

Fostering innovation in the Danube Region through Knowledge Engineering and IPR Management

Output 6.1 Pilot automotive sector

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KnowING IPR will improve framework conditions for innovation in the Danube region by developing a transnational KnowING IPR platform, which will provide an open-access tool for advanced intellectual property rights (IPR) analysis and guidelines for improved and harmonized IPR policy framework across the Danube region. It will ensure broader and needs-based access to existing innovation and research results, to patents and IPR knowledge. It will encompass services and training for the management of IPR and support of the commercialization of research results and technology transfer.

KnowING IPR is a pioneering effort in bringing advanced knowledge engineering technology to the field of IPR. This will enable pooling and exploitation of existing innovation knowledge and increased IPR-based cooperation opportunities (out-licensing, in-licensing, and underdeveloped university technology transfer). The project will tackle the bottleneck of the lack of real-value IPR data and IPR management knowledge, thereby stimulating an underdeveloped IPR market, encouraging further innovation investments and creating competitive advantages, especially for Danube region SMEs and HEI&RI.

The main result of the KnowING IPR will be a practical solution in the form of open access Knowing Hub online platform providing knowledge extraction from patent and other databases, advanced analytics, and training for IPR extraction and management, thus enabling IPR collaboration, better-informed freedom-to-operate, future trend decisions, and build-on innovation processes. Furthermore, the project will yield evidence-based Policy Recommendations for the Danube Region in the field of IPR.

KnowING IPR builds upon the triple helix model of innovation, reaching enterprises, especially SMEs, business support organizations, public authorities, higher education and research centres, through its varied consortium members and outreach activities.

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Introduction

The KnowING IPR project targets the topic of technology transfer, with a specific focus towards managing intellectual property rights in SMEs and HEIs&RIs as a factor of innovation and competitiveness.

In front of us, we have the document summarizing one of the main activities of the fourth thematic work package (WP6). The piloting activities applied to the real cases of organizations operating in automotive sector. The main aim of the piloting activity was to test the operational resilience of the developed tools and services rounded under the name of KnowING HUB.

When conducting the pilot activities in the automotive sector, we remained careful to have them structured to reach both, the objectives and targets of the KnowING IPR project and also the ones of the EUSDR. How exactly our activities are supporting the EUSDR action plan is elaborated further on. Similarly, we structure the report, focusing on explaining testing KnowING IPR Hub (methodology, activities and timeline, scope and goal of the activities) and its results. After that elaboration on what kind of KnowING IPR HUB services were delivered to participating SMEs and enterprises. The section is followed by the Success stories – the individual reports of the most successful cooperation. Finally, the section on lessons learned wraps up the report with conclusions at the end.

Piloting KnowING IPR HUB and EUSDR Action plan

The KnowING IPR project continues its work towards supporting three Priority Areas of the EUSDR. Among those, primarily PA7 – to develop the knowledge society through research, education and information technologies, and PA8 – to support the competitiveness of enterprises, including cluster development and finally, PA9 – to invest in people and skills.

The presented Output supports more strongly the PA7 and PA8 in the following manner.

The Pilot's activities aimed towards **developing the skills of people working at automotive sector (PA9 goal)**. Doing so it had direct impact to **increased competitiveness of companies (PA8 goal)** Through the open call for participants, individuals applied, and those selected went through intensive training sessions consisting of synchronous and asynchronous learning possibilities. Namely, group sessions, implemented through several workshops, were supported by providing the participants innovative, virtual learning classroom, where video and other self-study materials were made available. After the designated period, the individual and more specific training (one-on-one mentoring) were made available to the participants. In the final stage, they were offered to test their gained knowledge by applying to real-life cases of filling in the Patent report. A strong skill development curve is noted from this activity. Therefore, the support for PA9 is evident and very valuable for reaching the EUSDR goals. As the participants of the activity were persons employed in companies, the direct contribution to **increase the competitivness of companies (PA8)** is noted.

