



» DELIVERABLE D7.5

Exploitable results and exploitation activities (Year 1)

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DISSEMINATION LEVEL

Abbreviation	Meaning	
PU	Public, fully open (Deliverables flagged as public will be automatically published in CORDIS project's page).	[X]
SEN	Sensitive, limited under the conditions of the Grant Agreement.	

LIST OF ABBREVIATIONS

Abbreviation	Meaning
AC	Adaptive concept
EAB	External Advisory Board
FES	Front-end structure
IB	Innovation Board
KER	Key Exploitable Result
EoL	End-of-life
KPI	Key Performance Indicator
SWOT	Strength, Weakness, Opportunity, Threat
WP	Work Package

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1. EXECUTIVE SUMMARY

SALIENT aims to improve automotive safety in roads by improving the performance of front-end structures (FES) using three adaptive concept (AC) solutions. To do so, the methodology of the project comprises three phases: a first one working on the optimized eco-design, materials development, and manufacturing process related to FES; a second phase that would carry out the prototyping work of the adaptable FES; and a third one for virtual and physical testing. In principle, the three phases would allow to deliver 12 key exploitable results (KERs) which were identified at proposal stage. The task 7.2 on “Exploitation and IPR Management” focus on developing a suitable exploitation plan for the most promising KERs so the SALIENT consortium is guided towards a viable exploitation strategy. The monitoring of KERs development is supported by the Innovation Board (IB) meetings that happen every three months as part of Task 8.5 on “Innovation Management”. Three deliverables will be elaborated to report the results of T7.2 and the present document at Year 1 describes the process that will be followed to do so as well as the first outcome of such process. In this sense, the exploitation strategy of SALIENT results will be based on the EXPLOITT® methodology developed for H2020 and validated by the European Commission. EXPLOITT® is a methodology for industrial exploitation and take-up developed by IK4-IDEKO in the FOCUS EU-Project. The methodology is based on four phases: A) technology assessment, B) business plan, C) competitive intelligence activities and D) clustering activities. Due to the nature of SALIENT, phase D is excluded from the analysis. Phase A on technology assessment is integrated by two parts. The first one addresses the technology identification, in which project results are identified, further characterized and later on prioritized. A second part focus on evaluating the technologies behind the most important KERs. The identification of results is done on the basis of the 12 KERs identified at proposal stage and the further characterization is done for those with a potential to be exploited by using specific templates that were shared with the SALIENT partners. After the characterization, all partners will participate in an upcoming workshop in which a prioritization exercise is done based on the innovativeness of the result, exploitability level, and the impact in industry. The 3 to 5 most important KERs will be fully evaluated with regards ground identification, contribution-benefits matrix, patents analysis, competitors’ analysis, market research, IPR and exploitation claims, standardization process, and risk assessment. After this evaluation, dedicated business plans will be developed in close collaboration with Task 7.5 on “Market Acceleration, Competitor Research and Business Modelling”. The version of this deliverable at M24 and M36 will include the findings arising from the prioritization exercise and the further business models creation.

2. INTRODUCTION

Introduction to SALIENT and its expected results

The long-term aim for SALIENT is to make our roads safer and reduce serious injuries and fatalities. To reach this ambition, SALIENT is currently working on developing novel structural and vehicle concepts that are safer, lighter, circular, and smarter, which can be adapted to accommodate different crash scenarios.

To do so, SALIENT focuses on innovating new technologies and will develop, demonstrate, and validate the effectiveness of a light front-end structure (FES), considering eco-design and circular economy principles, to enhance vehicle safety.

The project adapts advanced lightweight materials, improved manufacturing and joining techniques, innovative circular design, and emerging active safety technologies to develop a smart FES with high energy absorption capability. The smart FES will be able to adapt (prior crash events) with future mixed traffic scenarios to meet or exceed future vehicle demands in terms of safety, structural integrity, crashworthiness, and compatibility. Three different adaptive concept (AC) solutions will be developed, using the new smart FES, namely:

- AC1: Adaptable materials stiffness (e.g., smart materials/SMAs)
- AC2: Control crash load paths and.
- AC3: Inflatable/pressurized structural elements (AI).

The AC solutions will be investigated separately, and the designed solution in the FES will be activated based on the information received from the ADAS system with a clever control unit.

Besides the technological developments of the project, SALIENT will build a pathway for the newly accumulated strategic knowledge to impact EU industries (e.g., automotive) and society. Its ambition is to create global impacts and to play a key role to support EU strategic needs, and economic and societal challenges.

In terms of partnership, the SALIENT consortium comprises 12 partners from 5 EU member states and 2 associated countries (UK and Turkey). Their composition and roles are summarized in Table 1.

