

QRQCwa User Manual

Version 1.0

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Welcome

Welcome to the QRQC web application (QRQCwa in short), an information system that will help you in adopting the QRQC (Quick Response Quality Control) methodology in the management of your production issues' workflow.

The QRQC method is probably one of the most powerful tools available to swiftly and permanently resolve quality issues encountered at grassroots. Unlike other problem-solving tools, the QRQC method suggests a pragmatic approach intended to fix non-quality in as short a time as possible, directly in the spot where it was observed. It is a method primarily based on objective measurement and acts in such a way as to prevent the problem occurring again. The aim of the QRQC web application is to:

- allow users to correctly detect, describe, analyze, and solve production issues, using the QRQC's approach;
- guide users during the life-cycle of each issue, ensuring the management of a correct workflow from the issue detection to the issue closing/archiving;
- enable statistical analysis of collected issues/cases in order to spot processes' weaknesses and improvement points.

The QRQC web application has been developed in complete adherence to the QRQC method general guidelines and best practices, with some adaptations derived from direct observation of real-life processes. For example, this software application not only manages "QRQC issues" (implementing for them the whole QRQC methodology), but introduces also the concept of "Minor issue": an issue that is less important and doesn't need to be treated with the full QRQC process, but at the same time – even if less important - it's worth to be tracked in the system, with the corrective actions taken to solve the issue, for future reference.




So, it's important to know from the beginning that the application manages these two kinds of issues:

- so-called Minor issues
- "full-featured" QRQC issues

Moreover a "full-featured" QRQC issue will be managed optionally involving two "levels" of importance:

- Line level (this is the level where a QRQC issue is opened and where the first analysis and investigations steps occur)
- Plant level (this is a "high-importance" level, to which a "Line level" QRQC issue can be "promoted" to acquire special attention); Plant level QRQC issues are subject to a special treatment and some restrictions (for example, they can be "closed" as "solved" only by users with special permissions).

We can then identify three types of issues, that will be associated with the following icons:

	Minor issue
	Line level QRQC issue
	Plant level QRQC issue

In order to avoid any confusion, in the remaining of this document we will adopt this glossary:

Term	Intended meaning
QRQC	The QRQC methodology, its processes, guidelines and best practices
QRQCwa	The QRQC web application, implementing the QRQC methodology
QRQC issue (or "QRQC case" or, sometimes, just "QRQC")	A "case" managed inside QRQCwa following all the steps and the processes typical of the QRQC methodology

Minor issue	A “case” managed inside QRQCwa in a “light” mode (=not strictly following the QRQC steps)
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QRQC methodology basics implemented in QRQCwa

QRQC is based on a Japanese concept known as San Gen Shugi, meaning “3 reals”. San Gen Shugi is a scientific method and concept of problem solving and analysis with far-reaching applications. The 3 reals are defined as follows:

- Real Situation – understanding what is really happening.
- Real Place – going to the real location of production.
- Real Problem – investigating the real problem or issue.

QRQC is implemented as a process organized in various, consecutive “steps”. In general, those steps are to be followed in sequence, and is not possible to go on the step N+1 if the step N is not yet completed. QRQCwa enforces this progression of consecutive steps, thus ensuring completeness and correctness of collected data about each managed case¹.

Step 1: Problem Detection and Description

Units or components or actions/executions of production processes identified as problematic or defective by workers on the production line cause the creation of a new QRQC case to be logged in a list to serve as a record of production issues. In this first step, the issue is simply described, in way as detailed and specific as possible. QRQCwa allows a quite detailed description and definition of the problem, including customizable categorization and tagging (that simplify future searches on that issue).

Step 2: Problem Communication

Any problem with production should be communicated quickly to the relevant person or team. If a particular process is being worked in the wrong manner resulting in defects, the issue cannot be corrected until the relevant person is made aware of the problem and advised on how to respond. Being a shared tool to track and centrally manage detected issues, QRQCwa intrinsically fulfills this communication need at a team level. Moreover, when a QRQC case is opened, an explicit team is assigned to it, and each member of that team is immediately notified and involved in the management of the issue.

Step 3: Problem Analysis

In the problem analysis step, the team executes a brainstorming on possible causes of the issues, inspecting various production areas and factors (such as: environment, material, man, machine, etc.). With the help of an Ishikawa² diagram (a.k.a. fishbone diagram), the various possible causes are organized to find the root cause(s) of the issue. Each root cause is then eviscerated by using the “five whys” technique³ in order to understand the root reason of the defect. QRQCwa supports this crucial step implementing both Ishikawa visualization and five whys technique, also with support for tracking so-called “side actions” (that are minor actions needed by the teams to better diagnose or inspect a cause during this step).

Step 4: Corrective and Preventive Actions and Effectiveness

This step is all about actions: actions to correct the issues and actions to prevent future occurrence of the same issues. QRQCwa allows to manage those actions and for each keeps track of the assigned responsible, due date and actual execution date, validation. The progress of defined actions is tracked with a Plan-Do-Check-Act (PDCA) approach.

¹ This is valid for QRQC issues, not applicable to Minor issues

² See https://en.wikipedia.org/wiki/Ishikawa_diagram

³ See https://en.wikipedia.org/wiki/Five_whys

Step 5 (final step): Lessons learnt and Clean Points

The final step is about clean points and lessons learnt during the resolution of the issue. It's aimed to categorize the specific issue solving process for future reference and knowledge-base. QRQCwa offers a fully customizable categorization for clean points and lessons learnt.

Issue Owner, Issue Team, Actions Responsibles

QRQCwa implements the concept of "issue owner", that is the user who initially created the issue entry in the system. The issue owner has some extended privileges on his issues (for example: he is the only person able to "close" the issue).

For QRQC issues, the owner is able to indicate a team of colleagues, elected to follow a specific issue: this is the team that will meet to analyze the issue, find the root causes, define corrective actions.

During an issue life-cycle, some actions are defined: they can be actions (so called "side actions") needed to complete the root cause investigation or they can be corrective actions to solve the issue and prevent future occurrence. In all these cases, a Responsible can be elected to follow the actual execution of the action (the responsible needs not to be necessarily in the issue team).

Technical details about QRQCwa

Here some technical details about the QRQCwa software solution:

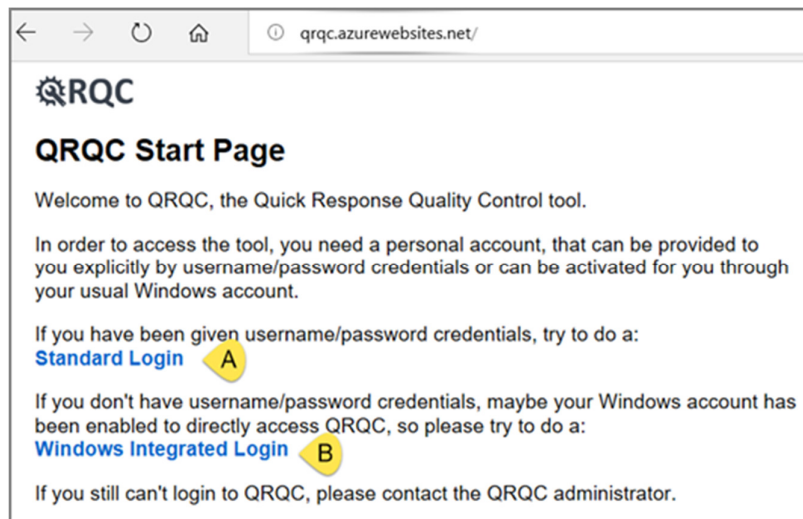
- it's a web application running on Microsoft Windows operating system, using the Internet Information Server (IIS) subsystem;
- it keeps the data in a Microsoft SQL Server relational database;
- it can be hosted on premises (if the company owns an IIS web server and a SQL Server), or can be hosted on Microsoft Azure cloud. It is also possible to have a hybrid solution, with the web server on premises and the database on SQL Azure (there are pros and cons for each of these hosting options);
- it is developed leveraging the Microsoft .NET Framework and using the ASP.NET MVC technology;
- on the client side, it works with modern web browsers (Google Chrome is the recommended one).

