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EXPLOITATION PLAN

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Delivery Slip

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PROJECT SUMMARY

SEnDIng project aims to address the skills' gap of Data Scientists and Internet of Things engineers that has been identified at the ICT and other sectors (e.g. banking and energy) at which Data Science and Internet of Things have broad applications. To achieve this goal, SEnDIng will develop and deliver to the two aforementioned ICT-related occupational profiles two learning outcome-oriented modular VET programmes using innovative teaching and training delivery methodologies.

Each VET program will be provided to employed ICT professionals into three phases that include: (a) 100 hours of on-line asynchronous training, (b) 20 hours of face-to-face training and (c) 4 months of work-based learning. A certification mechanism will be designed and used for the certification of the skills provided to the trainees of the two vocational programs, while recommendations will be outlined for validation, certification & accreditation of provided VET programs.

Furthermore, SEnDIng will define a reference model for the vocational skills, e-competences and qualifications of the targeted occupational profiles that will be compliant with the European eCompetence Framework (eCF) and the ESCO IT occupations, ensuring transparency, comparability and transferability between European countries.

Various dissemination activities will be performed – including the organization of one workshop at Greece, Bulgaria and Cyprus and one additional conference at Greece at the last month of the project – in order to effectively disseminate project's activities and outcomes to the target groups and all stakeholders. Finally, a set of exploitation tools will be developed, giving guides to stakeholders and especially companies and VET providers, on how they can exploit project's results.

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1 Introduction

1.1 Scope

The purpose of this deliverable is to describe the exploitation strategy and the associated plan for the dissemination and sustainability of the SEnDIng project's outcomes and the best ways for employment of the knowledge gained from the execution of the project. The deliverable aims to set up the successful exploitation of the results both during the project lifetime and after the project has concluded. The exploitation plan contains details about the main exploitable results of the project and the market and research trends and opportunities for new areas for their development and application.

Successful exploitation or sustainability of the SEnDIng results is one of the key objectives of the project. To enable exploitation, this plan includes the following aspects:

- the results to be exploited
- the stakeholders
- the exploitations strategies and
- a first analysis of the fit between these results, and the exploitation activities throughout the project and beyond.

Regarding the exploitation of the results, partners have specified their own plans in order to take advantage of both the knowledge acquired throughout the project and its tangible results. The partners' individual plans are also investigated in this document.

1.2 Audience of the document

The main audience of the Exploitation Plan is the SEnDIng project partners, who will undertake the implementation of the project's work, embracing the agreed set of rules, guidelines and procedures that are documented in the following sections. The document serves as a source of reference for exploitation activities to be undertaken by the project participants.

2 Introduction to Dissemination, Exploitation and valorisation concepts

In this Section we present an introduction on the concepts of dissemination, exploitation and valorisation in an attempt to clarify the terms and differentiate among them. Much of the context of this Section is credited to the Diva Project (<http://www.diva-project.eu/>) whose aim was to carry out European studies about successful educational projects and to evaluate them based on specifically defined criteria.

Dissemination, Exploitation and Sustainability of Educational Projects

A major difficulty promoters and coordinators of educational projects at European level are facing, relates to the design and implementation of an effective valorisation strategy, able to adequately promote projects and their products and assure their sustainability. There is no available platform for getting advice and exchanging information in a simple way, with strategies that have already proven their worth in the past.

The coordinators of European projects have learned on the field, as they execute their plans in a casuistic and isolated way. The learning done with their experience is not shared, or is in a very limited way. In the following, we provide:

- definitions of key concepts (dissemination, exploitation, valorisation and sustainability)
- descriptions of the various features of valorisation and sustainability
- the success factors of valorisation and sustainability in order to anticipate threats or opportunities for safeguarding project activities and/or outcomes;

The term **Dissemination** refers to making the results / products of a project visible to others, specially the end-users, the target groups and the key-actors that can implement its use. Dissemination means rendering comprehensible all the activities and main results associated with a project close to all interested key actors. Dissemination is the process of promoting and awareness raising that occurs throughout the project. This process is planned and organised in the beginning of the project through a methodological document (Dissemination plan) that orientates the whole consortium; in SEnDIng the Dissemination plan is provided as Deliverable D7.1.

Exploitation is associated with the use of the project's results at different levels, during and after the implementation of the project. It is related with the necessary actions that will bring visibility to the project in order to involve the target groups, end-users, stakeholders and transfer the results/products into their professionals' scope. Exploitation is mostly related to the idea of convincing the key actors to use the main products of a project and is closely associated with the sustainability of the project after its conclusion, since the relevant activities should ensure that the results of the project are used by its target groups and possibly transferred to other contexts (e.g. other countries, other pedagogical areas, or other sectors).

The exploitation is split in *mainstreaming* and *multiplication*. Mainstreaming is related to addressing the decision-makers in order to convince them to take into account the results and products of the project, while multiplication is more focused on persuading individual end-users to adopt those products. This usage can be within partnership and outside, at

local, regional, national or European level. As in the case of dissemination, the exploitation process is to be planned and organised at the first year of the project by a methodological document (Exploitation Plan) that orientates the whole consortium and, for the SEnDIng project it is the current deliverable D7.7.

Valorisation includes dissemination and exploitation and aims to make the project result and product more valuable to everybody and make “others” use the product. Valorisation consists of both dissemination and exploitation activities. The overall objective of valorisation activities is to promote the project and its results and foster their use by different individuals and organisations, trying to constantly spread and improve the usage and the content of the results.

Valorisation involves the testing and dissemination of the results as well as the exploitation of these results and their development in new contexts and environments. It includes the sustainable application of these results over time in formal and informal systems, in the practices of organisations as well as in the personal learning goals of every individual.

The two main benefits of valorisation are the return enhancement on public and private investments in the area of training/education as well as innovation in training and educational systems. These benefits easily explain the increased importance of valorisation in Europe. Valorisation means planning in such a way that the resources affected to a project generate results that can be used and exploited on a large scale, with the view of benefiting as many individuals and organisations as possible. Valorisation must be based on a meticulous ex ante analysis of needs to be fulfilled by a project as well as on a clear identification of the results expected. Valorisation requires the active involvement (at the project design stage) of the potential users and target groups who are to benefit from the project and are expected to exploit the results.

Sustainability is the capacity of the project to continue its existence and functioning beyond its end. The project results are used and exploited continuously. Sustainability of results implies use and exploitation of results in the long term. A project can be considered as sustainable if its outcomes, products and results continue after the end of EU funding. Sustainability may not concern all the aspects of a project. In each project some results may be maintained, while others may not be so necessary to maintain. A project can therefore be considered as sustainable if relevant results are pursued and products are maintained or developed after the end of the EU funding (e.g. duration of new courses or updating of new tools). It is not easy to achieve a planning in order to generate the desired sustainability of the project and ensure a return on investment at European level by multiplying the benefits that the assimilation of best practices can provide.

Critical factors / criteria for successful dissemination

There is a number of key factors to be considered for achieving success in disseminating a project, some of which are described in the sequel. The formation of a *consortium* with realistic capabilities to exploit the project results which can easily reach the target audience. A good written *plan* should encompass a well-planned strategy, clear vision of purpose, goals in numbers, indicators, sharing responsibilities and assuring all partners' participation. The *tools and channels* selected should take into consideration the target groups and their characteristics. A *mailing list* for the project must be created and a *template* for all partners to follow (e.g. dates, deadlines and contact person).

The communication type must be appropriate to the target groups. A *glossary* also helps to clarify internal and external communication.