Table 1 - SALIENT's partnership

Partner	Role in SALIENT
Fundación para la Promoción de la Innovación, Investigación Y Desarrollo Tecnológico en la Industria de Automoción De Galicia (CTAG)	Project coordinator; Eco-design of the FES structure; development of end-of-life (EoL) and mechanical recycling solutions; Support adaptable FES concept (AC3)
Centro Ricerche FIAT SCPA (CRF)	End-user OEM; Risk and quality management; Technical requirement identifying; Joining, bonding

	and assembly technologies; Support adaptable FES concept (AC1)
Fraunhofer Gesellschaft zur Foerderung der Angewandten Forschung E.V (FRA)	Open sciences and data management; Hybrids material development (Thermoplastic composites + metals), optimization and manufacturing technologies, prototyping; Support adaptable FES concept (AC1,2,3)
University of Northumbria at Newcastle (UNN)	Scientific/technical management; Modular design strategy; LCA/LCCA; Modelling/simulations; Optimization; mechanical testing; Support adaptable FES concept (AC1,2); actuators for AC1,2
Virtual Vehicle Research GMBH (VIF)	MSE build up; Full scale vehicle simulation; Material/joint failure modelling support; Crash and compatibility analysis
Fundación CIDAUT (CID)	Design optimization, mechanical testing coupon and component levels; Full crash tests; Support adaptable FES concept (AC3) and its actuators.
thermoPre Engineering (tPE)	Thermoplastic-based composites material development, optimization and manufacturing technologies; Prototyping
IDIADA Automotive Technology S.A. (IDI)	Simulations and optimization of components; Validation and Compatibility assessment; Standardization
IPG Automotive Ltd (IPG)	ADAS technical requirements identification; ADAS sensing system for crash detection; Design of CAN signal structures
ASAS Aluminyum Sanayi Ve Ticaret Anonim Sirketi (ASAS)	Aluminum alloys material development, optimization manufacturing technologies; Prototyping
Etelätär Innovation OU (ETE)	Determination of traffic accident scenarios and crash configurations; Dissemination; communications; Economies of Scale; Marketing accelerations; Business model
BAX Innovation Consulting SL (BAX)	LCA, Innovation support and management; Exploitation and IPR; Liaising and clustering activities

SALIENT's methodology focuses on delivering results in terms of technologies and materials in three phases:

- Phase 1: Optimized eco-design, materials development, and manufacturing process. During this phase, SALIENT partners will work on lightweight design and optimization, materials development and efficient manufacturing and assembly.
- Phase 2: Prototyping of adaptable passive safety. This phase includes working on the prototype development and its further evaluation, based on the materials and manufacturing processes addressed in the first phase.
- Phase 3: Virtual and physical testing and assessment of prototype in mixed traffic scenarios. At this third phase the SALIENT consortium will work on the virtual and physical testing of prototypes towards validating the technologies involved in the previous phases.

Key Exploitable Results identified at proposal stage.

A Key Exploitable Result (KER) is an identified main interesting result, which has been selected and prioritized due to its high potential to be “exploited” and therefore make use and derive benefits- downstream the value chain of a product, process or solution, or act as an important input to policy, further research or education. The European Commission, through its Horizon Results Platform, suggests to select and prioritize results according to the following criteria: degree of innovation, exploitability and impact¹. In this sense, the three phases of the SALIENT methodology allowed to identify 12 KERs at the proposal stage (Table 2). Each of the KERs involves an owner or several ones, with a related work package (WP) and expected starting month according to the Gantt of the project.

Table 2 - SALIENT's KERs identified at proposal stage

KERs (Owner)	Owner(s)	WP	Starting month
KER1 New multi-parameter design optimization tool	UNN	WP2 (T2.4)	M12
KER2 Novel vehicle FES design (BCFES)	CRF	WP2 (T2.2)	M6
	CTAG		
	UNN		
	FRA		

¹ Bulletin No. 4 of Horizon Europe: European IP Helpdesk. Available online in <https://intellectual-property-helpdesk.ec.europa.eu/system/files/2022-02/HEU%20Results%20platform.pdf>

		CID			
KER3 Novel adaptable FES concept designs	AC1	UNN	WP2 (T2.2)	M6	
		CRF			
		FRA			
	AC2	UNN			
		FRA			
	AC3	CTAG			
FRA					
CID					
KER4 Novel algorithm for critical incident detection		IPG	WP2 (T2.3)	M9	
KER5 Novel TrM systems for ACFES adaptation		CRF			
		FRA			
KER6 New lightweight materials		UNN	WP3 (T3.1, T3.2, T3.3)	M6	
		Al alloy			ASAS
		Recyclable CFRP prepregs			tPE
		Hybrid			FRA
					tPE
ASAS					
KER7 Improved manufacturing process	Metals	ASAS	WP3 (T3.4)	M12	
	Composites	tPE			
	Hybrids, 3DP	FRA			
KER8 Improved joining, bonding and assembly technologies		CRF	WP3 (T3.5)	M15	
		CID			
KER9 Material modelling and simulation tools		UNN	WP3	M6	
		VIF			

KER10 Product of BCFES/ACFES demo	CRF	WP4 (T4.2)	M24
	FRA		
	UNN		
	CID		
	tPE		
	ASAS		
KER11 LCA tools and economic model for LCC	UNN	WP2 (T2.1)	M3
KER12 Improved circularity process and effective solutions recycling and recovery	CTAG	WP6 (T6.4)	M30

The start of development of the above-mentioned KERs identified at proposal stage has been monitored regularly from M3 at the Innovation Board (IB) meetings that took place every three months as part of Task 8.5 on Innovation Management. Most of the KERs started being developed after M6, except for KER11. At the moment of writing the present report many of the KERs were in course of development while others have not started yet (e.g., KER1, KER7, KER8, KER10, and KER12). After M9, BAX and the rest of partners focused on validating the KERs at proposal stage with the actual implementation of the project in order to identify variations and act accordingly. This process and the methodology selected for carrying out a suitable and effect.

