D7.9 – Industrial Advisory Board and Workshops Feedback Report v2

WP7 – DISSEMINATE: Communication, Dissemination and Standardisation

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Document Information

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TARGET AUDIENCE	1) i4Q Project partners 2) industrial community 3) other H2020 funded projects 4) scientific community			
DELIVERABLE CONTEXT/ DEPENDENCIES	This document is the second and final deliverable related to T7.5 “Industrial Advisory Board and Workshops”. In December 2021 “D7.3 - Industrial Advisory Board and Workshop Feedback Report” was uploaded, covering the results of T7.5 during the first year of the project (M1 to M12). This document reports the progress of T7.5 from January 2022 to its end in January 2024 (M13 to M37)			
EXTERNAL ANNEXES/ SUPPORTING DOCUMENTS	None			
READING NOTES	None			
ABSTRACT	The purpose of this deliverable is to describe the activities related to T7.5 “Industrial Advisory Board and Workshops” in the second and third years of the project, specifically: - Description of the 3 AB workshops held and corresponding feedback and actions defined to address them. - Description of the 2 dissemination workshops that took place.			

Document History

VERSION	ISSUE DATE	STAGE	DESCRIPTION	CONTRIBUTOR
0.1	28-Nov-2023	ToC	Table of contents	IKER
0.2	12-Jan-2024	1st draft	First draft	IKER
0.3	19-Jan-2024	Internal review	Internal review process	LIFT, ITI, UPV
0.4	24- Jan-2024	2nd Draft	Address comments from the internal review	IKER
1.0	31-Jan-2024	Final doc	Final quality check and issue of final document	CERTH

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ABBREVIATIONS/ACRONYMS

AB	Advisory Board
DMIS	Digital Manufacturing Industrial Summit
EC	European Commission
FTO	Freedom To Operate
IDSA	International Data Spaces Association
I-ESA	Interoperability for Enterprises, Systems and Applications
KER	Key Exploitable Results
KPI	Key Performance Indicators
PEDR	Plan for Dissemination and Exploitation of Results
WP	Work Package
ZDMP	Zero Defect Manufacturing Platform

Executive summary

The first deliverable related to T7.5 “Industrial Advisory Board and Workshops”, named D7.3 “Industrial Advisory Board and Workshops Feedback report”, was uploaded in December 2021. It covered the results related to Advisory Board (AB) activity in i4Q during the first year of the project. At that time, the Consortium had received the first feedback from the AB members and had defined the derived actions to address it. The process followed and the results obtained were described in D7.3.

According to the amendment approved in September 2023, the task was extended until January 2024 (M37), and the same month was set as deliverable deadline, while the project runs until May 2024. Therefore, this second deliverable related to T7.5 cannot report the final status of all the derived actions, but its progress at the end of M37.

Apart from the activity of the AB carried out in the reporting period, the deliverable includes information about the two dissemination workshops held within the task.

Document structure

Section 1: Introduction: Summary of the content of the previous deliverable and a standard process applied in AB activity, as a reminder and starting point.

Section 2: Description of the Advisory Board Workshops: Description of the 3 AB workshops held in the reported period.

Section 3: Results: Feedback from the advisors: Quantitative summary and description of the feedback obtained in the iterations carried out with the AB.

Section 4: Dissemination workshops: Description of the 2 dissemination workshops related to T7.5

Section 5: Conclusions: General conclusions.

1. Introduction

The activity related to Advisory Board, addressed in T7.5 "Industrial Advisory Board and Workshops", has been reported in two deliverables.

The first one, named "D7.3 - Industrial Advisory Board and Workshop Feedback Report" and uploaded in December 2021, explains the constitution of the AB and the results of the first iteration. A summary is provided next, just as a reminder.

During the first months of the project 6 advisors joined the board, see **Table 1**.

Member	Role and company	Link to curriculum
Stefan Beyer	Managing partner at Oak Security	(1) Stefan Beyer | LinkedIn
Silvia Castellvi	Director research and standardisation International at Data Spaces Association (IDSA)	(1) Silvia Castellvi | LinkedIn
Stefano Ierace	Chief Operating Officer at Consorzio Intellimech	(1) Stefano Ierace | LinkedIn
Akrivi Vivian Kiousi	Senior Business Innovation Manager, Head of Transport Lab, RID, INTRASOFT International SA, BDVA	(1) Akrivi Vivian Kiousi | LinkedIn
Tonny Velin	President at CENTIC, Managing Director at i4FS	(1) Tonny Velin | LinkedIn
Patricia Tames	Deputy General Director in AFM Advanced Manufacturing Technologies	(1) Patricia Tamés Ortega | LinkedIn

Table 1. AB members

The service agreement was prepared and signed by all advisors and the Consortium, and the operating protocol was stablished. Four workshops were planned for the duration of the project, mainly considering the key milestones of the project (that tentative calendar has been adapted according to the progress of the project and the availability of the parties).

In May 2021 the first online workshop took place. In it, the advisors provided feedback on the vision of the project, pilot approach, requirements of the solutions to be developed and first steps in exploitation, as well as the project in general. In addition, the advisors filled in a quantitative questionnaire designed by the Consortium to obtain a complementary quantitative assessment.

The first AB feedback was fruitful and very useful for the Consortium. The project was in general very well evaluated, all 6 members agreed that the project objectives are ambitious and are cleared stated, and the adopted technical approach is appropriate. Around 70 comments were received from the advisors, and the corresponding action points were defined by the consortium to address them.

As explained in the executive summary, **this second deliverable** reports the activity carried out between M13 and M37 (January 2022 to January 2024). A further 3 workshops have been held during this period, following the standard process illustrated in **Figure 1**, but adapted to the characteristics of each.

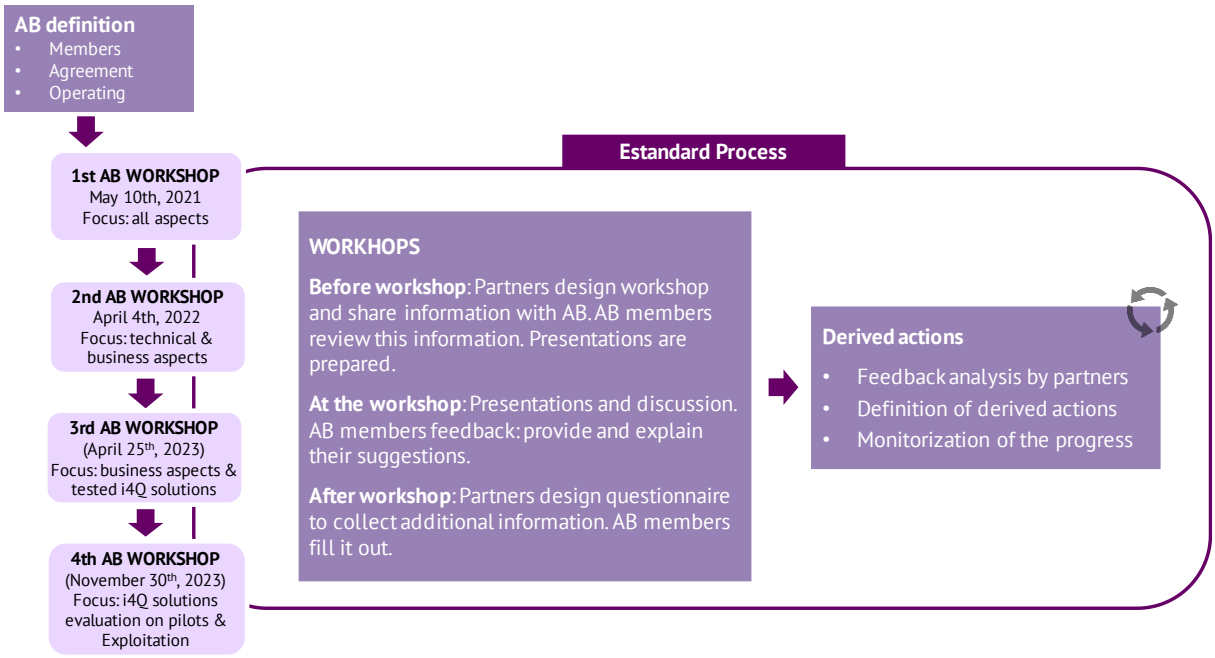


Figure 1. Standard process applied in AB activity

Descriptions of the 2nd, 3rd and 4th workshops are presented in the following sections, together with the results obtained along the related activities.

The deliverable also includes information on the two dissemination workshops held as part of the task.

2. Description of the AB workshops

2.1 Second AB Workshop

On April 4th, 2022 the second online meeting with the AB members took place.

In the period since the first AB workshop (May 2021) and this second one, the BUILD phase of the KERs/solutions had started and many documents had been generated, both concerning developments and all the other ongoing WPs. Therefore, the following reports was placed at the disposal of the AB members on Sharepoint, for reviewing:

- 17 deliverables.
- Presentation of the Technical Meeting held on February 16th, explaining the technical details of the developed solutions.
- A presentation containing the comments of the 1st AB workshop and the action points to address them.

More specifically, **Table 2** includes all the documents shared with the advisors.