Only when and after the people's skills are well developed, as is the case with enhanced awareness on the importance of IP and IP management, only then can we take advantage of it and build upon it **to contribute to the knowledge society (PA7)**. KnowING IPR piloting activity aiming at automotive sector had a strong motive to increase EPO and PCT patent applications filed from the Danube Region. Being aware and following the KnowING IPR experience, the levels of awareness on IP is fairly low, and costly procedures do not contribute positively. However, by conducting the Pilot in automotive sector environments, we were able to observe dynamics that need to be also addressed in the future, to be able to substantially contribute towards the defined goals. We conclude that the contribution of the Pilot action in automotive sector did contribute towards PA7.

Testing KnowING IPR HUB

Methodology

When the piloting initiated, the Consortium developed a firm and solid methodology for the implementation. The pilot project automotive sector was designed as a mentoring programme due to the lessons learned from previous work packages. The main aim of the Pilot was to offer a combination of services as constructed within the KnowING IPR HUB.

The program had three components: 1) Group mentoring in the form of 3 workshops delivered between December 2020 and February 2021; 2) One-to-one mentoring in the form of individual meetings between participants and the KnowING IPR partners (upon request made by the participants through a special application form); 3) customized support (individualized support for the participants to inspect the commercialization potential of their ideas/project or to receive a snapshot of the patent situation of a specific technology)

1. Group mentoring Workshops on IPR, patenting and technology offer and on how to use the KnowING IPR Hub will be organised (3-5 workshops);

2. One-to-one mentoring Individual meetings between participants and the KnowING IPR partners, facilitating in-depth learning and working (3-5 sessions);



 Companies and HEIs will benefit from individualized support in the process of inspecting the potential for commercialisation of their ideas or of providing a snapshot of the patent situation of a specific technology

Due to the COVID-19 pandemic situation, the mentoring program was delivered completely online between November 2020 and March 2021 and required a minimum involvement of one day per month/participant. The mentoring program was free of charge, and participants were kindly asked to participate actively in all activities.

Scope

The Pilot started with a Kick-off event in November 2020. In total, four workshops, including the initial event, were organized. The Pilot's goals were to help companies from automotive sector to develop IPR skills and have access to IP data by using the Knowing IPR Hub. During the pilot program, group and one to one meeting were offered to the participants. The participating companies could apply for individual meetings to the Knowing IPR partners to gain more information on an IPR related topic or develop a Patent Report. In total, two companies applied for the "one to one meeting" supporting tool and one company submitted the patent report.

Goals, Activities and Timeline

The below table coherently lists the three goals that were set for the piloting activity. Apart from the main goal, which was to test the functioning of the KnowING IPR HUB in real-life situations. There were also three sub-goals as follows:

- To test the developed KnowING HUB practical solution
- To evaluate the capacity-building tools and training efficiency
- To support the realization of the policy recommendations for further development and strength of the IP in the Danube region

Nr.	Goals	Activities realized	Fulfilled	Timeline
1.	to test developed KnowING HUB	Initial events, workshops,	Yes	Nov
	practical solution by live-testing	mentoring		2020-
	tools and services providing on-			may 2021
	demand knowledge to especially			
	companies,			
2.	to evaluate the efficiency of the	Usage of the KnowING IPR	Yes	Nov
	capacity-building tool;	platform, mentoring		2020-
		sessions, policy workshops		may 2021
3.	to provide evidence-based	Group workshops; one to	Yes	Nov
	evaluation, fed into the KnowING	one mentoring, policy		2020-
	IPR Policy recommendations.	workshops		June
				2021

Implementation of Pilots in Automotive sector

According to the rationale of the application form and after the completion of *D6.1.1 List of participating SMEs*, the KnowING IPR partners have organized the initial event addressed to the companies of the automotive sector registered to the pilot program. The purpose of the **Initial event** for companies was to provide an overview of the pilot program titled "MeetIPRhub", to set the mutual expectations and to clarify any questions about applicants' participation.