Public QRQCwa demo environment

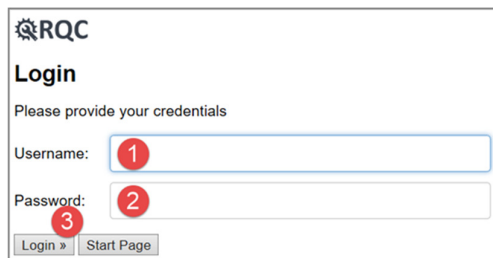
A demonstrative instance of QRQCwa is publicly available on Microsoft Azure cloud at the following URL (in order to use the demo, you need valid credentials to login):

[http://\[link removed\]](http://[link removed])

In general, QRQCwa can be configured to use a "standard login" or a "Windows integrated login". In the first case (that is typically used when QRQCwa runs on the cloud), the user needs a custom set of credentials (username+password) in order to access QRQCwa; in case of a "Windows integrated login" configuration, instead, the user is automatically logged-in through a single sign-on (SSO) mechanism based on his corporate domain account (this is typically used when QRQCwa runs on premises).



If you own proper credentials for accessing the demo environment, you can select “Standard Login” (option A); this brings you to the login screen:



By filling field (1) with the provided username and field (2) with the corresponding password and clicking on the “Login” button (3), you will start your session on QRQCwa.

QRQCwa homepage

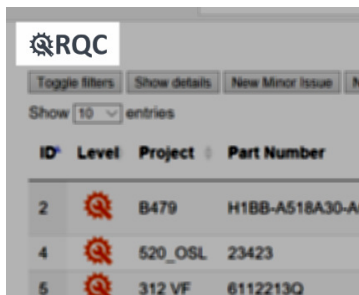
This is the QRQCwa homepage. Its aim is to show a list of the most recent issues with their type (Minor issue, Line QRQC, Plant QRQC) and their status, in order to give the user a summary of the situation of open cases. As described later, this list can be filtered based on some criteria; for example, it is possible to show only the issues where the current user is somehow involved in (see details below).

ID	Level	Project	Part Number	Subject	Description	Complaint	Owner	Opened	Step 1	Step 2+3	Step 4	Final
2	B479	H1BB-A518A30-ACW		Rollo elettrico ant	Touch condition between rear rollo / headliner	IMRR006319	Arena	04/06/2019	●	●	●	●
4	520_OSL	23423		E-Drive	Schiacciamento pattini non garantito	#12345	Venditti	19/06/2019	●	●	●	●
5	312_VF	6112213Q		Rear Member	Puntili "JM" fuori tolleranza	#12345	Venditti	25/07/2019	●	○	○	○
6	312_VF	6112213Q		Rear Member	Puntili "JM" fuori tolleranza	#12345	Venditti	19/06/2019	●	●	●	●
13	520_OSL				Schiacciamento pattini non garantito		Venditti	21/06/2019	●	●	●	●
22	B479	Panorama roof B479, FN H1BB-A518A30-ACW				IMRR006319	Lana	30/06/2019	●	●	○	○
54	AR 952	Alfa Romeo Giulia			Tendina anteriore rumorosa " BOWDEN "		Lana	27/07/2019	●	●	○	○

Let's have a look to the various sections of this homepage.

Homepage heading

The upper-left corner “QRQC” logo is shown throughout the application’s screens and is always clickable in order to let the user return immediately to this homepage:



The name of the user currently logged-in is always shown in the upper-right corner of the screen; by clicking on that label, the user can access to some functionalities (reporting functions, administrative functions, personal settings, and so on), that are described below.



Homepage buttons strip

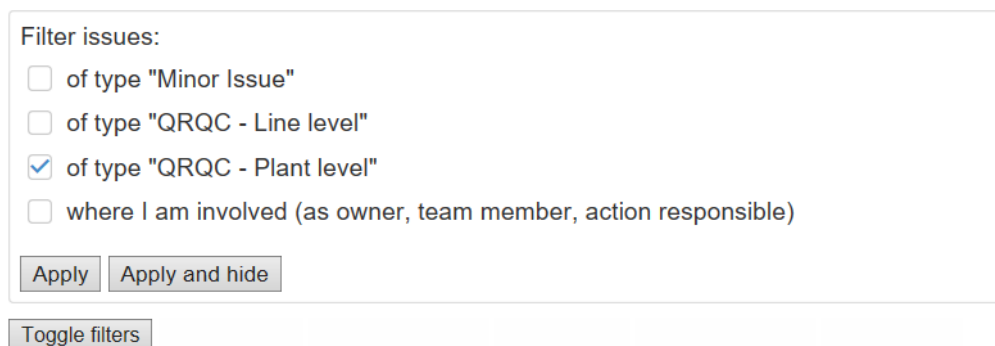
Immediately below the heading, a buttons strip is shown:



Here the descriptions of these buttons:

Filters

This button toggles (shows/hides) the visualization of the filters panel. That panel includes some filters that define which issues are to be shown in the filtered list:



The user can filter the issues by type ("Minor Issue", "Line level QRQC", "Plant Level QRQC") and can decide to limit the list only to issues where he is somehow involved in. After selecting the desired filter options, they will be applied to the list by clicking on the "Apply" button (while "Apply and hide" will apply the filters and hide the filters panel).

Show details

This button shows the details of a specific issue: after selecting a row in the list, by clicking "Show details" the user can inspect the details of the selected issue. In case of a Minor issue, the screen will show something like this (details about a Minor issue content will be explained later):

QRQC

Minor Issue ID:

Issue owner:

Opening date:

Project:

Subject:

Description:

SQDC:

Quantity:


Root cause:

Action description:

Responsible:

Due date:

Execution date:

PDCA: 

Action non yet validated.

Original due date (10/06/2019) rescheduled to:
 03/07/2019 test1 (by Venditti Alberto on 25/06/2019)
 08/07/2019 test3 (by Venditti Alberto on 25/06/2019)
 10/07/2019 replanned (by Venditti Alberto on 25/06/2019)
 10/06/2019 was wrong (by Venditti Alberto on 02/07/2019)

Note that data are shown in a read-only fashion: in order to edit them, the “Edit” button has to be used explicitly. This is a general way to operate in QRQCwa. We will see that editing could be restricted based on specific constraints (users’ permission, status of the issues, etc.).

Also, note that some “history information” on the issue appear in the low part of the screen (we’ll talk about them later).

If the user selected a QRQC issue from the main list, by clicking on “Show details”, the screen will show something like this (we’ll explain later the QRQC issue content with its specific “steps”):

Plant QRQC #2 - Touch condition between rear rollo / headliner

Step 1 Step 2+3 Step 4 Step 5 Attachments

Description of the PROBLEM:

QRQC ID: 2

Opening date: 04/06/2019

Plant: 1Y Niehl

Part Name and #: H1BB-A518A30-ACW

Project: B479

Cust. complaint: IMRR#006319

Complaint type:

Subject: Rollo elettrico ant

Defect family:

Recurrence: Yes

Description: Touch condition between rear rollo / headliner

Part production date: Roofs produced in November/December 2018

Containment: Reimplementation of gap control between rear ral and rear glass in Z since 17/01/2019 (SN 29624)

	IS	IS NOT
What?	Rear rollerblind	Front rollerblind
Why?		
Where?	Ford customer plant	Webasto EOL
When?	November december 18 Webasto production, assembled	Most parts built before October 2018 by Webasto
Who?	Ford FCPA audit	Webasto EOL cabin check
How?	Closing rollo bring to touch condition with headliner	
How Many?	[40 items] 40 cars (5 reviewed at customer plant)	

Tags:

QRQC Team

QRQC OWNER:

PRODUCTION:

Step status:

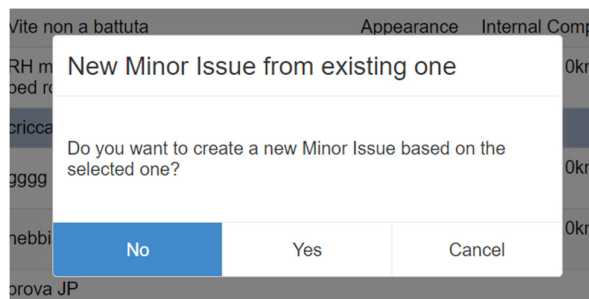
Step closed on 16/07/2019 16:01

Note that in general data are shown in a read-only fashion: in order to edit them, the “Edit” button has to be used explicitly. In some situations the “Edit” button is not available: as in the example above, where the progress of the QRQC issue is already at step 4, so the step 1 (shown in the screenshot) is considered “closed” (and only users with specific permissions can re-open it). We’ll discuss more about the QRQC steps progression in the following paragraphs.