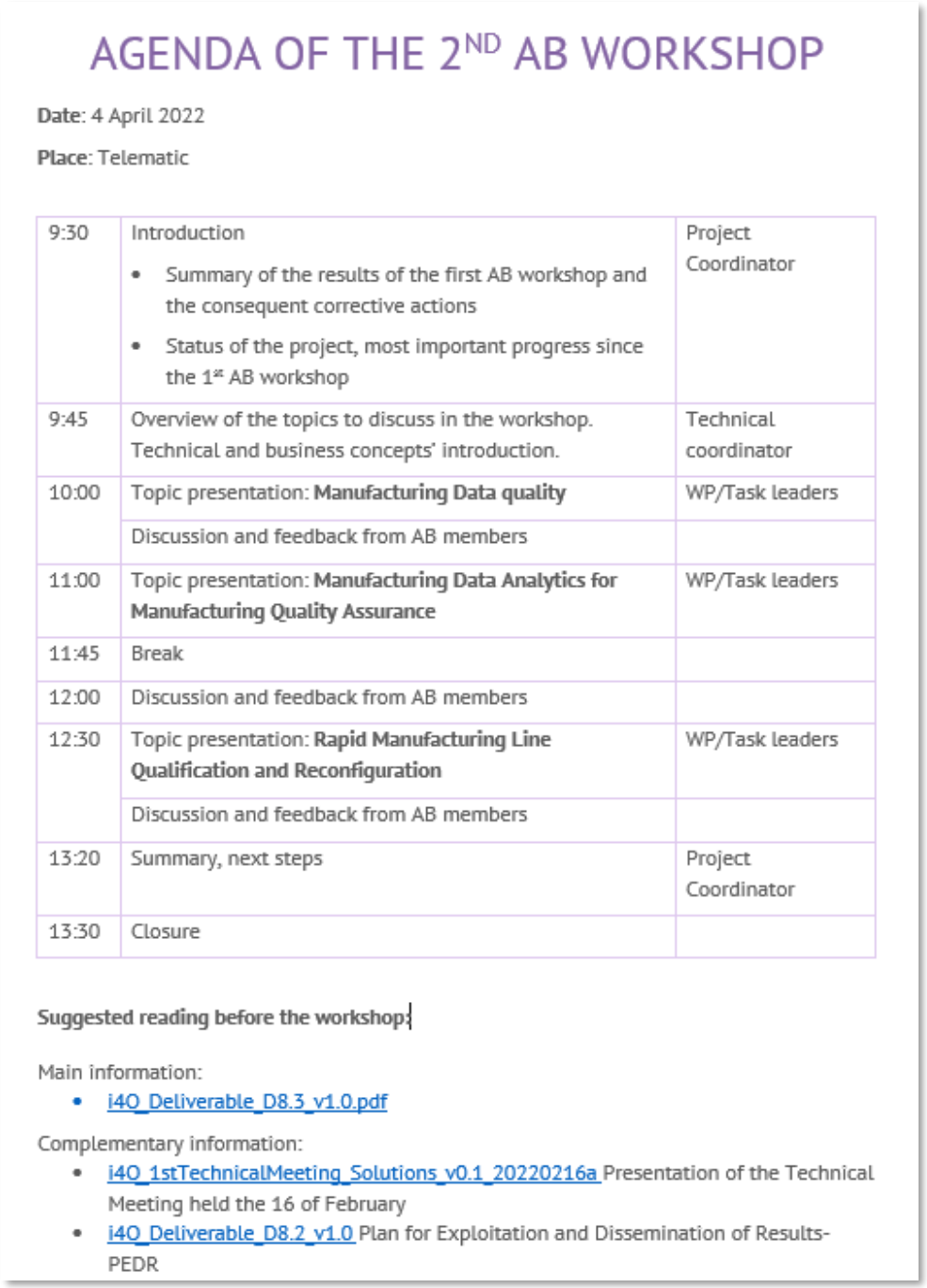
Table Heading	Table Heading
i4Q _Deliverable_D.1.7_v2.0	Data Management Report
i4Q _Deliverable_D1.5_v2.0	Data Management Plan
i4Q _Deliverable_D1.6_v2.0	Regulation and Trustworthy System
i4Q _Deliverable_D1.8_v2.0 (without Section 4 - KPIs)	Demonstration Scenarios and Monitoring KPIs Definitionv2
i4Q _Deliverable_D1.9_v2.0	Requirements Analysis and Functional Specificationv2
i4Q _Deliverable_D2.3_v1.0	Report on Business Viewpoint
i4Q _Deliverable_D2.4_v1.0	Usage Viewpoint
i4Q _Deliverable_D2.5_v1.0	Functional viewpoint
i4Q _Deliverable_D2.6_v1.0_final	Technical Specifications
i4Q _Deliverable_D2.7_v1.0	i4Q Reference Architecture and Viewpoints Analysis v2
i4Q _Deliverable_D7.3_v1.0	Industrial Advisory Board and Workshops Feedback Report
i4Q _Deliverable_D7.4_v1.0	Standardisation Plan and Status Report
i4Q _Deliverable_D7.5_v3.0	Target-Driven Dissemination Strategy, Plan, and Reporting v
i4Q _Deliverable_D7.6_v3.0	Website and Materials Production v1
i4Q _Deliverable_D8.1_v1.0	Report on KERs and Business Model Canvas
i4Q _Deliverable_D8.2_v1.0	Plan for Exploitation and Dissemination of Results-PEDR
i4Q _Deliverable_D8.3_v1.0	FTO Analysis Report
i4Q1stTechnicalMeeting_Solutions_v0.1 _20220216	Presentation of the Technical Meeting held the 16 of February
i4Q _AB_FirstMeeting_Aps	Presentation that contains the comments of the 1st AB workshop and the corresponding action points (updated in March 2022)

Table 2. Available documentation for AB members

AB members were encouraged to review all available information, but it was pointed out which ones were recommended for the workshop, as it was focused on the technical and market side of KERs/solutions, clustered in 3 groups:

- Manufacturing Data quality
- Manufacturing Data Analytics for Manufacturing Quality Assurance
- Rapid Manufacturing Line Qualification and Reconfiguration

The agenda of the workshop is shown in **Figure 2**.



AGENDA OF THE 2ND AB WORKSHOP

Date: 4 April 2022

Place: Telematic

9:30	Introduction • Summary of the results of the first AB workshop and the consequent corrective actions • Status of the project, most important progress since the 1st AB workshop	Project Coordinator
9:45	Overview of the topics to discuss in the workshop. Technical and business concepts' introduction.	Technical coordinator
10:00	Topic presentation: **Manufacturing Data quality**	WP/Task leaders
	Discussion and feedback from AB members	
11:00	Topic presentation: **Manufacturing Data Analytics for Manufacturing Quality Assurance**	WP/Task leaders
11:45	Break	
12:00	Discussion and feedback from AB members	
12:30	Topic presentation: **Rapid Manufacturing Line Qualification and Reconfiguration**	WP/Task leaders
	Discussion and feedback from AB members	
13:20	Summary, next steps	Project Coordinator
13:30	Closure	

Suggested reading before the workshop:

Main information:

- i4Q_Deliverable_D8.3_v1.0.pdf

Complementary information:

- i4Q_1stTechnicalMeeting_Solutions_v0.1_20220216a Presentation of the Technical Meeting held the 16 of February
- i4Q_Deliverable_D8.2_v1.0 Plan for Exploitation and Dissemination of Results-PEDR

Figure 2. Second AB meeting agenda

The meeting started with an introduction summarising the progress of the project since the first AB workshop (May 2021), as well as the status of the actions defined to address the feedback received on it, summarised in **Figure 3**.

			M1-36 Need WP1	M1-9 Design WP2	M10-24 Build WP3/4/5	M10-36 Evalu. WP6	M1-36 Disem. WP7	M1-36 Exploit WP8	M1-36 Manage WP9
		TOTAL							
ACTION POINTS		72	5	7	22	6	18	20	2
STATUS	**Nothing can be done**	1	1						
	Not started	9			5		3		
	In Progress	37	1	0	16	2	11	11	2
	Done	25	3	7	1	4	4	9	

Figure 3. Action points' status in M15 (March 2022)

The main part of the meeting focused on the presentation of the technical and market information of each KER/solution by the leader of its development, as shown in **Figure 4** and **Figure 5**.

