D8.3. Exploitation pathway and IPR methodology - initial version

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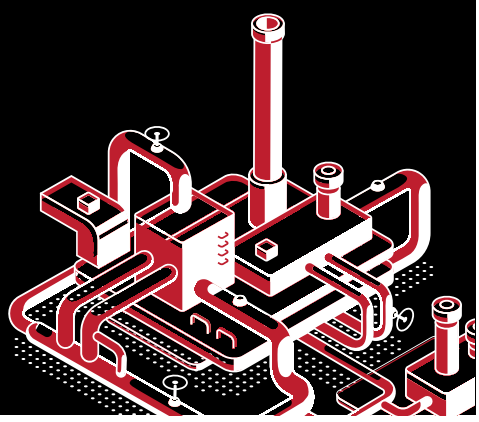

DELIVERABLE FACTSHEET

Deliverable D8.3	
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Dissemination level	
X	PU = Public
	PP = Restricted to other programme participants (including the EC)
	RE = Restricted to a group of the consortium (including the EC)
	CO = Confidential, only members of the consortium (including the EC)

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Terms and abbreviations

DOA	Description of Action
DT	Digital Twin
DSS	Decision-Support System
ER	Results Exploitation
IPR	Intellectual Property Rights
IP	Intellectual Property
KER	Key Exploitable Results
MaaS	Manufacturing as a Service
WP	Work Package

1 Introduction

1.1 About this deliverable

Deliverable 8.3, titled “Exploitation pathway and IPR methodology - initial version”, presents the initial version of the IPR management and exploitation of project results. This deliverable presents the initial outcomes of T8.2 “Exploitation pathway and IPR management” (M13– M36, Lead: ES) and will collect the outcomes of T8.3 Task 8.3 Market Analysis and Business models for MAAS in new/ cross-pollinated Value networks (M13– M36, Lead: SIMAVI). This deliverable establishes a structured methodology for the KERs management, provides the state of the actions and details the plans of the ACCURATE consortium at M18 are presented. The final results and the actions taken during the full duration of the project will be presented in the final version of this document D8.4 “Exploitation pathway and IPR methodology - final version” due at M36.

1.2 Document structure

The primary objective of Deliverable 8.3 is to define the actionable steps that direct the Consortium towards a comprehensive management of the exploitable results generated by the action. To support this objective, the document is divided into four chapters, dealing the following aspects.

- **Chapter 2: introduction and timeline**
  Presentation of the IP&ER methodology, the corresponding tasks and individual objectives supporting exploitation of project results as aligned with the guidelines regarding the Horizon Europe program. A detailed timeline for the IPR and exploitation activities is presented. Preparation activities are detailed.
- **Chapter 3: IPR management**
  The IPR management roadmap is presented with the means to identify, agree on ownership, and protect the intellectual property generated by the project Partners. This roadmap includes tasks aimed at formally identify the IP corresponding to the project results, identify the ownership and the needs and approaches for its protection. Provisional results at M18 are also presented here.
- **Chapter 4: exploitation of results**
  The Exploitation roadmap is presented, subdivided into paragraphs illustrating the ACCURATE consortium exploitation intentions for the project results, the envisioned strategies and exploitation paths with the actions planned at Partner(s) and Consortium levels to achieve result exploitation. At M18, the methodology is presented together with the corresponding templates that will be used for the implementation of the activities.
- **Chapter 5: conclusions and future work**
  Finally, the current status (M18) and planned future work towards project conclusion are summarised.

1.3 Relation with other tasks and deliverables

This Deliverable 8.3 provides the base for identifying, capturing and exploiting ACCURATE project’s results. It provides the framework required to set the stage for the effective results exploitation. As such, it represents the Partners collective and individual actions and commitments towards reaching a common understanding of the respective contributions and IPR and, therefore, it collects information regarding the actual methodological and technical developments in the scope of WP2, WP3, WP4, WP5, WP6 and WP7 within the ACCURATE project. As such, this deliverable relates all the deliverables generated by the aforementioned WPs.

2 Introduction and timeline

As described in the project proposal, the ACCURATE consortium will implement the IP&ER methodology for IP management and results exploitation. The IP&ER methodology has been defined by EnginSoft during past collaborative projects cofunded by the EC under the Horizon 2020 program. This approach aims at supporting the Beneficiaries in the implementation of their obligations regarding intellectual property rights and action results, as defined in Article 16 and Annex 5 of the Grant Agreement. Additionally, IP&ER is aligned with the Guide to Intellectual Property Management in Horizon Europe (Helpdesk, 2022): to this end IP&ER ensures that exploitable results will be captured, assessed and appropriately protected, in order to support their commercial exploitation and to achieve the impacts of the project most efficiently.

The IP&ER approach is substantiated into two interrelated roadmaps: the IP management roadmap and the results exploitation management roadmap (Figure 1). The circular arrows represent the iterative nature of the roadmaps, that is designed to foster interactions among Partners and the reaching of a consensus.

