Interreg
Danube Transnational Programme
KnowING IPR

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

IPR challenges of the Danube region, Part II

READING MATERIAL prepared for KNOWING HUB PROVIDERS training

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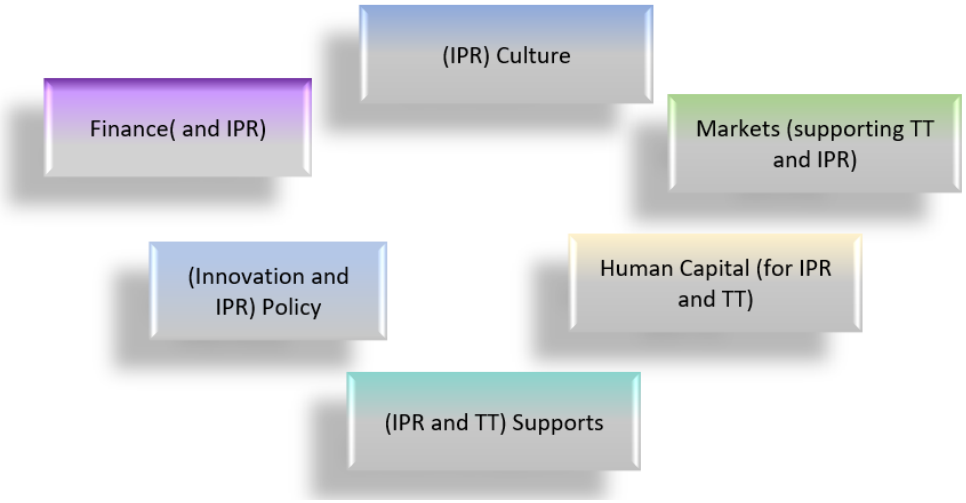
Challenges of the Danubian Entrepreneurial Ecosystem, part II

In order to develop and maintain a practical approach which will also be used in the development of the KnowING IPR Hub, the data was structured and analysed based on pillars of the entrepreneurial ecosystem: policy, markets, support, education, finance and culture. The approach of entrepreneurial ecosystem helps us to better understand the causal relationships between IPR and the determinants of entrepreneurship which will further give data about the performance of the ecosystem and the contribution of IPR towards it.

Figure 1: Pillars used in the analysis



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Challenges related to POLICY

The table below presents the challenges as well as the country/ies where these were firstly identified as resulting from the activities arising from KnowING IPR project.

Table 1. Main challenges related to policy

Challenges	Specific issues
Weak national patent systems	▪ Institutional IP regulations are still missing.
	▪ The system of patenting is less developed: for example, in the majority of countries (particularly in former communist states), most patents / utility models are owned by foreign entities.
Low level of awareness / knowledge of IPR policies	▪ There is lack of awareness regarding the importance of obtaining protection for intellectual property. ▪ There is lack of awareness regarding the existing policy framework on IPR. ▪ There is a lack of specific advice/information with regard to the process of application for patent. ▪ The system of patenting is less developed: for example, in the majority of countries (particularly in former communist states), most patents / utility models are owned by foreign entities.
Slow patenting process	▪ The time required to grant a patent is lengthy (in industries where the life cycles are short): ▪ There is a significant administrative burden related to granting patents due to bureaucracy: e.g. complicated procedures, lack of standards contracts.
Lack of effective support programmes	▪ Low number of or inadequate support programmes to encourage technology transfer and science-industry cooperation.
	▪ Ineffective implementation of the existing support programmes for IPR.
No adequate/ comprehensive legislation & enforcement	▪ There are insufficient/inadequate technology transfer mechanisms.
	▪ The transfer of research results from universities to industry is hampered by overly complicated legislation.
	▪ There is weak enforcement of existing legislation.
Fragmented / inconsistent policymaking	▪ There is a fragmented policymaking process in the areas of research, human capital development, technology development, and promotion of business innovation. ▪ There is rather a lack of coordination among governmental bodies involved in the national innovation system. ▪ There is a relative lack of a systematic approach to the development of R&D by governmental structures.
	▪ There are discrepancies among different countries in the Danube Region with regard to IPR legislation.
Instability of political situation	▪ There is a lack of predictability of policy framework due to unstable political situation and elections.

