%.
* Better Monitoring of the overall activity by using the logs provided by the robots.

## Key Contacts

Add here any stakeholders that need to be informed or to approve changes to the process:

|  |  |  |  |
| --- | --- | --- | --- |
| Role | Name | Contact Details (email, phone number) | Notes |
|  | John Tan | Jtan15@amgen.com |  |
|  |  |  |  |

## Minimum Pre-requisites for the Automation

1. Filled in Process Definition Document
2. Test Data to support development
3. User access and user accounts creations (licenses, permissions, restrictions to create accounts for robots)
4. Credentials (user ID and password, if any) required to logon to machines and applications

# AS IS Process description

This section will serve as the starting point for the re-engineering and automation effort.

**External Service Quality (ESQ) currently spends approximately 200 hours retrieving and downloading data from SAP to Excel spreadsheets. Documents downloaded include periodic monitoring reports, audit reports and quality agreements**

**Report generation has multiple repetitive steps and iterated for multiple material codes. Data is manually extracted from SAP using different T-codes. The downloaded data is then processed (example filters applied, specific manufacturers and products selected for analysis and evaluation by ESQ**



## Process Overview

Section contains general information about the process before automation.

|  |  |
| --- | --- |
| Item | Description/Answer |
| Process Full Name | ESQ Data Processing |
| Process Area | Operations – manufacturers’ review |
| Department | External Service Quality |
| Short Description (operation, activity, outcome) | Data processing. Increase in productivity |
| Role(s) required in applications to perform the process |  |
| Process schedule and frequency | Bi- weekly / Monthly |
| Number of times the process is ran by selected frequency | 4 times (4 T-codes) |
| Process execution time | 120 minutes |
| Process Restrictions | *This is necessary for the Solution Architect to decide how they will need to split the Master Project into smaller projects (the scheduling of the unattended robots will depend on this)*  The processes are performed during working hours on weekdays. |
| Peak Period (s) | *It is important to understand peaks in order to design a robust and scalable solution.*  There are no peak periods |
| Peak Volume Approximate increase | ***E.g.*** *It is important to understand peaks in order to design a robust and scalable solution.*  NA |
| Number of persons performing the process | 1 |
| Expected Volume increase during next periods | *It is important to understand peaks in order to design a robust and scalable solution.*  *Estimated 10-20%* |
| Percentage Un-handled exceptions | Nil |
| Input data description | 100% Digital |
| Output Data description | Excel |

\*Add more rows to the table to include relevant data for the automation process. No fields should be left empty. Use “n/a” for the items that don`t apply to the selected business process.

## Applications Used

The table includes a comprehensive list of all the applications that are used as part of the process to be automated to perform the given actions in the flow.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Application Name | Version | Application Language | Thin/Think Client | Environment/ Access method | Comments |
|  | [*This is important for the RPA Developers as:*  *It is not uncommon for development environments to have lower versions compared to the production one;*  *The developer will know (or will know they have to investigate) if they can re-use a component that exists for a previous version or if they need to develop a new one*] | Application Language  [*This is important as different application languages can also mean different settings (e.g. dot versus comma as decimal separator). If the developer is aware of the language then they will know what are the challenges that come with that.*] |  |  |  |
| UiPath | 2021 10.6 | VB, .NET |  |  |  |
| Excel |  |  |  |  |  |
|  |  |  |  |  |  |

\*Add more rows to the table to include the complete list of applications.

## AS IS Process Map

This section contains various process maps contributing to a better understanding of how the process is performed pre-automation.

### High Level Process Map

This section is useful for the Business Analyst in presentations and discussions with management to underline areas of weakness, inefficiency or to demonstrate which actions could be in scope for automation.

**End**

**RPA Bot iterates through data rows and Excel files (raw data)**

**RPA Bot updates / populates Excel spreadsheets with updated computations**

**RPA Bot sends email alert to ASM2 stakeholder**

**RPA Bot triggers**

**RPA Bot process data and performs computations (e.g. threshold levels) , apply filters**

**Start**

**RPA Bot downloads input data from SAP (currently manual activity)**

**Bot extracts data table, data is summarized (e.g. which manufacturing process triggers solvent threshold level, which manufacturer is below expected quality standards)**

### 

### Detailed Level Process Map

This section describes the process at key-stroke level and is an essential part for the communication with the developers.

## Process Statistics

**High Level statistics**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Processes | Windows | Actions | Mouse clicks | Keys pressed | Text entries | Hotkeys used | Time |
| {total\_applications\_count} | {total\_windows\_count} | {total\_actions\_count} | {total\_clicks} | {total\_keys\_pressed} | {total\_text\_entries} | {total\_hotkeys} | {process\_execution\_time} |
| 3 | **6** | **50** | **200** | **130** | **20** | NA | **120 min** |
|  |  |  |  |  |  |  |  |

**Detailed statistics**

|  |  |  |  |
| --- | --- | --- | --- |
| Window name | Mouse clicks | Text entries | Key pressed |
| {#windows}{name} | {total\_clicks} | {total\_text\_entries} | {total\_keys\_pressed} {/windows} |
| SAP | **110** | **10** | **50** |
| Excel | **60** | **5** | **60** |
| Outlook | **30** | **5** | **20** |

## Detailed As Is Process Actions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| #Action | Input | Description | Details (Screen/Video Recording Index) | Exceptions Handling | Possible Actions |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

{#sequenceLayout}

|  |  |
| --- | --- |
| 1. {sequenceTitle} | |
| {sequenceDescription} | **Est. time: {sequence\_execution\_time}** |