3. AIM OF THE DELIVERABLE

The Task 7.2 on “*Exploitation and IPR Management*” aims to develop an exploitation plan for the most promising KERs to guide the SALIENT consortium towards a viable exploitation strategy.

First, an accurate analysis of the project key results which has commercial/social significance and can be exploited as stand-alone product, method, tool, service, etc. will be carried out after the first year of the project. This analysis is made based on the KERs identified at proposal stage (Table 2).

Subsequently, full characterization of each KER will be performed by identifying the main owners, the other partners involved, the innovation content of each result, the customers as well as the benefits brought to them, the competitor and the main competing products (an accurate patent analysis will be carried out too), the specific protection measures undertaken and so on. An accurate risk assessment will be performed for each KER. During the project, an IPR management strategy will be identified and regularly updated by the IB, chaired by BAX and formed by all members of the consortium.

Task 7.2 is led by BAX and counts with the participation of all partners. It runs from M9 until the end of the project at M36. The task will generate 3 versions of the related exploitation deliverable:

- D7.5 Exploitable results and exploitation WP7 activities (Year 1):
- D7.8 Exploitable results and exploitation activities (Year 2)
- D7.12 Exploitable results and exploitation activities (Year 3)

The annual reports will include the identification and definition of exploitable outputs and results of the project and their related business models for ensuring a successful market readiness stage beyond the project's completion (> 2025).

This first annual version at M12 (D7.5) aims to describe the background and context of the exploitation Task 7.2 and the methodology that will be followed for developing an appropriate commercial exploitation strategy for the most important results of the project. The link to the innovation management activities of T8.5 will be also described alongside the role of the External Advisory Board (EAB) that will contribute to ensure the industrial relevance of the KER.

The second version of the deliverable (D7.8) at M24 is expected to present the characterization of KERs following the methodology as well as the prioritization exercise that will be done with partners at M13.

The third and final version (D7.12) will focus on presenting the business models for the critical KERs selected by the partners which will allow validating and expanding the preliminary exploitation strategy presented at proposal stage and act as backbone for T8.5 for innovation management.

The exploitation of results will be supported by T8.5 on Innovation Management, which will complement the SALIENT partners' own exploitation efforts, and provide support, as well as industry outreach opportunities to improve the alignment of research and exploitation with the goals and preferences of industry (EAB).

This task's activities raise innovation output and include engaging and coordinating the demo developer, ensuring that their activities contribute to the identification of innovation opportunities for the project; representing innovation issues in the SC, recurring meetings with the EC and key stakeholders within and outside the project; IP Policy development and implementation; including dissemination and mechanisms.

Task 8.5 includes the development of strategies for achieving these goals from industry, leading to recommendations on hands-on innovation support actions:

- Raising EU value chain capacity in priority (light, safe and circular vehicle structures) application areas (e.g., start-ups, knowledge transfer and collaborations);
- Attracting and directing EU financing to high-potential development areas.
- Identifying and recommending industrially relevant materials and products for development and technology transfer; and supporting partners in building a competitive profile (knowledge, IP, technology, etc.) globally.

The present D7.5 describes the methodology that will be used to develop the exploitation strategy of the SALIENT’s project results as well as the plan ahead to ensure a successful commercial uptake after the projects’ completion, which will be further describes in D7.8 and D7.12.

4. METHODOLOGY

The exploitation of results will be done by adapting the EXPLOITT® methodology developed for H2020 and validated by the European Commission². EXPLOITT® is a methodology for industrial exploitation and take-up developed by IK4-IDEKO in the FOCUS EU-Project. This guided process is divided into three main parts: process for the development of an exploitation plan and take-up, process for the design and implementation of a competitive intelligence system, and clustering activities. The aim of this methodology is to develop a preliminary business plan and help carry out the take-up. The methodology consists of four main phases: technology assessment, business plan, competitive intelligence activities and clustering activities (Figure 1).