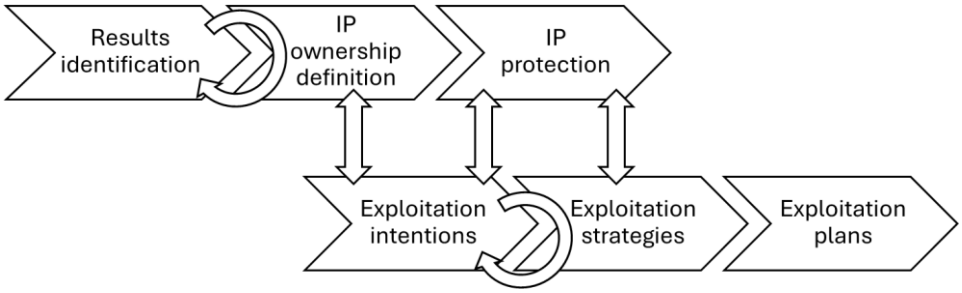

Figure 1 - IP&ER roadmaps (source: ES)

The IP management roadmap constitutes a prerequisite to actually exploit results. The basic steps include identifying, agreeing on ownership, and protecting the project IP. Such steps encompass the following activities:

- Preparation of a detailed description of each Key Exploitable Result, including the identification of the Intellectual Property that is included in each result (”capturing” the results).
- Identification of the IP ownership, according with the Consortium Agreement provisions.
- Reviewing the needs for IP protection, aligning with the exploitation strategies, and identification of the appropriate approach (e.g. copyright, patenting, etc.)

The results exploitation management roadmap will help the Consortium define effective exploitation and commercialization strategies and, if appropriate, corresponding plans. While actual exploitation will mostly happen after the project conclusion, the Consortium as a whole and each Partner are committed to exploitation through the identification of a suitable exploitation routes for each Key Exploitable result. Such roadmap includes the following activities:

- Assessment of KERs exploitation intentions by each Partner
- Preparation of exploitation strategies and plans (starting from the provisional ones in the proposal), considering trends in market and technologies, competition, etc.
- Exploitation plans at the individual partner level, as a group of partners, or collectively for the consortium, including strategic support and concrete measures to support “Go-To-Market” strategies.

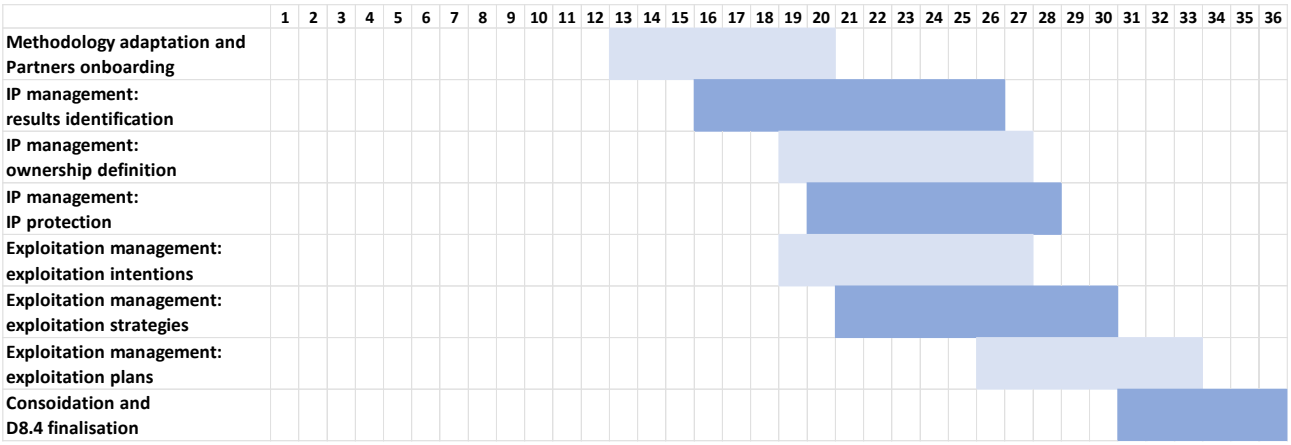

Figure 2 - IP and Exploitation management timeline

In preparation to this work, starting at M18 the IP&ER approach has been presented to Partners during PMB meetings. One to one meetings have been arranged with Partners for onboarding, starting with KERs rapporteur Partners. Further alignment meetings are planned until M20. An internal workshop dedicated to this topic opern to all Partners has been organised. Additionally, IP&ER will be a fixed topic during each PMB meeting going into the second half of the project.

3 IP Management

The IP management roadmap provides a sequence of steps designed to support the Beneficiaries implementation of the obligations regarding intellectual property rights and action results, as defined in Article 16 and Annex 5 of the ACCURATE grant agrement.

Accordingly, the first step requires identifying and describing the project results (i.e. foreground), that is any tangible or intangible output of the action (such as data, knowledge and information, whatever their form or nature, whether or not they can be protected) which are generated in the action. Infact, results identification is a prerequisite for their protection, irrespective of the actual possibility or means of protection, and it is necessary to set the ground for results exploitation.

The second step requires to establish results ownership. This is also a prerequisite for results protection since the decision on each result's IPR and/or other means of protection should be made by the owner(s) of the result. This step will also allow the consortium to prepare and agree in advance on the results ownership list that must be delivered in the final periodic report.

The third step requires the owner(s) to evaluate, identify and apply the appropriate results protection strategy, that may take the form of:

- intellectual property rights (e.g. copyrights, industrial designs, patents)
- other forms of protection (e.g. rights for databases)
- unprotected know-how (e.g. industry secret, confidentialy agreements).