The promotional material should have a clear conception and consistency. A *professional design and marketing approach* is highly desirable. Given the degree of increasing demand on the strategy of the European educational projects, one may consider, right on the constitution of the partnership, the presence of a partner which may be used as a public relations and an expert for media. In the SEnDIng consortium, the Greek Computer Society, with its wide range of members and affiliation contacts serves this role.

The project *branding* should be specialised, including cultural dimension and quality indicators. This implies a very *clear definition of the target groups*. It is indispensable to know how to reach and provide material understandable and wanted by the target groups. Successful dissemination requires knowing the needs of the target groups and then developing a strategy accordingly.

Target groups involvement. Everything should be done with the target groups in mind. Each dissemination material should be developed depending on the target group. For achieving this, project members should know the target groups very well. The best strategy requires involvement of the target groups' representatives in the development of dissemination material, since they are the ones to give hints about what would best catch the attention of the people for whom the project is developed.

Successful dissemination may include *massive media diffusion* (i.e. let the people know that the project is out there). And it should be also taken into account that actions for dissemination have to create a close *relationship with the local context* and to keep it strong by the involvement of decision makers, social organisations and political institutions.



Dissemination should start as soon as possible, although the starting point can be different and depending on the nature and the desired results of the project. In fact, the initial idea is transferred from the inner to the outer circles the figure above. Having good networks is important to start up a project. The internal dissemination (within own organisation) is also very significant. Furthermore, the partnership should have a common understanding about the project and agree on its main strategic activities.

The project dissemination objectives are typically defined in 3 sentences and the partnership shares and agrees upon them. This is important for involving *project partners* that should be engaged in dissemination activities throughout the whole project duration and beyond the project lifetime. A *dissemination agreement* is a document signed during a project's kick-off meeting specifying the dissemination tasks of each member of the partnership along a timeline and is used in a lot of projects.

Reaching a wider audience is essential to *building up a community* around the project, therefore project consortia try to make links to other projects, networks, communities. This is an expertise niche, i.e. communicate the project to similar organisations with similar specialities. Moreover, the dissemination activity can reach good results if the partners are able to give a European value to the project, using their networks and contacts that could make the "voice of the project" grow up.

Depending on the subject of the project and the target group, it is possible to use different tools to get the project known and to spread the results. It is impossible to indicate a perfect tool, because the usefulness of a mechanism depends on the topic of the project, the target audience, and the objectives of the project. For example, if we have to involve aged people and to face informatics issues, digital tools could not be the best option, and an alternative could be used (e.g. bus driving around).

Each project team has to find the right tools that suit the project in the best way. An other important issue is the *communication language* to disseminate results. English, German and French are most commonly used communication languages in projects. However it is also interesting to have translations to less widely used languages, in order to reach a broader target audience. A budget for translation is usually foreseen; it should be also noted that the amount of work this takes is often underestimated.

Finally, one should be *original & creative*, rather than sticking only to leaflets and posters; project managers try to be more creative when elaborating dissemination strategies. Doing something unique will make a project stand out and will get the attention of people.

Dissemination plan and strategy

Typical dissemination questions are what, to whom, how and when to disseminate. Writing a good dissemination plan is a key priority for education EU-funded projects. A good strategy, complete with measurable, realistic objectives, that adheres to a timetable and provides a complete budget maximises the use of project results by target groups and ensures that all project partners know what their roles and responsibilities are when it comes to the important valorisation activities. A plan for dissemination indicates the activities that are going to be carried out during a project lifetime. The plan is drafted at the very beginning of a project (often at proposal stage) and contains activities to be carried out continuously until the project's end. In order to develop a good dissemination plan the promoters should answer the following questions:

- What is the expected project result? (anticipation of the results)
- What kind of needs does the project respond to? (ex-ante needs analysis)

Additionally the dissemination plan has to indicate:

- Types of dissemination activities (*what?*)
- The target groups for the dissemination activities (*to whom?*).
- The most appropriate channels (*how to do it?*)
- The most efficient calendar (*when?*)
- The available resources (human and financial).

A good dissemination plan must take into account the needs of project end users, the sector those users work in and all other interested stakeholders (including funding agencies and policy makers). Teams usually take the time to think carefully over who exactly is going to use their project findings and products.

As far as possible, plans should be *flexible* enough to allow target groups and other stakeholders to become involved during the development of a project. This will help to ensure that the project remains on track in terms of their needs. Such participation will also draw attention to the potential value of a project, and even help to spread the news about the work to other interested parties throughout Europe.

Although the dissemination strategy and tools should be described in detail as early as developing the project proposal, coordinators should still remain flexible and change things that do not work during project implementation. When things do not work out as planned, dissemination strategies have to be amended and new dissemination tools must be deployed. Experience plays big role in best strategies. Learning from own and others experience can give possibility to get better results.

Projects should get feedback from partners and end-users during the project and try to learn from this information no matter whether it is positive or negative. Also testing the product before it's ready gives important inputs. Sometimes this is very difficult to do because project time is too short. Research groups, experts and previous projects have experience that is important to use. Project leaders also learn from their previous projects, having a better knowledge how to do things right during second or subsequent projects.

To design a plan for dissemination, one should take into consideration different levels and specify clearly the aims, methods and target audience to each one. The following is an example of the design plan for dissemination.

Partner X will coordinate dissemination, but all partners are actively involved in disseminating the results.

The first activity is making a dissemination plan, on the next levels:

Level 1: Within partnership

Aims: inform on progress and results to staff sensitive to the topic

Methods/activities: informal/formal meetings, website, e-news and mailing, handing out dissemination material; inviting to the regional workshops

Target groups: LLL professionals (adult educators, teachers and trainers); project managers of EU LLL projects in the field, researchers and experts and other staff such as management, administration etc.~

Level 2: Core target groups, outside the partnership

Aims: ...

Methods/activities: ...

Target groups: ...

Level 3: Others stakeholders and decision makers in the field of the project

Aims: ...

Methods/activities: ...

Target groups: ...

Level 4: General public

Aims: ...

Methods/activities: ...

Target groups: ...

Tools for dissemination:

Web site: to be created at the beginning, with relevant info on project

Flyers

Electronic Newsletters

A good methodology is to register in a matrix all the dissemination activities that will be developed during the lifetime of the project taking into account the following five aspects: *what, to whom, how to do it, when and resources*, as shown in the following example:

What	To Whom	How to do it?	When	Resources
Project website	Target audience Stakeholders General public Partnership	All partnership's languages. Reserved and public areas. Registered users Membership Topic (not only project) related materials/news Google analytics Downloadable documents Tools for fun (tests, games) Recommended by (important organisation/body) Linked to other websites (partners, networks, etc.) Virtual tools	Month/Year	(amount foreseen)

Newsletters	Target audience Associations in the field Stakeholders; Supporters Partners ` networks National agencies Local national media European organisations in the field	E-news Downloadable from the project website All partners' languages	1. At the end of Research (Month/Year) 2. Before Piloting (Month/Year) 3. After Piloting (Month/Year) 4. Before End (Month/Year)	All partners (2 working days by partner)
Final Workshops	Local workshops with similar structure and evaluation Presentation of final products The final products and flyer to be widely distributed Reporting	Until Month/ Year	All partners (Amount foreseen)	

Exploitation

Successful exploitation requires consideration of some key factors, bearing in mind the importance of creating outputs that can survive after the end of the project (e.g. prototypes or innovative services) as witnesses of the project itself. In order to "sell" something that was created within a project or open the door to new courses of actions, we need to create concrete objects which can survive after the end of the project. For this, we should involve partners with high level of expertise as well as making agreement of collaboration with specialised groups of decision makers, associations, institutions of the sector so that results (or a part of them) could be applied to institutional policies.