The format of the agenda was established in order to give a chance to participants and to the KnowING IPR partners to know each other and to clarify the objectives and the structure of the piloting activities. The event was focused on the introduction of participants and of the pilot program. The topics addressed included:

- The main purpose of the MeetIPRhub
- Structure of work
- Duration
- Timeframe
- Working platform Moodle

The 3rd part of the event continued on the Moodle platform.

The **Workshops** were organized in December 2020, January 2021 and February 2021. Each workshop combined updated information on IPR and practical knowledge about the KnowING IPR Hub web application (such as training sessions with testing scenarios on how to retrieve patent data), Patent Report development.

The first workshop, held in December 2020, brought together all the participants to the MeetIPRhub program to discuss patent protection, commercialization, licensing and enforcement of IP Rights, along with learning on how to develop a Patent Report. Natalia Caisim, Head of Patent Department, AGEPI, Moldova, held a presentation on "Patent Protection and Commercialization: Key things to know", while dr. Gyorgy Kovacs, attorney at law, senior lecturer at Pazmany Peter Catholic University, Faculty of Law and Political Sciences, discussed "Licensing and Enforcement of IP Rights in International Environment". The event ended with a training session on Patent Report Development held by Dolores Modic, Nord University Business School, Norway.

The second workshop, held in January 2021, was dedicated to technology transfer and patent data retrieval. Jure Vindišar, National Institute of Biology, Ljubljana Slovenia, started the discussions on "Technology transfer process and success cases", followed by Dalibor Fiala, University of West Bohemia, Czech Republic, with "Which data are retrieved within the KnowING HUB web application". At the end of the workshop, a training session was held by Hrvoje Jerković, Algebra, Croatia – "Patent data retrieval using the KnowING HUB with testing the scenarios".

The third workshop, held in February 2021, focused on the commercialization of the R&D results. Anna Tóth and Balázs Barta from Pannon Business Network started the discussions with a keynote about the "Utility model protection in Hungary – Experiences, advises, lessons learnt", followed by a training session held by Janez Kolar from SASS on "What needs an entrepreneur when trying to sell patent: a Walkthrough CANVAS". Tamara Valic from the Faculty of Information Studies, Slovenia, ended the event with a presentation about "Patent Report recap - where do we stand?"

In each event, the participants were encouraged to ask questions and clarifications about the subjects presented by the above-mentioned experts and also advised to join and test the platform

in order to search for relevant information for their research.

The automotive sector pilot is aimed at live testing KnowING Hub and its services for industry. It is especially aimed at the value of the KnowING Hub tools for automotive sector and at the potential support for matchmaking capabilities with the industry by HEI. This contributes to increased possibilities of technology transfer (Objective 2) which is realized through broader access to IPR enriched data (Objective 1).

The interaction with companies was the cornerstone/prerequisite for the implementation of each of the planned activities. The interaction with automotive sector was established in the context of the WP3 and WP4 activities and was consolidated within the WP6 activities (in particular during the processes of promoting the mentoring program towards the companies and during its implementation). The interaction has taken place mainly online, within the seminars and workshops organized by the Consortium as part of group mentoring; it has also taken place in one-to-one meetings with consortium experts. The group events gave to the participating companies the opportunity to learn from other participants and to share their knowledge and experience in acquiring, using and commercializing the IPRs. They also had the chance to interact with HEI&RI and thus to understand what the needs of the academia are, what its approach is to investing in innovation and what are the requirements for a possible acquisition of IP assets. Phone calls and emails were used as well for communication purposes with the representatives of companies. Most of participating companies preferred to interact within group events and were less interested in applying for one-to-one mentoring and for individualized support.

Throughout the mentoring program bilateral interaction between the local consortium partners and the companies participating in the mentoring program took place. This interaction was facilitated by the common language (English) and by a good knowledge of the local consortium experts of the national IPR legal framework and patenting procedures, as well as of the needs/challenges encountered by the local HEI&RI in using the IPR system.

To attract the automotive sector companies willing to improve their capacities and to develop their knowledge on IPR, the Open Call for SMEs of the automotive sector (and for HEI&RI) was designed and launched. The purpose of the Open Call was to identify the HEIs interested in developing their IPR knowledge by participating in a mentoring program, called MeetIPRhub.