Such forms of protection (or lack thereof) should be possible and justified, taking into account all relevant considerations, including the exploitation intentions of the results owner(s) and, if necessary, evaluation of benefits and costs.

In the following paragraphs further details on each step as well as the provisional results (M18) are presented.

3.1 Results identification

Results identification started from the KERs list provided in the project DOA (Table 1). Each entry provides a brief description of the corresponding KER, together with an indication of the type of result according to the following legenda: **M**ethodology, **K**now-how, **D**atabase, **S**oftware, **P**roduct, **O**thers. The table identifies the Rapporteur partner; a Rapporteur is the Beneficiary who is responsible for driving the IP roadmap steps by consulting the other Partners involved in the development of the result. As such, a Rapporteur is not, per se, the owner of the corresponding KER as ownership is defined by a consensus process.

Table 1 - Key Exploitable Results as defined in the ACCURATE DOA

KER No.	Key Exploitable Results	Description	Type of result	Rapporteur
1	KER 1. Multi-level sustainability and circularity models for MAAS nodes	Modelling framework for incorporating sustainability and circularity assessments into hierarchical production simulations (process, factory, value chains levels) for MAAS nodes	M, S	AU
2	KER 2. Co-simulation for Production Reconfiguration	Extension of the IntoCPS co-simulation framework to support multi-criteria decision-making for reconfiguration under uncertainties	M, S	AU
3	KER 3. Decision support methods for resilient SC	Methods and algorithms, including optimization and scenario definitions, to compute SC decisions for design, planning and stress test	M, S	IMT
4	KER 4. Supply chain digital twins	DTs modelling supply chains in complex environments under uncertainties	M, S	IMT/HWR
5	KER 5. Distributed and federated semantic services	Ontologies for a common semantic basis for the ACCURATE ecosystem to make it machine-interpretable and to reveal hidden relationships	D, M, S	IAO
6	KER 6. Multi-scale and multi-level integrated DTs	DTs dynamically integrated at system and components levels, supporting resilience and performance of manufacturing and logistics	M, S	ES
7	KER 7. DT registry	Integration of DT models and ontologies as central point of information about the DTs and their aspects and to enable matchmaking	D, M, S	IAO
8	KER 8. Federated MAAS solution	Federated MAAS solution covering multiple supply chains and critical value chains	M, S	SIMAVI
9	KER 9. Decision Support System	Human centred DSS that integrates data and models at product/process, production/logistics system and supply chain levels	M, S	ES
10	KER 10. ACCURATE ecosystem	Open, trusted and federated MAAS data space and ecosystem	S, O	SIMAVI
11	KER 11. ACCURATE decentralized architecture	Federated architecture, catalogue, data discovery and interoperability services in complex value chains	S	DAO
12	KER 12. ACCURATE Sovereign data sharing	Sovereign identity, data sharing, smart contracts technologies for MAAS	S	DAO

The first activity required the creation of a more detailed and up to date description of each result, considering the research and development work carried out during the first project period until M18.

Furthermore, the Grant Agreement clearly states that "Results are owned by the beneficiaries that generate them". However, two or more beneficiaries will jointly own results when (i) they have jointly generated them and (ii) it is not possible to establish the respective contribution of each beneficiary or further separate them. To foster a consensus regarding intellectual property, the IP&ER approach supports this "separation" step by providing to the Partners a specific template. Such template allows to further segment each result into smaller sub-results corresponding as much as possible to the individual contribution to the KER by each of the Partners.

The following tables provide the initial results at M18 of the results identification activity. These tables will be further completed, discussed and amended during the next period until M26: this date corresponds to the end of ACCURATE WP6, in consideration that the research and development work will be broadly completed by that time.

Table 2 - Results identification - provisional results

KER 1. Multi-level sustainability and circularity models for MAAS nodes	**Rapporteur: AU**	
Result description	Modelling framework for incorporating sustainability and circularity assessments into hierarchical production simulations (process, factory, value chains levels) for MAAS nodes. Ontology model and circularity indicators screening tool were developed in task 3.2. Work on the sustainability and circularity models is ongoing as a part of task 3.4.	
Intellectual Property id.	**Intellectual Property description**	**IP type**
Sub result 1.1	*Ontology models for circularity indicators, integrating indicators computation models and parameters synthesis from MaaS models*	*Model/method*
Sub result 1.2	*Circularity indicator screening tool based on data availability.*	*Software*
Sub result 1.3	*Sustainability model - Integrating LCA methods into the DES models for each case study.*	*Software*
Sub result 1.4	*Circularity model - Integrating circularity indicator measurement into DES models of case studies*	*Software*
Sub result 1.5	*Datasets for models testing*	*Data*

KER 2. Co-simulation for Production Reconfiguration	**Rapporteur: AU**	

Result description	Extension of the IntoCPS co-simulation framework to support multi-criteria decision-making for reconfiguration under uncertainties . The resilience indicator screening tool was finished in task 3.2.	
Intellectual Property id.	**Intellectual Property description**	**IP type**
Sub result 2.1	*Communication bridge in DTaaS (INTOCPS) platform for invoking proprietary non-FMU simulation models*	*Model/method*
Sub result 2.2	*Automated synthesis of non-FMU simulation orchestrators*	*Model/method*
Sub result 2.3	*Resilience indicator screening tool, based on attributes of resilience.*	*Software*