Furthermore it is fundamental to create a close relationship with research centres such as universities and public and private agencies. A strong relationship is also a good way to make scientists aware of the importance of adding empirical and experimental work to the traditional pure research. Topics where there is an active research activity are often of relevant interests. Research results are often not enough disseminated and exploited since researchers do not pay sufficient attention to dissemination beyond the academic community. The integration with an educational project may be very useful for both fields.

It is essential to involve the relevant target groups and stakeholders into this process (need analysis, research, piloting, feedback, meetings, etc.) right from the beginning. A good way for exploitation is to let beneficiaries use the results of the project as an instrument

for further developments so that they could become “new beginners” and involve new beneficiaries. When the project planning starts, one should also think of a larger target group than the real one which has been already selected for the project. Future beneficiaries and stakeholders must be included, which could be reached even after the end of the project time. From this point of view a context analysis is strongly recommended before starting the project planning so that it can be easier to find sources and to multiply exploitation effects.

It is also important to supply the final product for the people concerned and the development of new projects or improvement as well. The accreditation of courses is also important; building or joining networks and associations (thematic, EU databases, etc.) is advisable, in order to continue the valorisation work after the end of the project.

The project web site has to be updated and partners should visit social networks even after the end of the project. If project money is over, it is much more important to be a "community" so that partners tend to go on because of their affection towards the project itself. And all this maintaining the project brand for info/products can be easily recognised and linked with the project.

It is also recommendable for exploitation purposes to do a business plan, taking into consideration the product description, the target groups, the maintenance of product and price. Into a first stage there may be a free trial, followed by a second stage of paid version and a third stage of paid product upgrading. This implies the involvement of all partners to clearly set rules for commercialisation of a product and a general agreement on the terms of who may use which product.

The partners' commitment not only during the project but also towards the projects' results is vital. Desirably a project should create a need in the target group for a follow-up, or an enhancement of the products; this way a possible follow-up project may be done in order to exploit the results of the current project.

Another interesting approach is related to learning from other successful exploitation approaches and exploited projects, which comes back to a reasonable catalogue of good practice examples. The own usage of the product is also important. If one tries to convince everybody else to use a product, one first needs to start with his organisation and use the product.

Exploitation plan and strategy

To design an exploitation plan one should be aware that it consists of the determination of the processes of multiplication and generalisation of the results achieved in the project, either by widening the geographic scope of the project, expanding to other knowledge or professional areas and its possible commercial exploration. Exploitation seeks to make the 'others' use the project results at various levels, during and after the implementation of the project. It aims at the appropriation of the product by its end-users through promotion measures that will enhance the product advantages.

Exploitation is closely related to the sustainability of the project, since its activities should ensure that its results are used by the target groups and are possibly transferred to other contexts. The main strategy is to involve the stakeholders, key-persons and end-users in the exploitation activities in order to let them experiment and incorporate the products in their professional activities.

The exploitation plan should describe the activities to undertake in order to guarantee the continuation of a project after the end of the European grant. Based on the outcomes of a project, a comprehensive exploitation strategy should be anticipated on how main results, tools or products can be used and exploited within the field to which the project is intended.

Synergies with other related projects should also be explored. Further, the importance and possibilities of main products and results should be highlighted, as well its exploitation potential. If appropriate, the exploitation plan can include specific recommendations and guidelines about how the outputs and results of the project could be used by interested stakeholders and how the consortium plans to involve the project specific target groups in the project's development.

The exploitation plan organises the exploitation process, gives orientation to the whole consortium, and will be the first activity to elaborate within the work package dedicated to this topic. This plan is consequently updated during the project and can be structured by levels, establishing clearly the aims, methods, activities and target groups to be addressed. The plan should clarify and detail the activities to be performed, responsibilities and key dates in order to assure the appropriation and sustainability of the project's products. A responsibility matrix frequently makes sense, at which each partner is allocated its responsibility and its duties on how, when and to which degree exploitation is to be done.

To design a plan for exploitation one should take into consideration different levels and specify clearly the aims, methods and target audience to each one. For example:

Partner X will lead exploitation, but all partners are actively involved in exploiting the results. The first activity is making an exploitation plan, on the next levels:

Level 1: Mainstreaming

Aims: convincing relevant stakeholders to introduce/take into account the products of the project

Methods/activities: European Conference in ... with detailed presentation and discussion on project's results

Target groups: relevant decision-makers, SMEs representatives and stakeholders, funding agencies; governmental business entities; SMEs' managers, chambers of commerce, business innovation centres; VET specialists and training providers

Level 2: Multiplication

Aims: ...

Methods/activities: ...

Target groups: ...

Level 3: Sustainability

Aims: Enhancing the sustainability of the project

Methods/activities: ...

Target groups: ...

Mechanisms for exploitation

According to the EU27 "the results of a project can bring about real change at both micro level (in the lives of individuals and groups) and at macro level by influencing systems and policies. But such change is only possible if the results are adopted. The means of exploiting results so that they are taken up are varied and differ in complexity, tending to be simpler at end-user level and more complicated at policy level".

There are no best tools for exploitation per se. The success depends in selecting those tools that are appropriate to the type of result and the end users envisaged. Where the project produces a new method or a new product, for example, then transfer, commercialisation and sustainability could be adequate tools. If the project involves less tangible results as, for example, experience gained through mobility, then accreditation, recognition and certification of the competencies, is more suitable.

Transfer and follow-up projects

Transfer enhances good practice by spreading results. The transfer can take place at all levels and the results can be used into new contexts or other organisations can customise the results to suit their conditions. Thus, for example, a project that takes place in a university context in one country could yield results that would benefit a rural community in another. Submitting a proposal to a call for an exploitation project, for instance in the scope of a transversal programme, can be a smart way of attracting a wider audience for the carried work.

Follow-up projects. After a project is finalised its results would be best sustained if partnership find a way to build upon the results and expand the scope of what has already been achieved. Possibilities for doing this would be transfers of innovation or another form of continuation of completed projects.

Commercialisation

After the end of the project the consortium may consider either the free availability or the commercialisation of the products. The best choice strongly depends on the intentions of the project consortium as well as the product results itself and the main target groups' characteristics.

For commercialisation purposes, a marketing plan should be developed. Usually it is agreed that each partner is responsible for commercialisation in its own and in the neighbouring countries. Commercialisation is especially appropriate to tangible products and is suitable for the end users. Project managers will need to persuade manufacturers, publishers or other commercial concerns to take up the product. There can be complication for results that involve complex intellectual property rights or where a lack of clarity in product ownership exists.

Intellectual Property Rights (IPR)

An IPR agreement aims to establish a multilateral agreement by all partners on intellectual property clarifying the rights of use of the products originated from the project and covering any commercial utilisation of products after the end of the project.

It is important to define what each partner gets out of the project and how products may be used after the project end.

This can be written in a consortium agreement, where the rights and duties are defined clearly. These agreements are frequently the first step towards a possible and constructive exploitation of both the project and the project's results.

For the purposes of clarification, IPR includes all patents, designs, copyright and any other category of Intellectual Property Rights capable of protection under a specific law. The IPR agreement can be the basis for establishing a business plan, taking into consideration: 1) product description, 2) target groups; 3) maintenance of product and 4) price. It can be accomplished in stages, for example: First Stage (free trial, during the lifetime of the project), Second Stage (paid version) and Third Stage (paid product upgrading). Second and third stage refer to the time period after the end of the project.