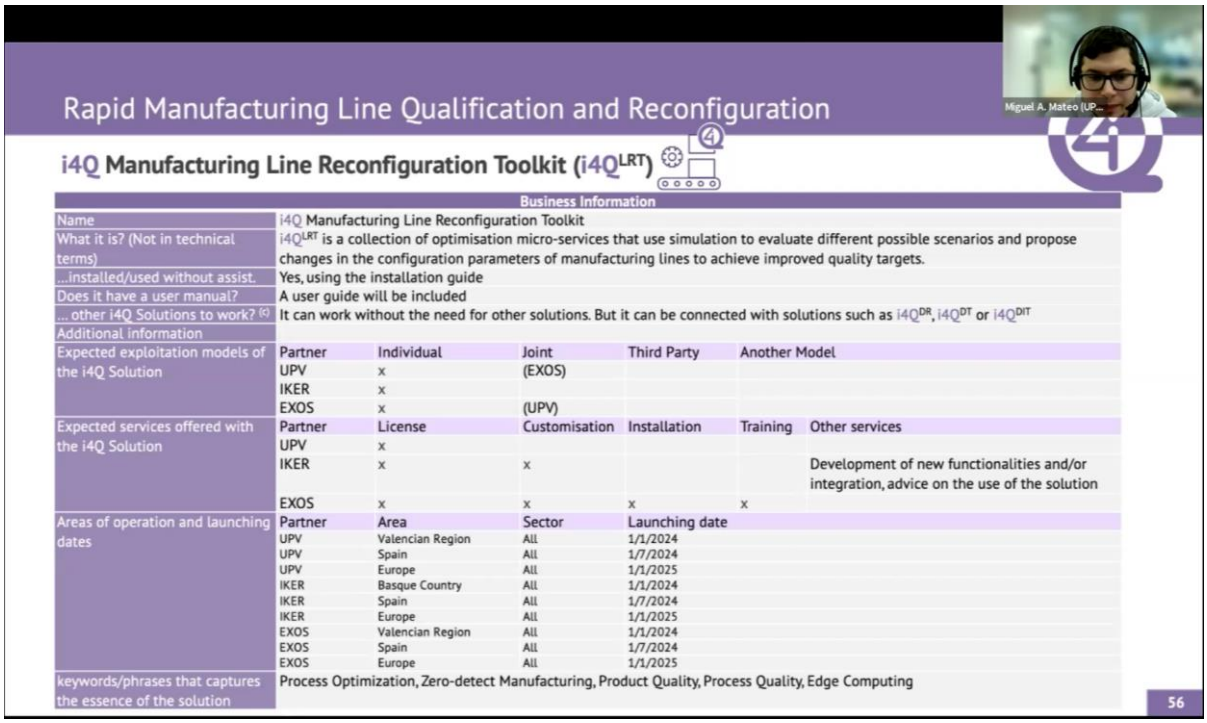


Figure 4. Example of a KERs' business information presentation

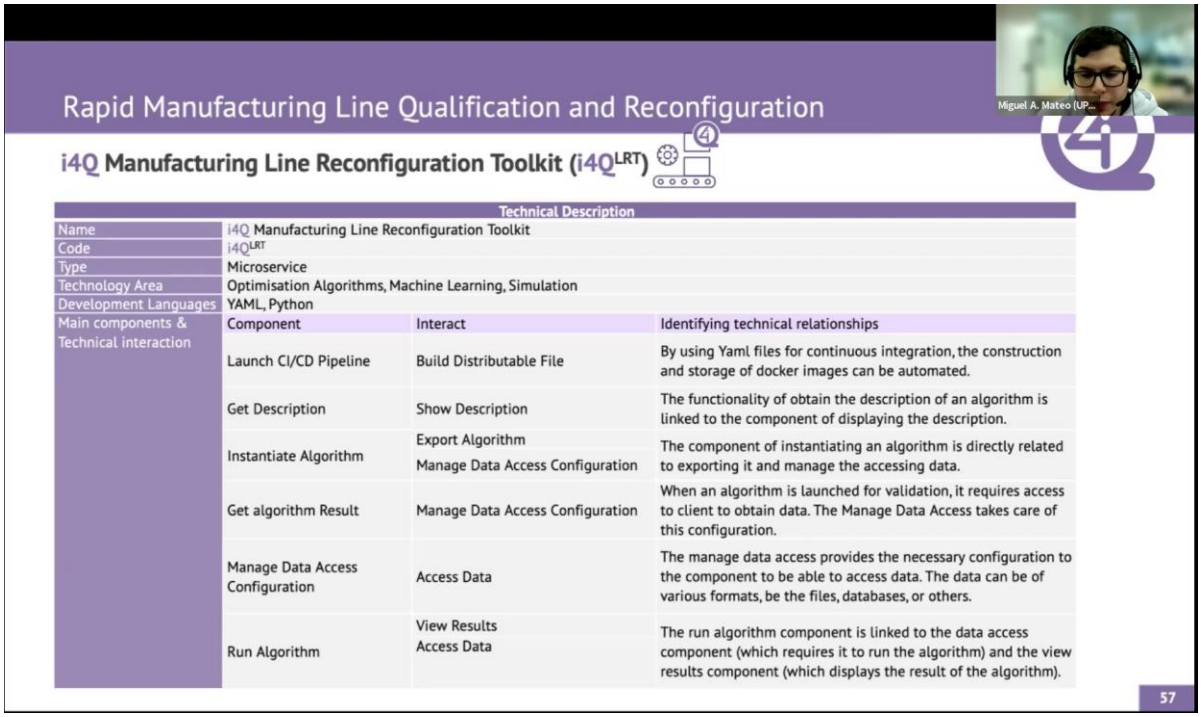


Figure 5. Example of a KERs' technical information presentation

As mentioned above, the solutions were presented in 3 groups. At the end of each group presentation, the AB members provided their feedback and discussed their doubts and suggestions with the consortium partners.

Representatives of all partners and project WPs, as well as above-mentioned responsible of developments actively participated in the meeting, together with 5 of the 6 AB members (one of them could not attend due to agenda issues). **Figure 6** shows a sample of the 42 people attending:

Figure 6. Second AB meeting picture (some of the attendees)

It is worth noting that the workshop was recorded with the permission of all attendees, so that the AB's recommendations included in the minutes could be examined in more detail afterwards to define the most suitable action points to address them.

To complement the suggestions provided at the workshop, a **complementary questionnaire** was prepared by the consortium. It was sent to the AB members to obtain further feedback, both on the specific topics covered in the workshop and on the other available information they had reviewed. The questionnaire can be found in Annex I.

All suggestions received from both iterations (workshop and subsequent questionnaire) were consolidated, added to the already existing list, and assigned the WP/task leaders concerned to analyse them and define the **derived actions** to be carried out. A total of 28 new action points were defined.

It is worth mentioning that this interaction was a chance to update the status of the ongoing action points resulting from the first AB workshop.

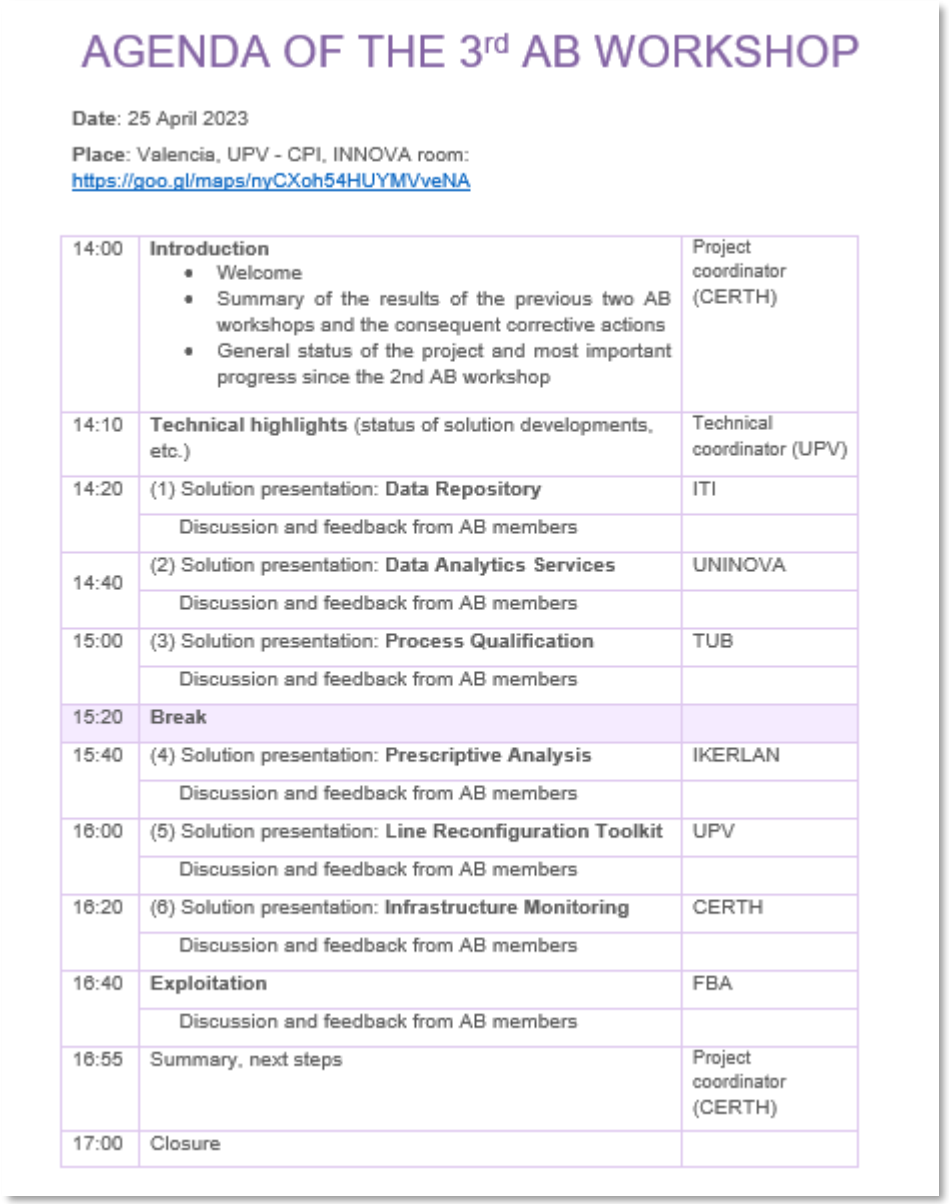
2.2 Third AB Workshop

The third AB workshop was held in Valencia on April 25th, 2023.

A face-to-face meeting focused on the demonstration of the developed solutions and a short slot for exploitation was organised. The consortium chose 6 representative solutions to be presented, in order to have a productive and affordable meeting.