KER 3. Decision support methods for resilient SC	**Rapporteur: IMT**	
Result description	Methods and algorithms, including optimization and scenario definitions, to compute SC decisions for design, planning and stress test	
Intellectual Property id.	**Intellectual Property description**	**IP type**
Sub result 3.1	Demand-driven MRP: Models, solution approaches	*Model/method*
Sub result 3.2	Demand-driven MRP: Data	*Model/method*
Sub result 3.3	Tactical planning/scheduling in the aircraft industry under uncertainty: Models, solution approaches	*Model/method*
Sub result 3.4	Tactical planning/scheduling in the aircraft industry under uncertainty: Data	*Data*
Sub result 3.5	Production planning and control in the electronics industry (Scheduling, dispatching, monitoring for lot excursions): Models, solution approaches	*Model/method*
Sub result 3.6	Production planning and control in the electronics industry (Scheduling, dispatching, monitoring for lot excursions): Data	*Data*
Sub result 3.7	Inventory management under fluctuating demand forecasts: Models, solution approaches	*Model/method*
Sub result 3.8	Inventory management under fluctuating demand forecasts: Data	*Data*
Sub result 3.9	Optimization of material flow along the supply chain: Models, solution approaches	*Model/method*
Sub result 3.10	Optimization of material flow along the supply chain: Data	*Data*

Sub result 3.11	Dynamic pricing for MaaS: Models, solution approaches	*Model/method*
Sub result 3.12	Scheduling capability for MaaS	*Model/method*

KER 4. Supply chain digital twins	**Rapporteur: IMT/HWR**	
Result description	Simulation-based DTs modelling supply chains in complex environments under uncertainties	
Intellectual Property id.	**Intellectual Property description**	**IP type**
Sub result 4.1	*Supply chain stress-test models*	*Software*
Sub result 4.2	*A Two-layer supply chain simulation model*	*Software*
Sub result 4.3	*Supply Chain design support by identifying of hidden critical suppliers/material*	*Model/method*
Sub result 4.4	*[Optional] Multi-layer network supply chain model*	*Model/method*
Sub result 4.5	*[Optional] Supply chain simulation data collection template and data model*	*Data*

KER 5. Distributed and federated semantic services	**Rapporteur: IAO**	
Result description	Ontologies for a common semantic basis for the ACCURATE ecosystem to make it machine-interpretable and to reveal hidden relationships	
Intellectual Property id.	**Intellectual Property description**	**IP type**
Sub result 5.x	*TBD*	*TBD*

KER 6. Multi-scale and multi-level integrated DTs	**Rapporteur: ES**	
Result description	DTs dynamically integrated at system and components levels, supporting resilience and performance of manufacturing and logistics	
Intellectual Property id.	**Intellectual Property description**	**IP type**
Sub result 6.x	*TBD*	*TBD*

KER 7. DT registry	**Rapporteur: IAO**	

Result description	Integration of DT models and ontologies as central point of information about the DTs and their aspects and to enable matchmaking	
Intellectual Property id.	**Intellectual Property description**	**IP type**
Sub result 7.x	*TBD*	*TBD*

KER 8. Federated MAAS solution	**Rapporteur: SIMAVI**	
Result description	Federated MAAS solution covering multiple supply chains and critical value chains	
Intellectual Property id.	**Intellectual Property description**	**IP type**
Sub result 8.x	*TBD*	*TBD*

KER 9. Decision Support System	**Rapporteur: ES**	
Result description	Human centred DSS that integrates data and models at product/process, production/logistics system and supply chain levels	
Intellectual Property id.	**Intellectual Property description**	**IP type**
Sub result 9.1	*Decision support structured workflow (from the user perspective)*	*Model/method*
Sub result 9.2	*Decision support system architecture*	*Technology*
Sub result 9.3	*Decision support system code*	*Software*

KER 10. ACCURATE ecosystem	**Rapporteur: SIMAVI**	
Result description	Open, trusted and federated MAAS data space and ecosystem	
Intellectual Property id.	**Intellectual Property description**	**IP type**
Sub result 10.x	*TBD*	*TBD*

KER 11. ACCURATE decentralized architecture	**Rapporteur: DAO**	

Result description	Federated architecture, catalogue, data discovery and interoperability services in complex value chains	
Intellectual Property id.	**Intellectual Property description**	**IP type**
Sub result 11.x	*TBD*	*TBD*

KER 12. ACCURATE Sovereign data sharing	**Rapporteur: DAO**	
Result description	Sovereign identity, data sharing, smart contracts technologies for MAAS	
Intellectual Property id.	**Intellectual Property description**	**IP type**
Sub result 12.x	*TBD*	*TBD*

3.2 Results ownership definition

Results ownership provides a basis for the next steps, including the definition of an IP strategy, therefore it is necessary to carefully and clearly ascertain the contribution of each partner to each (sub)result. In principle, this is possible until the project end date, however for practical reasons it is necessary to provide a firm deadline until which a claim of contribution should be provided. In line with the project timeline for the conclusion of the ACCURATE development tasks (i.e. WP6) and of the previous step, it is then established that contribution claims can be provided until M27. This arrangement will allow a proper period for the partners to settle the respective claims and reach an agreement on results ownership, with the guidance of the Rapporteurs.