The business plan also establishes the conditions for the sustainability of the project results and approach after the project lifetime. It includes the definition of the licensing scheme, the conditions (e.g. fees, if any) for use and replication of contents, the time that is expected that the project environment will be active, and the role of each of the partners after the end of the project.

Sustainability

Naturally, the results of the project should not disappear after the project ends. It is important to keep them visible and available, especially through websites, so that target audiences can access them, learn from them, adapt them to their own needs and even build on them and take them to the next level. And of course both transfer and commercialisation aid sustainability. The continuity of the project starts very early, when a structure that will ensure sustainability is created, this is to say, when the partnership is chosen.

The partnership should clearly define and establish from the beginning of the project what they want to achieve, who they want to reach and the stakeholders. If the target groups want and need the project outcome, then the project will have a greater chance of survival after the end of the funding period.

A good idea is to collect sustainable declarations, written and signed statements in which individuals or organisations explain how they intend to use or are already using the products. If the declarations are obtained during the project lifetime, the number can be an interesting indicator to anticipate the project's sustainability and are, at the same time, clear exploitation evidence.

Sustainability Declaration

An idea materialized by many projects is to establish (in the exploitation plan) that by the end of the project each partner must identify a number of interested organisations which agree (in written form) to take sustainable use of the project products. A template should

be available for use by all partners. For example, a template for a declaration related with learning material targeted to SMEs managers produced into an EU funded project follows:

[Name], the Coordinator of a [Country] Training Programme targeted to managers in the scope of [VET provider organisation], that he has advised and gave the link to the [project] learning material to the 30 managers as well as to trainers involved with. He adds that he and the trainers consider the material educationally very interesting and enriching and that it will be used during the individual counselling phase of the programme.

Date and location

Signature and Stamp

Accreditation and formal recognition

The experience people gain is often the result of informal learning and can be difficult to quantify. Accreditation of such experience is increasingly being incorporated into programmes using tools such as Europass (for the transparency of qualifications), the European Credits Transfer System and the validation of informal and non-formal learning. Also some courses produced at EU funded projects are submitted to approval by national or European responsible organisations so that they can integrate a certified offer in their respective countries. On the other hand some projects' networks at the end of the project are formally registered and start having a legal status, they continue operating and become non-profit associations.

Networking / Lobbying

Influencing high-level change in policy and systems is a real possibility if project managers learn how to co-operate effectively and at the right levels. This is essentially a process of networking with all relevant stakeholders, so building contacts and attending meetings is vital. The European Commission, European and National Agencies, National Committees and Programme Committees organise events to facilitate such co-operation.

Attending events, such as conferences, seminars and debates, provides an ideal opportunity to showcase results and leads to fruitful contacts to enhance networking & lobbying. Some projects choose to hold some kind of European dedicated events (seminar, conference, workshop) and with the involvement of relevant decision-makers, stakeholders and funding entities. The events aim to convince the participants to take into account the products and approach of the project, which might be considered in policy formulation.

A number of actions can make the implementation and the commercialisation of the products a lot easier, for example keep regular contact with stakeholders, organisation of

focus groups, workshops or informal meetings with the stakeholders at a regular basis and attempt to get them involved in the project development from the start.

The exploitation task is hindered by a number difficulties, such as:

- lack of time
- deficient information or bad strategies of communication
- identification of wrong key actors or decision makers
- too complex products or context
- too many constraints
- too complex or too theoretic methodologies
- not having the capacity to see project products from users' point of view
- trend to centralize project management
- missing of forces to go on with the project even after its end
- Non-updated web sites.

Successful exploitation is achieved through a number of practices and "recipes", including the following:

- Creation of an action phased plan for exploitation.
- The products and information need to be in the right place, however the key is the usefulness of the product.
- Use the appropriate exploitation mechanisms
- Incentives are important.
- The success of exploitation is measured through qualitative (in depth interviews, focus groups, e.t.c.) and quantitative indicators (number of visitors on the website; number of products distributed, sold or downloaded).
- Distribution of the products to decision makers, opinion leaders and significant stakeholders
- The deliverable message needs to fit the needs of the target groups
- be proud of the results and "keep the light burning" after the end of the project.
- In order to get better, never be satisfied.
- Keep the website up to date at least for three years after the end of the project
- Mutually and contractually agree on the copyright and how incomes of product commercialisation are shared
- Creation of a business plan with defined goals and with IPR in mind.
- It is important to keep motivated and to network for the project or product even after its end. A very important success factor is the mindset of the project team.

- Expansion of the target group. There is always the possibility for beneficiaries to become “new starters”
- Successful exploitation needs to be supported by successful dissemination. The impact of the project needs to be described.
- Exploitation needs to be customised, in accordance to the nature of the project (e.g. size and nature of target groups), but, in general, it is recommendable to (1) obtain and utilise end-user validation (questionnaire analysis, evidence of effective use of outputs) (2) maintain product updated, upgrade based on ongoing feedback, (3) keep regular networking and lobbying activities, (4) to update website news constantly, (5) assure appropriate exploitation mechanisms; (6) keep regular contact with the relevant stakeholders, (7) engage in transfer and follow-up projects

Success factors and challenges for internal dissemination and exploitation strategies

In the previous, various issues and success factors for valorisation most related with external activity were discussed, in other words beyond the partnership or organisations involved with. However, it is also important to engage internal valorisation process, which is often ignored and may have a significant importance in the sustainability of the projects' results.

In case the project involves multiple departments or units, a mandatory, regular meeting is advised to be set up in order to keep all participants informed and on track. Further, an internal newsletter or some kind of internal journal can be produced in order for everybody to be able to access information in the first place.

What is critical for the success of internal dissemination is the culture of the organisation. There should be both a top-down and bottom-up approach to develop an organisational culture where people actually want to get information about what colleagues are doing and which projects the organisation itself is doing.

But both dissemination and exploitation depends strongly on the project's content, the topic of the project, the consortium that does the project and each organisational culture. The following points should be noticed.

- A project fact sheet is necessary for people to get information in a comprehensive way
- Face-to-face communication is very useful to inform people
- Positive feedback from outside helps
- Experience from successful projects of the past is of high importance
- Team building is necessary to disseminate projects

- Information should be given on the organisation or department website
- Information should be interesting, comprehensive and clear
- Official and unofficial events should be used for (internal) networking activities
- The project must be connected to the actual needs of the organisation
- Specific information should be given in terms of the quality of the products, its innovativeness and its usefulness for the persons addressed
- A big issue not to be forgotten is that that everybody is busy
- Dissemination and exploitation strategies are different from public to private companies
- Money distribution increases effectiveness of valorisation. So in case other departments can be involved into the project, it is likely to increase its effect
- Effort should be made to distribute tasks and make colleagues and other departments feel responsible
- Effort should be made to personally address people in order to make them feel important
- A crucial factor is the involvement of administrative departments and the departments and organisational leaders. If they want everybody to be informed it will most likely be easier enforced.

Furthermore, it is useful to plan the dissemination right at the start in a very concrete manner, with numbers and desired reach. Also, every project partner should present a minimum number of activities, events and press releases. Whilst one partner, according to the general tenor, should be responsible for texting and creation of the main dissemination material, this material should then locally be adapted to the necessary national specific needs. Also, the first thoughts about dissemination have been already included in the project application.

One additional point is that the dissemination and exploitation strategies are dependent on the commitment and the abilities of the partners. Without partners, no widespread, qualitative and quantitative dissemination and exploitation is possible.

