

KNOWLEDGE AND TECHNOLOGY TRANSFER

TU Dresden's Transfer Strategy



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1 PREAMBLE

Today, knowledge and technology transfer is one of the core tasks of universities, alongside research and teaching. Universities are expected to assume responsibility for regional development and to establish themselves as collaboration and innovation partners, both nationally and internationally. Policy guidelines at EU level make reference to this concept of the “Third Generation University”¹. The European Commission has allocated European universities a key role in the three areas of research, education and innovation. In its agenda for modernising Europe’s higher education system², it describes the links between these three core tasks as the “knowledge triangle”. This triangle sees universities as centres of knowledge, expertise and learning that boost economic development in their local area, place talented people into an innovative environment, exploit regional strengths on a global scale and further an open exchange of knowledge, expertise and human resources. The implementation of the core tasks is promoted, for example, under the Framework Programme for Research and Innovation, Horizon 2020, which provides special support for innovations and market-oriented activities that generate direct economic stimulation³, with a focus on mastering social challenges.

The higher education laws of the German Federal States take up these EU-level guidelines. For example, the responsibility of promoting knowledge and technology transfer is also incorporated into the *Sächsische Hochschulfreiheitsgesetz (Saxon law governing autonomy of institutes of higher education)*⁴, according to which universities must regularly inform the public about their research activities. Research results are to be made publicly accessible in an appropriate manner, in particular through scientific events and publications. Before publication, research results are to be examined as to their potential economic exploitation and, if applicable, protected by industrial patents⁵.

TU Dresden (TUD) is aware of its responsibility to make knowledge and results from its scientists’ research available for the benefit of society and the economy. As a comprehensive university, it is in a position to offer a broad, interdisciplinary spectrum of knowledge. TUD is thus able to tackle today’s complex social issues, drawing on the expertise of its scientists from the engineering and natural sciences, the social sciences, the humanities and medicine.

¹ Cf. Wissema, J. G.: Towards the Third Generation University – Managing the University in Transition, 2009

² Cf I. EU COM (2011) 567: Agenda for the Modernisation of Europe’s Higher Education Systems

³ Cf. EU COM (2011) 808: Horizon 2020 – Framework Programme for Research and Innovation

⁴ § 5 section 2 *SächsHSFG (Saxon law governing autonomy of institutes of higher education)*

⁵ § 47 *SächsHSFG*

Keeping this in mind, stringent standards follow for the transfer of knowledge and technology. As part of the Excellence Initiative, TUD has therefore significantly expanded its capacities and resources for knowledge and technology transfer. The newly established Transfer Office⁶ co-ordinates the University's transfer activities and, in doing so, works closely with start-up initiatives, the Career Service and other actors that are of relevance to transfer in the DRESDEN-concept alliance⁷. In addition, TUD co-operates with politicians at State, Federal and European level, with Chambers of Commerce and trade associations, the technology centres of the region, social associations, educational institutions and other institutions of civil society. To support the transfer activities, TUD has founded a private company, the Technische Universität Dresden Aktiengesellschaft (TUDAG)⁸, which offers, in particular, academic training and further education, R&D project management for companies, and participation in and services for TUD spin-off companies.

With its many years of transfer experience and competence, funding programmes, continuing education and its strong networks, TUD supports its students and scientists in transferring their research results into society and business in the best possible way.

In line with the importance of knowledge and technology transfer, the transfer strategy – integrated into the overall strategy of the University – documents the goals, principles and guidelines (as well as measures for their implementation) regarding knowledge and technology transfer at TUD. The subordinate patent and licensing strategy⁹ goes more specifically into the conditions for dealing with intangible goods and their exploitation, while the spin-off strategy describes in more detail the transfer of intellectual property (IP)¹⁰ to spin-offs, the support services and the model of equity financing.

⁶ Directorate 5, Unit 5.3

⁷ DRESDEN-concept stands for *Dresden Research and Education Synergies for the Development of Excellence and Novelty*, and is a TUD research alliance of strong partners from science and culture, whose aim is to make visible Dresden's excellent research.

