NEON
Network of Competence on Internet of Things

Co-funded by the Erasmus+ Programme of the European Union

Project:	Network of Competence on Internet of Things [NEON]
Project ID:	618942-EPP-1-2020-1-AT-EPPKA2-CBHE-JP
Work Package 6:	Quality Control and Monitoring
Title:	D6.2 Development of guidelines for QC (Quality Control) (Quality Plan)
Lead Organisation:	UC3M
Participating Organisation:	UNI-KLU, UC3M, UNC, UNS, UNMDP, UdelaR, UCU, INCUTEX, ALASSIO, ALENET, TEAC, EYCON, ALLIANSYS SRL, Santex, TELECOM ARGENTINA S.A, CONTROLNET S. A., ABM ingeniería y sistemas S.R.L., UTE, CONAE.
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Deliverable data	Work Package and Outcome ref.nr	WP6 D6.2
	Title	Development of guidelines for QC
	Type	☐ Teaching material ☐ Event ☐ Learning material ☒ Report ☐ Training material ☐ Service / Product
	Description	The document defines the main quality management procedures. Its goal is to provide guidelines to assess and ensure the quality of the project defining the minimum set of procedures and requirements that are needed. The document provides: i) The guidelines for Quality Control and procedures for NEON ii) Annex with templates for the different procedures
	Date	1.09.2021
	Language	English
Target groups	☒ Teaching staff ☐ Students ☐ Trainees ☒ Administrative staff ☐ Technical staff ☐ Librarians ☒ Industry partners, Higher education authorities	
Dissemination level	☒ Department / Faculty ☐ Local ☐ National ☒ Institution ☐ Regional ☒ International	
Lead Organisation	UC3M	
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Task	T6.1 Establishment of the QCM Board and appointment of external experts for QC. T6.2 Consolidation of areas to be monitored, indicators, and correction strategies both internal and external T6.3 Internal control of project progress and outcomes	

Revision History				
Version	Date	Author(s)	Organisation(s)	Brief description of change
0	23.7.2021	Víctor P. Gil	UC3M	First draft of the report.
1	26.7.2021	Ana García Armada	UC3M	First complete version of the report.
1.1	27.7.2021	Emma Schneider	UNI-KLU	Grammar & content revision.
1.2	3.8.2021	Fernando Gregorio	UNS	Initial quality inidcators.
2	4.8.2021	Ana García Armada	UC3M	Incorporated comments received from Celcilia Galarza (external HERE).
2.1	1.9.2021	Fernando Gregorio	UNS	Completed quality inidcators.
3	29.10.2021	Ana García Armada, Víctor P. Gil	UC3M	Incorporated comments and suggestions from external experts.
4	6.2.2022	Ana García Armada, Víctor P. Gil	UC3M	Incorporated comments and suggestions from internal quality review.
5	8.2.2022	Ana García Armada, Víctor P. Gil	UC3M	Fixed some small tpos detected in the quality review.
6	14.2.2022	Ana García Armada, Víctor P. Gil	UC3M	Incorporated latest suggestions from external quality and HERE experts.

LIST OF ACRONYMS

DB	Development Board
EU	European Union
FO	Finantial Officer
HEI	Higher Education Institution
ICT	Information and Communications Technologies
IoT	Internet of Things
GDP	Gross Domestic Product
LA	Latin America
LFM	Logical Framework Matrix
MB	Management Board
NoC	Network of Competence
PC	Project Coordinator
PMBOK	Project Management Body of Knowledge
PiC	Person in Charge
PS	Project Secretariat
QC	Quality Control
QCM	Quality Control and Monitoring
QCMB	Quality Control and Monitoring Board
WP	Work Package

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1 INTRODUCTION

The main objective of NEON project is to improve and diversify the training of human resources, both in the academic field and in the public-private sphere, motivating innovative technologies in the Information and Communications Technologies (ICT) field, in particular the Internet of Things (IoT). The main goal of the institutions that make up the consortium is the creation of a Network of Competence (NoC) for IoT. The project will offer the framework and support to foster the industry collaboration at each country of interest, namely, Argentina and Uruguay, and, at the same time, it offers the possibility of exchange and advice from two European countries: Austria and Spain, that have demonstrated a good amount of development and innovation in the IoT field. The project's goals will be achieved by updating and improving the curricula at the different universities degrees, the creation of at least 5 laboratories on IoT, the training of their academic staff and the collaboration between the local and regional industry.

Latin America (LA) is a region of the world that still does not offer a sufficient level of equal opportunities. One of the reasons for this disparity can be identified in a constantly growing population and an increasing urbanisation into big and densely populated metropolises. The southern regions, especially Argentina and Uruguay, operate mostly in the primary sector of agricultural goods, mainly food. Most advanced economy sectors including high-tech industry are not well developed. Furthermore, unemployment is a constant and worrying issue in LA. Argentina and Uruguay are among the top riders of LA with the highest unemployment rates[1] as a result of a great deterioration of economy and a general decrease of the average Gross Domestic Product (GDP) due to scarce diversity in industry, lack of innovation, lack of qualified personnel especially in technology. Engineers are scarce in all areas, especially ICT. The demand is higher than the offer. Among the high tech market sectors, Internet of Things is extremely relevant since it spans several application domains, from quality and environmentally friendly agriculture, to cattle rising, to smart energy and renewables, to health applications, to the holistic vision of smart cities.

The European Union (EU) character of the project will ensure modernisation of the engineering profile with the inclusion of IoT skills and knowledge by having EU Higher Education Institutions (HEI)s bringing their experience and helping to enhance the quality of the study programmes. Value will be attained by creating more skilled and competent graduates, which will reflect in better-qualified engineers that work in ICT companies, with specialisation in IoT, and contribute to the innovation process of such companies at EU levels. Study programme improvements, innovative teaching and training methodologies, new labs, and internships will result in students being better prepared for a flexible international job market, recognised by employers at EU level, which enhances mobility opportunities. NEON focus is on IoT, which is aligned with the EU strategy of stimulating the wider application of ICT in society and economy. The objectives will be attained only if HEIs in LA and EU countries work together to exchange good practices, enhance curricula and their contents, and facilitate mutual studies and degrees recognition as well as cooperation with industry. LA companies will also benefit by rendering themselves more visible at EU level, potentially diminish the drain of experts and attract employees from the EU.

[1] Data source for 2021 average of 11.67% for Argentina and 12.67% for Uruguay (5th and 4th, respectively) https://www.theglobaleconomy.com/rankings/Unemployment_rate/South-America/

Thus, the general goals of the NEON project are to improve and diversify the training of human resources, both in the academic field (students, professors, technicians) and in the public - private sphere, motivating innovative technologies in the ICT field, in particular the internet of things.
This document sets the stage for the important task of the quality control and management (QCM) of the project. Procedures, indicators and guidelines are defined and tenplates are provided to be used for quality control and assurance throughout the project development.

1.1 PROJECT ACTIVITIES, DELIVERABLES AND MILESTONES

In order to obtain the goals, the project is organised into different activities, tasks that have as output deliverables, milestones and events.

The project deliverables are organised in a form of tangible deliverables (eg. reports, publications, manuals, methodology, plans, printed and electronically available promotional material), as well as intangible deliverables in the form of organised events (training, conferences, seminars, info days, etc.) For completeness, the summary of tasks, deliverables and milestones are listed here.

The deliverables are here grouped according to the Work Package (from 1 to 8) along with the corresponding tasks and milestones:

WP1: PREPARATION

T1.1 Survey and analysis of IoT courses in ICT study programmes in relation to modern society and industry needs in the IoT domain
T1.2 Consolidate guidelines for curriculum modernisation in cooperation with industry
T1.3 Preparation of implementation actions of the network of competence

D1.1 Consolidated analysis of educational/industrial needs on IoT in Argentina and Uruguay
D1.2 Consolidated project plan of implementation actions

M1.1 Snapshot of present situation about IoT in ICT studies in Argentinian and Uruguayan HEIs
M1.2 Surveys to enterprises in order to have a feedback from IoT enterprises, mainly for technical contents
M1.3 Preliminary summary of industry needs, profile competencies and skills needed on IoT
M1.4 Analysis of the state of involved partnership institution's infrastructure related to remote courses, MOOCs, audio video supporting
M1.5 Pedagogical advice. Survey to technology & pedagogy specialists. The purpose is to have a feedback and advice about the technological tools for graduate & postgraduate courses
M1.6 Project meeting to present the summary of A&U situation and consolidated project plan
M1.7 Completion of the action plan and network of competence development guidelines

WP2: DEVELOPMENT OF THE NETWORK ON COMPETENCE ON IOT

T2.1 Develop a management platform to coordinate the network of competence and to serve as knowledge base

T2.2 Develop policies and procedures to regulate the network of competence
T2.3 Define the governance of the network of competence
T2.4 Partners and network implementation

D2.1 Report on management platform to coordinate the network of competence
D2.2 Report on the creation of the legal framework for the network of competence
D2.3 Report that defines the governance of the network of competence
D2.4 Report on network implementation