A couple of weeks before the meeting, the factsheets of the 6 solutions together with a questionnaire were shared in Sharepoint with the AB members. The **questionnaire** (available in Annex II) was prepared by the consortium with three objectives: on the one hand, to provide the AB members a guide on the type of feedback expected at the meeting; on the other hand, to provide them a support to take notes during the meeting; finally, to collect a written quantitative and qualitative feedback.

The **agenda** of the workshop is shown in **Figure 7**, where the 6 representative solutions can be seen.



AGENDA OF THE 3rd AB WORKSHOP

Date: 25 April 2023

Place: Valencia, UPV - CPI, INNOVA room:
https://goo.gl/maps/nyCXoh54HUYMVveNA

14:00	**Introduction** • Welcome • Summary of the results of the previous two AB workshops and the consequent corrective actions • General status of the project and most important progress since the 2nd AB workshop	Project coordinator (CERTH)
14:10	**Technical highlights** (status of solution developments, etc.)	Technical coordinator (UPV)
14:20	(1) Solution presentation: **Data Repository**	ITI
	Discussion and feedback from AB members	
14:40	(2) Solution presentation: **Data Analytics Services**	UNINOVA
	Discussion and feedback from AB members	
15:00	(3) Solution presentation: **Process Qualification**	TUB
	Discussion and feedback from AB members	
15:20	**Break**	
15:40	(4) Solution presentation: **Prescriptive Analysis**	IKERLAN
	Discussion and feedback from AB members	
16:00	(5) Solution presentation: **Line Reconfiguration Toolkit**	UPV
	Discussion and feedback from AB members	
16:20	(6) Solution presentation: **Infrastructure Monitoring**	CERTH
	Discussion and feedback from AB members	
16:40	**Exploitation**	FBA
	Discussion and feedback from AB members	
16:55	Summary, next steps	Project coordinator (CERTH)
17:00	Closure	

Figure 7. Third AB workshop agenda

As usual, the meeting started with an introduction summarising the general and technical progress of the project since the second AB workshop (April 2022), as well as the status of the actions defined to address the feedback received from the first and second AB workshops. **Figure 8** summarises that status.

TOTAL ACTION POINTS	91

Not started	3	3%
In Progress	26	29%
Done	62	68%

	M1-36 Need		M1-9 Design		M10-24 Build		M10-36 Evalute		M1-36 Disseminate		M1-36 Exploit		M1-36 Manage	
	WP1		WP2		WP3/4/5		WP6		WP7		WP8		WP9	
Not started									3	15%				
In Progress							3	38%	12	60%	13	50%		
Done	6	100%	7	100%	36	100%	5	63%	5	25%	13	50%	1	100%

Figure 8. Actions points status in April 2023

The main part of the meeting focused on the presentation of the 6 selected solutions, as shown in **Figure 9** and **Figure 10**. The presentations described solutions (including WHAT-WHY-HOW) and a demo based on an example:

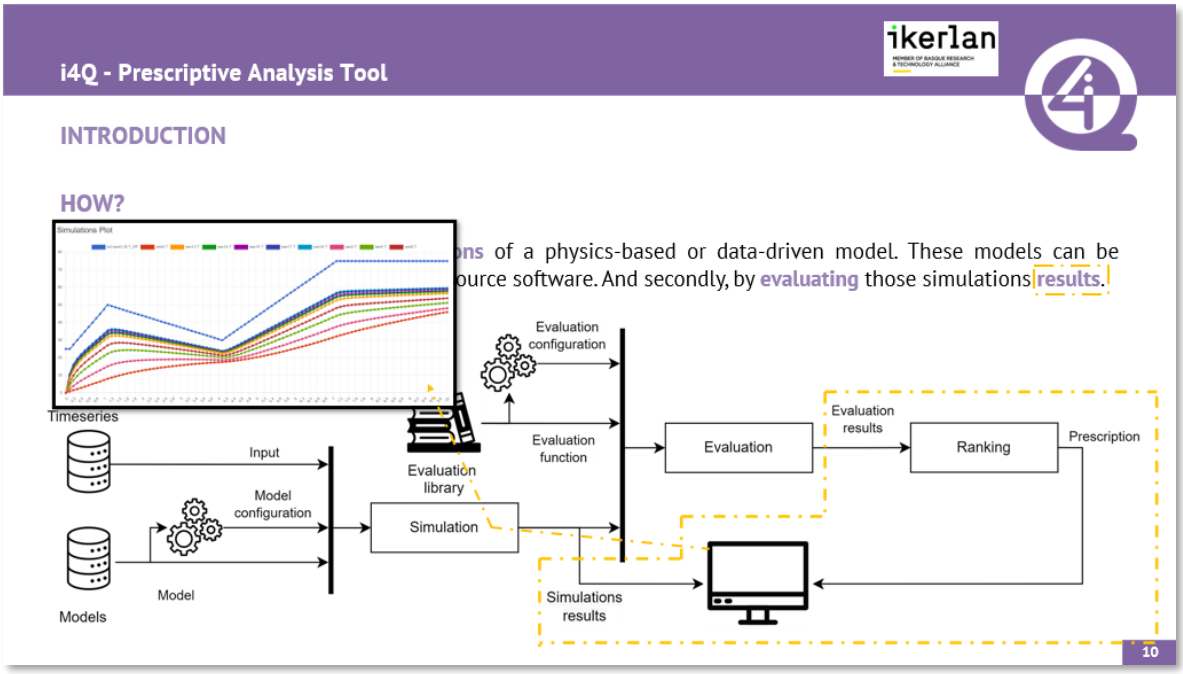


Figure 9. Example of a description

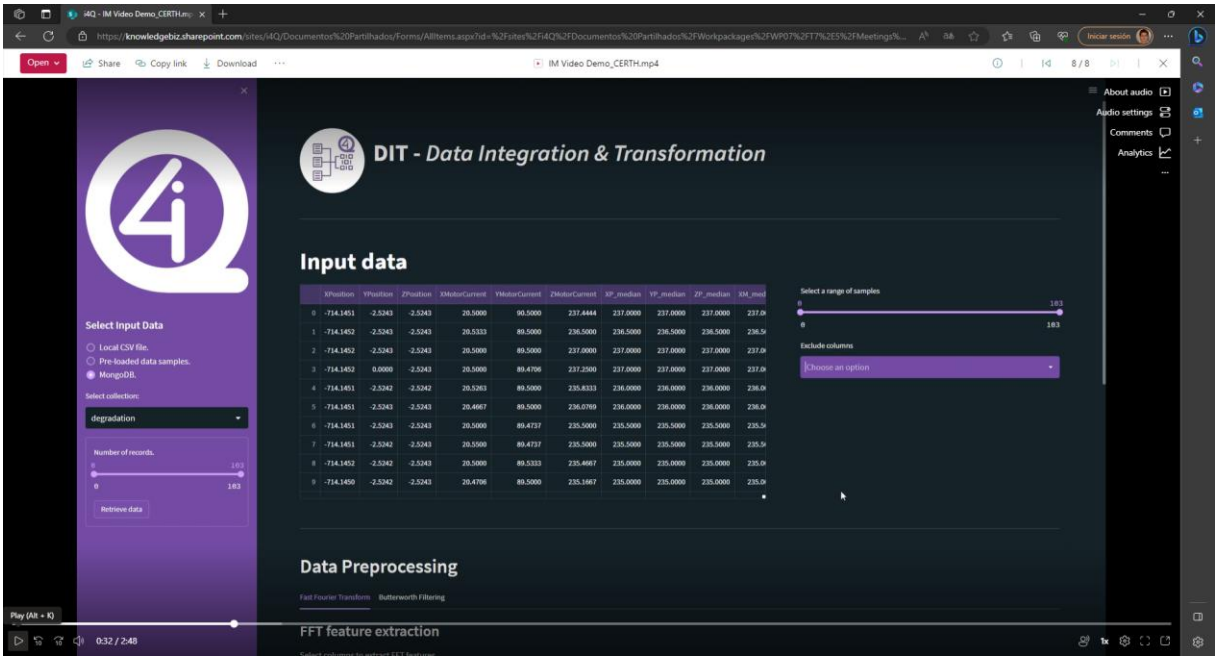


Figure 10. Example of a solution demo

Finally, the progress achieved in Exploitation was presented, see **Figure 11**.