{#actionLayout}

|  |  |
| --- | --- |
| * 1. {actionTitle} |  |
| {actionDescription} | Est. time: {action\_execution\_time} |
| {%actionImage} | {#action\_metadata}  Action: {action\_type}  {/action\_metadata} |

{/actionLayout}

{/sequenceLayout}

## Input Data Description

The following table should contain details regarding the inputs that every action of the process takes.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| #Action | Sample | Input Type | Location | Are inputs Natively Digital\*? | Are the Inputs Structured\*? |
| Data processing |  | Alphanumeric | ASM | Yes | Yes |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

*\** ***Native Digital****: This is data that was originally created digitally e.g. excel, database or application reports etc. The non-native digital inputs are usually scanned images.*

***\* Structured Data****: has a predictable format and exists in fixed fields (e.g. an excel cell or a field in a form) and is easily detectable via search algorithms.*

# TO BE Process description

In this section the proposed improvements to the process, actions to the process will be outlined as well as the actions proposed for automation and the type of robot required. **This will be cross-checked by the Solution Architect.**

## Detailed TO BE Process Map

A detailed process map of the process as it will look like post-automation will be outlined here.  
  
*Highlight Bot interventions/ To-Be automated actions with different legend/ icon (purple).  
Mention below if process improvements were performed on the To-Be design and provide details.*

|  |  |
| --- | --- |
| Legend | Description |
|  | Action number in the process. Referred to in details or Exceptions and Errors table. |
|  | This process action is proposed for automation. |
|  | This process action remains manual (to be performed by a human agent). |

## Parallel Initiatives

The table below will capture the proposed Business, Process or Application changes to be made in the near future that would impact the process at hand (if any).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Initiative Name | Process Action(s) where it is identified | Impact on current Automation Request | Expected Completion Date | Contact Person |
|  |  |  |  |  |
|  |  |  |  |  |

## In Scope For RPA

The actions in scope for RPA should be listed below:

## Out Of Scope for RPA

The actions **out of scope** for RPA should be listed in the table below together with the reasoning.

|  |  |  |  |
| --- | --- | --- | --- |
| Activity/Action\* | Reason for out of scope | Impact on the TO BE | Possible measures to be taken into consideration for future automation |
| *SAP download* | *Non-GMP validated* | *User manually download and save Excel files* | *Apply for GMP validation* |

\*Add more rows to the table to reflect the complete documentation provided to support the RPA process.

## Exceptions Handling

The Business Process Owner and Business Analysts are expected to document below all the business exceptions identified in the automation process. Exceptions are of 2 types and both need to be addressed:

**Known exceptions** = previously encountered. A scenario is defined with clear actions and workarounds for each case.

**Unknown** = New situation that was not encountered before. It cannot be predicted and in case it happens it needs to be flagged and communicated to an authorized person for evaluation.

### Known Business Exceptions

Details regarding how the robot should handle the exceptions.

|  |  |  |  |
| --- | --- | --- | --- |
| Exception Name | Action | Parameters | Action to be taken |
| *System exception* | *RPA code handles exceptions* | *N*umber of re-tries | *R*e-run the bot |

### 3.5.2 Unknown Business Exceptions

An umbrella rule that includes a notification needs to be designed for all other exceptions that could happen and cannot be anticipated.

*For all other cases which do not follow the rules defined an e-mail should be sent to:* [*user@amgen.com*](mailto:user@amgen.com) *with a screen shot and robot should proceed to next transaction.*

## Applications Errors & Exceptions Handling

A comprehensive list of all errors, warnings or notifications should be consolidated here together with the action to be taken for each by the Robot. There are 2 types of exceptions/errors:

**Known** = Previously encountered and action plan or workaround available for it (e.g. SAP unresponsive during peak times)

**Unknown** = these are exceptions and errors that cannot be anticipated but for which the robot needs to have a rule so that the RPA solution is sustainable.

### Known Applications Errors and Exceptions

Details regarding how the robot should handle the exceptions.

|  |  |  |  |
| --- | --- | --- | --- |
| Error/Exception Name | Action | Parameters | Action to be taken |
| *System exception* | *RPA code (e.g. ReFramework to handle exceptions\_* | ***E.g. number of re-tries*** | ***Re-start RPA bot*** |
|  |  |  |  |

### Unknown Applications Errors and Exceptions

An umbrella rule that includes a notification needs to be designed for all other exceptions that could happen and cannot be anticipated.

*RPA bot to attempt to access the application 3 times then it should end process.*

## Reporting

In this section all the reporting requirements of the business should be detailed so that when the RPA solution is moved to production the administrators can track the performance of the solution.

|  |  |  |  |
| --- | --- | --- | --- |
| Report Type | Update frequency | Details | Monitoring Tool to visualize the data |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

\* For complex reporting requirements, include them into a separate document and attach it to the present documentation

# Other

## Additional sources of process documentation

If there is additional material created to support the process automation please mention it here, along with the supported documentation provided.

|  |  |  |
| --- | --- | --- |
| Additional Process Documentation | | |
| Video Recording of the process (Optional) |  | Insert any relevant comments |
| Business Rules Library (Optional) | Insert link to Business rules library | Insert any relevant comments |
| Other documentation (Optional) | Insert link to any other relevant process documentation (L4, L5 process description, fields mapping files etc.) | Insert any relevant comments |
| Standard Operating Procedure(s) (Optional) |  | Insert any relevant comments |
| High Level Process Map (Optional) |  | Insert any relevant comments |
| Detailed level process map (Optional) |  | Insert any relevant comments |
| Work Instructions (Optional) |  | Insert any relevant comments |
| Input Files (Optional) |  | Insert any relevant comments |
| Output Files (Optional) |  | Insert any relevant comments |

\*Add more rows to the table to reflect the complete documentation provided to support the RPA process.