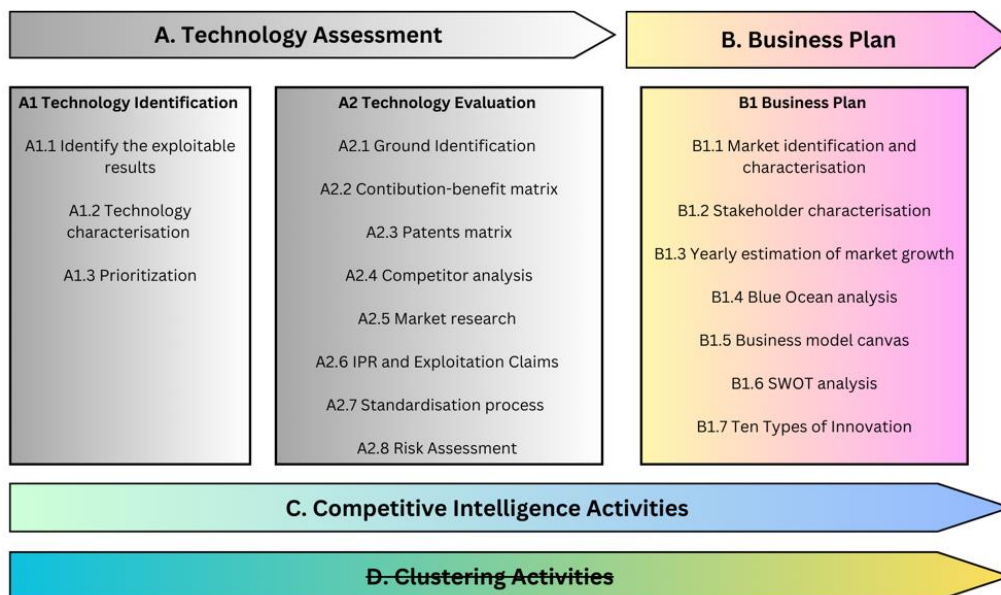


Figure 1- Methodology for exploitation & take-up

² EXPLOITT® methodology for industrial exploitation & take-up, extracted from FOCUS H2020 project (contract No: H2020 FoF-7-2014 – 637090). Available online in www.focusonfof.eu and the corresponding deliverable (D2.2) in <https://cordis.europa.eu/project/id/637090/results>

On the first phase (A), **technology assessment**, the exploitable results of the project and their potential to be commercialized in the market are identified. First of all, the identification and the characterization of the exploitable results are made, taking into account potential customers, added value and the preliminary costs estimations. To finalize the phase A, the prioritization of the technologies is essential to be done. After all, the key exploitable results are identified and selected. Then, the next phase “**technology evaluation**” will take place. The results are analysed in the following aspects: market research, competitors, IPR assessment, standardization, regulations, etc. After the technology assessment, the business plan is carried out with the objective to develop a preliminary business model of the most interesting key exploitable results. The phases A1 (Technology Identification) and A2 (Technology Evaluation) will be applied in SALIENT with slight modifications, as it is described below (the detailed description is shown in the annex part).

Technology assessment (A) includes two phases:

- Technology Identification
- Technology Evaluation

Technology Identification (A1) is the phase where exploitable results are identified, characterized and prioritized.

- On this phase, partners *identify* the exploitable results and *characterize* them. For identifying the project results, a dedicated template is created with the following information: the exploitable results title, potential and level to be exploited, and the partners involved (Annex 1). Each partner contributes to this part by taking as baseline the results mentioned at proposal stage. The goal of this phase is to identify the results that will be prioritized at the later stage. As not all project results are meant to be exploited successfully, it's essential to identify the exploitability level and their benefits. The template for the identification of project results was shared with all partners by BAX in M10. The submitted results are presented in the section 4 “Identified Results”.
- Once the exploitable results are identified, their technology characterization is carried out. For each exploitable results a detailed *characterization* table is completed (Annex 2) by the SALIENT partners involved in each identified result.
- Based on the identification and characterization stages, the results are further prioritized in a dedicated workshop. The main objective of *prioritization* is to facilitate the selection from among all the exploitable results those which are most interesting and most feasible for turning into exploitable results or products. The *prioritization* of the results will take place in the form of a workshop at the General Assembly in Turin in M13. The detailed information of the workshop is explained in the “5. Plan Ahead” section “Prioritization workshop”. The selected results will be prioritized using scores based on the following criteria: innovativeness of the result, exploitability level, and the impact in industry. The KERs will be prioritized based on the weighted scores from the partners. The evaluation of the most important exploitable results is performed after.

Technology evaluation consists of eight phases that require a deep analysis: ground identification, contribution-benefits matrix, patents analysis, competitors' analysis, market research, IPR and exploitation claims, standardization process, and risk assessment. To carry out the technology evaluation, the top 3 KERs will be selected from the prioritization results

due to the complexity of the following processes and taking into account that in many EU projects, technologies developed are pre-competitive technologies.

- This phase starts with the exploitable result *ground identification* to determine how project KERs will be exploited. It will be followed with the contribution-benefits matrix, which is based on the cooperation amongst partners and on the common wish for a solution.
- Each project partner should introduce and share its *contribution-benefit matrix* for further discussion.
- *Patent analysis* assess the state-of-the-art, and demonstrating how the results go beyond this in terms of innovative, scientific and/or technical quality.
- Then the *competitor analysis* is done to have a global vision about who are the main competitors and what are their characteristics and their products.
- It is followed with the *market research*, to know existing demand or business volume of three selected KERs for technology evaluation.
- Then, *IPR and exploitation claim's* part focuses on the different agreements that can be used for knowledge transfer purposes.
- To build the bridge between research and the market, a *standardization process* is conducted by enabling the fast and easy transfer of research results to the European and international market.
- Considering all this information, the last part is to analyze possible risks that can appear and jeopardize the exploitation of the selected KERs. This *risk assessment* chapter contains a risk matrix and risk priority map of the project and of each KER. The risk matrix includes all potential risks classified depending on the origin of the risk: partnership risk, technological risks, market risks, IPR risks, financial risks, or environmental risks. The priority map is an action tool oriented to analyze the most important potential risk factors to be faced and to identify and prioritize them.