New Minor issue

This button takes the user to the editing screen for a new Minor issue to be created from scratch (for more details, see below in the document).

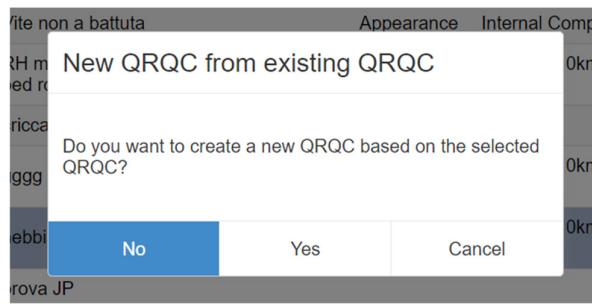
A new Minor issue can be created also using another Minor issue as a starting template. In this case, the user must select in the list the Minor issue to be used as a starting point for the new one, and then he must click on “New Minor issue”.



New QRQC

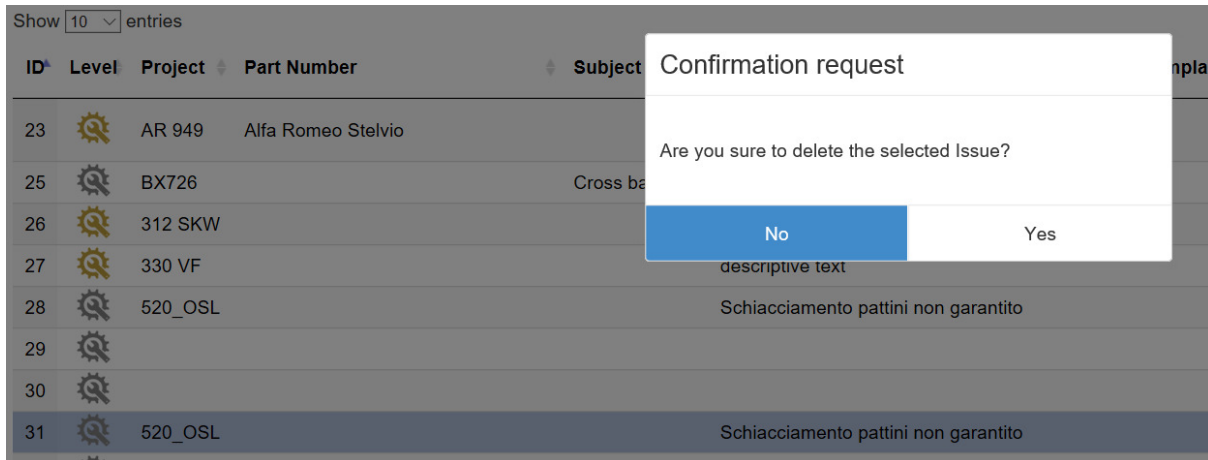
This button takes the user to the editing screen for a new QRQC issue to be created from scratch (for more details, see below in the document).

A new QRQC issue can be created also using another QRQC or Minor issue as a starting template. In this case, the user must select in the list the QRQC or Minor issue to be used as a starting point for the new one, and then he must click on “New QRQC”.



Delete issue

This button allows the user to delete an issue selected from the list. This action can be restricted to specific users. In any case a confirmation dialog is shown, as in this sample:



Export

This button allows the user to produce an exported Microsoft Excel workbook containing all the data of the issue selected from the list. For Minor issues, the exported file contains all the data from the Minor issue edit form; for QRQC issues, the exported file contains all the data from the various issue's Steps.

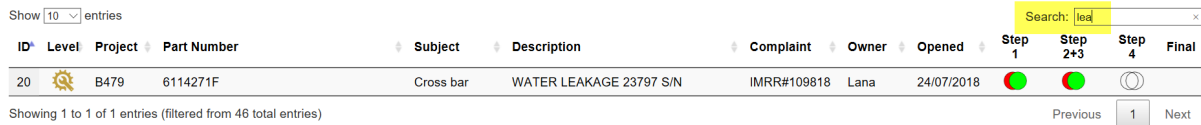
The issues list

The homepage central section shows the list of the issues, filtered based on the criteria set in the filters panel (see above).

ID	Level	Project	Part Number	Subject	Description	Complaint	Owner	Opened	Step 1	Step 2+3	Step 4	Final
1		312 VF	6112213Q	Rear Member	Punti "M" fuori tolleranza	#12345	Bivona	05/06/2019				
18		312 SKW			esempio di minor issue		Venditti	25/06/2019				
19		312 SKW			rrr		Venditti	25/06/2019				
20		B479	6114271F	Cross bar	WATER LEAKAGE 23797 S/N	IMRR#109818	Lana	24/07/2018				
22		R479	Panorama roof B479, PN H1BB-A51BA30-ACW			IMRR#006319	Lana	30/06/2019				
23		AR 949	Alfa Romeo Stelvio		GUARNIZIONE CENTRALE LUCE TRA CRISTALLI		Lana	30/06/2019				
25		BX726		Cross bar	Test of MinorIssue failed and closed with KO		Venditti	02/07/2019				
26		312 SKW			rrr		Bertalmio	03/07/2019				
27		330 VF			descriptive text		Venditti	04/07/2019				
28		520_OSL			Schiacciamento pattini non garantito		Lana	06/07/2019				

The list is shown in pages. The user can browse the various pages by operating on the bottom navigation controls (C), and can choose the number of rows per page (10, 25, 50, 100) by using the "Show N entries" control (A).

The “Search” control (B) allows the user to narrow the list results by searching a word. For example, by typing the search string “lea”, the list is filtered to show only rows containing the text “lea” in one of the fields shown (Project, Part Number, Subject, Description, Complaint, Owner).



The “Step1”, “Step 2+3” and “Step 4” and “Final” are aimed to show the status of each issue step, taking into account their planned closing date compared with the current date (in order to highlight delays in the process (more about issue’s steps in the following paragraphs).

Icons meaning for steps status is as follows:

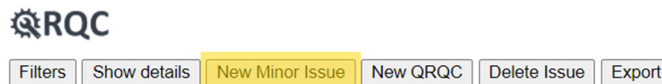
Icon	Meaning for QRQC
	Step closed late
	Step in progress, but already running late
	Step closed in time
	Step in progress

Icon	Meaning for Minor issue (only one “step” exists, named “Final”)
	Minor issue closed in time, with “OK” validation
	Minor issue closed in time, with “KO” validation
	Minor issue not yet validated, but already resulting late (looking at its due date)
	Minor issue in progress
	Minor issue closed late, with “KO” validation

About Minor issue validation, see following paragraphs.

Creating a Minor issue

In order to create a Minor issue, we use the “New Minor Issue” button on the buttons strip:



If the user clicks on that button when another Minor issue is selected in the list, the new Minor issue can be created using the selected one as a template.