Relevant actors are all those organisations and individuals that are interested in the project's results. For example:

- Direct beneficiaries, i.e. individuals or organisations (users at any level, intermediaries/multipliers, agents such as associations, regional authorities) benefiting from the implementation of the project, and including the entities receiving financial grants;
- Final beneficiary or target group (individual or organisation directly positively influenced by the project outcome). Not necessarily receiving a financial grant and even

not directly involved in the project, the beneficiary may exploit project outcomes for its own purposes.

- End-users are individuals or organisations which can make use, exploit or be inspired for further activities by project results.
- Stakeholders (individuals or institutions that may, directly or indirectly, positively or negatively, affect or be affected by a project or a programme). Examples of stakeholders in the activity field of education and culture: (decision makers, funding entities, social partners, sectoral organisations, etc.).

It is very important to keep all these different categories of relevant actors informed and involved with.

Furthermore, planning a realistic valorisation budget is crucial for the development of a strategy able to efficiently reach different groups. The resources need to be planned and provided from the start of the project to have them available during the valorisation stages.

Successful valorisation must involve the design of a marketing strategy, since the beginning of the project, with different mechanisms (in order to gain visibility) but also taking into consideration the specificities of the relevant actors to be addressed. Further points include:

- Involvement of the entire organisation
- Creativity (small ideas can lead to big output)
- Involve the NA/EACEA (funding agency)
- All partners should execute the strategy with the same quality
- Use subcontractors if necessary
- Include partners' networks for dissemination and exploitation
- Try to build communities
- Make marketing research for future exploitation
- Most suitable persons and stakeholders to be addressed should be identified
- All topics are easy in any follow-up project and difficult in the first project
- Exploitation depends on the final products
- Periodically share performed dissemination activities with others in order to get new, fresh ideas
- Both dissemination and exploitation should start at the beginning of the project
- Dissemination and exploitation should be thought of before choosing the project partners
- Use every opportunity to disseminate
- Share ideas among partners

- Be flexible
- Partners should always take leaflets to meetings and events they go to
- Link the project topic to official days of existing events in all partner countries
- Respect the success factors when designing the strategies
- Prepare a commercialization plan if suitable products are available
- Collaboration with all actors right from the start of the strategy design stage is vital to the success
- Strategies should be tailored to the different target groups and stakeholders
- A successful valorisation must involve the design of a marketing strategy, since the beginning of the project, with different mechanisms and taking into account the specificities of the relevant actors, in order to give visibility and involve them in different phases of the project life.

Pathways for sustainability

In order to assure sustainability a number of pathways are typically followed, such as the following:

1. First, to consider the quality of the project design, it should meet specific needs and constraints within the partnership. Projects that match the real needs of target groups, relevant actors and the labour market are more likely to be sustainable.
2. The involvement of all the consortium members is one of the most decisive sustainability factors. Close collaboration amongst members induces opportunities to launch new projects in the future. Ensure continuous and well-balanced involvement of each partner throughout the project's lifetime. Participative management should be introduced with clear decision-making procedures and regular reporting.
3. Effective management and leadership are critical. This relates to the project leaders and to their professional motivations, competences and ability to manage the whole project. Effective management favours the involvement of partners, fundraising, and the ability to anticipate sustainability. Adequate leadership is facilitated by the previous transnational experience and by the proper use of advice from skilled colleagues or professionals. A clear distribution of rights and responsibilities, which develops confidence amongst the partners, also contributes to effective leadership.
4. It is important to highlight the requirement for active participation of the target audience, not only to ensure that the results meet their needs but also for valorisation and lobbying purposes, building up a sense of ownership and encouraging this way the sustainability of the results. Symbolic rewards can be organized to the most committed ones (e.g. a testimony in a newsletter or an article on the webpage).

5. A sustainable project should secure appropriate resources in order to be maintained, for example financial resources (internal or external to partners) as well as human resources and material equipment. The project managers should anticipate the end of the project funding by seeking alternative sources of finance or making the project self-sufficient. Furthermore, interested organisations that are committed to make sustainable use of the products should be identified.
6. The decision-makers (notably the national and European responsible organisations in the educational field) can play an important role since their acceptance or adoption of the project results can decisively influence its exploitation and further sustainability.

The above constitute key factors with the most decisive influence and gaining confidence among the central authorities, relevant actors and target audience can ensure sustainability.

It should be noted that the current trend is towards an increasing professionalism at all levels of management of European educational projects, which requires business management competences and clear strategies for fulfilling the objectives.

European Commission funded European educational programmes driven by the objective of integrating excellent and innovative learning approaches and relevant experiences in Europe by using public funding to gain momentum and sustainability. But still there is often a lack of business management competences in the project consortia and also a lack of clear criteria for sustainability. As a consequence, rational, clear planned strategy is frequently missing in most educational projects. Instead, sustainability strategies appear to be ad hoc driven, orchestrated by the project monitoring events (reviewers, evaluators and project officers), rather than built proactively in the consortia management structure.

There is great diversity regarding the kind of management, dissemination, exploitation, transfer, integration, mobility, and collaboration activities undertaken in the European educational projects. This may be explained by a lack of marketing and business skills in the management of the consortiums and networks. It appears that the answer to the quest for integration and sustainability demands is to build a website or a digital portal. Clearly, the use of such mechanisms is necessary to make the activities visible, but the dynamics and the nature of integration in daily use of products and outcomes appears to be in need of rethinking.

Thus, it is important that project coordination and management teams start by asking themselves what is the management model. We need to focus not only on positioning the project and arguing which objectives and products will be reached by the efforts in the projects, and what value this brings at short and long term, but also start focusing more

on the mechanisms and strategies used in projects and networks management, for creating the conditions during the project period for its sustainability, for instance, by incorporating the products into the regular work of the project partners.

3 Exploitation method

This Section starts by presenting the exploitation objective and the exploitable outcomes of the project. It continues with a diversification of the target groups and concludes with the reporting of strategies that have been defined to achieve a broad exploitation of its results.

3.1 Exploitation objectives

SEnDIng project aims to address the skills' gap of Data Scientists and Internet of Things engineers that has been identified at the ICT and other sectors (e.g. banking and energy) at which Data Science and Internet of Things have broad applications. To achieve this goal, SEnDIng develops and will deliver for the two aforementioned ICT-related occupational profiles two learning outcome-oriented modular VET programmes using innovative teaching and training delivery methodologies. Each VET program will be provided to employed ICT professionals. A certification mechanism will be designed and used for the certification of the skills provided to the trainees of the two vocational programs, while recommendations will be outlined for validation, certification & accreditation of provided VET programs. Furthermore, SEnDIng aims to define a reference model for the vocational skills, e-competences and qualifications of the targeted occupational profiles that will be compliant with the European eCompetence Framework (eCF) and the ESCO IT occupations, ensuring transparency, comparability and transferability between European countries. Various dissemination activities will be performed – including the organization of one workshop at Greece, Bulgaria and Cyprus and one additional conference at Greece at the last month of the project – in order to effectively disseminate project's activities and outcomes to the target groups and all stakeholders and to valorise the project's results. Finally, a set of exploitation tools are under development, to give guides to stakeholders (companies, VET providers and employees) on how to exploit SEnDIng results.