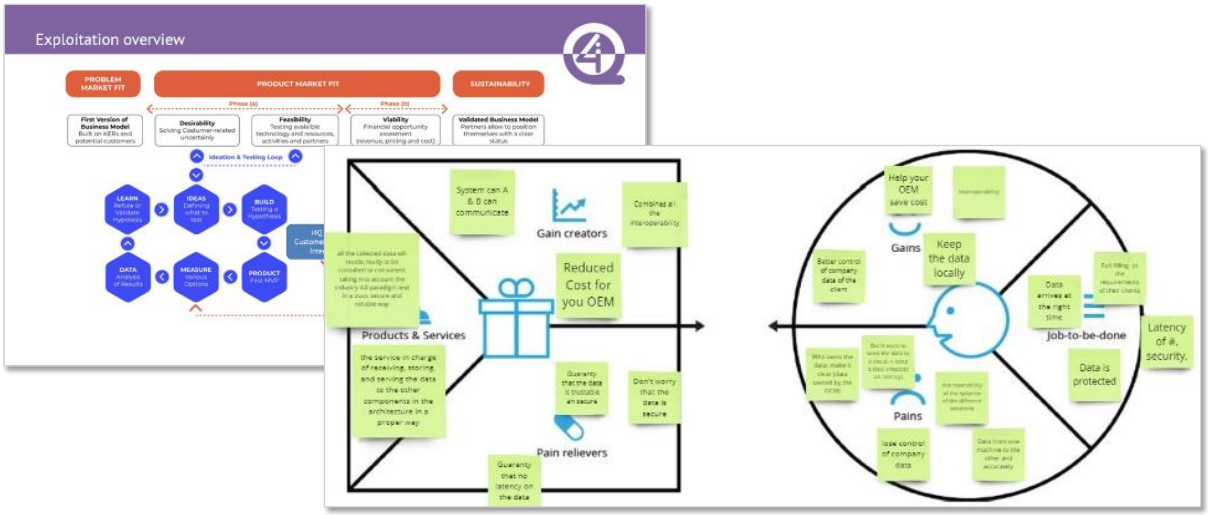


Figure 11. Extract of exploitation presentation

A total of 35 people attended the meeting (4 of them online), including three AB members, representatives of the consortium, WP leaders and responsible of the presented 6 solutions, see **Figure 12**.

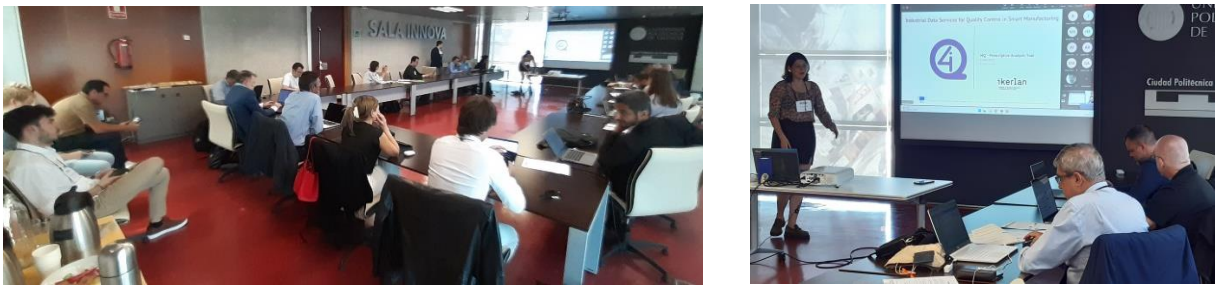


Figure 12. Attendance at the 3rd AB workshop and AB members

The workshop was recorded as on previous ones, so that the AB members' recommendations could be checked again by the consortium when defining action points to address them.

In the days following the meeting, all AB members were invited to review all available information (minutes, video, presentations, etc.) and fill out the questionnaire mentioned above. However, questionnaires were only received from the three members who attended the meeting.

All suggestions received were added to the already existing list and assigned to the WP/task/solution leaders for analysis and **action points** definition. A total of 50 new actions were defined.

It is worth to note that the lack of availability of AB members was one of the points highlighted in the next plenary meeting in June 2023: Out of the 6 members of the board, only 3 attended the workshop face-to-face, and none of the other members connected online or sent the questionnaire afterwards. Since the lack of availability could be a risk to hold the fourth and last AB workshop, it was included as a risk in D9.11 (Short interim Management Report v4).

2.3 Fourth AB Workshop

The fourth AB workshop was held online on November 30th, 2023.

A face-to-face meeting was considered for it, taking advantage of the plenary meeting held in Pesaro (Italy) on 12th and 13th December. The plan was to carry out the workshop and to also visit the BIESSE installations and see the implementation of the i4Q Solutions in situ. Unfortunately, despite the efforts made, it was not possible to fit the agenda of the advisors.

The online workshop was focused on the i4Q Solutions validation in pilots, and on exploitation. It is worth mentioning that the initial planning of the project would have allowed to receive feedback on the final validated solutions and exploitation plan. However, the 5 months extension resulted in the delay of some milestones, allowing to discuss working but not finalised versions in the workshop.

In view of the limited availability of advisors in the run-up to the year-end, it was decided not to overload them with work. Therefore, an online practical workshop was designed including a brief reminder of the solutions and pilots, and deeper presentations about validation on pilots and exploitation that did not require prior reading. For the same reason, feedback was limited to the workshop, without requiring any specific action such as filling in the questionnaires as in previous iterations.

Three advisors attended the workshop, and a few days later, the ones who were unable to attend were invited to watch the recording and send their general feelings. Unfortunately, no reply was received.

The **agenda** of the workshop is shown in **Figure 13**.

AGENDA OF THE 4th AB WORKSHOP

Date: 30 November 2023, 9.30 to 12.30 CET

Place: online meeting. Here is the link to connect: click here to access

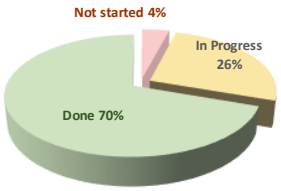
09:30	**Introduction** • Welcome • Summary of the results of the previous three AB workshops and the consequent corrective actions • General status of the project and most important progress since the 3rd AB workshop • Technical highlights	Project coordinator (CERTH) AB responsible (IKER) Technical coordinator (UPV)
09:50	**Pilot 1** use case	P1 responsible
	Discussion and feedback from AB members	
10:10	**Pilot 2** use case	P2 responsible
	Discussion and feedback from AB members	
10:30	**Pilot 3** use case	P3 responsible
	Discussion and feedback from AB members	
10:50	**Pilot 4** use case	P4 responsible
	Discussion and feedback from AB members	
11:10	Break	
11:25	**Pilot 5** use case	P5 responsible
	Discussion and feedback from AB members	
11:45	**Pilot 6** use case	P6 responsible
	Discussion and feedback from AB members	
12:05	**Exploitation & Commercialization**	FBA
	Discussion and feedback from AB members	
12:25	**Summary and closure**	Project coordinator (CERTH)

Figure 13. Fourth AB workshop agenda

Figure 14 was presented in the introductory part to summarise the status of the actions defined to address all the suggestions received from the advisors so far.

TOTAL ACTION POINTS	122

Not started	5	4%
In Progress	32	26%
Done	85	70%



	M1-36 Need		M1-9 Design		M10-24 Build		M10-41 Evalute		M1-41 Disseminate		M1-41 Exploit		M1-41 Manage	
	WP1		**WP2**		**WP3/4/5**		**WP6**		**WP7**		**WP8**		**WP9**	
Not started							1	3%	3	17%	1	3%		
In Progress							9	31%	7	39%	16	53%		
Done	6	100%	7	100%	36	100%	20	69%	8	44%	13	43%	2	100%

Note = Some actions impact on more than one WP

Figure 14. Actions points status at end-November 2023

FIDIA, RIASTONE, WHIRLPOOL, FACTOR, FARPLAS and BIESSE presented the progress of the implementation of i4Q solutions in their factories.

As some of the solutions are being evaluated in several pilot projects, a selection was made to show the most interesting and advanced implementations, avoiding too much repetition and trying to balance efforts. **Figure 15** shows the i4Q solutions implemented in each pilot and those presented in the workshop (marked in red).

			Pilot 1: FIDIA	Pilot 2: BIESSE	Pilot 3: WHIRLPOOL	Pilot 4: FACTOR	Pilot 5: RIASTONE	Pilot 6: FARPLAS
1	DQG	i4Q Data Quality Guidelines						
2	QE	i4Q QualiExplore for Data Quality Factor Knowledge						
3	BC	i4Q Blockchain Traceability of Data						
4	TN	i4Q Trusted Networks with Wireless & Wired Industrial Interfaces				X		
5	CSG	i4Q Cybersecurity Guidelines						
6	SH	i4Q IIoT Security Handler	x	X	x	x	x	x
7	DRG	i4Q Guidelines for building Data Repositories for Industry 4.0						
8	DR	i4Q Data Repository	X	X	X	x	x	X
9	DIT	i4Q Data Integration and Transformation Services	X		x	X	x	x
10	DA	i4Q Services for Data Analytics		X	X	x	X	
11	BDA	i4Q Big Data Analytics Suite		X	x	x		
12	AD	i4Q Analytics Dashboard	x	X	X	x	X	x
13	AI	i4Q AI Models Distribution to the Edge				x		
14	EW	i4Q Edge Workloads Placement and Deployment				x		
15	IM	i4Q Infrastructure Monitoring	x		x	X		
16	DT	i4Q Digital Twin Simulation Services				x		
17	PQ	i4Q Data-driven Continuous Process Qualification				X		X
18	QD	i4Q Rapid Quality Diagnosis	X			x		X
19	PA	i4Q Prescriptive Analysis Tools				x		
20	LRG	i4Q Manufacturing Line Reconfiguration Guidelines						
21	LRT	i4Q Manufacturing Line Reconfiguration Toolkit	x			x		X
22	LCP	i4Q Manufacturing Line Data Certification Procedure						

Figure 15. i4Q solutions presented by each pilot

The presentations included videos or demos, as it can be seen in **Figure 16**.