ID	Level	Project	Part Number	Subject	Description	Complaint
1		312 VF	6112213Q	Rear Mem		45
18		312 SKW				
19		312 SKW				
20		B479	6114271F	Cross		#1098
22		B479	Panorama roof B479, PN H1BB-A518A30-ACW			#0063
23		AR 949	Alfa Romeo Stelvio		GUARNIZIONE CENTRALE LUCE TRA CRISTALLI	
25		BX726		Cross bar	Test of MinorIssue failed and closed with KO	

New Minor Issue from existing one

Do you want to create a new Minor Issue based on the selected one?

The following data will be inherited from the base Minor issue: owner, due date, execution date, PDCA and due date reschedules (if present).

The main editing screen for a Minor issue appears as follows:

RQC

Minor Issue ID:

Issue owner:

Opening date:

Project:

Subject:

Description:

SQDC:

Quantity:

Root cause:

Action description:

Responsible:

Due date:

Execution date:

PDCA:

Validation outcome:

Validation notes:

Here is a quick description of each field:

Minor issue ID	unique identifier of the issue, auto-generated by the system (it's not editable by the user)
Issue owner	the user who created the issue (in special cases, this can be edited, but only by users with special permissions)
Opening date	the date when the issue was created
Project	the project where the issue has been observed (the list of available projects is configurable)
Subject	the component (or product) where the issue has been detected (the list of available "subjects" is configurable)
Description	description of the observed issue (free text)
SQDC	the area (Safety, Quality, Delivery or Cost) impacted by the issue
Quantity	the number of occurrences of the observed defect/issue
Root cause	free text
Action description	free text
Responsible	the person designated as responsible for the issue (people list is configurable)
Due date	the due date for the corrective action to be executed
Execution date	the actual date when the action has been executed

PDCA	the progress status of the action (actually, it's a percentage of completeness: 0%, 25%, 50%, 75%, 100%)
Validation outcome	this is just a valid/invalid outcome (mnemonically coded as "OK" and "KO")
Validation notes	description of the reasons for the specified validation outcome (mandatory if the outcome is "KO")

Some notes about the above fields:

Quantity: this field not only can contain the number of occurrences of the observed defect/issue; it could be also a quantity of impacted materials (in this case, a unit of measure needs to be specified, too):

Quantity: [Select]

unit of measure

[Select]
[Select]
items
minutes
euro

Due date: the due date can be rescheduled; when the user saves the issue and the due date appears modified, the system asks for a reason:

Action rescheduling

You modified the action's due date. Please, enter a reason for that re-scheduling:

That way, the system keeps track of any rescheduling (who did it, when and a reason why) and shows the rescheduling history in the bottom part of the screen:

Original due date (10/06/2019) rescheduled to:
03/07/2019 test1 (by Venditti Alberto on 25/06/2019)
08/07/2019 test3 (by Venditti Alberto on 25/06/2019)
10/07/2019 replanned (by Venditti Alberto on 25/06/2019)
10/06/2019 was wrong (by Venditti Alberto on 02/07/2019)

After filling the fields on the form, the Minor issue is created by clicking on "Save" button. From now on, it appears in a read-only fashion, and can be editable only under specific conditions (regarding its status, the current user permissions, etc.): in those conditions, an "Edit" button is made available:

Closing a Minor issue

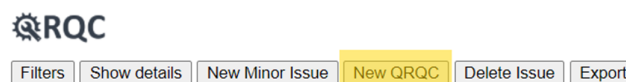
A Minor issue can be closed if and only if:

- the due date is filled
- the execution date is filled
- the PDCA is filled (even if not 100%)
- the validation field is filled

Under this conditions, by clicking on “Save” button the Minor issue is automatically “closed”. It could be re-opened for some reason, but only by users with specific permissions.

Creating a QRQC issue

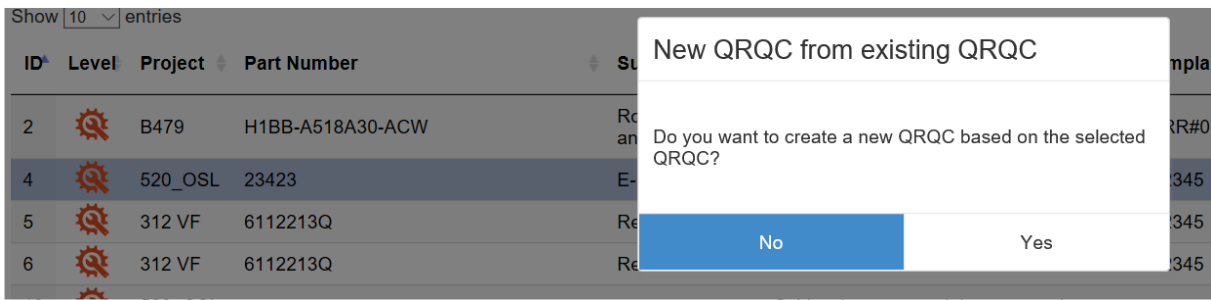
In order to create a QRQC issue, we use the “New QRQC” button on the buttons strip:



If the user clicks on that button when a Minor issue is selected in the list, the new QRQC issue can be created using the selected Minor issue as a template.

ID	Level	Project	Part Number	Status
2		B479	H1BB-A518A30-ACW	Re...
4		520_OSL	23423	E-
5		312 VF	6112213Q	Re
6		312 VF	6112213Q	Re
13		520_OSL		Schiacciamento pattini non garantito
18		312 SKW		esempio di minor issue
19		312 SKW		rrr

If the user clicks on that button when another QRQC issue is selected in the list, the new QRQC issue can be created using the selected one as a template.



In both cases, the result will be having a new QRQC issue with some data precompiled from the previously selected entry.

When creating a new QRQC issue, the first screen shown to the user will be about the Step 1 (Problem Detection and Description). Let's briefly describe the Step tabs strip of a QRQC issue and its navigation rules.

Step tabs strip and navigation between QRQC steps

When creating a new QRQC issue (that is always created at a "Line" level, so it is a "Line level QRQC"), the user can obviously edit only the data pertaining Step 1. In fact, this will initially be the only available Step for the new QRQC issue; only when the Step 1 is closed, the next Step will be made available, and so on.

The upper part of the screen shows a Step tabs strip, that gives information about the status of each QRQC step and allows the navigation between steps. The last tab ("Attachments") makes possible to enrich the description of an issue by attaching files (pictures, documents, data sheets, ...).

Let's understand the visual meaning of the Step tabs strip by analyzing some examples:

Example 1:

Line QRQC #75 -



We can say that:

- Step 1 is currently shown (because the tab background color is yellow)
- all other steps are not selectable/usable (dark grey background color), because Step 1 is still open
- the "Attachments" tab is available (light grey background color); in fact when the QRQC issue is open the user can always manage attachments for it

Example 2:

Plant QRQC #2 - Touch condition between rear rollo / headliner



We can say that:

- Step 1 is currently shown (because the tab background color is yellow)
- Step 1 has been closed late (based on the circles icon)
- Step 2+3 has been closed late (based on the circles icon)
- Step 4 has been closed late (based on the circles icon)
- Step 5 is in progress, and is not yet late (based on the circles icon)
- All steps are available (light grey background color); being Step 5 in progress, the other steps are already closed, so they are accessible in a read-only fashion (if they are not re-opened for some reason)

Step 1

The Step 1 is focused on problem detection and description: all data describing and identifying the issue are collected in a screen that appears as follows:

Here is a quick description of each field:

QRQC ID	unique identifier of the issue, auto-generated by the system (it's not editable by the user)
Opening date	the date when the issue was created
Plant	the plant where the issue occurred (the list of available plants is configurable)
Part Name and #	the name and/or serial number of the part involved in the issue
Project	the project where the issue has been observed (the list of available projects is configurable)
Customer complaint	a reference to the customer complaint revealing the issue
Complaint type	the type of complaint issued
Subject	the component (or product) where the issue has been detected (the list of available "subjects" is configurable)
Defect family	the family of the defect (the list of available families is configurable)
Recurrence	a Yes/No flag indicating if the issue is a recurring issue
Description	description of the observed issue (free text)
Part production date	specific date or generic notes about the timing of production of the part (free text)
Containment	the very first action taken to contain the problem in the short term, before it is analyzed and solved (free text)
IS / IS NOT section	a detailed problem description/identification through the "5W+2H", which are questions about What/Why/Where/When/Who/How/HowMany ⁴ to describe the exact perimeter where the issue stands (and also, through the "IS NOT" questions, the outside perimeter)

⁴ The "How Many" field allows (in the "IS" section) to input a free text and/or a numeric value (with its unit of measure), indicating the entity of the issue (impacted pieces, quantity of damaged material, and so on).