More precisely, following the principles introduced in Section 2 of this document, the specific objectives of exploitation are related to creating concrete objectives that can survive after the end of the project. The SEnDIng project targets this principle by providing a series of sustainable exploitable outcome, as detailed in Section 3.2 of this document. In order to meet these objectives, a series of measures have been provisioned, such as:

- Creating close relationship with research centres and universities; it should be noted that a number of two of the partners of the SEnDIng consortium are Universities; furthermore, other partners are closely affiliated with Universities (e.g. GCS has members from all the Universities in Greece).
- Involvement of the relevant target groups and stakeholders into the process of needs analysis, research, piloting, feedback. Workpackage 2 (more precisely, Task 2.1: Development of desired learning outcomes in terms of knowledge, skills and competences) foresees the design and development of desired learning outcomes of the vocational trainings in terms of knowledge, skills and competences for the VET programs of Data Science and Internet of Things following three key-pillars: what the learners know, what they are able to do and what they understand, following the completion of a learning process. At this phase potential participants have been involved in order to discover the characteristics and learning expectations of the audience.

3.2 Exploitable outcomes of SEnDIng

The following Table presents the Deliverables/outcomes of the SEnDIng project, following the project proposal and Description of Work. In the first column of the Table we indicate the Deliverable number; in the second column we present the deliverable name; in the third column we indicate whether it is an exploitable deliverable/outcome of the SEnDIng project; i.e. if its use from the stakeholders is meaningful.

1	Project management and coordination	E
D1.1.X	Quarterly Management Reports	
D1.2.X	Annual financial report	
D1.2.X	Annual financial report	
D1.4	Final project report	
D1.5	Project Management Plan	
2	Learning outcomes identification and design of vocational curricula/educational modules and training/ assessment methodology	
D2.1	Learning outcomes in terms of knowledge, skills and competences	X
D2.2	Reference model of skills, e-competences and qualifications needs of Data Scientists and IoT Engineers	X

D2.3	Vocational curricula/educational modules for Data Science and Internet of Things VET program	X
D2.4	Training methodology	
D2.5	Training monitoring and assessment methodology	X
3	Implementation of training material	
D3.1	Training material for Data Science vocational trainings	X
D3.2	Training material for IoT vocational trainings	X
D3.3	Training material for transversal skills development	X
4	Implementation of skills certification mechanism	
D4.1	Recommendations for validation, certification & accreditation of provided VET programs	X
D4.2	Data Science VET program certification	X
D4.3	Internet of Things VET program certification	X
5	Design of e-learning platform and delivery of vocational trainings	
D5.1.1	Technical and operational specifications of e-learning environment	
D5.1.2	Survey of e-learning solutions	
D5.2.1	E-learning platform installation report	
D5.2.2	E-learning platform operation and support	X
D5.3.1	Open call for participation of companies in the vocational trainings	
D5.3.2	Report about the delivery and certification of Data Science vocational trainings	
D5.3.3	Report about the delivery and certification of Internet of Things vocational trainings	
6	Quality assurance and evaluation of project	
D.6.1	Quality Assurance Plan	
D.6.2	Evaluation plan and tools	
D.6.3	Risk Register	
D.6.4	Impact evaluation methodology	

D.6.5	Final internal evaluation report	
D.6.6	WPs Quality reports	
7	Dissemination and Exploitation	
D.7.1	Dissemination plan	
D.7.2	Dissemination and promotional material	
D.7.3	Project presentations	
D.7.4	SEnDIng project website	
D.7.5	SEnDIng Newsletters	
D.7.6	Dissemination report	
D.7.7	Exploitation Plan	
D.7.8	Teaser	X
D.7.9	SEnDIng Toolkits	X

Following the above Table, the Exploitable outcomes of SEnDIng are as follows:

2	Learning outcomes identification and design of vocational curricula/educational modules and training/ assessment methodology
D2.1	Learning outcomes in terms of knowledge, skills and competences
D2.2	Reference model of skills, e-competences and qualifications needs of Data Scientists and IoT Engineers
D2.3	Vocational curricula/educational modules for Data Science and Internet of Things VET program
D2.4	Training methodology
D2.5	Training monitoring and assessment methodology
3	Implementation of training material
D3.1	Training material for Data Science vocational trainings

D3.2	Training material for IoT vocational trainings
D3.3	Training material for transversal skills development
4	Implementation of skills certification mechanism
D4.1	Recommendations for validation, certification & accreditation of provided VET programs
D4.2	Data Science VET program certification
D4.3	Internet of Things VET program certification
5	Design of e-learning platform and delivery of vocational trainings
D5.2.2	E-learning platform operation and support
7	Dissemination and Exploitation
D7.1	Teaser
D7.2	SEnDIng Toolkits

It should be mentioned that the whole Work Package 7 (Dissemination and Exploitation) is devoted to the task and purpose of dissemination and exploitation of results, therefore the deliverables/outcomes of this Work Package provide exploitable outputs per se. Special reference should be made to the SEnDIng toolkits. Three toolkits have been foreseen, targeting companies, VETs and Employees respectively, as analyzed in the sequel.

The **Toolkit for Companies** concerns a short summarised set of instructions for ICT companies and companies involved in data analysis and IoT, on how the project approach & the e-learning platform can be used to enhance the skills of their employees and will include the project summary & background, a table of current gaps, a list of suggested modules, the outline of courses, the methodology of the training approach, the accreditation framework, the feedback from trainees and companies and contacts.

The **Toolkit for VETs** concerns a short summarised set of instructions for VET providers on how the project resources and the e-learning platform could be used to enhance trainee's skills in data analysis and IoT. Will include the project summary and the background, a table of current gaps, a list of suggested modules, the outline of courses,

the training methodology, the assessment methodology, and the accreditation framework, feedback from trainees and related companies, contacts.

The **Toolkit for Employees** concerns a short summarised set of instructions for employees on how the project resources & the e-learning platform could be used to enhance their skills. Will include the project summary and background, a list of modules, the feedback from already trained employees, instructions on how to log-in to the e-learning platform, screen prints and pictures, practice exercise examples and their purpose, tips on how to gain the most out of the on-line training and the WBL experience, the accreditation framework.

3.3 Exploitation Target Groups

3.3.1 Dissemination channels identified

The identified target groups of SEnDIng exploitation activities are the following:

- Higher Education Institutes
- VET providers
- SMEs
- Policy Makers
- Associations of IT scientists and companies
- Certification Bodies

The following table indicates, for each target group, whether it is Nation-wide or European-wide, as well as the way the project results are to be exploited.

Group category	Nation/ European wide (N/E)	Exploitation Use cases
Higher Education Institutes	N	Access to open online courses and a learning-outcomes oriented curriculum targeting Data Science and Internet of Things. Access to a blended learning methodology that combines a strong work-based learning component.

VET providers	N	<p>Access to open online courses and a learning-outcomes oriented curriculum targeting Data Science and Internet of Things.</p> <p>Access to a blended learning methodology that combines a strong work-based learning component.</p> <p>Access to a set of toolkits for exploiting and incorporating the VET programs into their training portfolio.</p>
SMEs, Associations of IT scientists and companies	N	<p>Access to VET programs for Data Science and Internet of Things that is provided with a blended learning model combining open on-line courses and work-based learning.</p> <p>Access to a set of toolkits for exploiting and incorporating the VET programs into their training portfolio.</p>
Policy Makers	E/N	<p>Access to recommendations for the validation, certification and accreditation of the provided VET programs and their alignment with NQFs, EQF and ECVET.</p>
Certification Bodies	E/N	<p>Access to a framework for certifying the learning outcomes provided to the beneficiaries of the two VET programs (Data Scientists and Internet of Things professionals).</p>

Table: SEnDIng target groups and exploitation of project results

3.3.2 Exploitation Strategies

As mentioned, exploitation of outcomes consists of mainstreaming and multiplication of results. The SEnDIng exploitation plan follows a mixed approach with regard to its development. On one hand it integrates and elaborates on the general strategies defined during the project design phase, and on the other hand incorporates partners' ideas and interests about how to use the project's products and results (tangible or intangible) at local, regional, national, European, and/or international levels.