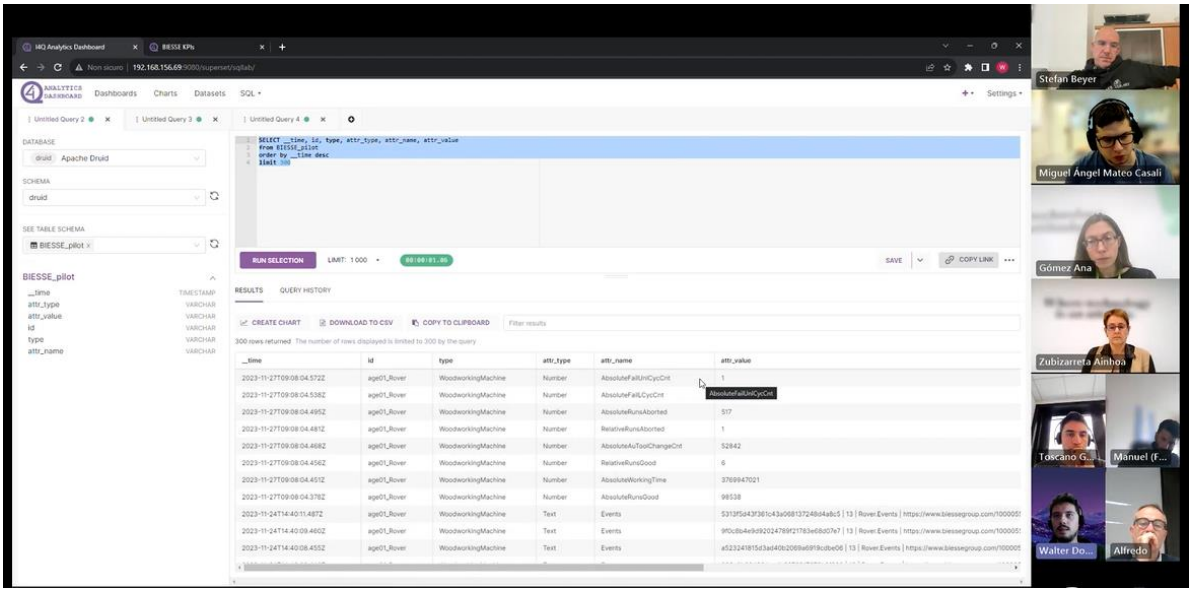


Figure 16. Demo about Analytics Dashboard's implementation in BIESSE

The progress and conclusions related to the customer discovery methodology & interviews and go to market strategy application were also summarised, in the exploitation section indicated in the agenda.

Figure 17 captures a discussion time on the exploitation part, where the three advisors are willing to provide their point of view. A total of 36 people attended the workshop.

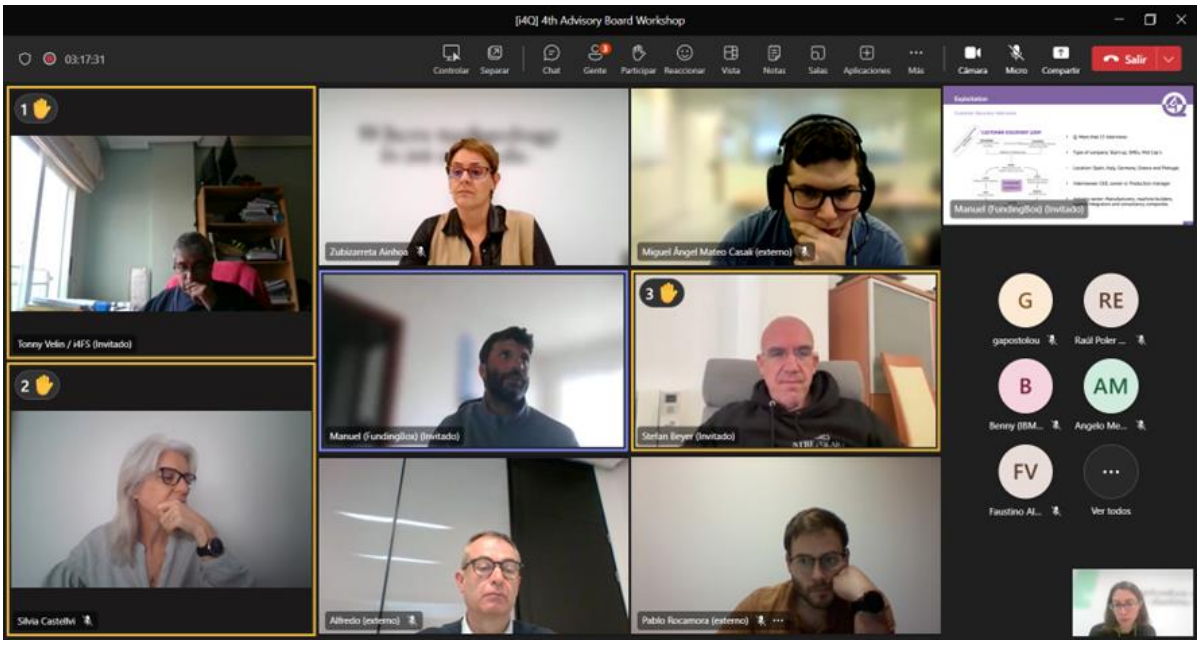


Figure 17. Time for discussion

The meeting closed with a presentation of the next steps and thanks to the advisors for their valuable support over the three years.

As usual, all suggestions received (13 this time) were added to the already existing list and shared with the consortium members for analysis and **action points**' definition.

3. Results: Feedback from advisors

This section summarises the feedback obtained in the AB related activity in the first 36 months of the project.

The complete information is collected in an Excel file which is continuously available to all partners of the consortium, allowing easy filtering of information for better visualisation and updating. It contains the source and author (advisor) of the suggestion, suggestion itself, the action to address it and its status, the related WP/tasks and responsible partner, and additional comments. **Figure 18** shows an extract of the file, as an example.

Worksh	AB member Na	Comment/suggestion	Derived action(s)	Action Sta	Assigned WP/solution	Responsible partner(s	Comments
WS1	Tonny Velin	How will you link to other projects / initiatives ?	Project meetings	Done	WP7	IVLAB	We had several collaborations v with every 2 month meetings ar
WS2 (Q)	Tonny Velin	i4Q AI Models Distribution to the Edge (i4QAI): User Manual missing	User manual preparing	Done	WP4	IBM	
WS2 (Q)	Tonny Velin	i4Q Data Integration and Transformation Services (i4QDIT): "A solution offering the necessary data pre-processing" not clear	The functionalities of DIT solution have been further explained in the deliverable D4.1	Done	WP4	CERTH	We think that the pre-processin receives the data in an initial for filtering techniques to eliminate from sensor signals and finally f types of sensors)
WS2 (Q)	Tonny Velin	i4Q Edge Workloads Placement and Deployment (i4QEW): User Manual missing	User manual preparing	Done	WP4	IBM	
WS2 (Q)	Tonny Velin	i4Q IIoT Security Handler (i4QSH): Needs more description in the ppt presented in the second AB workshop (" i4Q_WP7_AB second workshop"). Copy info from 2.8 and 8.3	The preparation of a user manual for i4Q-SH is planned for the coming period.	Done	WP3	IKER	Adaptation and update of the pr expected to do accordingly with
WS2 (Q)	Tonny Velin	i4Q Infrastructure Monitoring (i4QIM): No User Manual	A first version of the i4Q-IM user manual has been prepared.	Done	WP4	CERTH	The current version of the i4Q-I GitLab repository and also throu upcoming period, further updat
WS2 (Q)	Tonny Velin	i4Q Manufacturing Line Reconfiguration Toolkit (i4QLRT): User Guide not ready	Prepare user guide	Done	WP5	UPV	The guide is being prepared wit LRG.
WS2 (Q)	Tonny Velin	i4Q Rapid Quality Diagnosis (i4QQD): No User Manual	A first version of the i4Q-QD user manual has been prepared.	Done	WP5	CERTH	The current version of the i4Q-QD GitLab repository and also throug upcoming period, further updates
WS3	Stefano Ierace	Identify Target groups for the application of different solutions, based also on the different sectors	A more detailed analysis of the target groups and competitors will be carried out for the most promising solutions.	Not started	WP8	FBA	
WS1	Silvia Castellvi	Identity management technologies to be explored (e.g., IEC 62443 for IIoT Security Handler)	Started basic/example implementation following OPC-UA security Scheme	Done	WP3	IKER	62443 is going to be addressed task, the guideliness has been u
WS2	Vivian Kiousi	Important to identify the terms of cooperation among the consortium partners after the end of the project. How do you plan to create these terms? (It is important to show how we can get money when whe collaborate with other partners to go to the market -patway to exploit in collaboration)	Yes, this is in pipeline. There is a specific task (8.5) for addressing specifically this issue.	In Progress	WP8	FBA, LIF	As the solutions reached a more ownership of each solution so L and necessary agreements. We individually.
WS4	Silvia Castellvi	In reviews it is usual that POs ask about the exploitation of pilots. Therefore, it would be advisable to include a slide in the presentations of each pilot with its exploitation plan (not commercialisation, but evolution/sustainability of the pilot)	To include the suggested slides in reviews	In Progress	WP8	FBA	In the GA it is stated that an indiv industrial partners (pilots).

Figure 18. Extract of the action points file

The detailed information of the file has not been included in this deliverable to avoid lengthening it too much, focusing this results section on the feedback received. Anyway, the file can be sent to the PO and the reviewers upon request, if necessary.