⁸ The TUDAG, Technische Universität Dresden Aktiengesellschaft, supports knowledge transfer primarily for TUD in the form of training, continuing education, project management and services for TUD spin-offs and participation in these.

⁹ The patent and licensing strategy deals with the rights to intangible assets. This includes all types of work results, both those that are eligible for intellectual property rights and those that are not, e.g. inventions, procedural instructions, copyrights (e.g. on computer programs), designs and the associated know-how.

¹⁰ The term Intellectual Property, IP for short, describes rights to intangible assets (see footnote 8).

2 TU DRESDEN'S TRANSFER STRATEGY

2.1 FIELDS OF ACTION

For TUD, the central task of knowledge and technology transfer means communicating research results and interpretive knowledge to society, politics and the economy. This includes the transfer of scientific findings to the public via knowledge transfer, education and dissemination of knowledge regarding relevant public issues, as well as the technical utilisation and commercial exploitation of scientific results by businesses via technology transfer.

The following forms of knowledge and technology exchange are available:

- **Transfer via individual persons:** here, scientists, students and graduates contribute their skills and knowledge to social, political and economic institutions. Examples include student internships, completion of theses and dissertations in institutions, scholarships, endowed professorships, mobility of researchers between science and practice partners, as well as the career entry of qualified graduates and postdocs.
- **Transfer via information:** this is the formal and informal exchange of ideas between actors from science, society, politics and the economy. It can take place in a variety of ways, e.g. by conducting research studies and social surveys, by providing educational opportunities, especially for continuing vocational training, through publications in specialist and transfer journals – in particular through Open Access¹¹, through participation in conferences, congresses, in networks, etc. and by exhibiting at trade fairs. It can also take place by means of expert reports and consulting for companies, social or political institutions, through participation in the political discourse on socially relevant topics, through active co-operation in advisory and foundation boards of social, cultural and church institutions, through the provision of data and its interpretation, as well as through the interpretation of cultural phenomena and the description, explanation and prognosis of trends in social development and through public events on scientific topics.
- **Transfer via collaborations:** collaborations are engaged in with other research institutions, companies and additional social or political institutions. The transfer takes place mainly via collaborative research and development projects, contract research, services, joint research facilities and use of infrastructure.

¹¹ Open Access represents free access to scientific publications via the Internet - without financial, legal or technical barriers. TUD supports the Open Access publishing of its researchers with a publication fund, among other things. The publication fund for Open Access publications is managed by the SLUB. Its employees advise and support TUD scientists in the publication process, and in the form of Qucosa, the Saxon document and publication server, provide a suitable infrastructure for open access publications. Qucosa also ensures the long-term availability of publications.

- **Transfer via patent rights and other intellectual property rights:** this form of technology transfer can take place via licensing, patent sales, know-how agreements, transfer of software and equipment to established companies and institutions' own spin-off companies.
- **Transfer via spin-off companies:** a special form of transfer is the establishment of spin-offs involving the transfer of know-how and/or the relocation of scientists as bearers of know-how to the spin-off or to affiliated institutes.

The following pages describe the goals pursued by means of the transfer strategy, the principles and guidelines behind the strategy, and measures for their implementation at TUD.

2.2 GOALS

- **Provision and broad application of knowledge**

TUD strives to make the specialist knowledge it generates available to society, politics and the economy, and to contribute to society's need for knowledge and information as well as to (general) education.

- **Translating knowledge into added economic value**

TUD strives to translate suitable scientific results into added economic value. The support for innovation is intended to make regional enterprises in particular more competitive, creating jobs and retaining highly qualified personnel in the region.

- **Promoting spin-off companies with a high potential for innovation**

TUD particularly promotes technology-based and knowledge-based spin-off companies with a high potential for innovation. By supporting its spin-offs, TUD helps strengthen the start-up culture and the regional economy, and contributes to tax revenue and to securing skilled labour in the region.

- **International visibility of research**

TUD creates the necessary conditions for its scientists to be able to conduct excellent research. By marketing the results and findings from research, by initiating collaborations and through the proprietary protection of research fields within the context of knowledge and technology transfer, TUD makes a decisive contribution to increasing its international visibility, competitiveness and attractiveness, and to closing the gap to the most successful international universities.