M2.1 Creation of the management platform to coordinate the NoC
M2.2 Define the most appropriate legal framework for the NoC based on the local regulations
M2.3 Prepare the statute of the network of competence
M2.4 Define the network of competence members and their roles
M2.5 Meeting of the NoC group to coordinate the activities

WP3: TEACHING METHODOLOGIES, MATERIAL AND MODERNISATION OF STUDY PROGRAMMES

T3.1 Adoption of new learning/teaching methods, tools, ICT best practices in teaching
T3.2 Creation and / or modernisation of teaching material related to IoT
T3.3 Improvement and implementation of new learning/teaching methods, tools, ICT best practices in teaching

D3.1 Web repository for class and lab sessions material
D3.2 Report on the modernised teaching methodologies applied to IoT courses
D3.3 Teaching and training materials for new and modernised IoT courses
D3.4 Delivery of teaching and training classes for new and modernised IoT courses

M3.1 Identification of modern teaching methodologies
M3.2 Adoption of tools and equipment to enable innovative teaching methodologies
M3.3 Collection of preliminary teaching material for new and modernised courses
M3.4 Development of class material
M3.5 Delivery of web repository and platform
M3.6 Upload of the new teaching material on the web repository
M3.7 Complete translation of shared teaching material

WP4: DEVELOPMENT AND IMPLEMENTATION OF LABORATORIES

T4.1 Creation of joint university-industry labs and modernisation of the lab infrastructure
T4.2 Pilot lab development. The purpose is to develop a complete undergraduate or graduate lab with pedagogical/technological tools in the domain of IoT.

D4.1 Report on the laboratory infrastructure and equipment at each LA university
D4.2 Report on the created five joint university-company labs ruled by an agreement

M4.1 Identification of laboratory infrastructure to be restructured in each LA university and initial steps for the joint university-industry labs
M4.2 Establishment of formal links and joint lab operation agreements between universities and companies
M4.3 Define the procurement procedure
M4.4 Purchase and installation of the laboratory equipment

WP5: TRAINING AND INTERSHIP IMPLEMENTATIONS

T5.1 Creation of a section in the project website where training and internship opportunities are listed
T5.2 Implement framework for student training in cooperation with EU partners and industry
T5.3 Implement framework for student internships in companies
T5.4 Offer techno-economic, entrepreneurial and IPR related training modules
T5.5 Implement teacher staff training on technology and modern prototyping tools for IoT
T5.6 Implementation of three workshops on IoT and ICT technologies

D5.1 Report on the training/internships website section
D5.2 Report on the framework for training and internships
D5.3 Report on organised hackathons for students of the region
D5.4 Report on student training modules on technical and entrepreneurial subjects
D5.5 Report on teacher training modules

M5.1 Define the content and the responsible persons of the website section dedicated to internships and trainings
M5.2 Creation of the website section with training and internship opportunities
M5.3 Define the requirements and objectives of the training process for both students and teachers
M5.4 Define the required resources for the training implementation
M5.5 Create the training action plan and agenda for both students and teachers
M5.6 "Student training module/seminars: Hands on IoT (introductory course)
M5.7 Define the organisation team for the proposed hackathon
M5.8 Organisation of the student mobility for the hackathon
M5.9 Hackathon for students. Organised at UCU
M5.10 List industry partners and related internships opportunities
M5.11 List professors and related co-supervised theses under the umbrella topic of IoT
M5.12 Define technical content for internships and cosupervised theses
M5.13 Workshop on teaching methodologies for IoT. Exchange about pilot courses and pilot labs. General consensus about pilot course and pilot lab structures. Pedagogical and methodological contributions. Survey results. Organised at UNI-KLU
M5.14 Workshop on communication technologies for IoT. Organised at UC3M
M5.15 Workshop on IoT technologies for agriculture market. Organised at UdelaR by July 2023

WP6: QUALITY PLAN

T6.1 Establishment of the QCM Board and appointment of an external expert for QC

T6.2 Consolidation of areas to be monitored, indicators, and correction strategies both internal and external
T6.3 Internal control of project progress and outcomes
T6.4 Monitor graduate profiles, improvements in their skills, in correspondence to industry needs
T6.5 Collect questionnaires and surveys via social networks (LinkedIn, AngelList)
T6.6 Monitor student enrollment statistics in the region
T6.7 Establish a monitoring system for employment statistics of graduates
T6.8 Establish a monitoring system for entrepreneur attitude and newcos (by means of surveys, databases, etc.)

D6.1 Establishment of Quality Control (QC) board and appointment of external experts for QC
D6.2 Development of guidelines for QC
D6.3 Reports on project implementation
D6.4 Report on graduates profile improvements and correspondence to industry needs
D6.5 Report on tools for monitoring students enrolment and employability/employment/entrepreneurial statistics of graduates
D6.6 Reports on stakeholders reached beyond the project consortium

M6.1 QCM Board establishment
M6.2 Quantitative indicator definition for project progress evaluation, as a par ot QCMB duties
M6.3 Activity report delivered by QCM board to MB once a year
M6.4 Define QCM structure
M6.5 QCM Board meeting in Madrid
M6.6 Implementation of surveys and questionnaires to retrieve feedback on employment from graduates working in partner industries; study and analysis of social networks capabilities with respect to project visibility
M6.7 Stakeholder appraisal relative to D6.6

WP7: DISSEMINATION AND EXPLOITATION

T7.1 Development of the project web site combined with the web platforms developed in the other WPs. Preparation of the materials to keep the project website up to date with the current activities
T7.2 Preparation of exploitation and dissemination plan
T7.3 Create promotional and dissemination material targeting high school students and society at large (exploiting also media)
T7.4 Organise an annual open event outreaching a wide audience that includes public authorities, industry, students, pupils and non-expert people
T7.5 Organise a yearly event (hosted in turn by the HEIs partners) in the form of a webinar broadcasted to all locations to present the study programmes, tips on studying engineering targeting enrolled and prospective students/pupils
T7.6 Establish agreements for future double degrees, joint teaching, student mobility beyond the project duration, bilateral agreements within Erasmus+ KA1
T7.7 Create an agreement for the maintenance of the web platform beyond the project life time
T7.8 Create partnerships for follow-up projects

T7.9 Participate in an event of dissemination of project results

D7.1 Central project web platform linked to the e-platforms developed in other WPs
D7.2 Report on exploitation and dissemination plan
D7.3 Preparation and delivery of dissemination and informative material
D7.4 Report on open events to reach the community at-large and disseminate the results at ICT conferences
D7.5 Report on yearly webinars (hosted in turn by the HEIs partners) broadcasted to all locations
D7.6 Establishment of agreements for future double degrees, student mobility beyond the project duration
D7.7 Report on agreement for the maintenance of the web platforms beyond the project life time
D7.8 Report on partnerships for follow-up projects involving industry

M7.1 Establishment of a workgroup dedicated to coordinate dissemination actions
M7.2 Central web platform design drafted by UNS and approved by the project coordinator
M7.3 Central web platform released
M7.4 Central web platform linked with the other online services created in the previous WPs
M7.5 Webinar on the NoC structure and partners, hosted by UNC
M7.6 Webinar on new / modernised IoT courses in Uruguay, hosted by UdelaR
M7.7 Webinar on new / modernised IoT courses in Argentina
M7.8 Open Event involving the community on studying ICT with the participation of a renowned keynote speaker in UNMdP
M7.9 Open Event involving the community on academia-industry cooperation in teaching with the participation of a renowned keynote speaker in UCU
M7.10 Open Event and dissemination involving the community on entrepreneurship with the participation of a keynote speaker in UNS
M7.11 Preliminary exploitation plan
M7.12 Signature of agreement for the prolonged existence of the web platform
M7.13 Agreements for maintenance of joint labs with industry
M7.14 Agreement for further cooperation in education HEIs aiming at establishing at least one double degree and promoting student mobility

WP8: MANAGEMENT

T8.1 Creation of a project management (PM) board
T8.2 Creation of an e-platform for project management
T8.3 Monitor and coordinate the overall project
T8.4 Maintain flow of information between partners and the funding agency
T8.5 Organise regular meetings (face to face and remote)
T8.6 Monitor the financial aspects of the project, funding, and prepare the reports

D8.1 Report on the project management (PM) board and its establishment
D8.2 Report on the project management (PM) e-platform for sharing documentation
D8.3 Mid-term report
D8.4 Final report

M8.1 Project meetings and progress/status reports
M8.2 On an annual basis there will be physical project meetings, according to the following schedule: kickoff meeting in Klagenfurt (M1), project meeting in Madrid
M8.3 On an annual basis there will be a project meeting carried out via web conference for a total of three instances.
M8.4 PC and the funding agency will communicate annually to assess the project progress
M8.5 Financial reports will be delivered to the coordinator on an annual basis, according to the following schedule: first report (M12), second report (M24) and final report

2 NEON QUALITY CONTROL WORKPACKAGE (WP6)

The WP6 is devoted to quality control management, so first, the definition of quality within this project is illustrated. Then, the different instruments and boards for the quality monitoring will be described.