Concerning the general exploitation paths, SEnDIng has defined specific strategies for achieving a broad exploitation of its results. These strategies can be summarized as follows:

- The Learning outcomes in terms of knowledge, skills and competences will be promoted for exploitation in European, national and regional HEI systems and practices

- The Reference model of skills, e-competences and qualifications needs of Data Scientists and IoT Engineers will be promoted for exploitation in European, national and regional HEI systems and practices
- The Vocational curricula/educational modules for Data Science and Internet of Things VET program will be promoted for exploitation in European, national and regional HEI systems and practices
- The Training monitoring and assessment methodology will be promoted for exploitation in European, national and regional HEI systems and practices
- The Training material for Data Science vocational trainings can be used "off-the-shelf" in order to address the specific sector's identified learning needs
- The Training material for IoT vocational trainings can be used "off-the-shelf" in order to address the specific sector's identified learning needs
- Training material for transversal skills development can be used "off-the-shelf" in order to address the specific sector's identified learning needs
- Recommendations for validation, certification & accreditation of provided VET programs will be promoted for exploitation in European, national and regional HEI systems and practices
- Data Science VET program certification will be promoted for exploitation in European, national and regional HEI systems and practices
- Internet of Things VET program certification will be promoted for exploitation in European, national and regional HEI systems and practices
- E-learning platform can be used "off-the-shelf" in order to address the specific sector's identified learning needs
- Exploitation toolkits will be forwarded to companies, VET providers, and employees, in order to further "spread the word" about SEnDIng and give the stakeholders the opportunity to meet SEnDIng and its results.

4 Exploitation activities

The SEnDIng exploitation activities focus on the ways the project outcomes and products can create added value for the project partners and interested stakeholders. Exploitation activities are intended to go beyond dissemination and publicising, with an explicit emphasis on:

- Promoting the resulting models and tools for exploitation in European, national and regional Learning opportunity provision systems, practices and related EU policies.
- Providing quality educational tools that can be used to address the sector's identified needs and requirements
- Enabling the transfer, adaptation and implementation of developed approaches into other branches and sectors

The above listed points aim to mainstream project products into organizations and structures related to VET organizations at local, regional, national or European level. T

For the exploitation of the project outcomes, it is essential that they meet needs clearly identified. The project-level as well as the individual exploitation actions of each partner aim to involve end-users. This has been done and will continue to be done through reviewing the needs of end-users, and getting members of the project target group to test the material and provide feedback. This will ensure that the developed products are tailored to and are suitable for the target groups, and this will aid further exploitation of the project results.

The following subsections present the actual exploitation activities that will be carried out for the realization of the designed strategies. As mentioned, exploitation activities are categorized either as Direct or Indirect. For each category specific types of activities have been identified and are described. These types of activities, apart from constituting the basis for the overall project exploitation plan, serve as guides for the development of the individual partners' plans and reports.

4.1 Direct Exploitation activities

As direct exploitation activities we consider the ones related to the adoption and evolution of the identified SEnDIng exploitable outcomes. Direct exploitation activities will be carried out during the project's lifetime, providing that outcomes have reached an advanced level of maturity, and after its conclusion to ensure sustainability.

4.1.1 Stakeholders involvement

The goal of the exploitation activities is to optimize the value of the project results, enhance their impact and integrate them into practice at national as well as European level. Towards this direction, the SEnDIng project has designed core activities for ensuring a high degree of stakeholders' involvement, approval and uptake, including the organization of National Workshops in each of the partners' countries with stakeholders from the project target groups. In accordance with their organizations' nature, partners also aim to introduce the project's results to related target audiences (see section 5).

4.1.2 Adoption, transfer and adaptation

The SEnDIng Model and Toolset will provide a solution to the identified needs and requirements for the improvement of the learning needs, in the fields of data science and IoT. In addition, the support of the transfer and adaptation process into other branches and sectors through the elaboration of concrete scenarios and use cases will enable the wider uptake and implementation of these outcomes.

4.1.3 Synergies with other projects and special groups

Synergies with other projects and user groups working in a similar area have already been initiated in the form of conferences and focused workshops, in order to exchange expertise, experiences and best practice.

4.2 Indirect exploitation activities

Indirect exploitation is based on the project's final outcomes and their documentation, with activities oriented to further research, evolution, provision of training and consultation services and support.

4.2.1 Follow-up projects

The SEnDIng products, methodologies and technology can offer important opportunities for the setting up of initiatives for new innovative projects within the European Learning, Education and Training setting, the change in the traditional fields, where new learning curricula are required. The SEnDIng partners, leveraging the knowledge, experiences and expertise gained through the project, are exploring and discussing a number of exploitation options including the setting up of:

- R&D projects, for continued research in the field of standards-based learning opportunity advertisement
- Service implementation projects, building upon the resulting training material
- Adaptation projects, applying the SEnDIng outcomes and methodologies for the realization of sector-specific case studies and scenarios.

4.2.2 Consultation and training activities

The organization of training and consultation services constitutes a significant exploitation case which will be realised at both the project and the individual partner levels. The SEnDIng consortium plans to participate in several workshops and consultation meetings with specially designed activities that will address specific needs of different stakeholder groups regarding the integration of the SEnDIng outcomes in their current practice. The consortium partners have also demonstrated a major interest in organising activities in

order to support the processes of introduction and integration of the project’s outcomes into their target audience’s practices.

4.2.3 Market impact

A number of joint product management activities will also be performed at project level in order to package the SEnDIng outcomes into well-structured joint offerings, delivering these offerings in the proper way, and raising the product awareness. The free release of the SEnDIng outcomes will provide technical partners as well as third parties with the opportunity to exploit the produced educational modules in order to provide services for a wide range of stakeholders including learners, institution administrations, employers and other stakeholders of learning, education and training throughout Europe, including the European Union and Commission, the Member States and their governments and ministries, etc.

4.3 Exploitation of each exploitable outcome from each potential stakeholder group/category

In the sequel we present how each exploitable output of SEnDIng can be exploited from each group of stakeholder, i.e. Companies, VET providers, Employees.

		Companies can utilize it to...	VET providers can utilize it to...	Employees can utilize it to...
2	Learning outcomes identification and design of vocational curricula/educational modules and training/assessment methodology			
D2.1	Learning outcomes in terms of knowledge, skills and competences	check their employees/potential employees	Advertise and exploit SEnDIng outputs	Check against existing skills to verify whether they meet the outcomes
D2.2	Reference model of skills, e-competences and qualifications needs of Data Scientists and IoT Engineers	-	-	-
D2.3	Vocational curricula/educational modules for Data Science and Internet of Things VET program	Obtain required knowledge, skills and competences		Obtain required knowledge, skills and competences

D2.4	Training methodology	Organize future educational programs	organize future educational programs	-
D2.5	Training monitoring and assessment methodology	Check against		
3	Implementation of training material			
D3.1	Training material for Data Science vocational trainings	Organize educational programs for employees	Organize educational programs	Self-acquire educational programs
D3.2	Training material for IoT vocational trainings	Organize educational programs for employees	Organize educational programs	Self-acquire educational programs
D3.3	Training material for transversal skills development	Organize educational programs for employees	Organize educational programs	Self-acquire educational programs
4	Implementation of skills certification mechanism			
D4.1	Recommendations for validation, certification & accreditation of provided VET programs	-	-	-
D4.2	Data Science VET program certification	Check employees' knowledge, skills and competences	Check trainee knowledge, skills and competences	-
D4.3	Internet of Things VET program certification	Check employees' knowledge, skills and competences	Check trainee knowledge, skills and competences	-
5	Design of e-learning platform and delivery of vocational trainings			
D5.2.2	E-learning platform operation and support	Enhance knowledges, skills and competences of employees	Enhance knowledges, skills and competences of trainees	Enhance knowledge
7	Dissemination and Exploitation			
D7.1	Teaser	Learn about SeNDIng outputs and results	Learn about SeNDIng outputs and results	Learn about SeNDIng outputs and results

D7.2	SEnDIng Toolkits	Learn about SeNDing outputs and results	Learn about SeNDing outputs and results	Learn about SeNDing outputs and results
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5 Partners' exploitation plans

5.1 Introduction

Apart from the project-level exploitation activities, each partner will be involved in individual exploitation activities according to its role in the project, their interest in the produced results, as well as their capacity and expertise.