- **Balanced overall financing**

TUD relies on a balanced ratio of basic funds allocated by the State on the one hand, and of public and private third-party funds (from the industrial sector) on the other.

2.3 PRINCIPLES AND GUIDELINES

- **Holding responsible discourse on social issues**

TUD participates responsibly in political and social discourse. In doing so, it expressly acknowledges the plurality of scientific knowledge. TUD's scientific findings are aimed at education and at encouraging further debate of socially relevant topics, thus helping forge the path towards a just, free, and open society.

- **Commitment to good scientific practice**

All members of TUD are obliged to adopt the guidelines for ensuring good scientific practice as the basis of their scientific work, and to actively counteract scientific misconduct in their field of activity¹². Concerning scientific work for and with third parties, examples include strict honesty as regards the contributions of collaboration partners and ethical standards in conducting surveys and studies.

- **Responsibility for the business location**

TUD contributes to the sustainability and prosperity of Germany and the region as a business location.

- **Transfer as a two-way relationship**

The topics and challenges relevant to society, politics and the economy are taken up by scientists in their research at TUD in order to explore new findings and solutions, which are then in turn transferred back again.

- **Transfer supports the development and safeguarding of research fields**

TUD's transfer activities serve to support scientists in their research, in particular by developing and safeguarding research fields and by initiating new third-party-funded projects.

- **Start-up-friendly atmosphere**

TUD supports a start-up-friendly climate. It makes its resources available for promoting start-ups, and collaborates with start-up initiatives.

- **Long-term collaborations**

TUD seeks to pursue long-term relationships with business enterprises, other research institutions, associations and political and social institutions. TUD has allocated resources for setting up and supervising these collaborations.

- **Transparent co-operation of transfer actors**

The transfer of services and the co-operation with external partners takes place under transparent conditions. A balance is struck between the activities of TUD that serve the common good and the interests of the private sector. Clear rules and procedures have been defined and are adhered to.

¹² See also "Technische Universität Dresden – Guidelines for Safeguarding Good Scientific Practice, Avoiding Scientific Misconduct and Dealing with Violations" in the version dated 05.03.2014.

- **Transfer services from a single source**

TUD's central Transfer Office is clearly defined as the contact point for transfer partners and scientists who require services required in the transfer of knowledge and technology of TUD; it either provides these services itself or acts as a broker for them¹³.

- **Using synergies within the DRESDEN-concept alliance**

In offering its transfer services, TUD makes use of synergy effects with its partners from the DRESDEN-concept alliance, for the purposes of creating a transfer landscape that benefits the scientific region.

2.4 IMPLEMENTATION MEASURES

TUD offers a comprehensive service package for all forms of transfer¹⁴ (transfer via individual persons, information, collaborations and via IP).

In this context, the TUD Transfer Office either provides transfer services itself or acts as a broker for these. Internally, it functions as a contact point for scientists, and externally, as a contact point for social and political institutions as well as business enterprises.

TUD's transfer activities are co-ordinated by the Transfer Office in close consultation with the scientists, Chairs and Institutes dealing with issues that are of relevance to transfer. These include, for instance, the Chair of Entrepreneurship and Innovation (LEI) and the Institute of Intellectual Property, Competition and Media Law (IGEWEM). The Transfer Office works closely with internal facilities that support transfer, such as dresden|exists¹⁵, High Tech Startbahn¹⁶, the Career Service and CIMTT¹⁷. It also uses the services of TUDAG, GWT¹⁸, agencies dealing with patent exploitation, patent lawyers, technology centres and other transfer service providers and intermediaries.

The wide range of transfer services has a modular structure and is constantly being developed further. The individual modules are increasingly being co-ordinated with each other in order to attain a complete service. The following modules are already available:

¹³ See also sections 2.4 and 3.4 Implementation Measures

¹⁴ See also section 2.1 Fields of Action

¹⁵ Dresden|exists is a start-up initiative at TUD that supports scientists, students, employees and graduates in setting up their own companies.