Starting from the output of the previous step the approach presented in Figure 3 is then recursively applied.

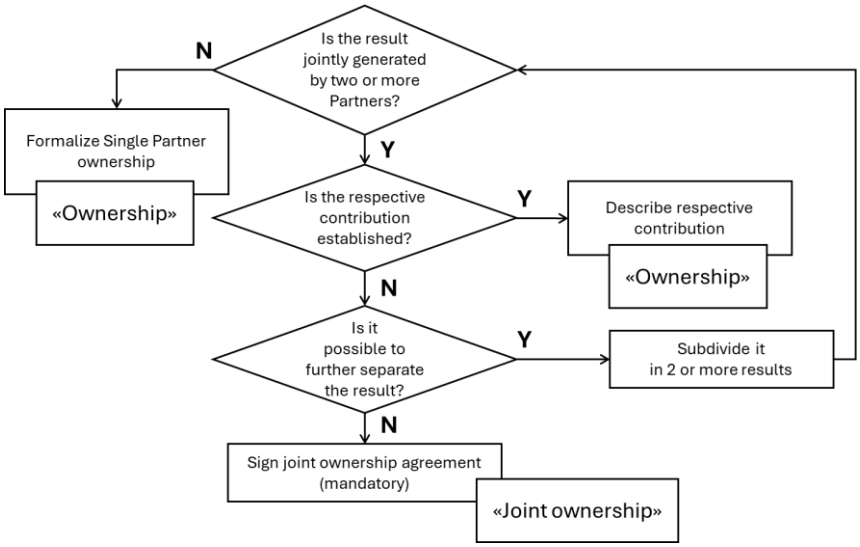

Figure 3 - Process to establish results ownership (source: ES)

The output of this activity will provide an agreed upon list of the (sub)results and their respective ownership. In case of single partner ownership (Foreground), no further action will be required. In case of joint ownership, to ensure compliance with their obligations under the Grant Agreement, the joint owners must agree — in writing — on the allocation and terms of exercise of their joint ownership ('joint ownership agreement'). The following table will be populated accordingly.

Table 3 - Summary of results ownership (F = ownership, J = joint ownership)

Partner / Exploitable result.subresult	1 SIMAVI	2 ES	3 IMT	4 IAO	5 AU	6 HWR	7 TRONICO	8 AIRNUS	9 DAO	10 CONTI	11 IED
1	F, J										
2											
3											
6											
7											
9											
10											
11											
12											

3.3 IP protection strategy

Intellectual property is defined as legal rights granted to people to protect their ideas (European Commission, Glossary, 2025). Such rights represent intangible rights protecting the products of human intelligence and creation, such as copyrightable works, patented inventions, trademarks, and trade secrets. They include industrial property rights (e.g. patents, industrial designs and trademarks), copyright (rights of the author or creator) and related rights (rights of performers, producers and broadcasting organisations).

Table 4 - general framework for results protection strategy identification (source: ES)

	«Unregistered rights»	**«Registered rights»**	**«Intellectual assets»**
Examples of results in this category	• Software codes • Databases	• Method • Models • Process / process technology • Service / service technology • Prototypes & pilots	• Know-how • Trade secrets • Confidential information
Status of the right/asset at the moment of result creation	These Authorship rights exist from the moment the works are created	Their inventor, creator or designer has no rights until they make a registration	These Authorship rights exist from the moment the works are created

Applicable protection strategies (sample)	As Authorship proof can be difficult to uphold, in some countries they can also be registered	Rights registration. Other Parties can check if these rights exist, and who owns them, by looking at the register	As Authorship proof can be dificult to uphold, in some countries they can also be registered
Resulting form of IPR or protection	IPR: Copyright, Database model	IPR: Patent, Utility model	NDA, (Restrictive covenant in employment contracts)

Each Partner(s) will identify the appropriate protection strategy for the owned or jointly owned (sub)results. Protection strategies will guide each Partner identify how to transition, as deemed necessary, the results into actual Intellectual Property rights. Table 4 provides a framework to support the future discussion over this topic. The selected protection strategies will collected and listed as a section of this paragraphs in the final version of this deliverable.

This step will also assist the Consortium fulfilling the Results Ownership List requirements as part of the Results questionnaire section of the final project report. To this end, only results of type PROD - Product (new or improved), SERV - Service (new or improved), PROC - Industrial process (new or improved), BUS - Business model (new or improved), DSG - Design (new or improved), METH - Method, material, technology or instrument (new or improved) will be identified and listed.

4 Exploitation roadmap

The exploitation roadmap provides a structured sequence of steps designed to support the Beneficiaries implementation of the obligations regarding results exploitation, as defined in Article 16 and Annex 5 of the ACCURATE grant agrement. In particular Partners must use their best efforts to exploit their results directly or to have them exploited indirectly by another entity, e.g. through transfer or licensing of the result.