The main aim of this section is for all consortium members to define how the exploitable aspects of the project can (and will) be used and integrated both within their organization and at a national or European/international level. For this reason, each member has been asked to develop a partner-specific exploitation plan, explaining in detail how the outcomes of the project would be introduced into an individual and a common strategy. Taking into account that the SEnDIng consortium has been established considering the strong and complementary profiles of the partners, an Exploitation Questionnaire has been designed aiming to probe about the different strategies (current and future) and in particular about the individual exploitation intentions of the SEnDIng achievements.

5.2 Exploitation Questionnaire: Process and Methodology

The Exploitation Questionnaire is a tool for eliciting and capturing the partners' exploitation expectations with regard to the SEnDIng outcomes. During the project's lifetime and in response to the requirement for update of the exploitation plan, the questionnaire has been amended and distributed in order to represent possible modifications or new exploitation aspects resulting from the evolving partners' experience throughout the implementation of the project. The Exploitation Questionnaire is composed of two parts (Sections), as presented in the Annex:

- The first part aims to provide an overview of the partners involved in the SEnDIng project. Through this part we seek information about the involvement of the individual organisation in the project and about its current activities related to the SEnDIng target areas. More specifically partners are asked questions about the identity of the individual organisations, the reason for participating in the project, the new dimensions the SEnDIng will bring in the organisation's plans/activities, etc.
- The second part focuses on the outcomes of SEnDIng and seeks to get concrete feedback on the most important results obtained through SEnDIng. The partners are asked to express their view and degree of exploitation interest for each of the main

outcomes. Furthermore, the partners are prompted to contribute with further proposals for additional exploitation ideas and strategies in order to be taken into consideration in the overall effort.

The Exploitation Questionnaire will be filled during the second year of the project, when the outcomes will be concrete and the organisations will be able to report about specific activities and future opportunities for further exploitation.

In the second version of this document the following section will summarize each partner's input throughout the entire implementation period of the project. The completed questionnaires are provided in the Annex of this document.

5.3 Partners' exploitation summary

This Section will be completed at the second version of the exploitation document, when the questionnaires will have been collected.

6 Annex: Partners' Exploitation Questionnaire

6.1 Template questionnaire

SEnDIng Partners' Exploitation Questionnaire

Section 1:	Description
Overview of partner institution and its involvement in SEnDIng	Please provide an overview of your organization with emphasis on its involvement in the project and its current activities related to the SEnDIng target areas
Partner Name, Organization	
Type of organization	<ul style="list-style-type: none"> <input type="radio"/> Educational Institution <input type="radio"/> Professional Body <input type="radio"/> Technology Provider <input type="radio"/> Research Institution <input type="radio"/> Other (please specify) <input type="radio"/> ...
Main current activities of your organization in relation to SEnDIng?	<ul style="list-style-type: none"> <input type="radio"/> Identification of Learning outcomes <input type="radio"/> Design of vocational curricula <input type="radio"/> Design of training methodology <input type="radio"/> Design of assessment methodology <input type="radio"/> Implementation of training material <input type="radio"/> Implementation of skills certification mechanisms <input type="radio"/> Design of e-learning platform <input type="radio"/> Delivery of vocational training <input type="radio"/> Competence definitions <input type="radio"/> Competence assessment <input type="radio"/> Job analysis and profiling <input type="radio"/> Gap analysis of competence within workplace <input type="radio"/> Definition of occupational frameworks <input type="radio"/> Technology-based tools and services Other (Pls. define) <hr style="width: 20%; margin-left: 0;"/>
What is the main reason you have been involved in the SEnDIng project?	
What are the main current activities of your organization in relation to SEnDIng? Please take into account the following guiding questions for the formulation of your answer: <ul style="list-style-type: none"> <input type="radio"/> Is your organisation involved in the Design of vocational curricula 	

- Design of training methodology
- Design of assessment methodology
- Implementation of training material
- Implementation of skills certification mechanisms
- Design of e-learning platform
- Delivery of vocational training
- Does your organisation provide services for any of the identified SEnDIng stakeholder groups?

<p>Section 2: Exploitation of the outcomes of the SEnDIng project</p> <p>Main outcomes:</p>	<p>Description</p> <p>Please describe how you plan to exploit the main outcomes of SEnDIng (action, impact, remarks) at the level of your institution, but also at a national/European level.</p> <p>Please provide input only for the outcomes that are related to your organisation's nature and activities</p>
<p>Learning outcomes in terms of knowledge, skills and competences</p>	<p>Institution level</p> <p>National / European level</p>
<p>Reference model of skills, e-competences and qualifications needs of Data Scientists and IoT Engineers</p>	
<p>Vocational curricula/educational modules for Data Science and Internet of Things VET program</p>	<p>Institution level</p> <p>National / European level</p>
<p>Training monitoring and assessment methodology</p>	<p>Institution level</p> <p>National / European level</p>
<p>Training material for Data Science vocational trainings</p>	<p>Institution level</p> <p>National / European level</p>
<p>Training material for IoT vocational trainings</p>	<p>Institution level</p> <p>National / European level</p>

Training material for transversal skills development	Institution level National / European level
Recommendations for validation, certification & accreditation of provided VET programs	Institution level National / European level
Data Science VET program certification	Institution level National / European level
Internet of Things VET program certification	Institution level National / European level
E-learning platform operation and support	Institution level National / European level
Partner's target groups/ clients and partners (categorized and approximately calculated as number, not mentioned by name).	
What could be the case of each target group/ type of client in terms of SEnDIng project, with few words.	
Which of the project deliverables could be interest for them or they could use/ eventually buy?	
List and short description of the activities (internal and external trainings, workshops, international	

conferences etc.) partner organizes or is involved in	
Which of the project deliverables could be presented in those activities having into account the audience?	
What other channels could be used for dissemination/ exploitation (social media, web sites, newsletters under other similar projects, conferences, publications etc.)?	
Indirect ways of exploitation of the SEnDIng results	<p>Description</p> <p>Please explain your organisation's plans for exploiting the SEnDIng outcomes to produce further opportunities, follow up activities after the end of the project?</p>
<p>Are you planning to perform any activities for the indirect exploitation of the project's outcomes? If yes, describe how and to what extent.</p> <p>Pls. take into consideration the following indicative list of activities for the formulation of your answer:</p> <ul style="list-style-type: none"> • Provide knowledge and experience gained from SEnDIng to stakeholders within your organisation or to other organisations (at national, European or international level) about the design and delivery of innovative programmes to DS and IoT professionals. • Incorporate the developed programmes or parts of it into your organization • Provide consultancy • Organise follow-up activities or projects • Other (pls. indicate other possible ways you plan exploit results and experience gained through SEnDIng) 	



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