2.1 QUALITY EXPECTATIONS AND DEFINITION OF "QUALITY" WITHIN THE NEON PROJECT

Quality expectations of the NEON project will be first and foremost defined in terms of the project's ability to achieve the general objective (i.e. to improve and diversify the training of human resources, both in the academic field motivating innovative technologies in the ICT field, in particular the internet of things) in an operational setting defined by the four NEON axes (see Fig. 1):

1. Cooperation between HEIs and industry to modernise the study programme with IoT content and skills;
2. Adoption of modern teaching methodologies and tools, the upgrade of the lab infrastructure, and the creation of joint university-industry labs;
3. Implementation of training of both teachers and students;
4. Cooperation between HEIs in EU and LA of good practices in engineering education and experience on ICT, especifically IoT.

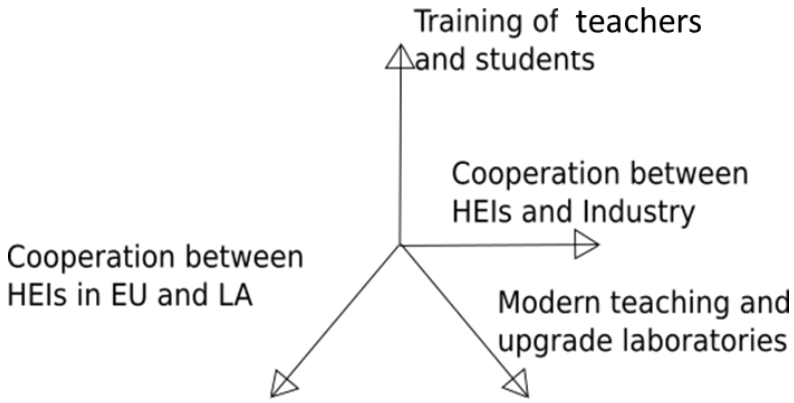

Fig. 1 Main four axes of NEON project

This approach to quality control (QC) has been formalised through the development of guidelines for QC containing the methodology that will be followed by the partners of the NEON project with the goal to achieve the highest possible quality of the project activities and results, as well as project monitoring.

Coherently to what was agreed among the partners, the achievement of the general objective shall always be in the forefront of all decisions to be taken. In practical terms, it means that the partners might adopt strategies such as:

- decide to prioritise certain activities over others
- identify and propose changes to the way activities are implemented (accordingly with Erasmus+ programme rules)
- identify and propose changes to timelines (accordingly with Erasmus+ programme rules)
- obtain feedback from industry to better adapt to their needs in the field of IoT.

Considering the related assumptions and risks, this kind of changes to project activities will always be justified by the empirical evidence coming from NEON implementation and validated by discussions among partners.

All the deliverables (specified in section 1.1. in these guidelines) will be analysed and evaluated in terms of

- Relevance: is the deliverable coherent with the planned content?
- Usefulness: did the deliverable contribute to the achievement of the general and specific objectives?
- Timing: was the deliverable delivered according to the planned timeline?

All these criteria will be approached and defined according to the project workplan as identified in the Application Form and Action Plans (modified and agreed if necessary by the Management Board (MB) on six-month basis).

Thus, the quality within the NEON project could be defined as the alignment of the deliverables and the milestones to the stakeholders' expectations. Since the different partners and workpackage leaders are aware and determined to obtain the quality of the project and the workpackages, checking the alignment of the outputs (deliverables, milestones and events) will guarantee the quality of the whole project.

2.2 QUALITY MONITORING

Generally speaking, the Project Managementn Body of Knowledge (PMBOK) distinguishes three processes in quality monitoring and management:

a) Quality Plan Management (quality planning): to identify the requirements of quality of the project and stablish the procedures for showing the alignment of deliverables with the quality.
b) Quality Management: to guarantee that the activities within the project follow the quality rules.
c) Quality control and monitoring: to monitor the quality activities in order to evaluate the performance.

Quality monitoring in WP6 is devoted to identify the requirements of quality in the form of indicators, to stablish the procedures for showing the alignment of deliverables and milestones with the quality and to monitor the outputs with respect the quality rules. In this sense, the work package leaders and task leaders are responsible for guaranteeing the quality of each of the activities they are in charge of, and thus, the end project quality is fulfilled.

Quality control and monitoring of the project will take place throughout the entire project duration as a way of assessing and guaranteeing the quality and success of the project. A dedicated work package (WP6) was established to monitor and to manage the quality requirements of the project. This section of the document relies on the activities and procedures defined by the original project application, the decisions made at the kick-off meeting, and on the Partnership Agreements.
Apart from this, NEON also relies on the following documents as a reference:

- NEON project Grant Agreement
- NEON project Dissemination and Exploitation Plan
- NEON project budget and task assignment
- Erasmus + Programme Guide
- Erasmus + Frequently Asked Questions

2.3 RELATION BETWEEN QUALITY MONITORING AND NEON PROJECT MONITORING

The project management will be implemented by creating the following structure:

- Management Board (MB)
- Development Board (DB)
- Quality Control and Monitoring Board (QCMB)

The MB is led by the Project Coordinator (PC) and includes one representative per project partner country. It also includes the Project Secretariat (PS) and the Financial Officer (FO).

The MB is responsible to monitor the project progress, the achievement of milestones and the delivery of planned results as well as monitoring the financial aspects and the appropiate use of resources. In order to monitor the development activities, the MB consults with the DB. The DB includes the WP leaders and reports the progress of activities, achievements and possible difficulties to the MB who subsequently anlyses the situation and eventually proposes a contingency plan so that the project can progress and achieve the planned goals. The MB is also responsible for monitoring the implementation of contingency tasks. The PC coordinates closely with the partner representatives to ensure that the project progresses efficiently. The PC tasks are therefore:

- Lead and coordinate the project and the MB
- Monitor the project implementation with close relation to the DB
- Monitor the project financial aspects in consultation with the FO
- Guarantee that the Workpackage Leaders organise and develop their workpackages timely and with the required quality
- Evaluate difficulties and develop contingency plans
- Collect the financial reports from the partners, review them and prepare the reports due to the funding agency

- Manage the organisation of plenary project meetings and events.

The MB has, at least, two meetings per year, face-to-face or via conference call. If needed, extra meetings for specific topics might be organised.

The DB is responsible for the organisation of more frequent meetings or conference calls to discuss development activities and report to the PC and MB especially in case of difficulties. The activity of the PC is supported by the PS who works on administrative and organisation activities such as, distributing meeting minutes, maintaining the project calendar, coordinating the exchange of information, coordinating the organisation of meetings, seminars, workshops, plenary meetings and maintaining the book-keeping necessary for budgeting and financial activities. Finally, conflict resolution is managed together with the Quality Control and Monitoring Board.

Project management must be transparent and flexible but also strict enough to ensure the implementation of the project activities in order to achieve the project's objectives. Each partner is equally and independently responsible for assigned activities, guaranteeing their quality, reporting and distribution of money. Contact persons are responsible for the local management at their institution, although they can ask for help from the PS.

2.4 NEON QUALITY CONTROL AND MONITORING

Quality control and monitoring work package (WP6) is led by UC3M, and is responsible for quality control and monitoring throughout the project. UC3M also coordinates the establishment of the Quality Control and Monitoring Board (QCMB) (M6.1) and appointment of external experts for QCMB. UNS consolidates indicators and correction strategies (both internal and external) (M6.2 at M3) while UC3M leads the process of internal control of project progress and outcomes (M6.3). More specific tasks, such as monitoring of graduates profile or improvements in the skills, will be implemented and coordinated by UCU. Also UCU will organise collection of questionnaires and surveys via social networks (MS6.6). Student enrolment statistics in the region will be tracked by UdelaR. Finally, UCU and UdelaR will lead the establishment of a monitoring system for employment statistics and for entrepreneurship skills of graduates and in concordance with industry.

The internal members of the Quality Control and Monitoring Board (QCMB) were defined at the project's kick-off meeting. The board consists of 9 members representing: University Carlos III de Madrid (chair), University of Klagenfurt, Universidad Nacional del Sur, Universidad de la República, two students, one from Universidad de la Republica and another from the Universidad Nacional de Mar de Plata, one external expert from Spain and two HERE, one from Argentina and the other one from Uruguay.

Quality Control and Monitoring (QCM) will be performed continuously during the project realisation. QCM will be implemented as follows:

- QCM board (QCMB) will be established and it will comprise representatives of the partner universities participating in the project and external experts outside the consortium.

- QCMB will review the project activity in consultation to the Development Board (DB) and Management Board (MB) (see WP8).

A team of external evaluators will provide an independent assessment of the project by verifying the content of the QCM reports, to give recommendations on areas that could be further developed and improved, and to provide an opportunity for dialogue among evaluators and strengthen the self-assessment process. The team of external evaluators will also verify the quality of the intermediate and final evaluation reports.

The qualitative information needed to update project indicators will be gathered through:

- Desk analysis of reports draft by the PC for each activity
- Surveys chiefly targeting students
- Qualitative questionnaires for interviews with key-informants.

Reports summarising the results of quality assessment will be sent to all project members: discussion about problems highlighted by QM will be eventually scheduled during the project meetings. The effectiveness and quality of the developed project plan and outputs of the development WPs and dissemination and exploitation WP will be visible in reports.