For scaling up towards higher TRLs, SALIENT will emphasize the most appropriate paths for investments and funding instruments (private investors, business angels, venture capital public funding, industrial and governmental partnerships) and will extend business case analyses from the proposal phase to cover the entire value chain and regulatory environment, and to maximize the potential impact of the project with the EU. SALIENT will establish a dedicated business development team capable of negotiating and reaching agreements with targeted end-users at EU and international level and strengthen its international network to commercialize processes and products. SALIENT will present an optimal relationship between liquidity and profitability for a R&I project, which will confirm how SALIENT has an exploitation plan to execute it from the beginning (T7.2 and T7.5).

Part B “Business Plan” is linked to T7.5 Market Acceleration, Competitor Research and Business Modelling. The last task of WP7 focuses on establishing a comprehensive baseline of the current market situation and trends as well as other traditional KPIs of the existing market today (e.g., size, growth rate). Once the market has been characterized successfully, a

business model will be established, exploiting the competitive edge of the SALIENT solutions compared to existing competitors and offers.

This task will only start in M18 (February 2023), meaning that the following sub-sections briefly describe the intended methodology which the consortium will take to address this task and co-create meaningful exploitation strategies, outlining the intention for exploitation of different types (e.g., commercial, academic, societal, knowledge-wise).

MARKET ANALYSIS

In order to be able to estimate and evaluate the commercial potential and subsequently to develop an uptake strategy for the concrete market, it is important to take stock and deeply understand the needs of the customers, suppliers, competitors and the value of the existing products on the market and gaps in their offering (including functionalities or manufacturing techniques but also pricing or sales strategies) to see where innovation can take place and in which areas the SALIENT solution can demonstrate a competitive advantage.

This task will consist of several sub-tasks, which will take place one after another and build upon each other to gather a deep understanding of the market and its functionality:

- **Market identification and characterization:** defining the market and gathering knowledge and insight into its workings, mapping of existing offers and their value proposition, consumer data to understand purchase behaviours, manufacturing techniques.
- **Stakeholder characterization:** profiling of end users, customers, definition of the value chain and of key players both competitors and potential collaborators.
- **Yearly estimation of market growth:** estimation of market size and the annual growth potential.
- **Blue Ocean analysis:** A Blue Ocean analysis helps partners to map their solution against existing solutions by defining some core characteristics and evaluating the products available on the market already.

Once this analysis is done, the consortium partners and especially those who will be interested in replication, take-up or distribution activities should have gathered a deep understanding of the character and potential of the market.

BUSINESS MODELLING, OPTIMUM APPROACHES & SWOT ANALYSIS

Following the establishment of a solid inventory and baseline of the market landscape, adequate and effective business models will need to be elaborated. For this, several proven methodologies are applied to help the consortium members not only in characterizing and profiling the solution they are creating but also to highlight its eventual clear competitive edge in one arena or several at the same time.

For each of these methodological steps, the partners who own or contribute to a KER will be required to complete a short form, which will be prepared by SALIENT partner ETE and distributed to the partners in due time:

- **Business model canvas:** A traditional business model canvas contains all characterizing information of a business, making it a clear, simple, and compact overview. All partners should complete a business model canvas per KER when the development processes reach a final phase.
- **SWOT analysis:** complimentary to the canvases, an analysis of the **S**trengths, **W**eaknesses, **O**pportunities and **T**hreats of each KER are performed, which dives into more detail on the competitive advantage of the solutions. The analysis will help the consortium members in understanding which part of the offering should be highlighted at which moment and to which market segment.
- **Ten Types of Innovation:** Adding to the two previous exercises, a more innovative and playful approach is taken to complement the business model canvas and the SWOT analyses. The Ten Types of Innovation methodology presents finite areas (tactics) of innovation on any given product or service, which may be split into three phases: i) configuration of the product/service itself, ii) how the product/service is offered to the end customer, and iii) experience of the customer with the product/service (Figure 2). This exercise helps the consortium partners to identify areas of improvement and innovation which they may not consider automatically from a research perspective.