Tags	a custom list of tags associated to the issue (this permits a powerful, deconstructed categorization of issues, useful for future easy identifications and search)
QRQC owner	the user who created the issue (in special cases, this can be edited, but only by users with special permissions)

After filling the Step 1 data, they can be saved by clicking on the “Save” button. In the bottom part of the screen the Step 1 closing deadline (computed from the issue opening date) appears, together with the “Close Step” button, that the issue owner can be used to close Step 1 when all data are completed.

After the first saving operation, it is possible to define the members of the team that will manage the issue. By clicking “Edit Team” button, the team editing screen shows up:

To add a team member: select the Department⁵ (1), select the name⁵ (2) and click on “Add” (3). The Department has the meaning of “role the person is playing in the team”, and it’s not necessarily the exact Department the person works in. That’s why the same person can be added multiple times in the same team, by assigning him/her different role (=departments).

To remove a team member: click the “Remove” button on that specific row.

To confirm the teams modifications, click on “Save” button (or “Cancel” to discard them).

⁵ Departments and people are taken from pre-configured lists.

QRQC Team		
QRQC OWNER:	Lana Emanuele	
MAINTENANCE	Falcou Pascal	<input type="button" value="Remove"/>
QUALITY Process	Colombo Cristian	<input type="button" value="Remove"/>
[Department...]	[Person...]	<input type="button" value="Add"/>

Promote / Demote QRQC

The Step 1 screen hosts the “Promote QRQC to Plant level” button, that allows the issue owner to promote the current QRQC issue from Line to Plant level. The operation is subject to a confirmation:

Promote QRQC to Plant level

Do you want to promote to Plant Level the selected QRQC?
Be aware that Plant Level QRQCs can be closed only by users having proper permissions.

because Plant level QRQC issues expose to some restrictions: only authorized users will be able to close the issue (or possibly will be able to “demote”, for some reason, the issue again to a Line level).

Closing Step 1

The closing deadline for Step 1 is computed as Opening Date + 1 working day. Any company closing period (previously and properly configured) and Saturdays/Sundays will not count as “working days” in this computation.

In order to have access to Step 2+3, the issue owner must have previously closed Step 1. The closed Step 1 enters in a read-only state and the data filling process goes on in the Step 2+3 screen. The issue owner can possibly reopen Step 1 (thus making a step-back in the process), but this should happen very rarely.

When Step 1 is closed, the corresponding tab shows its own circles icon, indicating the situation of Step 1 closed in time or late. Obviously, reopening Step 1 could make “closed late” a Step 1 that was been closed in time.

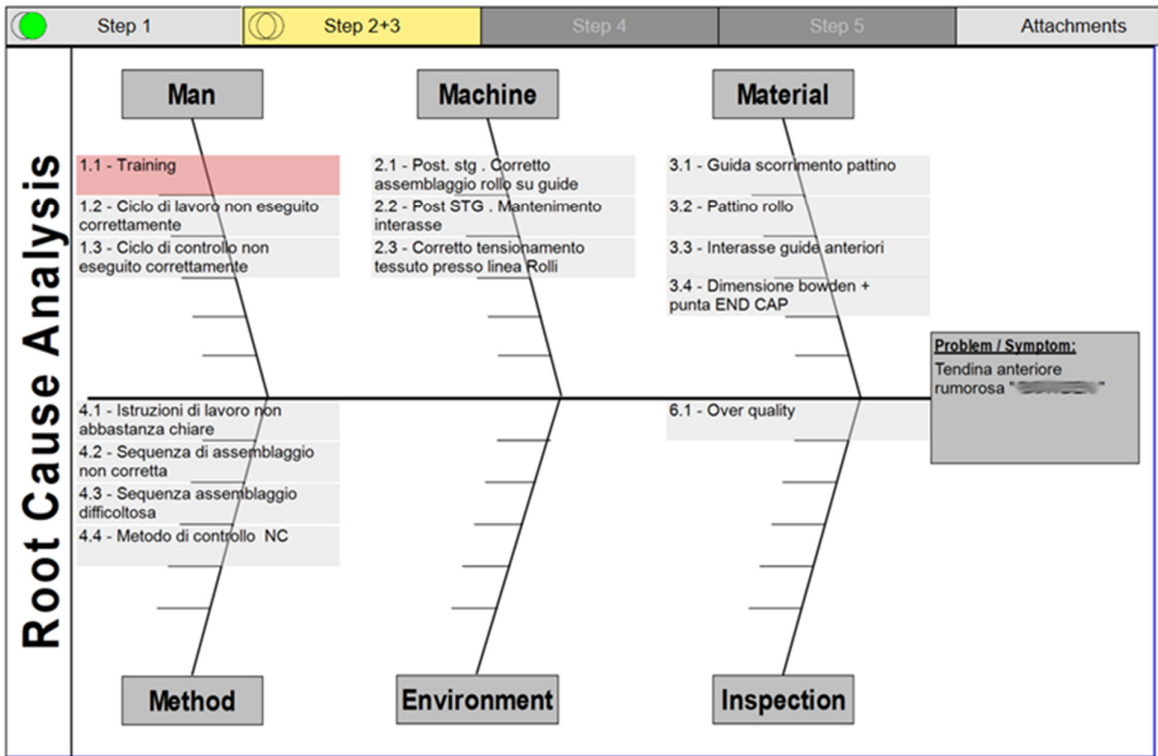
Step 2+3

Step 2 (Problem communication) and Step 3 (Problem analysis) are managed together in QRQCwa because this is the phase in the process when the team members meet and discuss about the issue in order to analyze the possible causes of the problem. This typically happens through a brainstorming operation followed by a deeper analysis of possible causes. Thus, this is both a communication/sharing step and an analysis step. That’s why in QRQCwa we have the Step “2+3”.

Step 2+3 become “in progress” and the corresponding tab becomes accessible, just when Step 1 is closed.

Ishikawa

The first section of Step 2+3 shows the Ishikawa diagram: this is a graphical, summary representation of the Root Cause Analysis entries shown immediately below the diagram. The diagram itself can be hidden or showed again by operating on the “Toggle diagram” button.



Possible causes that are identified as “root cause” (see below) appear with a red background color and are always put on top of the corresponding Area. The diagram visualization is limited to 6 causes per Area, but there is no limit in inserting possible causes for a QRQC issue.

All possible causes are shown in the “Root Cause Analysis” list:

Root Cause Analysis:

Toggle diagram | Edit Cause | New Cause | Delete Cause

Show 10 entries

Area	Cause description	Root cause	Completeness
Man	1.1 - Training	Yes	incomplete
Man	1.2 - Ciclo di lavoro non eseguito correttamente		
Man	1.3 - Ciclo di controllo non eseguito correttamente		
Machine	2.1 - Post. stg. Corretto assemblaggio rullo su guide		
Machine	2.2 - Post STG . Mantenimento interasse		
Machine	2.3 - Corretto tensionamento tessuto presso linea Rolli		
Material	3.1 - Guida scorrimento pattino		
Material	3.2 - Pattino rullo		
Material	3.3 - Interasse guide anteriori		
Material	3.4 - Dimensione bowden + punta END CAP		
Method	4.1 - Istruzioni di lavoro non abbastanza chiare		
Method	4.2 - Sequenza di assemblaggio non corretta		
Method	4.3 - Sequenza assemblaggio difficoltosa		
Method	4.4 - Metodo di controllo NC		
Environment			
Inspection	6.1 - Over quality		

Showing 1 to 10 of 15 entries

Previous 1 2 Next

Red lines refer to causes identified as “root causes”; for them, the “Completeness” indicates if the root cause has been fully analyzed or not⁶.