The QCM activities will be organised within the tasks of WP6 and will follow the requirements specified in the Logical Framework Matrix (Annex A). The status of successfully evaluated NEON documents will be marked as APPROVED BY QCMB within the Intranet project documentation portal on Confluence.

The QCMB will also report the outcome of the evaluation, the identification of deficiencies and delays (if any) to the MB and DB so that the appropriate countermeasures can be taken.

The reports on these activities will be gathered in the annual reports (D6.3), as it will be explained later on.

2.5 NEON QUALITY PROCEDURES

Quality Control and Monitoring (QCM) activities are performed continuously during the project duration. The WP leader is UC3M. The QCM Board (QCMB) has been established at the kick-off meeting by assembling a team of representatives from UC3M, UNI-KLU, UCU and UdelaR, plus two students. One external QCMB member has been appointed. In addition, he is to be assisted by two external experts that act as advisors to provide inputs and independently assess the project results. QCMB will cover two main areas.

- quality control and helping the PC with contingency planning of the project activities and results,
- monitoring the level of achievements w.r.t. the targeted goals (graduates profile improvement, employability/employment improvements, increased collaborations with industry, …).

The main activities will be:

- Consolidation of areas to be monitored with selected indicators and correction strategies (both internal and external).
- Internal control of project progress and outcomes.
- Organise board meetings in addition to regular conference calls: one planned in Madrid.

The project activities and deliverables will be constantly monitored in consultation with the management board. Deviations and difficulties will be examined with the PC and actions for quick solution will be determined. The activities of the external QCMB members and external evaluators will be: to overview and verify the internal QA report, to give recommendations on areas that could be further developed and improved, and to provide an opportunity for dialogue among evaluators and strengthen the self-assessment process.

Indicators will be measured and updated through report analysis, surveys and questionnaires. QCM activities will also include evaluation of student and teachers reactions, achievement of objectives and impact of the project on the institutions as a whole, as well as the project results in terms of increased cooperation with the socio/economic environment, the correspondence between the graduate's skills and job market needs, the time-to-employment of graduates and statistics of employment, student awareness of their skills and their entrepreneurial attitude, and job opportunities. The assessment and monitoring of the correspondence between objectives and graduate profile, alignment of professional and academic requirements will be done. All these aspects under the umbrella of IoT skills.

Quality indicators will follow: the development of QC guidelines adopted and distributed to all partners, reports on project implementation made by WP leaders and evaluated by QCMB, reports on graduate's profile improvements and correspondence to industry needs, tools for monitoring students enrolment and employability/employment/entrepreneurial statistics of graduates developed and delivered to partners, reports on reached stakeholders beyond the consortium.
Apart from establishment of quality indicators and monitoring, quality-related measures also include design of various templates to further facilitate procedures related to activities leading to staff costs and travel costs (exp. justifying travelling by personal car, etc.); the use of templates will be mandatory.

At its kick-off meeting, the QCMB approved the following procedures for its functioning:

- Regular meetings every 4 months by teleconference
- Meeting organised by Chair and agenda distributed previous to the meeting
- Any member can request an additional meeting
- Unanimous decisions or majority of votes when needed
- Consultations and decisions about quality of deliverables or milestones can be done by electronic means if no close meeting is foreseen, to avoid any delay. A summary will be added to the project Intranet for tracking purposes.

2.6 NEON REPORTING

The original project application text specifies that by the end of the project:

- regular reporting on the progress of all WPs is compulsory
- regular reporting by each lead partner is compulsory.

These reports will be considered as indicators of project quality both for their content (i.e. the information they will summarise will be part of the quality control system) and for the quality and timing of their delivery (the timely delivery of appropriate reports will be per se an indicator of quality), they will help sum up the progress in the given period, and allow the PC and QCMB to get a clear picture of the realisation of the project. In other words, if there are any discrepancies between the workplan and the realised activities, QB will react timely and prevent further delays.

2.7 NEON REPORT ANALYSIS

The reporting format is provided in the application, and confirmed at the kick-off meeting. Periodic reports will be developed by the QCM Board in order to highlight any problems encountered and suggestions on how to overcome them. Reports will include students' feedback and feedback from labour market's obtained during project development and implementation.

The basic tools for quality assessment will be: questionnaires, peer reviewing by external evaluators, feedback reports and evaluation surveys from training and workshops. Examples of the questionnaire items are: appropriateness of the learning outcomes, structure of curriculum and courses, the availability and accessibility of learning resources, interim reports on performance indicators about the student performance, student evaluation of the teaching process, improvement of teaching staff methodologies, etc.

The evaluations performed by the QCMB will be distributed to all participants. As indicated already, two representatives of students have joined the board to make sure that the student feedback is well represented.

QCMB will make a report analysis annualy in D6.3. This analysis is necessary in order to prepare an action plan for the remedy of all problems possibly identified in the reports. The conclusions made by QCMB are compulsory for all project partners. Moreover, this annual report will include the main conlusions and lessons learned to be a useful instrument to all the partners for further improvement through the years. This annual deliverable D6.3 would be recommended to be read by all the partners for the sake of continuous improvements. It would be useful to review this deliverable in the appropriate meeting of the consortium explaining the main conclusions.

3 NEON OUTCOMES

The outcomes of NEON project can be divided into three kinds:

a) Deliverables: documents and reports on activities, research, surveys and effort
b) Milestones: a specific activity or a group of activities goal accomplished
c) Events: each of the physical or virtual activity such as laboratory, course, conference, meeting, workshop, lecturer…

Although there are these three kinds of outcomes, all the events are grouped or organised with specific milestones, and thus, the evaluation of a milestone includes also the events. In the following, the different procedures will be described.

3.1 DOCUMENT BASED DELIVERABLES

The NEON consortium ensures that all deliverables have a common appearance. This step is important for the visual recognition of the project and as an important help in final reporting to both the Project Coordinator and the funding agency.

Therefore, all partners will follow uniform templates for all document-based deliverables. The templates can be found on the NEON project management platform Confluence/Intranet in the *Templates* folder located at: https://intranet.aau.at/display/projneon/Templates.

3.2 NEON DELIVERABLE APPROVAL PROCEDURE

The following steps present the procedures for revision, assessment and publication of deliverables:

1. Step 1: Evaluation/revision:
   - Once the writing of a deliverable is completed, the WP leader should upload the Word document to the respective Deliverable Log page in Confluence (as well as the WP page) and inform the QCMB leader/contact person.
   - Evaluation/revision will be performed by a NEON-member who has not directly participated in the preparation of the deliverable.
   - The evaluator/reviewer is appointed by the QCMB Chair via email (upon suggestion by the WP leder) and will have to respond within 5 working days.
   - The evaluator/reviewer will assess the deliverable by providing comments using the predefined Deliverable Evaluation Template: **QCM_Manual_Template_Deliverable_Review** (see Annex C in this document, or in the project's Intranet: https://intranet.aau.at/display/projneon/Templates) .
   - The filled in form mentioned above must be uploaded to the respective Deliverable Log page in the Intranet.
   - The QCMB will check the assessment. In case of quality-related inconsistencies, the deliverable will be returned for refinement.
2. Step 2: Consortium approval:

- After positive evaluation, the WP leader publishes the revised version of the deliverable on the Deliverable Log Page in PDF and announces by email the consortium approval to the main contacts of each institution.
- The main contact person of each partner must tick their institution's box to approve the deliverable.
- Any comment or suggestion on the document can be submitted via the Deliverable Log Page.
- If suggested changes are minor, the WP leader makes them, if not the editor(s).
- In the absence of any suggestions or comments after a period of 5 working days the approval process is concluded and silence acts as approval.

3. Step 3: Final QCMB approval and publication
   - After the deliverable has been approved by all partners (or 5 working days passed), the WP leader asks the QCMB for final approval of the the document.
   - The QCMB marks it as APPROVED BY QCMB within the Deliverable Log page on Intranet.
   - The WP leader asks UNI-KLU for the publication of the document (in PDF) to the website, usually the person managing the project's website.

3.3 NEON MILESTONE APPROVAL PROCEDURE

The milestone approval procedure is similar to the deliverable approval procedure but more contracted. It is indicated for those milestones that are considered critical for the project advance:

1. Whenever a milestone is achieved, the WP leader may contact the QCMB via email and attach the template `QCM_Manual_Template_Milestone_Verification` (see Annex D or at https://intranet.aau.at/display/projneon/Templates).
2. It will be evaluated by a member of NEON who has not directly participated in the achievement of the milestone, designated by QCMB. The evaluator will have to respond in 5 working days by delivering his or her comments using the predefined Milestone Evaluation Template `QCM_Manual_Template_Milestone_Evaluation` (see Annex D or at the website https://intranet.aau.at/display/projneon/Templates).
3. Approval by QCMB. In case of quality-related inconsistencies, the milestone will be returned to the WP leader for refinement.
4. After positive evaluation result, the WP leader will mark the milestone as completed within the WP page on the Intranet.