It must be remembered that the iterations with the AB members have been completed at the time of writing this deliverable, but some of the improvement actions defined to address their suggestions are still ongoing and will be completed in the coming months, as the project has been extended until May 2024. Since the AB related task finishes in January, ongoing actions will be monitored until the end of the project by the project coordinator of the project, under the management framework.

In the last update of the action point file (January 2024), a comprehensive review of advisors' suggestions and corresponding actions has been carried out. As a result, some of the defined action points have been split or merged for better management and implementation, and sometimes reassigned to different WPs. This should be considered if the final numbers presented in this section are compared with the sum of the numerical data of the workshops presented in the previous sections, as obviously they do not match.

After that upgrade, the results give a total of 147 actions defined to address the advisors' suggestions. Of these, 104 have been settled, 37 are in progress, and 6 have not yet started. **Figure 19** shows the overall status graphically.

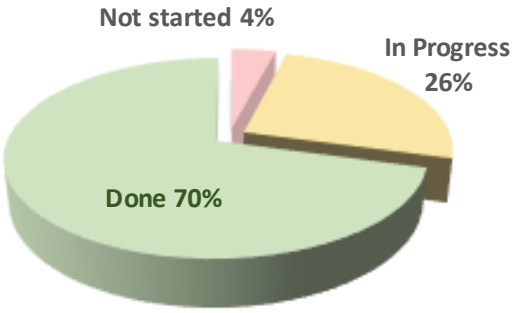


Figure 19. Status of the defined actions

As expected, suggestions of different weight or relevance have been collected from the advisors. Some relate to small improvements that are easy to address, or even small typos. Others are general comments or clarifying questions that reveal that some concepts are not correctly explained in the presentations and/or deliverables, which is very useful to improve them. Finally, there is the large number of high-value suggestions derived from advisors' expertise about market, business, and technology. All of them have been placed in the results file and answered or undertaken through actions defined to this end.

Some of those actions are related to a single WP, while others concern more than one. For a more meaningful analysis, the WPs have been grouped into logical project phases: NEED/DESIGN, BUILD and EVALUATE as phases directly related to the solution development, and DISSEMINATE, EXPLOIT and MANAGE as crosscutting phases. The results per phase are shown in **Figure 20**.

	Need/Design		Build		Evalute		Disseminate		Exploit		Manage	
	WP1/2		WP3/4/5		WP6		WP7		WP8		WP9	
Not started					2	4%			2	5%	2	50%
In Progress					10	21%	3	23%	24	62%	1	25%
Done	13	100%	36	100%	36	75%	10	77%	13	33%	1	25%

Figure 20. Status of the action points per project phase

The actions concerning **NEED/DESIGN** are logically done, since the phase was completed on M9 (September 2021). Some interesting recommendations on data management, interoperability and security were collected and used to complete the industrial scenarios and requirements analysis and improve the i4Q framework design.

Fruitful feedback on the **BUILD** phase resulted in 36 actions that were also implemented within the phase deadline, M24 (September 2022). The **EVALUATE** phase, including integration and validation in piloting, will end in M41 (May 2024). There are currently 48 actions impacting this phase, whose status is shown in **Figure 21**.

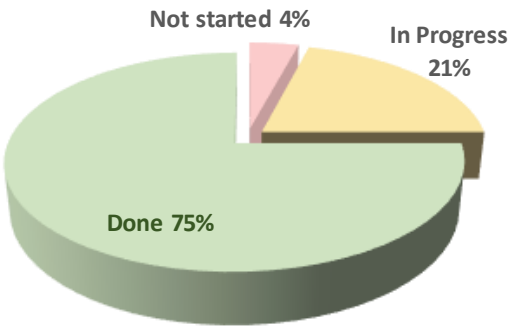


Figure 21. Status of the actions related EVALUATE phase

It should be noted that solutions are being refined during the EVALUATE phase, as it includes the continuous integration and validation of the solutions. Therefore, suggestions which initially could seem to be related to BUILD phase can be found in EVALUATE phase. However, the implementation of the actions is the key whatever their classification is (which is just a way of presenting the results).

Regarding both phases, in the initial feedback the main concerns raised by the advisors focused on aspects that can also be related to the exploitation of the solutions, such us specific skills needed for solutions' adoption, possible weaknesses or data management, storage, usage and governance related issues. Regarding data, the possible use of simulated data if not enough data was available for AI model training was proposed, even if not finally needed in the project. General issues regarding the selection of the pilots and a possible limited market to be approached was also mentioned.

Several technical issues regarding solutions like the Blockchain, the Security Handler, the Digital Twin and others were also raised by the advisors, due to their expertise in the different fields.

A very important comment made by the advisors was how the consortium was going to check if the requirements identified in the NEED phase were implemented, which is being handled currently both from WP6 from the Pilots perspective and from WP9 in the technical side.

In next iterations the advisors raised some concerns regarding possible overlaps between solutions, which is also under consideration currently. An additional important concern relates to the link and differentiation between i4Q solutions, and some components developed in the ZDMP project, as well as differences with existing market solutions.

The practical demos of selected solutions shown to de advisors resulted in another set of suggestions. They provided advice regarding the management of different kinds of data, dependence of the quality of this data, inclusion of appropriate/necessary functionalities, need of historical data and complexity of solutions implying need of expert profiles to use them, among others.

Some solutions were said to have visual aspects to improve, which could also help the user to use them in a more intuitive way and consequently a better understanding of results.

Some very useful comments related to the evaluation were raised in the last iterations with the advisor, as developments were shown at a more mature stage. For example, the way of presenting the piloting results was commented, advising to explain the problem that the project is aiming to solve (pain). They also suggested to calculate updated KPIs that allow to measure the impact of

the solutions in the different pilots. Additionally, the consortium was asked to gather the valuable feedback from the pilots regarding ease of use, user-friendliness, and its consideration for the exploitation.

Jumping to the next Phases, from the earliest iterations the advisors emphasised the close relationship between dissemination and exploitation and the importance of addressing them in tandem.

As shown in **Figure 22**, most of the 13 actions related the **DISSEMINATE** phase have already been carried out.

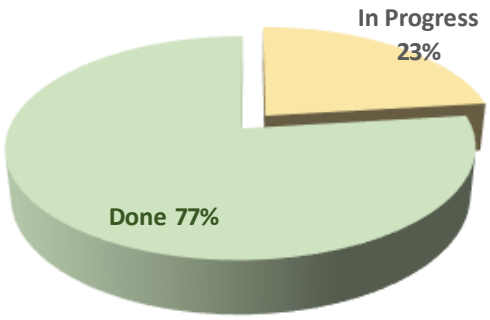


Figure 22. Status of the actions related DISSEMINATE phase

At first sight, the advisors suggested reviewing the values of the KPIs related to dissemination, as they considered them relatively low. The questions they raised about the number of brochures, media publications, etc. revealed the importance they give to communication and dissemination. As visibility is so important, they recommended to invest more resources on open dialogue (LinkedIn), either with the EC or with the industries. They also focused on the quality of the messages to deliver through different media.

Communities, networks, market organisation and relationship with other projects also received attention as important elements of dissemination. In this line, they suggested strengthening monitoring, presence, and collaboration in such forums.

They also underlined the importance of the standardisation activities from the very beginning and provided a couple of related recommendations.

As for the **EXPLOIT** phase, 13 of the 39 defined actions have been carried out, and it is the phase with the highest percentage of unfinished actions, see **Figure 23**.

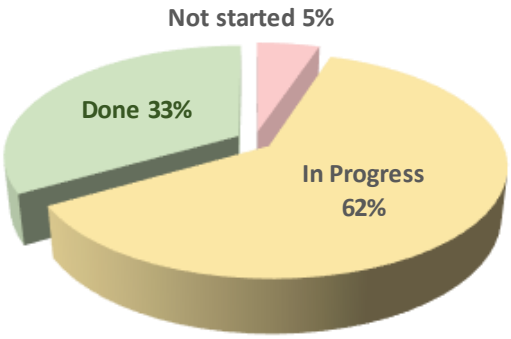


Figure 23. Status of the actions related EXPLOIT phase

The advisors focused from the very beginning on the i4Q business canvas and exploitation/market strategy. A set of related suggestions address aspects like the revenue model, the identification of the services to be offered together with the tools, the way to seek out target groups to explore service levels tailored to them and different environment and networks to explore, or the importance of including large companies in the analysis in addition to the medium and small companies that are being interviewed to determine the exploitation strategy. In this line, they provided clues on how to present the solutions to potential users to ensure that their added value is clearly understood, with the recommendation to previously deepen these differentials through benchmarking.

The advisors were also keen to know how the consortium partners will cooperate in the joint exploitation of the solutions and recalled that specific agreements between partners may be necessary, especially when there is interaction between solutions. They therefore suggested creating a diagram of relationships and dependencies between solutions, including data management (sharing, storage, etc.). They also were interested in the exploitation path of the pilots, not so much focused on commercialisation but on evolution and sustainability of the i4Q solutions in their business. Talking about exploitation ways, they reminded that monetisation is the main one for the industry but other ways to provide value to the community should be explored, like generating new research projects.

Discussion on the two different strategies that are being considered (start-up generation versus selling in an existing marketplace) also provided interesting feedback. For example, the advisors suggested investigating whether the services currently provided by i4FS match the services i4Q intends to provide. They also proposed to analyse other manufacturing marketplaces where i4Q solutions could be sold, beyond i4FS.

Other interesting points that were noted are datasets valorisation or the impact that the open-source nature of some solutions may have on their exploitation.