¹⁶ The High Tech Startbahn is an association that supports Saxon start-ups from the technology sector in the post set-up phase.

¹⁷ CIMTT Centre of Production Engineering and Management is the Faculty of Mechanical Engineering's competence centre for technology transfer at TUD.

¹⁸ GWT-TUD GmbH is a medium-sized R&D service provider whose business purpose is industrial contract research and the support of scientists in transferring their research results into applications. It is part of the TUDAG company network.

- **Raising awareness among and training of students and scientists**

Successful knowledge and technology transfer can only be achieved through the targeted support for and the linking-up of the scientists involved. The scientists are to be trained in awareness so that they can develop an understanding of innovation processes as well as of practice-oriented and entrepreneurial action. To this end, TUD regularly holds information sessions on transfer topics, training and certificate courses on patent rights and intellectual property rights, and business-plan competitions. Practice-related components form part of the teaching, e.g. guest lecturers from industry and inclusion in curricula of teaching modules on entrepreneurship as well as on IP and innovation management.

- **Innovation management**

TUD supports the recognition and activation of transfer and innovation potentials, and promotes internal networking and an interdisciplinary exchange of experience. To this end, innovation managers can increasingly be deployed in order to accompany research projects that are of relevance to transfer, and to support them in making an impact and in exploiting concrete research results.

- **Career Service**

Companies are given the opportunity to recruit graduates through event formats that provide them with the opportunity to get into contact with students. If appropriate, these events can be supplemented by offering technologies and opportunities for co-operation. Individual consultations, workshops and lectures assist students in their choice of profession and prepare them for embarking on their career.

- **Continuing education and forms of information transfer**

TUD offers numerous opportunities for continuing education and information transfer. Since 1994, for example, the "Dresden Citizens University" has been intensifying and enriching the transfer of knowledge and personal contacts between the city and the University, between the people and the scientists of Dresden, and the students. Together with the Deutsches Hygiene-Museum, TUD also set up the "Kids University". The Dresden Seniors Academy Science and Art is a joint educational programme organised by TUD, the art colleges and the museums in the city of Dresden. Field trips, guided tours, discussion groups, concerts, artistic circles, project weeks, talks and lectures also offer a wide range of opportunities for acquiring knowledge and for active participation in the dissemination of knowledge and in practising art. TUD keeps abreast of the great demand for information and advice on current and future developmental trends with the help of social science studies, such as the Saxon Alumni Study.

For those interested in training and continuing education and as part of a broad range of courses available at Dresden International University (DIU)¹⁹, the TUDAG also offers Bachelor's and Master's courses, certificate courses, day seminars and advanced training events that are in line with market requirements.

¹⁹ DIU - Dresden International University is a subsidiary of the TUDAG.

The courses on offer are constantly adjusted to the needs of the various target groups and further developed in consultation with DRESDEN-concept partners and with the city and the Federal State.

- **Helping to shape social and political discourse**

The scientists of TUD contribute to social and political discourse in a multitude of ways. Possible forms are discussion forums, practical forums, lecture series and panel discussions with representatives from politics, the church and cultural and social institutions. They also publish statements on current topics in the regional and national press. TUD scientists work on advisory boards and foundation boards of churches and cultural institutions and, in this function, shape social discourse.

- **Intellectual property rights management**

The services of the Transfer Office in the field of intellectual property rights management include advising inventors, assessing and exploiting inventions, e.g. drafting and negotiating agreements for patent purchase contracts and licensing agreements, marketing for new technologies and organising contact events between science, industry, politics and society. These services are described in more detail in the patent and licensing strategy²⁰.

- **Supporting spin-off companies**

Through its services for those setting up spin-off companies, TUD creates a start-up-friendly climate and culture. Members of TUD who are interested in prospective start-ups are given support and individual supervision on their way to setting up their own company. The transfer of IP into companies still to be founded or already established is carried out by TUD's Transfer Office. The dresden|exists start-up initiative advises on funding programmes and start-up scholarships, develops business models with the founders and carries out qualification measures. Once the spin-off is established, TUD continues to offer and arrange support services, e.g. through the High Tech Startbahn network, which initiates contacts with, among others, investors and industry partners. TUDAG provides spin-off companies with investments based on capital contributions and services related to accounting, human resources, project management and sales.