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Challenges related to FINANCE

The table below presents the challenges as well as the country/ies where these were firstly identified as resulting from the activities arising from KnowING IPR project

Table 2. Main challenges related to finance

Challenges	Specific issues
Economy with modest performance	▪ Instability of the economic situation reigns in some countries of the Danube region. ▪ In some countries, there is a high dependency on external capital. ▪ There is a modest growth of the national economies.
Lack of financial resources	▪ There is a dependency on international projects
	▪ There is a lack of financial incentives for commercialization of research results.
	▪ Low level of survival of patents due to lack of resources for maintaining them (i.e. inability to bear the maintenance costs for patents).
Low level of R&D spending	▪ The total share of R&D spending in the national GDP is still well below the European average.
	▪ A small percent of budget available for R&D is allocated to technology transfer projects.
	▪ Private investments in R&D are small.
Insufficient use of EU funds	▪ There is a low absorption of the budget available through existing operational programmes.
High costs of patenting	▪ SMEs require external financial support (from public, EU or private sources) in order to patent research results.

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Challenges related to CULTURE

The table below presents the challenges as well as the country/ies where these were firstly identified as resulting from the activities arising from KnowING IPR project.

Table 3. Main challenges related to culture

Challenges	Specific issues
Low copyright culture and piracy	▪ There are websites created exclusively for the distribution of pirated materials - the uncontrolled use of counterfeit goods.
	▪ Infringements of intellectual property rights (counterfeiting and piracy) is tolerated and even regarded as normal.
Lack of awareness about the potential of IPR	▪ There is lack of awareness of the importance of IP among SMEs. ▪ Companies and universities are not fully aware of the fact that R&D and innovation activities should also have a commercial aim.
Lack of awareness on the benefits of IPR information and management of IPR	▪ SMEs lack the knowledge and resources of IPR management. ▪ There is a lack of awareness of existing IPR information tools.
Risk aversion	▪ There is lack of trust among organisations: e.g. universities and SMEs or SMEs. ▪ Failure in business is stigmatized, which discourages entrepreneurs from taking risks and innovating ▪ Entrepreneurial / innovation mindset has just started to develop since it was largely discouraged prior to 1990 in former communist countries
Mental barriers/ negative perceptions related to IPR	▪ IPR is not perceived as important / relevant / useful.
	▪ Local inventors are not considering implementing the invention abroad
	▪ Using IPR rights is low valued.
	▪ IP and especially patent protection is perceived to be expensive as compared to potential benefits (which translates in few patent applications) ▪ Long IP enforcement processes have led to a negative perception of IP protection.
Lack of awareness regarding science-industry cooperation and technology transfer	▪ There is lack of awareness of the importance of cooperating with technology transfer offices.
	▪ There is lack of information on licensing, commercialisation and investment opportunities.
	▪ Universities are not interested in collaborating with the private sector

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Challenges related to HUMAN CAPITAL

The table below presents the challenges as well as the country/ies where these were firstly identified as resulting from the activities arising from KnowING IPR project.

Table 4. Main challenges related to human capital

Challenges	Specific issues
Lack of expertise / knowledge in IPR	▪ There is a lack of knowledge on how to prepare patent applications.
	▪ Companies do not have their own specialists in IPR.
	▪ There are different levels of professional competences among the staff in technology transfer offices, which leads to variations in the quality of services offered. ▪ There is a lack of practical experience of technology transfer experts.
	▪ There is a lack of reward schemes for developing expertise.
	▪ SMEs lack the knowledge and awareness to recognise the importance of IPR and IP Management.
	▪ Lack of knowledge on IPR among entrepreneurs, which hinders them from developing a strategic approach for IPR.
	▪ Education is not conducive to entrepreneurship and innovation.
Low level of collaboration among stakeholders	▪ There is a lack of collaboration between IPR and TT representatives
	▪ There is a need to simplify searching for university-based cooperation partners in order to ensure a faster initiation/implementation of projects.
	▪ Industry representatives and researchers from public organisations have different interests / agendas.
Outdated educational curricula	▪ The needs of the industry are not reflected in the educational curricula.
	▪ The current curricula do not encourage an innovation/entrepreneurial culture.
Low number of researchers in private sector	▪ The number of researchers engaged in the private sector is small.
Inadequate IPR policies in universities / public research	▪ There is a lack of motivation and practical experience of university lecturers / professors. ▪ There is a need to adjust academic evaluation systems, since a large number of researchers apply for patents only to obtain higher scores. This in turn leads

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Challenges	Specific issues
institutions	to a high number of "shelf patents" ▪ There is a lack of motivation, organisational support and incentives for patent applications that respond to real market needs.