3.4 VISUAL IDENTITY CONTROL

Beneficiaries of European Union (EU) funding are obliged to display the EU flag and to acknowledge the support received under the relevant EU programmes in all communication and promotional material, as mentioned in the the EACEA's visual identity guidelines (https://wayback.archive-it.org/12090/20210122031341/https://eacea.ec.europa.eu/about-eacea/visual-identity-and-logos-eacea/erasmus-visual-identity-and-logos_en)

Therefore any material produced within NEON (publication of results, reports, deliverables, surveys, presentations, video material, classbooks, slides, flyers, agendas, etc.) must include on the first page/cover:

- the **Erasmus+ logo followed by the sentence: "*Funded by Erasmus+ Programme of the European Union.*"**
- The project logo

In addition, more complex (written) material such as a deliverables, reports, surveys, classbooks, teaching materials, video lectures, etc. must include the following disclaimer on the inner pages:

"The European Commission support for the production of this [publication/video/presentation/etc] does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Besides, since all partners are using the corresponding templates, the appropriate application of the visual identity rules as required by EACEA is ensured.

The project coordinator (UNI-KLU) is the overall responsible for the design of the promotional material. The UC3M team will periodically revise the material developed within the project in order to ensure the correct application of the EACEA visual identity rules.

3.4.1 NEON LOGO

The project logo serves to increase the visibility of the project. It has to be used for all the project deliverables and official project documents.

NEON
Network of Competence on Internet of Things

3.5 NEON EVENTS

The organisers of all the project events (working meetings, studying abroad, etc) should provide a full information package to the participants including the draft agenda, letter of invitation and a note on the logistics (informing about travel arrangements, venue, suggested hotels, etc) in due time.

The organisers will record the minutes of the meetings, which will be distributed to all the project participants and made accessible via the project portal. After each meeting, the feedback forms will be distributed among participants for quality management purposes. All these templates can be accessed through the portal at the page: https://intranet.aau.at/display/projneon/Templates

Posters and other promotional materials will be set-up during the event in order to increase visibility of the events.

Each event should be documented as appropriate using one or more of the proposed media: project website, Intranet site (Confluence), news, agenda, list of participants with affiliation, list of trainees, report, gallery, presentations (upon the approval of the presenter), video materials (upon approval of authors).

3.6 NEON WEBSITES AND OTHER ELECTRONIC TOOLS

The NEON project has set up a dedicated project website for dissemination purposes. This website was developed and is maintained by UNI-KLU, while all the partners are expected to effectively communicate the results of the project keeping the website information up to date.

A dedicated project-management portal called Intranet/Confluence is also set up and maintained by the coordinator. It can be accessed by all partners depending on their assigned tasks and roles and represents a single point of reference for the project documentation and communication among partners.

All partners are asked to promote NEON project on their websites and other electronic tools (such as: Facebook, Twitter and LinkedIn profiles/groups, newsletters, etc.) by providing short description of the project, logo and link to NEON website.

3.7 QUALITY FEEDBACK BY THE TARGET GROUPS

The quality of the project events will be ensured by collecting a variety of information using visits, interviews, questionnaires, consultation, and other forms of activities. These will bring awareness of the satisfaction of beneficiaries and other target groups. A template for feedback is created as a tool of impact assessment of the project activities. This template may be slightly adapted to conform to the specific needs of different events. Its main items shall not be deleted.

Besides, a specific event report template available under the Templates folder at the project Intranet site https://intranet.aau.at/display/projbenefit/Templates is to be filled in and collected by project partners (organisers) for all NEON events (workshops, info days, trainings). The report will include a summary review of statistical data and will help in final reporting.

4 NEON QUALITY ASSURANCE STRATEGY

We plan to carry out the internal monitoring by all the partners, which will include self-evaluation based on the workplan, budget and cash flow tables, MB and DB meetings, monitoring visits and questionnaires obtained at the appropriate surveys of target groups.

For quality assurance, we will deploy quality control in NEON at four major levels as listed below.

1. The work of individual institutions, their teams, the cooperation within the teams, as well as their cooperation with the WP leader and the partners involved in the activity will reflect in quality of project deliverables. The partners will be responsible for the quality and timeliness of the deliverables as suggested by the action plan. The quality will be ensured using an internal review process before QCMB evaluation.
2. Each deliverable will be evaluated by a designated member of QCMB as explained in section 4.2.
3. Should the reviewers, QCMB evaluators and the authors come in a profound disagreement, the project coordinator should apply a third level control of the deliverables which includes the necessary corrective actions in order to achieve acceptable deliverables. If necessary, the Coordinator may involve the rest of the Consortium.
4. After positive evaluation result, the WP leader publishes deliverable on the Intranet project management portal and requests the acknowledgement by each project partner. Partners' representatives acknowledge the acceptance and publication of the deliverables using a form on Confluence. After receiving the acknowledgements, the WP leader gives a final approval of the Deliverable and publishes the document.

4.1 RESPONSABILITIES OF THE CONSORTIUM

Within this project, there exist several bodies with different roles and responsibilities regarding the project activities and quality assurance procedures in particular.

An Activity leader, or Person in Charge (PiC), is assigned to each NEON deliverable. If not otherwise stated, this person is assumed to be the WP leader. Author and co-authors are reported for each deliverable. In cooperation with the Project Coordinator, QCMB controls the quality of activities and deliverables. The Management Board is the highest body of the project and is responsible for making final decision. The responsibilities of the Consortium bodies are as listed in the following:

Activity Leader (main responsible of the deliverable) is responsible for:

- coordination of deliverable(s) development according to the deliverable template,

- assure the timely organisation of the work and the deliverable
- sends timely reminders about the work being done
- distribution of the work assignments among other partners involved in the activity,
- coordination of the work assignments of all partners involved in the activity,
- submission of the deliverable to the WP leader, the QCMB, and the Project Coordinator,
- implementation of the suggestions provided by the QCMB team,
- regular reporting to WP Leader, especially in case of identified issues,
- cooperation with the WP Leader and other partners in the same WP with the goal to ensure the progress of activity in line with the time schedule.

Other partners involved in the activity, the co-authors, are responsible for:

- the production of their part in the deliverable according to the instructions,
- collaborate according to the time schedule on the work in the deliverable
- provision of their contribution in compliance with the prescribed templates,
- provision of all the complementary information regarding their work (i.e. references, bibliography, methodologies used, contact details of people interviewed etc.) to the activity leader,
- implementation of amendments to their contribution requested by the QCMB.

WP Leader:

- coordinates the Work Package and ensures that all the activities contribute to the WP's objectives and are performed in the time frame as defined by the Workplan,
- makes sure that all the partners are smoothly cooperating in order to accomplish the WP's objectives,
- sends timely reminders about submission deadlines and the procedures to be followed
- provides inputs and suggestions to the activity leaders,
- provides comments and suggestions on the deliverables,
- verifies the satisfactory implementation of the recommendations,
- reports to QCMB, MB or the project coordinator as required.

Quality Control and Management Board (QCMB):

- is coordinated by the QCMB Leader,
- receives reports from Activity leaders and WP leaders and provides feedback,
- verifies the satisfactory implementation of the recommendations,

- cooperates with the Project Coordinator on quality related issues cooperates with the QCMB and the activity leaders on all matters arising relevant to ensure the quality of the project's deliverables,
- accepts the deliverables or provides final comments to the Task leaders and WP leaders,
- informs QCMB, WP leaders and Task leaders of any changes in the implementation of the project that may affect the timing or the content of the relevant deliverables.

Development Board (DB):

- reports the progress of activities, achievements and possible difficulties to MB who analyses the situation and proposes a contingency plan in case of issues so that the project can progress and achieve the planned goals.
- cooperates with the Project Coordinator.

Management Board (MB):

- is responsible to monitor the project progress, the achievement of milestones and the delivery of planned results as well as monitors the financial aspects and the use of resources,
- officially approves and finally accepts the deliverables.
- cooperates with the Project Coordinator.

4.2 PROJECT RISK MANAGEMENT

It is advised that a regular risk assessment be carried out during the Management Board meetings, which shall lead to corrective actions and potential adaptations of the workplan. This assessment will take care of issues that could endanger the project achievements. Specific emphasis will be on monitoring the possible risks identified in the Logical Framework Matrix of the Project Proposal (Annex A). These include financial risks (overspending and underspending), timing (postponing of activities) and sustainability of the project results. The main aim will be to provide a sound assessment, to anticipate challenges in a systematic way and to minimise the potentially negative overall impact. In case of serious risks, MB should suggest alternatives, workarounds and the proposed corrective actions that will make the risk consequences acceptable for the consortium.

The identification and assessment of new risks is a joint responsibility of all project partners and of external evaluation experts who have to communicate them to the Project Coordinator and the Management Board, eventually suggesting also possible interventions and solutions, as soon as they get aware of those risks. In particular, partners may think of preventive actions (avoiding that the risk occurs) and corrective actions (decreasing the severity and impact), specifying also the resources that would be needed.

In any case, if any of the partners detect a problem, they should contact the Project Coordinator.