The Mentoring program in IPR, patenting and technology offer (MeetIPRhub) aimed at enabling companies to develop their IPR skills, to enhance their IPR based cooperation, to have access to IPR open data and to use IPR knowledge to advance their work and solve specific challenges. The Consortium launched the Open Call to increase the selection pool, to provide chances for participation to as many people/institutions as possible and to increase the visibility of the KnowING HUB platform and of the pilot activity. Potential candidates had to submit their applications online, by filing in an application form and submitting it to the project. A total number of 13 SMEs from Danube countries applied to the call. The KnowING IPR partners held an online meeting on 26 October 2020 to decide who to include in the mentoring programme. All applicants were selected and joined the pilot program within the Activity A6.1. Pilot automotive sector of the KnowING IPR project.

The applicants were selected based on the following eligibility criteria, settled by the Consortium for the selection process:

- Clarity and pertinence of challenges (max. 2.5 points);
- Justification of the need to attend the program (max. 2.5 points);
- Extent to which the organization has competences to fulfil the program (max. 2.5 points);
- Clarity of the immediate steps envisaged were examined (max. 2.5 points).

The minimum score for selection was 7. In order to ensure the greatest possible geographical coverage in the Danube region and to increase the testing pool and the awareness of stakeholders of the KnowING HUB platform, the Consortium decided to accept all applicants.

Table 1 Selected Participants

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The program had three components:

Component I: **Group mentoring** (consisting of 3 Workshops on IPR, patenting and technology offer and on how to use the KnowING IPR Hub organized for participants of the Pilot Project);

Component II: **One-to-One mentoring** (consisting of individual meetings between participants and the KnowING IPR partners, facilitating in-depth learning and working);

Component III: **Customized support** (aimed at providing the participating companies and HEIs&RIs individualized support in the process of inspecting the potential for commercialization of their ideas or of providing a snapshot of the patent situation of a specific technology).

Group mentoring

The purposes of these workshops are to help employees in automotive sector to develop IPR skills and gain access to IP data by using the Knowing IPR portal. The participants of the workshop had access to a Moodle platform which provides information and training materials on IPR. The platform also offered the possibility to connect with other participants and ask questions to the Knowing IPR team. The project team provided guidance and assistance to the workshop members.

Table 2 Schedule and content of the Knowing IPR workshops

Event	Date	Agenda of the event
Official kick-off event	12.11.2020	Introduction of the participants Presentation of the Mentoring program in IPR, patenting and technology offer program - Structure - Timelines - Working platform
Workshop #1 - patenting and technology offer	08.12.2020	Keynote 1: Patent Protection and Commercialization: Key Things to Know by Natalia Caisim Keynote 2: Licensing and Enforcement of IP Rights in International Environment by Dr. György Kovács,

		Training session: Patent Report Development by dr. Dolores Modic		
Workshop #2 - presentation and use of	14.01.2021	Keynote 1: Technology transfer process and success cases by Jure		
Knowing IPR Hub		Vindišar		
		Keynote 2: Which data are retrieved within the KnowING HUB web		
		application by dr. Dalibor Fiala		
		Training session: Patent data retrieval using the KnowING HUB with		
		testing the scenarios by Hrvoje Jerkovic		
Workshop #3 - commercialization of	11.02.2021	Keynote: Utility model protection in Hungary – Experiences, advises,		
R&D results		lessons learnt by Anna Tóth and Balázs Barta		
		What needs an entrepreneur think on when trying to sell patent: A		
		Walkthrough CANVAS by Dr. Janez Kolar		
		Patent report recap - where do we stand? By Dr. Tamara Valic		

One-to-one mentoring

enabled participants to book 2 online appointments with the projects' experts during which they were able to receive further information IPR-related or additional data on how to fill in a Patent Report or to search through the KnowING IPR HUB.