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Challenges related to MARKETS

The table below presents the challenges as well as the country/ies where these were firstly identified as resulting from the activities arising from KnowING IPR project

Table 5. Main challenges related to markets

Challenges	Specific issues
Market fragmentation	▪ The market is fragmented into numerous segments of different sizes, and players have different leveraging power (playing field is not equal). ▪ The matchmaking tools are underdeveloped.
Small number of new patents per year	▪ Only a small number of patent applications (around 5%) are actually used.
	▪ While the number of patent applications by residents slowly increased, the number of patents granted to residents registered a decline (from 600 in 2008 to 409 in 2017).
The use of patents on foreign markets and the use of patents by foreign entities	▪ Large multinational companies generally conduct their R&D activities elsewhere.
	▪ There is a small number of international patents.
Lack of market orientated research	▪ Researchers are less focused on putting their work into practice, but rather on obtaining positive results at academic evaluations. ▪ More than 50% patents will not be ever used.
	▪ Research centres and the universities lost connection with cutting-edge technological innovations.
	▪ Scientific evaluation system is oriented towards basic research. If this would change, universities could be involved more in applied research, which could intensify the cooperation with the industry.
Low transferability of research results	▪ Many applications are abandoned before obtaining protection. ▪ Patents are filed by persons/entities that do not have a clear vision on how to commercialise them.
	▪ Around one quarter of all patents are not used for economic purposes; about half of the unused patents can be classified as “blocking patents”, which are solely used for preventing competitors from using a given technology
	▪ Although some universities operate technology transfer centres and/or offices, science-industry cooperation remains low and technologies developed by research institutions are rarely transferred to the private environment and even less frequently to SMEs. ▪ There is a very limited evidence of academic spin-offs from universities.
Low contribution to the global production of scientific papers	▪ The citation of domestic works lags behind the European average

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Challenges	Specific issues
Lack of/low number of patents applied for by women	▪ Patents applied by universities do not list women as inventors (neither in companies, nor in universities).

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Challenges related to SUPPORTS

The table below presents the challenges as well as the country/ies where these were firstly identified as resulting from the activities arising from KnowING IPR project.

Table 6. Main challenges related to supports

Challenges	Specific issues
Lack of comprehensive framework for tech transfer	▪ The transfer of research results into practice is still poorly organized. ▪ The transfer of results from universities to industry is hampered by the immaturity of technology and complicated legislation.
	▪ The investment in innovation infrastructure is unexplored: there is a need to invest in human skills for tech transfer to capitalise on the investment in infrastructure realised in the current programming period (2014-2020).
	▪ Universities are still developing their innovation ecosystem ▪ There are tech transfer offices established in the universities, but there are no dedicated employees.
Lack/low access to professional legal advice	▪ The firms do not have their own specialists in IP law.
	▪ There is a lack of programmes for supporting the implementation of the patents results.
Low availability of information	▪ There is an absence of information support activities.
	▪ IPR is not approached in topics related to innovation in the academic debates.
	▪ The existing information tools are not properly disseminated.
	▪ There is a limited information about technology transfer process.
No appropriate infrastructure	▪ There is an undeveloped TT infrastructure.
	▪ There is low promotion of IPR and high technologies for absorbing innovations.
Not all scientific topics benefit from support for tech transfer	▪ There are discrepancies in the manner in which science, maths and engineering areas, on one hand, and humanities, social and cultural sciences and art, in the other hand, are exploited.

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Conclusions

In summary, the development of intellectual property rights in the Danube region is gaining critical acclaim, but the region navigates an environment full of political, cultural, educational and economic sensitivities due to specific backgrounds and transformation processes, rooted in the diverse dynamic of its countries. Thus, exploration of new capabilities and IPR development patterns as well as the reconsideration of the cooperation strategies and networks between the stakeholders in the Danube countries, both at home and at interregional levels, are required. Indeed, according to the stakeholders' opinion, the importance of intellectual property rights for industrial R&D is widely acknowledged. Nonetheless, we need to develop new mechanism, educational support and tools that allow in particular to exploit the IPR to their full potential in all parts of the Danube region, also while navigating new networking and matchmaking opportunities for intellectual property rights (IPR) and technology transfer (TT).

Overall, the results point out important insights with regard to the challenges faced by the various stakeholders in the Danube Region in terms of IPR. The problems are mainly related to the undercapitalization of the intellectual assets due to lack of a right mix between knowledge and skills and policy and administrative strategies.

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