The main risks identified up to now are summarised in the following table:

RISK	PROPOSED MITIGATION STRATEGY	LEVEL OF RISK
Disagreement between partners	Where disagreement occurs between participating partners the lead partner will act to mediate discussion and locate a solution that may require compromise. In the case of disagreement between the lead partner and another partner then another member of the partnership will be asked to assist in the process of resolution. Should a substantial disagreement arise the full consortium will be involved in developing a shared understanding of the problem and agree as a group the best resolution and actions to move forward.	LOW
Communication problems among partners	In case of communication issues, the project coordinator will introduce regular checks with responsible WP leaders, either by phone or in person, to monitor progress of tasks and to address any professional or personal issues that could affect the project.	LOW
Key project personnel leaving the project	PC will promptly re-allocate resources and assign replacements in case of necessity. If necessary, reschedules will be proposed in a way to minimise the influence of delays to related project activities.	MEDIUM
Missing deadlines.	PC will regularly monitor the progress of tasks and milestones and impose internal deadlines in case of necessity.	LOW
Some companies are not sharing interesting data due to industrial secrets	NEON members will explain the confidentiality measures of the project and how the imporvements seeked by NEON will also benefit them.	MEDIUM

All the partners should take care of the proper allocation of resources. There are several main risks in this field: the delay of the project implementation; the rushed implementation with low quality; an over/underspending; and that the relevant expenditures are not timely invoiced or validated.

4.3 PARTNERS' TECHNICAL AND FINANCIAL REPORTING

The main guidelines for the reporting are established in the partnership agreement and management deliverables. WP8 is responsible for performing the reporting procedure in a timely manner and that

the budget is spent according to the plan. The project's Management Board, Development Board and Coordinator will check the reporting documents by taking into consideration the following criteria: conformity of the expenditures with the budget; eligibility of the expenditures; correctness and completeness of all supporting documents and certified copies of invoices; correctness of the calculations and applied exchange rates; financial reports have to be signed in original by the appointed contact person of partner institution.

In case that any information is not complete or justified, the Management Board will recommend how this situation can be rectified.

4.4 SUMMARY OF QUALITY ASSESSMENT TOOLS

NEON exploits a set of tools for quality assessment and activities monitoring:

- Meeting minutes template: used to summarise content of project meetings and to verify the coherence with the actual and the planned agenda.
- Meeting / Event Evaluation form: used to assess the degree of satisfaction and utility of NEON events/trainings/workshops considering both scientific and logistical aspects.
- Attendance sheet: demonstrates the attendance to any event.
- Deliverable Evaluation Forms: used to revise and evaluate deliverables.
- Milestone Verification Forms: used to certify the achievement of a Milestone by verifying the compliance between planned and actual timing and the sources of verification.
- Evaluation surveys of the quality of classes and developed material will be developed as the project progresses.
- List of indicators of progress.

The related documents are (or will be made) available from within the Intranet project documentation portal on Confluence; https://intranet.aau.at/display/projneon/Templates.

5 ANNEXES

Several supporting documents were elaborated for the overall enhancement of the project quality assurance plan.

Many quality assurance actions are related to the LFM, which was part of the original project proposal. This document is attached in its integrity as Annex A.

An important part of the quality assurance activities involved the identification and definition of quantitative and qualitative indicators of progress. These elements are reported in Annex B.

Annexes C and D show the step-by-step procedures developed for the approval of deliverable and milestone related documents.

Most activities in the second half of the project for the quality assurance team involve surveys and questionnaires. Annex E reports a survey template showing the desired structure for the documents/tools used for these activities.

1. Annex A: Logical Framework Matrix (LFM)
2. Annex B: List of Indicators of Progress
3. Annex C: Procedure for Deliverable Approval
4. Annex D: Procedure for Milestone Approval
5. Annex E: Survey Template

Other supporting materials and templates are available for internal use and are located within the NEON project Intranet template folder located at
https://intranet.aau.at/display/projneon/Templates.

5.1 ANNEX A

The Logical Framework Matrix (LFM) extracted from the original project proposal is presented here for organisational purposes. It starts on next page for formating reasons.

Logical Framework Matrix (LFM)				
Wider Objective: What is the general objective, to which the project will contribute? Create a network of competence on Internet of Things (IoT) with academic and industrial partners. Map, develop and share competence and know how related to Information and Communication and IoT technologies. Modernise the curricula in information engineering by including IoT topics. Foster the acquisition of digital skills and new learning methods	**Indicators of progress:** What are the key indicators related to the wider objective? • The improved competences, skills and abilities of engineers on IoT and ICT technologies. • Improve the HEI-industry cooperation	**How indicators will be measured:** What are the sources of information on these indicators? • Surveys collected from all stakeholders: students, teachers, industry and society. • Reports from external evaluators • Responses on the posts of the project web pages and social networks		
Specific Project Objective/s: What are the specific objectives, which the project shall achieve?	**Indicators of progress:** What are the quantitative and qualitative indicators showing whether and to what extent the project's	**How indicators will be measured:** What are the sources of information that exist and can be collected? What are the	**Assumptions & risks** What are the factors and conditions not under the direct control of the project, which are	**How the risks will be mitigated:** • The administrative staff at different levels will be involved to increase the awareness on the project activities and goals. • During the preparation activities

• To modernise the curricula in ICT and IoT engineering, with the collaboration of European universities and local industry partners. • Development of 5 new or modernised laboratories on IoT and ICT subjects in collaboration with local industries. • Render the IoT topic more accessible so that to attract more students including female students to study information technology • Develop teaching material and render it available on an open platform.	specific objectives are achieved? • Number of new / modernised courses • Number of new learning / teaching tool adopted by LA university partners Number of professional training courses develop in the framework of the project • Number of new / modernised laboratories developed in cooperation with industrial partners • Number of partner country "HEIs' students" to be trained (target: 120) • Number of partner country "HEIs' academic staff" to be trained (target: 60) • Number of partner country "HEIs' administrative staff" to be trained (target: 10) • Number of partner country "non-HEI	methods required to get this information? • Project reports • Project website • Number of partners and collaborators of the network of competence • Posts on social networks • Official documents from each university and industry partner • International cooperation agreements	necessary to achieve these objectives? What risks have to be considered? • ASSUMPTIONS: • Awareness and commitment of stakeholders to cooperate with academic institutions • The activities will be done as planned. • The consortium specialists cover the required skills to develop the planned activities. • RISKS: • Rigid HEIs administrations will slow down project activities. • Rigid national laws may slow down international agreements and purchase of equipment.	(WP1) an analysis of the risks will be performed, and a plan to mitigate the risks will be developed.

	individuals" to be trained (target: 20) • Number of direct beneficiaries in the Partner country(ies) per year: academic staff from HEIs (target: 50) • Number of direct beneficiaries in the PCs (/year): administrative staff from HEIs (target: 10) • Number of direct beneficiaries in the PCs (/year): HE students (target: 400) • Number of direct beneficiaries in the PCs (/year): non HE individuals (target: 100)			
Outputs (tangible) and Outcomes (intangible): Please provide the list of concrete DELIVERABLES - outputs/outcomes (grouped in Work packages), leading to the specific objective/s.:	**Indicators of progress:** What are the indicators to measure whether and to what extent the project achieves the envisaged results and effects? • Milestones (MS) are used	**How indicators will be measured:** What are the sources of information on these indicators? • Internal reports • Project website posts • Project website number of visits	**Assumptions & risks** What external factors and conditions must be realised to obtain the expected outcomes and results on schedule? • ASSUMPTIONS: • Good project management. • Good financial management.	**How the risks will be mitigated:** • A collaboration platform will be installed to share ideas and documents between partners in order to increase bureaucratic efficiency. • Stakeholders will be engaged with modern media • During the preparation activities

• WP1: • D1.1 Consolidated analysis of needs in Argentina and Uruguay • D1.2 Consolidated project plan of implementation actions • WP2: • D2.1 Report on management platform to coordinate the NoC • D2.2 Report on the creation of the legal framework for the NoC • D2.3 Report that defines the governance of the NoC • D2.4 Report on network implementation • WP3: • D3.1 Web repository for class and lab sessions material • D3.2 Report on the	as indicators of progress (M=moth). • MS1.3 Preliminary summary of industry needs, profile competencies and skills needed on IoT (M5) • MS1.7 Completion of the action plan and guidelines (M6). • MS2.1 Creation of the management platform to coordinate the NoC (M2) • MS2.5 Meeting of the NoC group to coordinate the activities (M7) • MS3.1 Identification of modern teaching methodologies (M7) • MS3.2 Adoption of tools and equipment to enable innovative teaching methodologies (M12) • MS3.6 Teaching material freely accessible the web repository (M30) • MS3.7 Complete translation of shared teaching material (M32)	• Organised events • Rosters with signatures • Number of partners of the network of competence • Number of delivered surveys Number of responses from surveys • Number of posts on social networks • Number of new / modernised courses developed in the framework of the project • Number of students trained • Number of professionals trained • Number of administrative staff trained • Number of developed laboratories • Quality control and management reports • Minutes of the meeting and formal PM board decisions • Articles on newsletters, local newspapers • Number of signed agreements for long-term cooperation between HEIs	• Consensus in the consortium about the most important issues. • Slow reaction of HEIs and Industry partners to provide data concerning joint project activities can cause delays in participative processes • Adequate response of key stakeholders to questionnaires and call for interviews • Academic and public authorities will be motivated to implement and present the achieved project results that include modernised university industry labs, teaching methodologies • Timely advertising and media promotion to reach the majority of interested groups. • Well-defined internal evaluation procedures and protocols in partner HEIs • RISKS: • Low interest by internal human resources to be enrolled in training activities	(WP1) an analysis of the risks will be performed, and a plan to mitigate the risks will be developed.