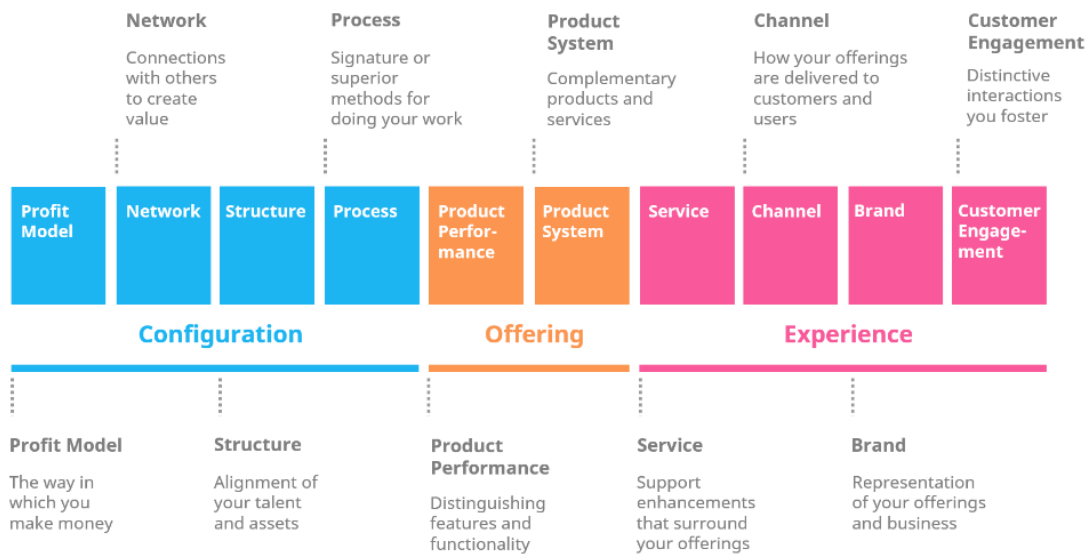


Figure 2 - Ten Types of Innovation methodology overview (Source: Keeley et al., 2013)³

³ Keeley, Larry; Walters, Helen; Pikkel, Ryan; Quinn, Brian. *Ten Types of Innovation: The Discipline of Building Breakthroughs* (2013)

Phase 3 **“Competitive Intelligence”** activities will be partially addressed in the SALIENT project, especially with the regards to the IPR management (patent surveillance) and potentially T7.3 on standardization (norms and standards surveillance). Therefore, we can say that this Phase C relates T7.2, T7.3 and T7.5 (e.g., competitor monitoring, monitoring market evolution). Phase C also talks about Monitoring other European projects approved on the same topics (liaison of T7.4).

Competitive Intelligence (CI) is an ethical, systematic and collaborative process, supported by specific tools for obtaining, analysing distributing and interpreting relevant information about a competitive environment that is transmitted to the executive of an organisation in order to generate an ideal context for taking decision. CI adjusts the course of developments based on what is happening in the competitive and technological environment associated with the project.

The next bullets summarise the key intelligence topics.

- Patent surveillance: it is necessary to study and monitor the state of the art related to performed research and the results to be obtained within the project.
- Norms and standards surveillance: the norms and standards relating to the developments must be known and changes must be monitored.
- Scientific articles surveillance: scientific and technological developments that may influence the project results.
- Competitor monitoring: knowing what products are placed on the market and their evolution can help decision making when bringing our developments to market.
- Monitoring other European projects approved on the same topics.
- Monitoring market evolution: it is important to know at all times whether market needs have changed or are being met from other emerging technologies.

Phase D **“Clustering Activities”** will be excluded from the exploitation plan as it’s out of the project scope and the technologies covered by SALIENT could be included in existing clusters for fostering business development.

The following timeline (Figure 3) is suggested till the start of the phase B “Business plan (T7.5), later on it will be updated with the phase C “Clustering Activities”.

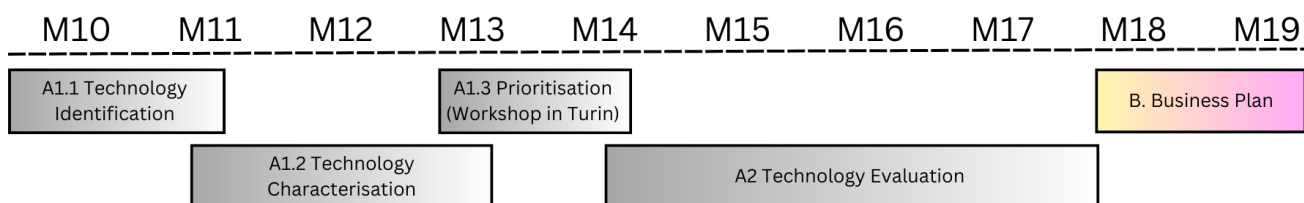


Figure 3 – Timeline prior till M19

External Advisory Board

The SALIENT External Advisory Board (EAB) has been successfully established. The board consists of a wide range of main car manufacturers and Automotive Tier 1 suppliers, covering many brands and makes to ensure an impartial and holistic uptake of the SALIENT solutions: Jaguar Land Rover JLR (United Kingdom), Volvo Cars (Sweden), Faurecia (Forvia) (France), Benteler Automotive Raufoss AS (Norway), Ford Otosan (Turkey), Farplas A.S. (Turkey). Its purpose is on the one hand an advisory role of the entire project and on the other hand serves in amplifying the dissemination and exploitation uptake to the industry (T7.2). The EAB should discuss relevance of KERs to the industry and any bottleneck or obstacle towards exploitation. This will be discussed in the EAB meetings every 3-6M. The EAB members can support or liaise with the consortium, for e.g., as speakers, facilitators, reviewers, or advocates.

5. IDENTIFIED RESULTS

BAX has shared the identification templates corresponding to the phase A1 with the SALIENT partners and the received inputs are presented in Table 3. The table will be updated with the inputs from IPG once these are received. The table represents KERs updated from the proposal stage with the partners involved and the exploitability level of each KER.