Close co-operation between these service units for spin-off companies, a standardised process flow and co-ordinated consultation ensure comprehensive and professional support for start-ups.

- **Mediating contacts between science and society, politics, and the economy**

TUD maintains direct contact with social, political and commercial enterprises. In addition to holding its own events – with TUD institutes²¹ inviting companies such as regional SMEs – TUD is also actively represented in national and international networks and co-operates with trade associations and

²⁰ See also the chapter on Patent and Licensing Strategy

²¹ One such example is the "Open Institute" format set up by the Transfer Office in collaboration with the IHK (*Chamber of Industry and Commerce*) and the Handwerkskammer (*Chamber of Crafts*); here, several SMEs from the region are invited to tour the institute and experience a presentation in order to get to know the work it does, and to generate ideas for joint research projects together with the scientists.

Chambers of Commerce. TUD is also involved in dialogue with business development and other social and political institutions in order to actively participate in designing development policy, while taking into account regional corporate structures. In this dialogue, the TUD Transfer Office acts as a central point of contact and mediator of joint research and collaborative projects between companies and scientists.

- **Contractual arrangements for research collaborations**

TUD enters into partnerships with companies. These collaborations range from individual projects to strategic partnerships. They include endowed professorships, scholarship programmes, jointly-supervised final papers, calls for competitions, provision of infrastructure and the operation of research centres. In addition to the acquisition of third-party funding from the private sector, TUD acquires knowledge about its partners' needs regarding scientific results. This in turn leads to information flowing back into the research areas and to a further sharpening of the profile of knowledge and technology transfer.

- **Transfer research**

The Institute of Intellectual Property, Competition and Media Law at TUD's Faculty of Law conducts research in the field of intellectual property law, including in particular patent, copyright and trademark law.

The Chair of Entrepreneurship and Innovation at the Faculty of Business and Economics deals with the development and financing of new companies, new products and processes of innovation, as well as with research into attitudes towards innovation and technology. Moreover, the Chair also carries out research on topics such as the regional nature of transfer channels and the investment of universities' capital in their own spin-off companies.

Within the scope of the Institutional Strategy, a group of junior researchers has been established to research innovative transfer models and to develop tools to close the transfer chain. The research results flow directly into the transfer activities of TUD.

At TUD's Faculty of Mechanical Engineering, the CIMTT²² is investigating and researching the transfer of knowledge and technology, with a particular focus on transfer in the Saxon-Bohemian border region.

- **Joint transfer services in the DRESDEN-concept alliance**

In the shape of the DRESDEN-concept science alliance, a network has been established with TUD at its centre and involving local scientific institutions and cultural institutions that are active in research, with the aim of tapping synergies in research, teaching, infrastructure and administration, thus making Dresden a more visible science location both nationally and internationally. The Transfer

²² See also page 9.

²³ TUD's Patent Information Centre (PIZ) is a group belonging to the Transfer Office. It provides researchers and inventors from scientific institutions and companies with a comprehensive range of services in the field of industrial property rights. International databases are available for IP searches. Trained engineering staff hold lectures and events on industrial patent protection.

Office works closely with the transfer actors from the partner institutions. They offer shared services, e.g. the use of the Patent Information Centre (PIZ)²³, continuing education for all alliance members and jointly-organised transfer events. The transfer actors co-ordinate issues concerning IP management, contractual arrangements, sales and the range of their services. The declared goal of all DRESDEN-concept partners is to continue raising the profile of and intensifying this co-operation.

3 PATENT AND LICENSING STRATEGY

3.1 FIELDS OF ACTION

The research results of TUD scientists provide the basis for technological innovations that contribute to strengthening Germany as a business location. At present, about 180 patent applications per year and a total of more than 20 patent-based spin-off companies have secured TUD a top position among German universities.