modernised teaching methodologies applied to IoT courses • D3.3 Teaching and training materials for new and modernised IoT courses • D3.4 Delivery of teaching and training classes for new and modernised IoT courses • WP4: • D4.1 Report on the laboratory infrastructure and equipment at each LA university • D4.2 Report on the created five joint university-company labs ruled by an agreement • WP5: • D5.1 Report on the training/internships website section • D5.2 Report on the framework for	• MS4.3 Define the procurement procedure (M6). • MS4.4 Purchase and installation of the laboratory equipment (M20). • MS5.2 Creation of the website section with training and internship opportunities (M6). • MS5.13 Workshop on teaching methodologies for IoT (M7). • MS5.5 Create the training action plan and agenda for both students and teachers (M10). • MS5.6 Student training module/seminars (M33) • MS5.9 Hackathon for students (M18) • MS5.14 Workshop on communication technologies for IoT (M19) • MS5.15 Workshop on IoT technologies for agriculture market (M31)	and industry partners • Number of students enrolled in ICT and IoT classes • Number of students that performed internships with industrial partners • External audits	is a small rate risk for the proposed project for HEIs, but medium rate risk for industry partners • Members of the Project Management Board and working groups are overloaded with not related with the project • Delay of supplying the equipment due to import regulations, etc	

training and internships • D5.3 Report on organised hackathons for students of the region • D5.4 Report on student training modules on technical and entrepreneurial subjects • D5.5 Report on teacher training modules • WP6: • D6.1 Establishment of QCB • D6.2 Development of guidelines for QC • D6.3 Reports on project implementation • D6.4 Report on graduates profile improvements and correspondence to industry needs • D6.5 Report on tools for monitoring	• MS6.1 QCM Board establishment (M2). • MS6.2 Quantitative indicator definition (M3). • MS6.3 Activity report delivered by QCM board to MB once a year (M11, M23, M35). • MS6.5 QCM Board meeting in Madrid (M18); • MS6.6 Implementation of surveys and questionnaires and analysis of social networks (M7). • MS7.3 Central web platform released (M12). • Three Webinars (M10), (M22), (M34) • Three Open Events (M9), (M21), (M33). • MS7.11 Preliminary exploitation plan (M24). • MS7.13 Agreements for maintenance of joint labs with industry (M27). • MS8.1 Project meetings and progress/status			

students enrollment • D6.6 Reports on stakeholders reached beyond the project consortium • WP7: • D7.1 Central project web platform linked to the e-platforms developed in other WPs • D7.2 Report on exploitation and dissemination plan • D7.3 Preparation and delivery of dissemination and informative material • D7.4 Report on open events • D7.5 Report on yearly webinars • D7.6 Establishment of agreements for double degrees • D7.7 Maintenance of the web platforms beyond the project life time	reports (every month) • MS8.2 Yearly physical project meetings, Klagenfurt (M1), Madrid (M9), Cordoba(M20), Klagenfurt (M33) • MS8.4 PC and the funding agency will communicate annually (M1, M13, M25, M36). • MS8.5 Financial reports (M12), (M24), (M36)			

• D7.8 Follow-up projects involving industry • WP8: • D8.1 Report on the PM board and its establishment • D8.2 Report on the eplatform for sharing documentation • D8.3 Mid-term report • D8.4 Final report				
Activities: What are the key activities to be carried out (grouped in Work packages) and in what sequence in order to produce the expected results? • WP1: • T1.1 Survey and analysis of IoT courses • T1.2 Guidelines for curriculum modernisation • T1.3 Implementation	**Inputs:** What inputs are required to implement these activities, e.g. staff time, equipment, mobilities, publications etc.? • STAFF TIME: • Total: 4388 days • CAT1: 52 days • CAT2: 2303 days • CAT3: 1376 days • CAT4: 657 days • Total staff costs: 398616 EURO • EQUIPMENT:		**Assumptions & risks** What pre-conditions are required before the project starts? What conditions outside the project's direct control have to be present for the implementation of the planned activities? ASSUMPTIONS: Well-organised coordination and cooperation based on mutual understanding among all partners at national and international level. High commitment of project	**How the risks will be mitigated:** • Multiple remote meetings between involved partners to agree on all activity planned in the project proposal • Web system to share all necessary documentation for the development of the project proposal

actions of NoC • WP2: • T2.1 Develop a management platform for NoC • T2.2 Develop policies and procedures to regulate NoC • T2.3 Define the governance of NoC • WP3: • T3.1 Adoption of new methods, tools in teaching • T3.2 Creation/ modernisation of teaching material • WP4: • T4.1 Creation of joint university-industry labs • T4.2 Pilot lab development. • WP5: • T5.1 Creation website for training and internship opportunities • T5.2 Implement framework for student	• 5 laboratories ill be developed • UNC “Digital communications laboratory”, 31000 EURO • UNS “Signal processing for communications laboratory”, 59500 EURO • UNMdP “Communication technologies applaied to IoT”, 59500 EURO • UdelaR “IoT laboratory”, 59500 EURO • UCU “IoT for agribusiness laboratory”, 59500 EURO • MOBILITIES: • For staff members • WP1: • EU-EU: 0 days • EU-SA: 0 days • SA-SA: 24 days • • WP2,3,4: • EU-EU: 0 days • EU-SA: 0 days • SA-SA: 0 days • • WP5: • EU-EU: 16 days		partners and especially of nonacademic partners for the achievement of project objectives. Availability and motivation of key staff from the Industrial partners. Great commitment and active participation of training/ seminar participants Full recognition of new methodology for development of study programmes ICT and IoT engineering based on HEIIndustry cooperation in involved LA countries. Support by university management for the implementation of objective, thorough guidelines handbook and making of an effective action plan for implementation of modernised study programme through different mechanisms	

training • T5.3 Implement framework for student internships in companies • T5.4 Offer technoeconomic, entrepreneurial training modules • T5.5 Implement teacher staff training on technology and modern prototyping tools for IoT • T5.6 Implementation of three workshops on IoT and ICT technologies • WP6: • T6.1 Establishment of the QCM Board and appointment of an external expert for QC • T6.2 Consolidation of areas to be monitored, indicators, and correction strategies • T6.3 Internal control	• EU-SA: 216 days • SA-SA: 32 days • • WP6: • EU-EU: 3 days • EU-SA: 8 days • SA-SA: 0 days • • WP7: • EU-EU: 0 days • EU-SA: 0 days • SA-SA: 93 days • • WP8: • EU-EU: 15 days • EU-SA: 132 days • SA-SA: 42 days • • For students • WP5: • EU-EU: 0 days • EU-SA: 900 days • SA-SA: 647 days • Total travel costs: 133990 EURO • Total costs of stay: 136365 EURO • SUBCONTRACTING:		including accreditation. Readiness of university partners to create a network of shared teaching material. High schools' students and society at large be regularly approached and kept informed about project results. • RISKS: Low/slow reaction by management offices at the universities. Low/slow reaction of the administration offices at the partner companies.	

of project progress and outcomes • T6.4 Monitor graduates profile, improvements in the skills • T6.5 Collect questionnaires and surveys via social networks • T6.6 Monitor student enrolment statistics in the region • T6.7 Monitoring system for employment statistics of graduates • T6.8 Monitoring system for entrepreneur attitude • WP7: • T7.1 Development of the project web site combined with the web loped in the other WPs1 • T7.2 Preparation of exploitation and dissemination plan	• External financial control and audit for the full project • Domain and hosting of the web platform and material repository • Translation costs • 4 workshops organisation costs • Support for HERE advisors from Uruguay and Argentina • One external quality control expert • Three open events organisational costs • Printed material for project presentation and promotion • Support for video editing to prepare dissemination material to publish online • Total subcontracting costs: 61500 EURO.			

• T7.3 Create promotional and dissemination material • T7.4 Organise an annual open event • T7.5 Organise a yearly event in the form of a webinar • T7.6 Establish agreements for future double degrees • T7.7 Maintenance of the web platform • T7.8 Partnerships for follow up projects • WP8: • Creation of PM board • T8.2 Creation of e-platform • T8.3 Coordinate overall project • T8.4 Maintain flow of information between partners and EC • T8.5 Organise regular meetings • T8.6 Monitor financial aspects				

5.2 ANNEX B

In the following, we report the list of identified/defined indicators of progress for the tracking of project advancement.