Table 3 – KERs of the project received from the partners (it will be updated with the inputs from IPG)

KER	Involved partners	Exploitability Level
Novel vehicle FES design (BCFES)	CTAG, CRF, UNN, FRA, CID	Highly exploitable
Novel adaptable FES concept designs (AC3)	CTAG, FRA, CID	Highly exploitable
Improved circularity process and effective solutions recycling and recovery	CTAG, tPE, ASAS	Moderately exploitable
Full characterization data for recyclable TP-CFRP	CID, tPE, CTAG, CRF, UNN	Moderately exploitable
Full characterization data for extruded Al6063	CID, ASAS, UNN	Moderately exploitable
FES crash testing results at component and assembly level	CID, IDI, CTAG, CRF, IPG	Highly exploitable
Induction welding trials on thermoplastic composites	CID	Weakly exploitable
Compatibility assessment results	CID	Moderately exploitable

Construction with hybrid components (aluminium, CF-PA6)	CTAG, ASAS, tPE	Moderately exploitable
Installation of a CFRP crash box in an aluminium surrounding structure	CTAG, tPE	Highly exploitable
Investigations into the joint strength of aluminium and CF-PA6	CID, tPE, ASAS	Moderately exploitable
Implementation of shape memory alloys in CF-PA6	UNN, tPE	Moderately exploitable
Novel TrM systems for ACFES adaptation	CRF, FRA, UNN	Moderately exploitable
Improved joining, bonding and assembly technologies	CRF, CID	Highly exploitable
Product of BCFES/ACFES demo	CRF, FRA, UNN, CID, ASAS, tPE	Moderately exploitable
New lightweight materials (aluminium)	ASAS	Weakly exploitable
New lightweight materials (hybrid)	ASAS, tPE, FRA	Highly exploitable
Improved manufacturing process	ASAS, CRF	Weakly exploitable
Developed series of novel materials modelling constitutive laws	UNN	Moderately exploitable
Developed methods for the quantification of uncertainty and model sensitivity	UNN, VIF	Moderately exploitable
Results from simulating both additive manufacturing processes and pultrusion process	UNN	Moderately exploitable
Innovative joining solutions, and on optimization of these joints	UNN, CID	Highly exploitable
LCA tool and a full set of analysis	UNN, BAX	Highly exploitable

LCC and economic analysis mode	UNN	Highly exploitable
Development of BCFES	CRF, CTAG, UNN, FRA, CID	Highly exploitable
Development of novel adaptable FES concept designs: AC1	UNN, CRF, FRA	Highly exploitable
Development of novel adaptable FES concept designs: AC2	UNN, FRA	Highly exploitable
Development of novel adaptable FES concept designs: AC4	IPG, CRF, UNN	Moderately exploitable
Development of multi-parameter design optimization tool	UNN, CID	Highly exploitable
Development of adaptative SMA/CFRP composites	UNN, tPE	Moderately exploitable
Development of enhanced manufacturing processes for embedding SMA into CFRP	UNN, tPE	Moderately exploitable
Estimated CAE (LS-DYNA) material card for extruded aluminum Al 6063 T6	IDI, ASAS	Not exploitable
Estimated CAE (LS-DYNA) material card for carbon fiber reinforced thermoplastic (CFRTP) PA6-CF48	IDI, tPE	Not exploitable
Final CAE (LS-DYNA) material card for extruded aluminum Al 6063 T6 (*experimental characterization in progress)	IDI, CID, ASAS	Highly exploitable
Final CAE (LS-DYNA) material card for carbon fiber reinforced thermoplastic (CFRTP) PA6-CF48 (*experimental characterization in progress)	IDI, CID, tPE	Highly exploitable
PA6-CF Tape (TP-CFRP)	tPE, CID	Highly exploitable
Material modelling and simulation tools	VIF, UNN, IDI	Moderately exploitable

6. PLAN AHEAD

Once the exploitable project results have been identified and characterized in phases A1 and A2 (Figure 1), the next step is to perform a prioritization exercise to select the most important KER of the project in order to evaluate them in-depth in the following processes. The next phase B of the project will focus on developing suitable business models in close alignment with T7.5 led by ETE. To carry out the prioritization of results, BAX will organize a physical workshop with all partners at the next consortium meeting in Italy, expected to be held on September 19-20th 2023.

Prioritization workshop (phase A3)

The aim of the workshop is the prioritization of identified and characterized exploitable results. The workshop, led by BAX, will have a duration of 2h and it would be structured in a “World-Café” format where the 12 partners will be divided into three groups of 4 organisations each. A good distribution of academia and industry will be sought when creating the groups.

Following the European Commission’s recommendation, the prioritization process is based on three different criteria. Each criterion has a weight, which varies between 0 (low) and 1 (high), and the sum of the three criteria’s weight must be 1:

- Innovation (0.3): refers to exploitable result’s degree of innovation.
- Exploitability (0.3): refers to the condition of being exploitable, which means, profit can be made from this exploitable result.
- Impact in industry (0.4): refers to the impact that the exploitation of this project result will make in the industry.