Root cause analysis: “possible” causes and “root” causes

To insert a possible cause of the issue in the “Root Cause Analysis” section, we can use the “New Cause” button:

⁶ A root cause is considered “completed” if at least one “Why” has been filled in both sections “Occurrence” and “Non-detection” of the root cause details (see below).

Root Cause Analysis:
Toggle diagram Edit Cause **New Cause** Delete Cause

The user must choose a cause Area (between Man, Machine, Material, Method, Environment, Inspection):

Plant QRQC #54 - Tendina anteriore rumorosa " BOWDEN "

Step 1 Step 2+3 Step 4 Step 5 Attachments

New Root Cause

Cause area: [Select...]

Description: [Select...]

Is root cause

Save Cancel

- 1 - Man
- 2 - Machine
- 3 - Material
- 4 - Method
- 5 - Environment
- 6 - Inspection

Then, the user is asked to type a Description of the cause. The system propose already inserted text, but the data entry is completely free text (the ability to see and choose an already existing description is just a facility for the user and possibly allows some more "collision" to fewer, well-known descriptions).

Plant QRQC #54 - Tendina anteriore rumorosa " BOWDEN "

Step 1 Step 2+3 Step 4 Step 5 Attachments

New Root Cause

Cause area: 1 - Man

Description: cyc

Is root cause

Save Cancel

- Rework cycle causing problem
- work cycle wrong
- Work cycle not correctly done
- control cycle wrong

If the cause is thought to be the root cause of the issue, the "Is root cause" flag can be checked. Any cause flagged as "root cause" needs a detailed analysis of the "five Whys", that are a chain of "why" questions in the three areas "Occurrence" (why the issue occurred), "Non-detection" (why the issue was not detected/prevented), "Systemic" (systemic reasons for issue occurring):

Plant QRQC #54 - Tendina anteriore rumorosa " BOWDEN "

Step 1 Step 2+3 Step 4 Step 5 Attachments

New Root Cause

Cause area: 1 - Man

Description: Operator training

Is root cause

	OCCURRENCE	NON-DETECTION	SYSTEMIC
1. Why?			
2. Why?			
3. Why?			
4. Why?			
5. Why?			
Conclusion:			

Save Cancel

A root cause is considered “completely analyzed” if and only if at least three “Whys” are filled in both the “Occurrence” and “Non-detection” areas. “Incomplete” root causes prevent Step 2+3 to be closed.

Side actions

During the cause analysis, the inspecting team may need some “side actions” to be performed in order to finalize the identification of one or more root causes. These side actions can be tracked on QRQCwa in the proper “Side actions” section:

Side actions:

Edit Action New Action Delete Action

Show 10 entries

Root Cause #	Side action	Responsible	Due Date	Notes
No data available in table				

Showing 0 to 0 of 0 entries

Search: Previous Next

The “New Action” button allow the creation of a new side action:

Plant QRQC #54 - Tendina anteriore rumorosa " BOWDEN "

Step 1 Step 2+3 Step 4 Step 5 Attachments

New Side Action

Root cause: [Select]

Action description: [Select]

Responsible: 1.1 - Training
1.3 - Ciclo di lavoro non eseguito correttamente
1.4 - Ciclo di controllo non eseguito correttamente

Due date: 1.2 - Operator training
2.1 - Post. stg . Corretto assemblaggio rollo su guide
2.2 - Post STG . Mantenimento interasse

Notes:

Save Cancel

The side action:

- can be linked to a specific cause already tracked
- is assigned to a responsible

- does have a due date (that is just noted but doesn't imply any calculation or constraint in the QRQC process)

Closing Step 2+3

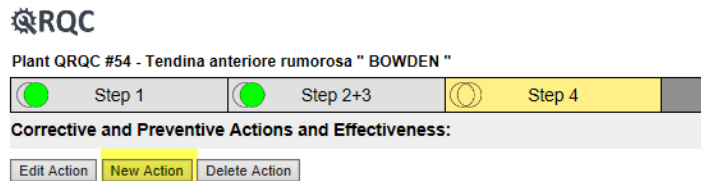
The closing deadline for Step 2+3 is computed as Opening Date + 5 working days (one of these 5 days is considered spent for Step 1). Any company closing period (previously and properly configured) and Saturdays/Sundays will not count as "working days" in this computation.

In order to have access to Step 4, the issue owner must have previously closed Step 2+3. The closed Step 2+3 enters in a read-only state and the data filling process goes on in the Step 4 screen. The issue owner can possibly reopen Step 2+3 (thus making a step-back in the process), but this should happen very rarely.

When Step 2+3 is closed, the corresponding tab shows its own circles icon, indicating the situation of Step 2+3 closed in time or late. Obviously, reopening Step 2+3 could make "closed late" a Step 2+3 that was been closed in time.

Step 4

Step 4 (Corrective and Preventive Actions and Effectiveness) become available and "in progress" when Step 2+3 is closed. Step 4 screen is aimed to collect and monitor the corrective and preventive actions decided to solve the QRQC issue. It shows an editable list of actions, initially empty. To create a new action, use the "New Action" button:



This opens the Action editing screen:

The screenshot shows the 'New Action' editing screen. At the top, there is a progress bar with five steps: Step 1 (green circle), Step 2+3 (green circle), Step 4 (yellow circle), Step 5 (grey circle), and Attachments (grey circle). Below the progress bar, the text 'Plant QRQC #54 - Tendina anteriore rumorosa " BOWDEN "' is displayed. The main form area is titled 'New Action' and contains the following fields:

- Root cause: [Select] (dropdown menu)
- Action description: [Text input field]
- Responsible: [Dropdown menu]
- Due date: [Date input field with calendar icon]
- Execution date: [Date input field with calendar icon]
- PDCA: 0 (dropdown menu)
- Validation outcome: [Select] (dropdown menu)
- Validation notes: [Text input field]

At the bottom of the form, there are two buttons: 'Save' and 'Cancel'.

The action:

- can be linked to a specific cause already tracked
- is assigned to a responsible
- does have a due date
- does have an actual execution date

- does have a PDCA progress status (actually, it's a percentage of completeness: 0%, 25%, 50%, 75%, 100%)
- does have a Validation Status (coded as "OK" and "KO"); an "OK" validation is constrained to a PDCA greater than or equal to 75%
- does have Validation Notes (i.e. description of the reasons for the specified validation outcome - mandatory if the outcome is "KO")

When the action list is filled, the resulting screen should resemble something similar to the following:

Plant QRQC #54 - Tendina anteriore rumorosa " BOWDEN "

Step 1 Step 2+3 Step 4 Step 5 Attachments

Corrective and Preventive Actions and Effectiveness:

Edit Action New Action Delete Action

Show 10 entries

Root Cause #	Action	Responsible	Due Date	Execution Date	PDCA	Validation
	Mantenimento team dedicato problematiche rotoli Alfa - 1 ora avanzamento ogni Mercoledì		29/07/2019	30/07/2019		OK
	Piano manutenzione trolley - Confermato					KO
	Verificato sede scorrimento pattino (guide) - CONFORME (Verificati diversi lotti press linea assemblaggio)					KO
	Verificato dimensionale cavo bowden + punto END CAP - CONFORMI (Verificati diversi lotti presso linea assemblaggio)					KO
	Vedere altre attivita' eseguite presso LOP tetto 952 + LOP Team Rotli + Attivita derivate da Team 6 Sigma					KO
	Inserito all'interno del BIP verifica dimensionale trolley (due al giorno)					KO