Indicators

Indicators of progress

Indicator ID	Description	Target	Source
1.1	Number of milestones reached	64	WP6
1.2	Number of meetings	12	WP6
1.3	Number of webinars	3	WP6
1.4	Number of deliverables	35	WP6

Indicators of dissemination

Indicator ID	Description	Target	Source
2.1	Project webpage	1	WP7
2.2	Number of visits to project web	100	WP7
2.3	Central web platform	1	WP7
2.4	Number of visits to web platform	200	WP7
2.5	Designed, printed and disseminated project promotion material	6	WP7
2.6	Newsletter, e-bulletins, newspapers	6	WP7
2.7	Reports from presentation meetings, presentations for media and interested groups	6	WP7

Indicators of quality

Indicator ID	Description	Target	Source
3.1	QCMB established	1	WP6
3.2	Quality Plan	1	WP6
3.3	Quality reports	3	WP6
3.4	Feedback, questionnaires results from clusters and other industrial partners	20	WP5
3.5	External audits	3	WP8
3.6	Field visits	2	WP6
3.7	Minutes from QCMB meetings	8	WP6

Indicators of direct impact

Indicator ID	Description	Target	Source

4.1	Number of direct beneficiaries in the partner country(ies) per year: academic staff from HEIs	50	WP8
4.2	Number of direct beneficiaries in the PC(/year): administrative staff from HEIs	10	WP8
4.3	Number of direct beneficiaries in the PC(/year): HE students	400	WP8
4.4	Number of direct beneficiaries in the PC(/year): non HE individuals	100	WP8

Indicators of training activities

Indicator ID	Description	Target	Source
5.1	Number of partner country HEIs students trained	120	WP4 and WP5
5.2	Number of partner country HEIs academic staff trained	60	WP4 and WP5
5.3	Number of partner country HEIs administrative staff trained	10	WP4
5.4	Number fo partner country non-HEI individual trained	20	WP4 and WP5
5.5	Number of trainings	5	WP4

Indicators of modernisation on IoT

Indicator ID	Description	Target	Source
6.1	Number of courses included in the study programmes	5	WP3
6.2	Number of labs included in the study programmes	5	WP3
6.3	Number of study programmes involved/modified	2	WP3
6.4	Number of the study programmes included in the web portal (central platform)	6	WP3
6.5	Number of courses on the web portal on IoT	10	WP3
6.6	Number of textbooks published on IoT	1	WP3
6.7	Number of students enrolled in the courses on IoT	100	WP3
6.8	Satisfactory survey of the new learning on IoT	2	WP3
6.9	Students‘ satisfaction survey reports	2	WP3

Indicators of industry co-operation

Indicator ID	Description	Target	Source
7.1	Number of university-industry labs ruled according to an agreement	6	WP5
7.2	Number of labs created	5	WP5
7.3	Number of collaborating enterprises	5	WP5

Indicators of management

Indicator ID	Description	Target	Source
8.1	Partnerships agreement	9	WP8
8.2	Inter semi-annual financial reports	6	WP8
8.3	PM board meetings and minutes	8	WP8
8.4	PM board reports	3	WP8

Indicators of sustainability

Indicator ID	Description	Target	Source
9.1	Number of university-industry labs ruled according to an agreement	5	WP5
9.2	Number of signed agreement about long-term cooperation between HEIs and non academic partners	4	WP5

5.3 ANNEX C

We report in the following two templates related to the process of deliverable approval:

- QCM_Manual_Template_Deliverable_Review
- QCM_Manual_Template_Deliverable_QB_evaluation

The documents start on the next page.

QCM_Manual_Template_Deliverable_Review
Erasmus + Project No 618942-EPP-1-2020-1-AT-EPPKA2-CBHE-JP
Network of Competences on Internet of Things - NEON

Workpackage:	Number and title (e.g. "WP1, Title of the Workpackage")
Deliverable:	Number and title (e.g "D1.1, Title of the Deliverable)
Deliverable Authors:	
WP Leader:	Name Surname, Pxx/PPartner Acronym (Partner ID)
Reviewer:	Name Surname, Pxx/PPartner Acronym (Partner ID)

Assurance point	Issues to be addressed	Assessment	Comments	Recommendations
1.a Compliance with the objectives of NEON	Does the document comply with the overall objectives of the project?	YES ☐ NO ☐ PARTIALLY ☐		
1.b Compliance with the specific objectives of the workpackage	Does the document comply with the Objectives as specified under WP descriptions?	YES ☐ NO ☐ PARTIALLY ☐		
1.c Correspondence with the description of work of the relevant activity	Does the document correspond with the activity description as specified in the Application Form?	YES ☐ NO ☐ PARTIALLY ☐		
2.a Compliance with NEON Template	Is the document presented using the Project's predefined template?	YES ☐ NO ☐		
2.b Adequacy of complementary information	Examples of complementary info: - External sources used - Bibliography - List of contacts - Methodology used (i.e. for surveys)	YES ☐ NO ☐		
3. Adequacy of written language	Level of written English	EXCELLENT ☐		

Assurance point	Issues to be addressed	Assessment	Comments	Recommendations
		ADEQUATE ☐ POOR ☐		
4. Overall assessment and suggestions for improvement				
Date of review:		Click or tap to enter a date.		
Deadline for submission of corrections:		Click or tap to enter a date.		

QCM_Manual_Template_Deliverable_QCMB_evaluation
Erasmus + Project No 618942-EPP-1-2020-1-AT-EPPKA2-CBHE-JP
Network of Competences on Internet of Things - NEON

Workpackage:	Number and title (e.g. "WP1, Title of the Workpackage")
Deliverable:	Number and title (e.g "D1.1, Title of the Deliverable)
Deliverable Authors:	
WP Leader:	Name Surname, Pxx/PPartner Acronym (Partner ID)
QB evaluator:	Name Surname, Pxx/PPartner Acronym (Partner ID)

Assurance point	Issues to be addressed	Assessment	Description of issue if present
1. Adequacy of deliverable	General compliance of deliverable specifications. Correct use of methodologies.	YES ☐ NO ☐	
2. Deliverable format	Adequate use of project's template, external sources, bibliography and other related information.	YES ☐ NO ☐	
3. Adequacy of written language	Level of written English is adequate	YES ☐ NO ☐	
Date of Quality Assurance performed by QCMB:		Click or tap to enter a date.	

5.4 ANNEX D

Here we show the procedure to complete a milestone approval. This procedure requires the completion of two documents.

- QCM_Manual_Template_Milestone_Verification
- QCM_Manual_Template_Milestone_Evaluation

The documents start on the next page for formatting purposes.

QCM_Manual_Template_Milestone_Verification
Erasmus + Project No 618942-EPP-1-2020-1-AT-EPPKA2-CBHE-JP
Network of Competences on Internet of Things - NEON

Work Package:	Number and title (e.g. “WP1, Title of the Workpackage”)
Milestone ID:	Number and title (e.g “MS1.5, Title of the Milestone as listed in the proposal”)
Related Deliverables (if present):	D5.2
WP Leader:	Name Surname, Pxx/PPartner Acronym (Partner ID)
QB Evaluator:	Name Surname, Pxx/PPartner Acronym (Partner ID)

	Document name	Reference (link)
List of documents and proofs supporting the completion of the milestone		
Date of QCMB Evaluation Request:	Click or tap to enter a date.	

QCM_Manual_Template_Milestone_Evaluation
Erasmus + Project No 618942-EPP-1-2020-1-AT-EPPKA2-CBHE-JP
Network of Competences on Internet of Things - NEON

Work Package:	Number and title (e.g. "WP1, Title of the Workpackage")
Milestone ID:	Number and title (e.g "MS1.5, Title of the Milestone as listed in the proposal")
Related Deliverables (if present):	D5.2
WP Leader:	Name Surname, Pxx/PPartner Acronym (Partner ID)
QB Evaluator:	Name Surname, Pxx/PPartner Acronym (Partner ID)

	Document name	Reference (link)
List of documents and proofs supporting the completion of the milestone		
Date of QCMB Evaluation Request:	Click or tap to enter a date.	

Assurance point	Issues to be addressed	Assessment	Description of issue if present
Was the milestone successfully completed?	Do the activities envisioned in the milestone comply with the objectives specified in the project proposal?	YES ☐ NO ☐ PARTIALLY ☐	
Was the milestone completed by the specified deadline?	When was the milestone completed? Does this comply with the date specified in the project proposal? (e.g., MS1.5 by M6)	YES ☐ NO ☐	
Date of Quality Assurance performed by QCMB:		Click or tap to enter a date.	

5.5 ANNEX E

In this section we report a survey template to show the desired structure and content of a meeting / event evaluation survey.

Erasmus + Project No 618942-EPP-1-2020-1-AT-EPPKA2-CBHE-JP
Network of Competences on Internet of Things - NEON

Project Name	NEON
Event Name	
Date and Time	
Place of Event	
Name (Optional)	
Organisation	
Date of Assessment	

Please mark with X the appropriate column for each item according to your selected evaluation rate from 1 (worst) to 5 (best).

Evaluation Item	**Evaluation Rate**				
	1	**2**	**3**	**4**	**5**
What is your opinion of the general organisation and facilities exploited during the event?					
To which extent did the event cover the announced title?					
What is your opinion of the presenters/facilitators?					
Level of quality of presentations given by speakers?					
To what extent did the event cover your professional needs?					
What is your opinion of the material that was distributed before or during the event? (if there was any)					
How do you evaluate the agenda of the event?					
How do you evaluate the technical resources used?					
To which extent did the event live up to your expectations?					
How satisfied are you from the level of participation to the event proceedings?					
Communication for preparation of the event was satisfactory.					
The targets of the meeting were fulfilled.					

Comments (Constructive Suggestions):

……
……
……

Co-funded by the
Erasmus+ Programme
of the European Union