The competitiveness of national economies depends to a large degree on the extent to which they are able to translate knowledge into new products and processes on the market. Results from research and development can often only be economically exploited for new products and processes if they are protected. Companies shy away from making investments if the product based on the invention can be technically imitated and then put on to the market. Industrial property rights – patents, utility models, trademarks and designs – serve to safeguard innovations. They ensure the technical edge that is necessary to compete successfully. In this respect, the interests of commercial enterprises are geared towards exclusivity and strict confidentiality, while universities pursue the broad dissemination of scientific findings in the public interest.

The patent and licensing strategy set out here takes into account this conflict of different interests by means of clear rules and conditions for the handling of intellectual property belonging to TUD. It is integrated into the overall transfer strategy of TUD and, just like the overall strategy, consists of goals, principles and guidelines as well as measures for their implementation.

3.2 GOALS

- **Acquisition of third-party funds from industry**

Intellectual property rights contribute to developing and securing research areas. They facilitate further research, carried out together with business enterprises as part of third-party-funded projects. This makes the University more attractive for companies, resulting in a competitive advantage for TUD. TUD is compiling an intrinsically valuable intellectual property portfolio in order to acquire third-party funds for research projects undertaken together with commercial enterprises.

- **Safeguarding the technical advantage for the economy**

By means of intellectual property rights, TUD strives to safeguard those scientific results of university research in key areas that have a high potential for exploitation.

- **Expanding the international intellectual property portfolio**

TUD aims to expand its portfolio of international intellectual property rights, based on its extensive inventory of national patents. This will increase its attractiveness for commercial companies with a global orientation and will provide spin-offs with the opportunity to operate on international markets.

- **Promoting high-tech spin-off companies**

In order to strengthen Germany and the region as a location for innovation, TUD promotes the transfer of its intellectual property into technology-based spin-offs with a high potential for innovation. By co-operating with and participating in its spin-offs, TUD opens up new fields of research and sources of revenue.

- **Boosting exploitation outcomes**

TUD supports its scientists in identifying and examining the application potential of their research results, and thus in translating them into products and services. TUD endeavours to make optimum use of research results.

3.3 PRINCIPLES AND GUIDELINES

- **IP management services**

TUD offers its scientists a comprehensive range of support and services to help them achieve the goals mentioned above. Internal resources are made available and external resources are also used for this purpose.

- **Co-ordinating exploitation options with inventors**

Each exploitation strategy is developed together with the inventors involved. In each case, the type of exploitation is selected, taking into account the interests of inventors and Chairs/Institutes.

- **Wide use of research results**

The aim is for research results to be used as widely as possible. In order to make this a reality, the IP remains in principle the property of TUD. For this reason, exploitation by means of licensing is generally preferred to exploitation via the sale of property rights. Inventions or property rights may only be sold in consultation with the relevant Chairs/Institutes, and in objectively justified constellations of interests.

- **Use of intellectual property rights for further research**

An important concern of TUD is to take knowledge generated here and to develop it further with the help of companies or other institutions. Research at TUD that builds on this should be able to make use of intellectual property rights.

- **Supporting TUD's own spin-off companies**

An important goal of the transfer activities is to support spin-offs from TUD. For this reason, transferring IP to TUD's spin-offs is preferred to transferring it to other companies. The transfer takes place within the framework of the legal requirements at conditions that are beneficial to the spin-off company.

- **Responsibility for Germany and the region as a business location**

As a rule, in the event of several options with similar exploitation potential existing side by side, exploitation by a regionally-based company is preferred to that by a German company outside the region, and this, in turn, is preferred to exploitation by a company located abroad.

- **Exploitation at competitive market terms**

The dissemination of knowledge generated at TUD is paramount when it comes to exploiting research results. If commercial exploitation is deemed worthwhile, then TUD must act commercially. In doing so, it complies with the requirements of the Sächsisches Hochschulfreiheitsgesetz (*Saxon law governing autonomy of institutes of higher education*)²⁴. Accordingly, values created with public funds are not to be wasted or given away to third parties at a price below their actual value. TUD avoids distortion of competition by applying market conditions to exploitation and complying with the provisions of EU state aid law²⁵.