Showing 1 to 6 of 6 entries

Previous 1 Next

Step status:

Step closing deadline: 29/07/2019 [Close Step](#)

Closing Step 4

The closing deadline for Step 4 is the most late due date of the actions listed in Step 4 itself. In order to close Step 4, all the collected actions have to be validated (either with "OK" or "KO"). As usual, when the Step 4 is closed it becomes read-only, and Step 5 becomes available:

Plant QRQC #54 - Tendina anteriore rumorosa " BOWDEN "

Step 1 Step 2+3 Step 4 Step 5 Attachments

Corrective and Preventive Actions and Effectiveness:

Show details

Show 10 entries

Root Cause #	Action
	Mantenimento team dedicato problematiche rotoli Alfa - 1 ora avanzamento ogni Mercoledì
	Piano manutenzione trolley - Confermato
	Verificato sede scorrimento pattino (guide) - CONFORME (Verificati diversi lotti press linea assemblaggio)
	Verificato dimensionale cavo bowden + punto END CAP - CONFORMI (Verificati diversi lotti presso linea assemblaggio)
	Vedere altre attivita' eseguite presso LOP tetto 952 + LOP Team Rotli + Attivita derivate da Team 6 Sigma
	Inserito all'interno del BIP verifica dimensionale trolley (due al giorno)

Showing 1 to 6 of 6 entries

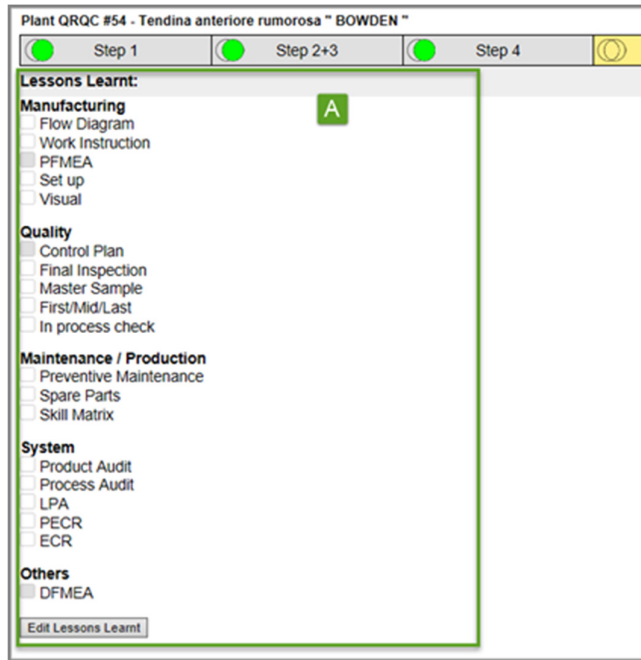
Step status:

Step closed on 29/07/2019 17:46 [Re-open Step](#)

Step 5

Step 5 focuses on Lessons learnt and Clean points.

The "Lessons Learnt" section (A) appears like a checklist where the user has to check the proper entries to point out the lessons learnt in the various categories: Manufacturing, Quality, Maintenance/Production, System, Others (the list of entries to be shown is configurable).



The checklist can be edited by clicking “Edit Lessons Learnt” button. The editable checklist appears:

Edit Lessons Learnt:

Manufacturing

No Flow Diagram

No Work Instruction

PFMEA

No Set up

No Visual

Quality

Control Plan

No Final Inspection

No Master Sample

No First/Mid/Last

No In process check

Maintenance / Production

No Preventive Maintenance

No Spare Parts

No Skill Matrix

System

No Product Audit

No Process Audit

No LPA

No PECR

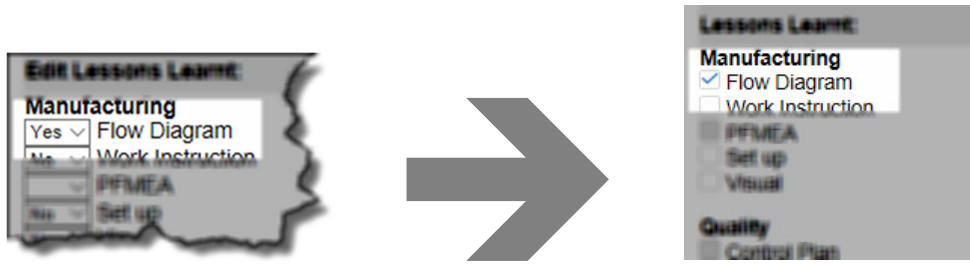
No ECR

Others

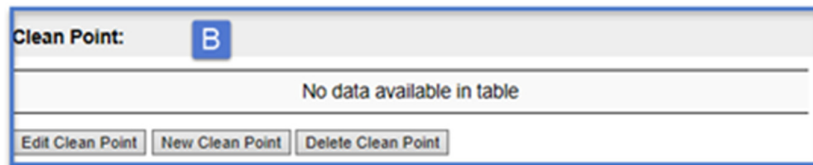
DFMEA

Save Cancel

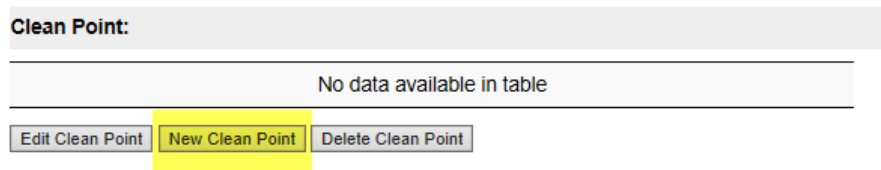
and the user may choose Yes or No to have the corresponding checkbox checked or unchecked:



The “Clean Points” section (B) appears like a mini-list to be filled by entries from the user:



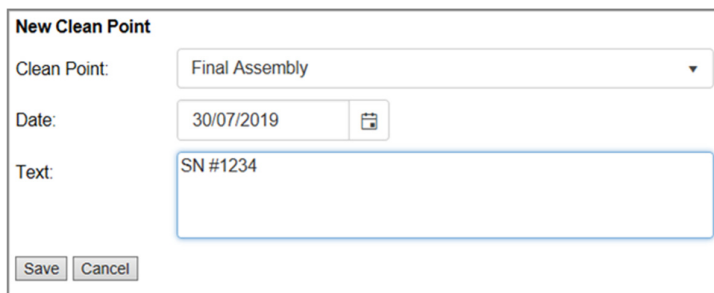
To insert a Clean Point, click on “New Clean Point” button:



Then, the user can specify an entry from a predefined (and configurable) list and optionally also insert a Date:



Some specific entries allow to insert also an additional Text:



Closing Step 5

In order to close Step 5, the following conditions must be met:

- in the “Lessons learnt” section, all mandatory entries have to be explicitly set or unset (in the lesson learnt configuration, the admin specify which entries are mandatory)
- in the “Clean Point” section, at least one entry must be present

The closing deadline for Step 5 is computed as the most late due date of the actions listed in Step 4 + 15 working days. For example, if Step 4 actions due dates are these:

Due Date	Execution Date
02/07/2019	04/07/2019
14/08/2019	17/07/2019
15/07/2019	17/07/2019
28/07/2019	28/07/2019

then the latest date is 14/08/2019, thus the Step 5 closing deadline will be something like 05/09/2019 (closing periods and weekends are skipped).