Customized support

this sub-activity enabled participants to benefit from individualized support in order to develop a Patent Report, based on their specific needs and work level.

KnowING IPR HUB success stories

Considering the structure of the Pilot activities, at this stage, we report solely the activities that were happening on the individual level. Majority of applicants did join the group activities, where the joining of individual activities shows the advanced level of interest and potential benefit in IP related activities.

One-to one mentoring

The activity consisted in providing customized support for the participants thus helping them better understand the IPR concepts and methods for technological transfer. The booking of the appointment was done by filling in first an online request. The request asked participants to mention their questions/topics for the meeting. The KnowING IPR consortium analyzed the request and a mentor or a group of the mentors would send the invitation to a one-to-one session to the applicant in maximum 10 days.

The Consortium of the project has received 2 requests from the participating companies for one-to-one mentoring sessions.

Company 1 (SI)

We've received a coaching request about IPR management and strategies regarding IPR and Technology Transfer from SME "Company 1", which was addressed directly to, School of advanced Social Studies in Nova Gorica, Slovenia, namely for the reputation of their Experts Consultants. As the company "Company 1" is dealing with many different industry sectors as a certification and measurements strategic partner, including the Automotive sector, which represents an important and thus growing segment of their operations, Mr. xxx was very interested in the advancements and possible Business opportunities for their Company related to IPR Management support and also the possibilities of using the KnowING Hub tool directly. He was also inquiring for further information on how to use the newly developed application of the KnowING Hub in order to test it on a concrete example of patent landscape analysis in a specific situation. After our two hours' conversation we have established a common understanding of their needs and expectations which were addressed by further explanation from our side.

Possible continuation of this session may follow after "Company 1" would test the KnowING Hub tool and also review their strategic view on IPR Management Strategy decision among the stakeholders of their Company.

Company 2 (SK)

Mr. xxx submitted a request for the one-to-one mentoring session on behalf of the "Company 2" innovative SME based in Slovakia focusing on the solution for the transport industry.

"Company 2" built an AI-based solution for safer level crossings named xxx which monitors the area in level crossings in order to determine any potential dangerous situations. AI can detect patterns such as a stuck car or injured cyclist. In case something dangerous occurs, the train operators in trains that are approaching the level crossing receive a warning accompanied with a live stream. The train operator can analyze the situation and stop the train to prevent an accident. xxxx also informs emergency units about possible accidents. This ensures the emergency team can be immediately on its way in order to rescue any injured people or remove any barriers from the level crossing.

He indicated that the xxx team would like to receive mentoring from project experts regarding the topics of general IPR knowledge, patenting and technological transfer. As many other companies, also xxx is planning to protect their innovative solutions using the various IPR tools while according to their target markets they need to apply that strategy not only in Slovakia but throughout Europe.

According to the discussion with the local coordinator of KnowING Hub – technical university of Kosice, as the most relevant solution for the needs and requirements for the xxx has been identified the patents registered on the European level. As the team has very good knowledge of IPR topics they have decided to dedicate their time and energy on the development of the patent application not to participating in the educational sessions in the form of workshops which have been offered as one of the possibilities by the KnowING Hub.

The first initial steps in cooperation with the xxx and KnowING Hub supporting team have been done with the aim to create a patent application. Unfortunately, as the "Company 2" has been negatively affected by the corona crisis in the year of 2020 and 2021 the management board of the company has decided that the activities related to the IPR will be postponed. As soon as the financial condition of the company will get better and they will be able to allocate for this project sufficient efforts and financial resources they will continue in the development of the patent application.

Customized support

was offered to all participants in order to help them develop a Patent Report. Even if the reports were an optional step in the program all participants were strongly advised to perform this work to get in-depth knowledge on IPR and the situation of patents in their fields of interest. The KnowING IPR Hub web application is available for the participants and can help them browse: if a similar idea or product already exists; if there is a possibility for licensing in the case when a similar idea already exists; if there is interest on the market when a similar idea does not exist

Company 3 (SI)

The "Company 3" actively participated in the workshops and without one-to one mentoring decided to prepare a patent report. Patent report was submitted, checked by KnowING HUB expert and feedback in written form was submitted to "Company 3" The full patent report is available in D.6.1.4 Pilot automotive sector end report.