- **Exploitation proceeds for refinancing transfer services**

Revenues from exploitation are primarily used to cover costs for intellectual property rights and other expenses relating to transfer services. Such revenues are used for further extending and specialising transfer services. If Chairs/Institutes are also given a share in the exploitation revenues, these proceeds are to be used for further research projects.

- **Fair agreements with research partners when dealing with intellectual property rights**

TUD will ensure that all partners receive a fair share of the proceeds resulting from collaboration. For joint research projects, TUD enters into agreements prior to the start of the project as regards how to deal with existing and newly created intellectual property rights.

- **Services in intellectual property right proceedings are also available to non-employees**

In principle, the range of services and processes for securing and using intellectual property is also available to scholarship holders, visiting researchers and students at TUD. They have the opportunity to transfer their inventions to the University, and, in return, can avail themselves of the University's services in the same way as employees of TUD.

3.4 IMPLEMENTATION MEASURES

- **Services offered by the Transfer Office**

As part of the Excellence Initiative, TUD has set up a department²⁶ in the Central Administration that provides an intellectual property management service for all scientists. This service includes

- **advising** on strategic, financial and legal issues relating to applications, scope of intellectual property rights, use of intellectual property rights in research projects (background, foreground), as well as copyrights and software use

²⁴ § 11 Sächsisches Hochschulfreiheitsgesetz (*Saxon law governing autonomy of institutes of higher education*)

²⁵ Community framework for state aid for research and development and innovation (2006/C 323/01), section 3.2.2

²⁶ Transfer Unit in Directorate 5, Research Promotion and Transfer

- **evaluating** the invention as regards patentability and marketability: this is based on a detailed patent search that is carried out in the Transfer Office’s Patent Information Centre, and is included in a report recommending the scope of protection in terms of content and territory. It is on this basis that the decision either to utilise or to release inventions is made.
 - the **patenting procedure** from filing the application for protection of intellectual property rights with the patent offices through to the examination procedure and on to granting the patent
 - the **intellectual property rights management** of TUD’s entire intellectual property rights portfolio, including monitoring deadlines and payment of fees
 - the **marketing** of scientists’ research results that are of relevance to transfer: research results can be processed by the Transfer Office and made available at self-organised appearances at trade fairs. In addition, research competence and results relevant to transfer are presented in brochures, the transfer magazine “Transferbrief”, on the World Wide Web and at events for companies. TUD’s research information system contains an overview of the expertise of Institutes and Chairs as well as their research projects, technologies and intellectual property rights.
 - the **exploitation** of intellectual property rights: this includes the search for exploitation partners, determining the value of the property rights, drafting contracts to regulate the licensing of property rights, patent purchases, options as well as confidentiality agreements, and the negotiation of these contracts with the exploitation partners.
 - **compiling strategic intellectual property rights portfolios** in key areas and supporting Clusters and networks to ensure the international visibility of TUD’s research strengths
- raising awareness among/qualification** of scientists: in information sessions and workshops, the Transfer Office trains scientists in the areas of patent research, invention disclosure reports, patenting, property rights strategy, exploitation agreements and legal provisions set down in the *Arbeitnehmererfindergesetz (Employee Inventions Act)* and other laws and court rulings relevant to transfer. These events are co-ordinated with other transfer actors (internally and in the
- DRESDEN-concept alliance) and organised as joint formats.

In addition to these existing services, efforts are being made to expand innovation management as a service. At the Chairs/Institutes, decentralised innovation managers are tasked with supervising projects that are of relevance to transfer and, in doing so, with identifying their potential for exploitation.

In order to be able to offer these services professionally and competently, TUD provides the necessary human and material resources (patent specialists, patent software, search databases, trade fair appearances, etc.) in the Transfer Office.

In keeping with offering a holistic range of services, the Transfer Office co-operates closely with other transfer actors at TUD. Individual scientific Schools or Institutes can employ their own transfer actors for larger research projects. The Transfer Office is in regular exchange with these actors.