In the context of Horizon Europe, Exploitation is defined as " to make use of the results produced in an EU project in further activities (other than those covered by the project, e.*g. in other research activities; in developing, creating and marketing a product, process or service; in standardisation activities*)" (European Commission, Glossary, s.d.). Accordingly, the first exploitation step requires collecting and describing the exploitation intentions of each Partner, in order to ensure that each result will be exploited.

The second step requires the preparation of exploitation strategies and plans. The provisional exploitation routes described in the proposal will be assessed, considering newly available information regarding trends in market and technologies, competition, etc.

The third step requires the formulation of exploitation plans. This will be done at individual Partner level, as group of partners e.g. for joint owned results, and as the consortium as a whole. The plans will be described as individual paragraphs. This activity includes the revision of the ACCURATE Business Plan presented in the project proposal.

4.1 Exploitation intentions

This step requires collecting and describing the exploitation intentions of each Partner. The objective is to ascertain that one or more exploitation intention is identified for each result. For each result, exploitation intentions include:

- Developing, creating and selling the individual result (**M**ake)
- Using the result internally to make something else (**U**se). This option applies also to universities and research institutions willing to exploit the result in future research and education activities.
- To transfer or license the results to 3rd parties (**L**icense)
- To exploit the result to provide services such as consultancy, etc…(**O**ther)

Accordingly, the following table will be populated.

Table 5 - Summary of exploitation intentions by Partner

Partner / Exploitable result.subresult	1 SIMAVI	2 ES	3 IMT	4 IAO	5 AU	6 HWR	7 TRONICO	8 AIRNUS	9 DAO	10 CONTI	11 IED
1	M, U, L, O										
2											
3											
6											
7											
9											
10											
11											
12											

4.2 Exploitation strategies

This activity will start from the exploitation strategies that have been defined in the project proposal. Newly available information regarding trends in market and technologies, competition, etc. will be described in this chapter. As such, this chapter will specifically collect the contribution of T8.3.

Provisional exploitation strategy by Partner as defined in the DOA are listed in Table 6 below.

Table 6 - initial exploitation strategies in the ACCURATE DOA

SIMAVI	SIMAVI's goal is to develop and provide specific DSS and MAAS solutions in the industry 4.0 sector. As the exploitation will be based on the actual needs of professionals, markets and decision makers, the totally new approach of the information system is the driving force to guarantee a professional and successful exploitation of the project results. The newly developed solution will strengthen SIMAVI's position in the ICT market and will allow the organization to approach a new market niche.
ES	ES will target the further development, industrialization and marketing of ACCURATE results, with

	a focus on DSS, MAAS and DTs solutions. To this end, ES already provides digital manufacturing solutions to the European market, developing technological elements of a solution for the integration and deployment of manufacturing systems simulation-based DTs. Furthermore, ES will engage in the ecosystem successful implementation.
IMT	IMT will use the tools developed under ACCURATE to demonstrate the effectiveness of data-based decision-making in the industry. IMT will leverage its strong relation with the pole EMC2 competitiveness cluster to develop collaborations with regional manufacturing industries. Especially, the decision support system for resilient supply chain design, planning and stress test (KER 4) can be exploited regionally (EMC2), but also through the EDIH DIVA in which IMT acts as a cutting-edge technologies provider. IMT targets at least 6 high factor publications during ACCURATE lifetime.
IAO	IAO intends to realize ontologies as semantic representations of corporate knowledge in industrial collaborations, in addition to gaining scientific knowledge. As a research and consulting institute, IAO acts as a bridge to the local economy and due to the modular conception, many companies of different sectors and sizes can be reached beyond the project. The project findings are also utilized in courses, lectures, trainings, and publications.
AU	AU will exploit the tools developed in ACCURATE through its position as a knowledge provider to manufacturing companies in the region. AU plans to offer knowledge and consultation services to large manufacturers as well as SMEs in Denmark and EU for implementing more resilient MAAS value chains. AU will also exploit ACCURATE results by integrating them into coursework in the Mechanical & Electrical Engineering programs, linking 3+ BSc. and MSc. thesis projects. AU will also train 2+ Category B researchers and produce at least 3 conference publications and 3 journal publications.
HWR	HWR will use the DTs for supply chain stress testing to demonstrate opportunities and advantages of using data driven DSS in industry. The DSS for resilient supply chain design, planning and stress test will be utilized in regional industrial projects. The project findings are also utilized in courses, lectures, trainings, and publications since it is closely interlinked to the M.A. Global Supply Chain and Operations Management at HWR. HWR targets at least 6 publications in high factor impact journals and proceedings conferences during ACCURATE lifetime project.
TRO	TRONICO will use the DT solution and technological bricks developed under ACCURATE to help holistic scheduling and re-scheduling in real-time from upstream to delivery (for more resilient, sustainable SC and production chains), to improve human decision-making as well (e.g. adding relevant decision variables, better comprehensive approach of impacts and risks, suggestions of preventative actions) according to the various scenarios simulations performed, when facing unforeseen or disruptive events on short and long-term.
AIR	AIRBUS will use the tools developed under ACCURATE to test data-based decision-making in the overall value stream mapping about plant localization but also in terms of make or buy policy. This decision-making will be based on the sustainability answer when confronted with short/long term events scenario that may affect AIRBUS production plan.
DAO	DAO will concentrate on exploiting the ACCURATE project results by gathering industry-specific requirements to extend its current product and service offerings. These efforts will be directed towards developing enterprise-focused features to extend its open-source software stack. By leveraging the project's outcomes, The individual exploitation strategy will involve the continuous enhancement of its decentralized data space solutions, incorporating the project's advancements, and promoting them in targeted industries like Industry 4.0 and Mobility.
CONTI	CONTI will be able to start new research lines that allow the development of follow-up research ideas and projects. The exploitation of the results in the industry 4.0 community will be used use of the created knowledge to expand the excellence in the overall activity.
IED	IED will leverage ACCURATE's results and promote them in targeted industries, which already constitute part of the ecosystem of JOIST Innovation Park (JOIST hosts iED). Based on the IPR