Attachments

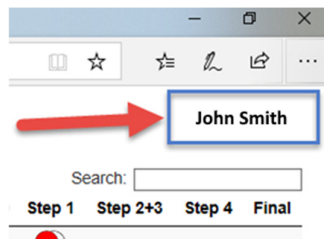
The “Attachments” tab is always available during the life-cycle of a QRQC issue (it becomes read-only when the QRQC issue is closed as a whole). In this tab you find a list of attachments you related to the QRQC issue: in any moment you can add, edit or remove an attachment (that can be any file of your choice; typically it is a picture showing the defect or a data sheet document collecting issue’s data). Each attachment you upload can be briefly described with a short label, for easy identification. A picture attachment can be flagged as “main attachment” in order to be included in the main page (that is, the first worksheet) in case the issue is exported in Excel (all the pictures are anyway included in the export, but in subsequent worksheets).

Closing a QRQC issue

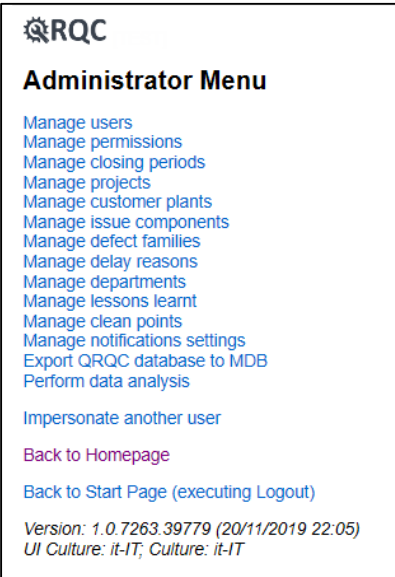
Closing Step 5 means also closing the QRQC issue as a whole. This action complete the full QRQC process for the given issue. As it happens with single issue’s Steps (that the owner can re-open when already closed), in special circumstances a QRQC issue can be re-open by users with proper permissions.

Data Analysis

QRQCwa exposes some data analysis functionalities aimed to explore the collected data about issues and find there some indicators, KPIs, trends, and so on. Currently, this feature includes a pre-set number of infographics, that can be easily extended and customized. The functionality is reachable from the “Administrator Menu”, in turn accessible by clicking on the upper-right label on the QRQCwa homepage, where the name of the currently logged-in user is shown.



The “Administrator Menu” is described in detail in the “QRQCwa Administrator Guide” document. What we need to know here is that it contains the “Perform data analysis” entry:



This entry gives you access to a customizable set of graphs, that graphically visualize some statistics and KPI on the issues stored in the QRQC system. The data analysis can focus on frequency of issues in a specific line or product, type of issues, root causes, team performance in solving issues, etc.

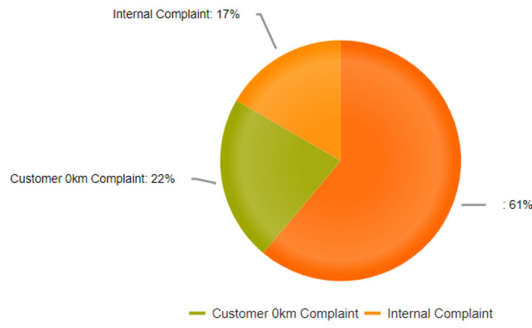
This is an example of graphs list:

- Number of Issues per Project
Shows the Pareto's distribution issues for each Project.
- Number of Defects per Project
Shows the Pareto's distribution of actual defects for each Project.
- Number of Issues per Defect Family
Shows the Pareto's distribution of issues for each Defect Family.
- Number of Defects per Defect Family
Shows the Pareto's distribution of actual defects for each Defect Family.
- Number of Issues per Project and Defect Family
Shows the number of Issues for each Project and Defect Family.
- Number of opened/closed Steps in QRQCs
Shows the number of opened/closed Steps in QRQCs.
- Number of opened/closed Issues per Owner
Shows the number of opened/closed Issues for each Owner.
- QRQC Steps closing delay days per Project
Shows the average number delay days for closing each Step by Project.
- QRQC Steps closing delays per Project
Shows the number of delays in closing each Step by Project.
- Distribution of QRQCs per Complaint Type
Shows the percentage distribution of QRQCs for each Complaint Type.
- QRQCs closing delay days per Complaint Type
Shows the average number delay days for closing QRQC by Complaint Type.
- Statistic of Root Causes per Project
Shows various statistics on Root Causes for each Project.

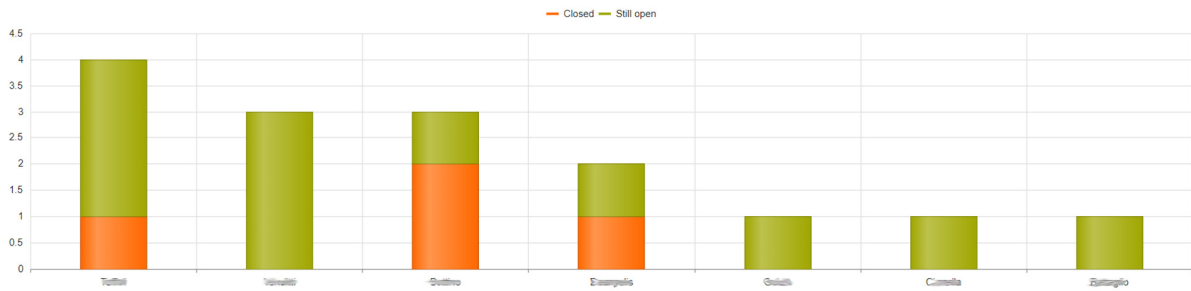
These are some example of graphs⁷:

⁷ Keep in mind, here, that demo data are not very significant.

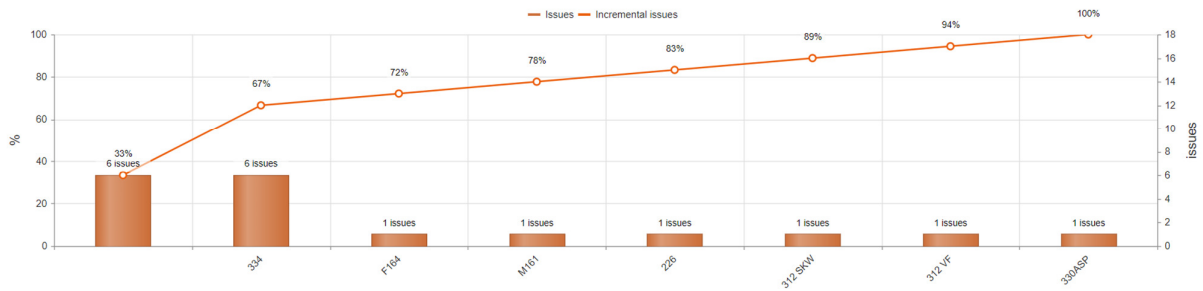
Distribution of QRQCs per Complaint Type



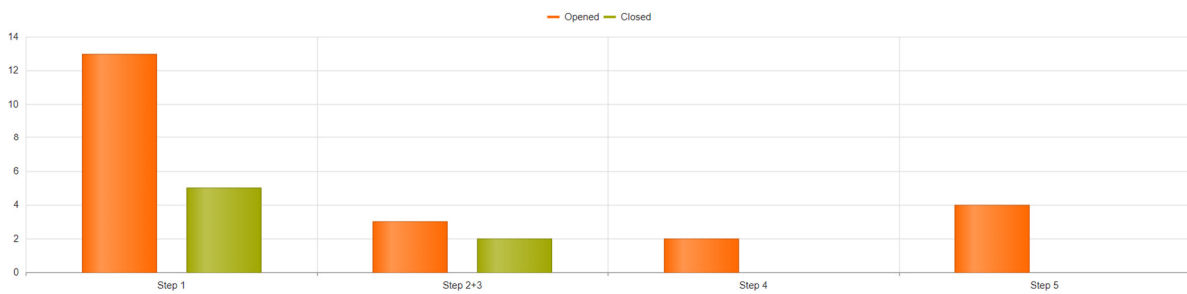
Opened/closed QRQCs per Owner



Number of Issues per Project



Opened/closed Steps in QRQCs



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