The main statements of the patent report are the following:

"The solution is an IT solution that enables the user to easily monitor and retrieve a report about the GDPR data used/viewed within Contracts/Leasing contracts that are stored and managed in a document management system."

"The solution is a custom-made module that could be applied within contracts or leasing contracts within a document management system module."

"The solution itself could not seem something particularly inventive but on the other hand it could be suitable to patent because it could be used in integration with any document management system, although it is designed to fit the one we currently sell. The solution has been made completely from scratch and is designed to ease the user's way to monitor and extract reports about the viewing/using GDPR data within Contracts/Leasing contracts and connected documents."

Lessons learned

The 13 companies of the automotive sector participated in the Knowing IPR pilots. The participating organizations were the majority large organizations.

Pilot for automotive sector helped researchers to develop IPR skills and have access to IP data by using the Knowing IPR Hub.

Below is the summary of the individual participation within the provided services

HEI/RI	Response to open call	Capacity building attendance	One to one mentoring	Patent Report
Company 1		000		
Company 2		000		
Company 3		000		
Company 4		000		
Company 5		000		
Company 6		000		
Company 7		000		
Company 8		000		
Company 8		000		
Company 9		000		
Company 10		000		
Company 11		000		
Company 12		000		
Company 13		000		

The KnowING IPR project's Consortium, during implementation period, cooperated intensively in attracting potential participating companies and also during the selection process of the involved companies. Also, their task was to make sure that there are no misunderstandings in terms of the participants' needs and goals, taking into account the cultural or communication gap between participants and IPR knowledge providers, which could have affected achieving the goals of the activities. Based on the applications received, we could conclude that the automotive sector organizations applied with the need to check the offering and consult, elaborate and look for possible solutions to the exposed IPR challenges.

To have a better understanding of the whole turnout of the process and to better understand the needs of participants in the Pilot the evaluation was conducted. The evaluation provided the following conclusions:

- Participants were satisfied with the Program
- They found it useful for their organization
- They found out something new and heard more about the process of protecting intellectual rights developed.

- They found out some interesting issues about IP rights
- Got more concrete data for a better understanding of the IPR terms and procedures.
- Heard useful and expert information about the selected topic.
- They found out about the differences between patents and got instructions on how to patent innovations.
- Obtained specific information about the Technologic Transfer process from academic field to industry
- Learnt more about establishing a TTO and about the whole process of patenting.
- They found it useful for establishing good working relationships
- Got familiar with the KnowING IPR Hub

Conclusions

As it was the main aim of the automotive sector pilot to live test the services provided by the KnowING IPR HUB the Consortium structured the Pilot in a way to be able to include most of the open call applicants. The topic of IPR and prior to this, the successful patent data retrieval is very important topic in the automotive sector dealing with research.

The main conclusion of the present activity is in a fact that across the Danube region many of the SMEs have limited potential to patent. It is clear that larger companies with well-developed IPR management systems are protecting their knowhow and their knowledge. On the other hand, there are SMEs who oftentimes do not even know what potentials are hidden behind rich patent data and are therefore more focused on their internal processes. Additionally, evident from the conclusions of the piloting processes – many SMEs struggle in finding the time to fully engage in any kind of mentoring activities. We had cases of SMEs searching for knowledge within group activities, like workshops and we had on the other hand SMEs searching for quick help in one-to-one mentoring sessions. We can only assume whether the behavior of the companies would be different if the COVID-19 and epidemic measure would not have such impact.

The lack of knowledge on how to approach to the patenting system is evident also in low engagement in the final activity. As all participants has the chance and did learn on how to fill in the Patent report, only one company was able to do it. This result shows, that in the Danube region, much work needs to be done, to upgrade the knowledge on patenting procedures. This is the only way we will be able to contribute to PA7 of the EUSDR accordingly.