	management, the products and services will be further exploited at JOIST's marketplace (it sells at international level).

Each Partner's identified exploitation strategy will be revised and summarised by a dedicated paragraph. Additional details will be provided for each market-oriented exploitable result, i.e. results identified as Make or License in Table 5. To this end, Table 7 provides below the proposed template to summarise the exploitation strategies for each result. Such information will be updated taking into consideration the output of the activities in the previous and following steps.

Table 7 - Template for exploitation strategy summaries

Key Exploitable Result No xx: title **Rapporteur:**	
If applicable list the sub-results in scope of the strategy, else write "entire result"	
Describe the innovation content of result	
Who will benefit from the results (the recipient, user or customer)?	
What benefit will it bring?	
When is the expected date of achievement in the project (month/year)?	
When is the time to market (month/year)?	
What are the costs to be incurred after the project and before exploitation?	
What is the approximate price range of this result / price of licenses?	
What is the market size in M€ for this result and relevant trend?	
Who are the competitors for this result?	
How will this result rank against competing products in terms of price / performance?	
How fast and in what ways will the competition respond to this result?	
Who are the industrial partners interested in the result (partners, sponsors, etc.)?	
Have you protected or will you protect this result? How? When?	

4.3 Exploitation plans

This chapter will be compiled until M36. It will describe the specific plans devoted for exploitation of the ACCURATE results. The exploitation components will pave the way for a coherent and detailed Business Plan, that takes into consideration results ownership, Partners intentions and strategies and efficient pathway for exploitation.

Exploitation plans, according to the consensus reached, will be detailed per Partner, group of Partners in case of joint ownership. finally, the vision on exploitation of the Consortium as a whole will be provided, starting from the multi-sided business model drafted in the ACCURATE DOA.

4.3.1 Individual exploitation plans

In this chapter, each Partner's individual exploitation plans will be summarised. The information provided will follow the template provided below.

Partner XX

Scope and objectives of the exploitation

This paragraph will identify the result(s) that will be exploited individually by the Partner. Furthermore, details will be provided regarding the objectives of the exploitation, e.g. regarding use, applications or target markets.

Preliminary activities

This paragraph will collect the activities carried out during the action period in preparation to the exploitation.

Exploitation plan

This paragraph will provide details on activities planned after project end for the exploitation.

4.3.2 Joint exploitation plans

In this chapter, each group of Partners jointly owning a result will summarise the corresponding exploitation plan. The information provided will follow the template provided below.

Partners XX, YY

Scope and objectives of the exploitation

This paragraph will identify the joint owned result(s) that will be exploited by the Partners. Furthermore, details will be provided regarding the objectives of the exploitation, e.g. regarding use, applications or target markets.

Preliminary activities

This paragraph will collect the activities carried out during the action period in preparation to the joint exploitation.

Joint exploitation plan

This paragraph will provide details on activities planned after project end for the joint exploitation.

4.3.3 Consortium as a whole exploitation plan

This paragraph provides a preliminary update of the exploitation plan provided in the ACCURATE DOA and of the actions that will be carried out in the period M19-M36. The content of the consortium exploitation plan will be expanded and revised until M36.

While exploitation of individual results traditionally relies on single-sided and B2B business models that will be described in the individual and joint exploitation plans, this chapter will focus on the exploitation of ACCURATE results as a whole, elaborating an expanding the multi-sided business model described in the DOA. In particular the Consortium will focus on the exploitation of the ACCURATE ecosystem as a collector and enabler of the collective and synergistic exploitation, reflecting the federated and collaborative nature of project results.

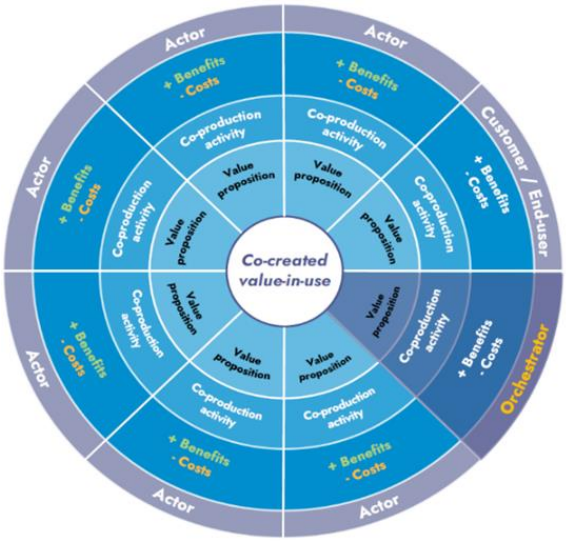

Figure 4 – multi-sided business model (source: (DSSC, 2023))

The challenge in making this work is, indeed, organizational rather than technical. Creating substantial value requires consensus through converging interests and collaborative efforts from multiple users and organizations. Therefore, the ACCURATE consortium exploitation plan will elicit and substantiate the expected value that results will provide to different stakeholders.