Finally, the criteria for evaluating the marketability of the solutions were highlighted more than once. It was suggested to evaluate the risk of specific technologies to be implemented in a real environment and the effort to do it, as the technological pillar is considered very important in the sustainability strategy.

Feedback on management-related aspects was not really an aim neither for the consortium nor for the advisors. Nevertheless, four actions related to the **MANAGE** phase were identified and the related corrective actions defined.

As mentioned in the introduction of this chapter on results, the file containing all the detailed information can be requested to consult the status of the actions defined to address the summarised suggestions. It is worth mentioning that the implementation of these actions has been driven by and incorporated into the WP/tasks concerned, and therefore the results obtained integrated into the corresponding developments and deliverables. As already explained, Task T7.5 "Industrial Advisory Board and Workshops" has been monitoring the evolution of these actions.

4. Dissemination Workshops

As stated in the Grant Agreement, T7.5 "Industrial Advisory Board and Workshops" includes the organisation of two dissemination workshops, the first focusing more on general insights and approach of i4Q, and the second focused on the project results.

Obviously, these workshops are directly related to T7.3 "Impact Activities: Awareness and Outreach, Community Building", which have their own deliverables. That is why only a summary on the information related to the workshops is included in this one.

The workshops are:

I-ESA'22 (Interoperability for Enterprise Systems and Applications) Conference, organised by the Universidad Politecnica de Valencia from March 23rd to 25th on behalf INTERVAL (Spanish Pole of INTEROP-VLab) and INTEROP-VLab. The conferences and workshops are recognised as a tool to lead and generate an extensive research and industrial impact in the field of Interoperability for Enterprise Systems and Applications.

i4Q was present with the "Industrial Data Services for Quality Control in Smart Manufacturing" workshop, where 6 research works related to i4Q were presented to around 35 attendees, see **Figure 24**.

Figure 24. Presentation in i4Q workshop

Furthermore, a visit to FACTOR pilot company took place on Tuesday March 22nd.

DMIS 2023 (Digital Manufacturing Industrial Summit), held in Valencia from April 25th to 27th as environment to discuss a wide range of digital manufacturing topic, including:

- Zero defects and data quality
- Digital platforms and marketplaces
- Robotics and AI
- Sustainability and resilience.

220 individuals attended to 17 sessions, where around 80 different presentations could be seen.

i4Q project contributed actively as a supporter of the event. **Figure 25** shows several photos of the attendees, and some partners of the project consortium presenting i4Q Results.

Figure 25. Attendees and i4Q presence in DMIS 2023

Further information about DMIS 2023 can be found in this video: https://youtu.be/vphc3MJUK3w (2

5. Conclusion

T7.5 “Industrial Advisory Board and Workshops”, started together with the project and has finished in month 37 (January 2024). It has tackled two activities, on the one hand the related the Advisory Board (which has taken up most of the effort), and on the other hand the organisation of two dissemination workshops in cooperation with other tasks of the dissemination WP.

Related to AB activity, the consortium considers that the feedback from the advisors has been very valuable and useful in guiding the tasks and achieving successful results. The 6 advisors on the board have applied their extensive expertise on market, business and technology in the different iterations maintained over 3 years, through 4 workshops and some questionnaires. It should be noted that their involvement in the review of the documentation, their attendance at meetings and the fulfilment of the subsequent questionnaires, as well as the high involvement of the consortium in the definition and organisation of the iterations and in the preparation of the necessary material have been key to the success of the activity.

A total of 147 actions have been defined to address the wide variety of suggestions provided by the advisors. The implementation of these actions is being driven by and incorporated into the WP/tasks concerned, and therefore the results obtained integrated into the corresponding developments and deliverables. An Excel file continuously available to the consortium allowing easy visualisation and updating collects the details on these suggestions, as well as the actions defined to address them and their status and additional comments.

Of the 147 defined actions, 104 have been settled, 37 are in progress, and 6 have not yet started. The unfinished are obviously related to the project ongoing phases, which are mainly EVALUATE, DISEEMINATE and EXPLOIT. It must be clarified that although T7.5 has finished, the project coordinator will follow them up under the umbrella of WP9 until the end of the project, in May 2024.

Concerning the second activity of the task, two successful dissemination workshops have been held to raise visibility of the project with a purpose to maximise its impact. The firsts one is **I-ESA’22 (Interoperability for Enterprise Systems and Applications) Conference**, where 6 research works related to i4Q were presented to around 35 attendees. The second one is **DMIS 2023 (Digital Manufacturing Industrial Summit),** which was attended by 220 people.

Annex I – 2nd AB Workshop Related Questionnaire

Next only the first of the three pages of the questionnaire to be filled by advisors after the 2nd AB workshop is included, in order to avoid lengthening the deliverable. The complete questionnaire is available in the Sharepoint of the project.

i4Q ADVISORY BOARD FEEDBACK	
AB meeting number	Second AB workshop, April 2022
Advisory Board Member Name	
Date	

GENERAL RATING	1	2	3	4	5	n/a	Comment or recommendation
	1 totally disagree / 5 totally agree						
The Business Information is clear, complete and understandable							
The Technical Description is clear, complete and understandable							

INDIVIDUAL EVALUATION OF i4Q SOLUTIONS

GROUP1: MANUFACTURING DATA QUALITY

i4Q QualiExplore for Data Quality Factor Knowledge (i4QQE)	1	2	3	4	5	n/a	Comment or recommendation
	1 totally disagree / 5 totally agree						
The Business Information is clear, complete and understandable							
The Technical Description is clear, complete and understandable							

i4Q Blockchain Traceability of Data (i4QBC)	1	2	3	4	5	n/a	Comment or recommendation
	1 totally disagree / 5 totally agree						
The Business Information is clear, complete and understandable							
The Technical Description is clear, complete and understandable							

i4Q Trusted Networks with Wireless & Wired Industrial Interfaces (i4QTN)	1	2	3	4	5	n/a	Comment or recommendation
	1 totally disagree / 5 totally agree						
The Business Information is clear, complete and understandable							
The Technical Description is clear, complete and understandable							

i4Q IIoT Security Handler (i4QSH)	1	2	3	4	5	n/a	Comment or recommendation
	1 totally disagree / 5 totally agree						
The Business Information is clear, complete and understandable							
The Technical Description is clear, complete and understandable							

Annex II – 3rd AB Workshop Related Questionnaire

i4Q ADVISORY BOARD FEEDBACK

AB meeting number and date	Third AB workshop, Valencia 25/04/2023
Advisory Board Member Name	

Guide to fill in the questionnaire.

This questionnaire consists of:

- A first summary sheet to be filled in at the end, where a general rating of the two concepts reviewed in the workshop is requested: **6 developed Solutions** and **Exploitation**.
  You may also add a general summary of both concepts, as well as any other comments you wish to provide bout the workshop and its content.
- An evaluation sheet for each of the 6 solutions presented at the workshop.
  All sheets are alike and contain generic questions that in principle are valid for all 6 solutions. Please feel free to answer the ones you feel comfortable with.
- A last sheet to collect your feedback on Exploitation.
  There are no specific questions, you can suggest any point of the improvement that you identify.

You can use this questionnaire to take notes in the workshop, during the presentations. The workshop will be recorded and uploaded to Sharepoint, so that you can take some days to review it totally or partially if necessary to complete and send the questionnaire.

GENERAL RATING (To fill it at the end)	1 totally disagree / 5 totally agree							1 totally disagree / 5 totally agree					
	1	2	3	4	5	n/a		1	2	3	4	5	n/a
The information about **solutions** is clear, complete, and understandable							The information about **exploitation** is clear, complete, and understandable						

SUMMARY / GENERAL COMMENTS OR RECOMMENDATIONS (To fill it at the end)

SOLUTIONS	(Extend the size of the cells as much as you need, so that all comments fit in)
EXPLOITATION	
OTHER	

Evaluation of i4Q^{DR} - Data Repository

It is a distributed storage system for supporting a high degree of digitisation in companies with most manufacturing devices acting as sensors or actuators and generating vast amounts of data. i4QDR is able to absorb large volumes of data coming into the system at high speeds. i4QDR is elastic to adapt the required computing resources to the existing demand and ready to use additional resources, either local to the factory or from remote systems like public or private clouds.

Functionality	1 totally disagree / 5 totally agree					
	1	2	3	4	5	n/a
The outputs/results of the Solution are clear						
(Comment) Extend the size of the cells for comments as much as you need, so that all comments fit in						
The Solution includes the appropriate/necessary functionalities						

Usability and attractiveness	1 totally disagree / 5 totally agree					
	1	2	3	4	5	n/a
The workflow is clear and easy to follow						
The Solution is intuitive and easy to use for the target user/s						
The appearance/design of the solution is visually attractive						

Applicability and selling potential	1 totally disagree / 5 totally agree					
	1	2	3	4	5	n/a
I clearly see where the Solution could be incorporated in a manufacturing line						
The Solution is applicable in different sectors						
The solution has a differential value over other solutions available in the market						

Solution strengths and weaknesses

(Extend the size of the cells for comments as much as you need, so that all comments fit in)

Technical comments you wish to add

(Extend the size of the cells for comments as much as you need, so that all comments fit in)

Note: the questionnaire includes 5 same sheets as above (one for each of the other 5 presented solution), which are omitted in order not to extend the length of the deliverable.

EXPLOITATION

Please, include any point of improvement related to exploitation that you identify.