The outcome of the prioritization process is a list of exploitable results ordered by the impact they can have in the market or industry. Its aim is to facilitate the selection of some exploitable results, between three and five, to make a more in-depth evaluation of them. EXPLOITT® recommends not exceeding three exploitable results due to the complexity and laboriousness of the following processes. These selected exploitable results after the prioritization are the denominated KER.

The first part of the workshop (which should not last more than 20’) includes an introduction of the EXPLOITT® methodology and a subsequent validation of the pre-established criteria and weights mentioned above (ranging from 0.3 to 0.4).

The next 45’ are dedicated to rate each exploitable result from 0 (low) to 10 (high) according to the proposed criteria. BAX will provide the forms to all partners to do their prioritization individually, including the characterisation sheets of each result. Each project partner will rate all exploitable results taking into account these technology characterization tables. After the individual work, each organisation will discuss at their corresponding groups their scores (within 20’). This discussion will allow adapting and/or validating the individual scores.

After the rating, an average score is calculated by applying a weighted average. Each partner will share its individual prioritization to BAX, who will compile and calculate the average of each exploitable results for creating the definitive prioritization table (Table 5). An important issue related to the average calculation, is that all partners’ ratings are considered to have the

same weight. This assumption will be discussed with all SALIENT partners. The last 25' of the workshop are dedicated to discussing the final results and confirm the selected KERs (max 5). Table 4 summarises the structure and timing of the prioritisation workshop.

Table 4 - Expected agenda of the prioritisation workshop

Session	Expected duration
Welcome and introduction to the session	20'
Rate of exploitable results (individual work)	45'
Discussion in groups	20'
Calculations	10'
Discussion on prioritised KER	25'
Total	120 min

Table 5 - Prioritisation of exploitable results

N°	Project Result	Project partners' scores						Total
		Partner 1	Partner 2	Partner 3	Partner 4	...	Partner N	
1	Exploitable Result 1							
2	Exploitable Result 2							
3	Exploitable Result 3							
4	...							
5	Exploitable Result n							

The exploitable results prioritization will allow selecting the most important exploitable results in order to evaluate them in-depth in the following processes. These results will be presented in D7.8.

7. CONCLUSIONS

At M12, the partners of the SALIENT project are close to fully identify the results that could have a significant potential to be exploited in the market in a competitive way. At the following month (M13), these exploitable results will be prioritized according to their innovativeness, exploitability level, and the impact they could have in the industry. To do so, the EXPLOITT® methodology developed for H2020 by IK4-IDEKO in the FOCUS EU-Project is being adapted and followed. The prioritization exercise will allow selecting the most important KERs based on a predefine criteria. This activity will be carried out in a physical workshop organized by BAX at the next consortium meeting, scheduled on September 20-21st 2023 in Italy (hosted by CRF). The main outcome of such workshop is expected to deliver at least 3 KERs (up to 5) that are a priority to the consortium (among the 12 identified at proposal stage). These KERs will move to the next phase of the methodology: the development of their suitable business models and plans that could help to successfully exploit them in the automotive market (and beyond). This part of the exploitation strategy will be done in close collaboration with T7.5 on “Market Acceleration, Competitor Research and Business Modelling”.

REFERENCES

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[3] Keeley, Larry; Walters, Helen; Pikkell, Ryan; Quinn, Brian. Ten Types of Innovation: The Discipline of Building Breakthroughs (2013)

ANNEX 1

A template shared with partners for A1.1 Identification of project results.

IDENTIFICATION OF PROJECT RESULTS					
Project Result 1	Project results title	WP	Potential to be exploited?	Partners involved	Exploitability level

Exploitability level	
	'Not exploitable': It will be difficult to fully exploit the result and/or impediments to exploitation have been identified for the duration of the project and/or further research is needed.
	'Weakly exploitable': these results have not been abandoned yet, but it is unlikely that they will turn out to be exploitable by the end of the project.
	'Moderately exploitable': exploitation potential is not the highest in the main areas of the project; however, market potential exists and future opportunities will be investigated
	'Highly exploitable': for those results for which concrete possibilities of exploitation exist.

ANNEX 2

A template shared with partners for A1.2 Characterisation of project results.

CHARACTERIZATION OF PROJECT RESULTS

Project result	
Partners involved	
Exploitability Level	
Brief Description	
Innovativeness introduced compared to already existing Products/Services	
Unique Selling Point	
Product/Service Market Size	
Market Trends/Public Acceptance	
Product/Service Positioning	
Legal/Normative/ethical requirements (need for authorisations, compliance to standards)	
Competitors	
Prospects/Customers	
Cost of Implementation (before Exploitation)	
Time to Market	
Foreseen Product/Service Price	
Adequateness of Consortium Staff	
External Experts/Partners to be involved	
Status of IPR: Background (type and partner owner)	
Status of IPR: Foreground (type and partner owner)	
Status of IPR: Exploitation Forms (type and partner owner) e.g., direct industrial use, patenting, technology transfer, license agreement, publications, standards	
Which partner contributes to what (main contributions in terms of know-how, patents, etc)	
Partner/s involved expectations	
Sources of financing foreseen after the end of the project (venture capital, loans, other grants)	