Table 8 provides a list of potential stakeholders subdivided into main groups: manufacturing and logistics companies (OEMs, TIER1 and TIER2 suppliers, MAAS suppliers, logistic services providers, materials suppliers), service and solutions providers (e.g. providers of ERP, MES and other ICT solutions and services), operational technology providers (automation providers, system integrators), ecosystem providers and validators. It also provides details regarding prospective ACCURATE services customers and users that will be using with the ACCURATE digital tools. The open and federated nature of the ACCURATE ecosystem will attract additional stakeholders and Value Propositions, in line with the ecosystem governance, enabling value co-creation. The consortium aims to identify and describe value propositions appealing to each of the identified groups and stakeholders: each stakeholder needs will be further detailed, and the corresponding ACCURATE unique selling points (USPs) identified.

Table 8 - summary of ACCURATE stakeholders

Group	Stakeholders	Needs	ACCURATE USPs
Manufacturing (OEMs, TIER1, TIER2,…) and logistics companies	Owners, CEOs	Business resilience, sustainability, growth	Stress test the SC and value chain and provide performance, resilience and sustainability indicators. Full capacity / capabilities exploitation
	SC managers / planners	SC viability / efficiency, preventing / managing SC disruption, reduce cognitive stress	Identify and evaluate criticalities. Support decisions, enact actions
	Production managers / schedulers	Managing / adapting to disruption, productivity and quality assurance, reduce cognitive stress	Enable synergetic value chain adaptation in response to disruption. Support decisions
	Technicians / operators	Reduce cognitive stress, overtime, redundancies. Secure employment	System adaptation leading to reduced stress. Mitigation of events' impacts on work/life balance and employment
	ERP, MES providers	Integration of Industry 4.0 / 5.0 approaches and technologies	Open ecosystem providing access to data and stakeholders. New business models, open

Service and solutions providers			services fostering new value propositions and innovation
	Simulation / DT providers	Scale the proposed solutions, standardisation	Open, standard-based ecosystem providing access to data, stakeholders, and open services (e.g. semantic)
Operational technology providers	Machines, system integrators	Need to raise flexibility and adaptability, implement MAAS	Federated MAAS framework, orchestration and optimization, seamless DTs integration
Ecosystems providers and validators	Software and service providers	Assure ecosystem openness and rapid growth. Prevent dominant positions in ecosystems	Open ecosystem with transparent governance. Marketplace for embedded and offline services

Exploitation will bring together the technical developments of the project, as well as the operating and market experience of the whole Consortium, combining Partners' individual knowledge and potential to go to market, therefore the exploitation plan will integrate different approaches and artifacts to outline economic viability strategies.

The outcomes of these activities will be summarised in different ways, e.g. by applying SWOT analysis, Value Proposition Canvases, Business Model Canvases. Detailed value propositions will be developed through surveys and one-on-one interaction with the identified Stakeholders. Such work will provide a sound basis for development prioritization (post-project, towards TRL7 and 8) and marketing differentiation.

5 Conclusions and future work

The primary objective of this deliverable is to establish a comprehensive framework for managing and exploiting intellectual property (IP) within the context of the ACCURATE project. This involves implementing the IP&ER methodology, which supports project beneficiaries in fulfilling their obligations regarding intellectual property rights and the exploitation of research results, as outlined in the Horizon Europe grant agreement. The process includes identifying, protecting, and managing the ownership of project results (foreground), as well as developing clear strategies for the got-to-market or other exploitation routes of these results. By aligning with the IP management and exploitation guidelines in Horizon Europe, the Consortium ensures that exploitable results are captured, assessed, protected, and ultimately brought to market or otherwise utilized to achieve maximum impact.

In addition to managing IP, the work aims to foster collaboration and consensus among project partners through structured roadmaps. These roadmaps guide the identification and protection of results, while also providing a pathway for creating exploitation strategies that account for market trends, competition, and technological developments. The exploitation plans are developed at multiple levels—individual partners, joint ownership groups, and the consortium as a whole—ensuring that each result is optimally exploited. This holistic approach ensures that the project maximizes the commercial potential of its outcomes, while aligning with the broader goals of Horizon Europe to drive innovation, commercialization, and societal impact.

The following point summarise the future work the Consortium will undertake during the next reporting period towards the final version of this deliverable (D8.4).

- Delivery of the internal workshop on IP&ER;
- Review of Key Exploitable Results (KERs) descriptions and sub-results identification;
- IP Ownership definition and consensus;
- Develop of Joint Ownership Agreements as required;
- IP Protection strategies definition and approach selection;

- Drafting of the Results Ownership List in preparation of the final report;
- Assessment of Partner's exploitation intentions;
- Preparation of Exploitation Strategies and Plans;
- Development of Exploitation Plans at individual partner levels, as a group of partners, or collectively for the consortium.

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