- **Collaboration with external service providers**

Applications for intellectual property rights are filed in collaboration with patent lawyers. The services of patent exploitation agencies can also be used when searching for collaboration and exploitation partners. In the form of the GWT GmbH, TUD has founded a company which supports TUD's Transfer Office in the acquisition of contract research and the exploitation of research results from projects. The GWT's Saxon Patent Exploitation Agency (SPVA) service sector looks for exploitation partners for marketable inventions from TUD. TUD also works together with the Federal Ministry for Economic Affairs and Energy (BMWi), using the latter's SIGNO²⁷ funding programme, and with other patent exploitation agencies to translate patentable and exploitable research results into products or services.

- **Co-ordinating the strategy with the inventors**

The Transfer Office determines the individual exploitation strategy together with the inventors. In discussions with inventors, the degree of protection required for the invention is worked out to ensure successful applications to the patent offices. Furthermore, an assessment of the exploitation potential is carried out together with the inventors, and ideas are generated for areas of application, further development and exploitation opportunities of the invention.

- **Utilisation according to clear criteria**

The utilisation of inventions is decided on in consultation with the inventors according to the following criteria:

1. **Exploitation potential:** inventions with exploitation potential are registered for intellectual property rights. Registration takes place in those countries where exploitation promises success and a comprehensible exploitation plan is available.
2. **Safeguarding the research field:** inventions can be registered for intellectual property rights even if there is initially no prospect of exploitation but where the property rights serve to protect the research field or are of strategic importance. This may be the case if the research competence and the technical advantage in key areas are to be documented and expanded or if there is a chance of obtaining third-party funding on the basis of the invention. In this event, an application is first filed for the national property right (DE-Patent) in order to secure priority. If the scope of protection is extended at the request of the inventors, the Institute or Chair involved bears the costs incurred.

- **Decision on maintenance in individual cases**

The decision on maintaining intellectual property rights is taken after careful examination in consultation with the inventors and the Institutes or Chairs responsible in each individual case.

²⁷ SIGNO is a German acronym standing for the protection of ideas for commercial use, and is a funding initiative of the Bundesministerium für Wirtschaft und Energie (BMWi – *Federal Ministry for Economic Affairs and Energy*).

The property rights are reviewed at regular intervals during the holding period. In good time or at the latest after a holding period of three years, the Institutes or Chairs step in to share the maintenance costs. A property right is held in TUD's portfolio if exploitation appears promising in the short to medium term, or attractive property right portfolios are to be compiled. Otherwise, they are released to the inventors.

- **Incentives for inventors and Institutes / Chairs**

TUD has both monetary and non-monetary tools for promoting the work of inventors. These include:

- Monetary incentives

Inventor remuneration: inventors receive a 30 % share of all income from the exploitation of their invention (§ 42 ArbNErfG). The remaining portion will initially be used for refinancing costs for intellectual property rights and transfer activities. Any outstanding revenue is then paid to the Institute or Chair from which the invention originated.

Sharing exploitation revenues with Institutes and Central Academic Units in cases where these pay patenting costs: if the patenting costs (costs for the application to the patent offices and costs for patent lawyers) are borne (proportionately), the Institutes and Central Academic Units receive a refund from the exploitation revenues²⁸.

- Non-monetary incentives

Central fund for property rights searches: TUD has set up a central fund for financing IP searches at TUD's Patent Information Centre (PIZ). The primary objective of this funding measure is to permanently compare, by means of IP searches, type and scope of research projects during planning, application and project duration with the international state of the art. In this way, repeating research on known state-of-the-art technology is avoided.

Providing support in the validation of research results by means of (a) workshops for the systematic further development of inventions up to market readiness and (b) consultation on suitable funding measures to prove functionality and/or technical feasibility; developing new areas of application and assessment of economic potentials of ideas²⁹ by **promotion of further training**, e.g. certificate courses on intellectual property³⁰ and courses on intellectual property rights management³¹

Highlighting outstanding research achievements and results by placing them on websites and in transfer brochures and newsletters

Presenting selected research results of relevance to transfer at trade fairs and transfer events

²⁸ After deducting the outstanding costs and the inventor's remuneration

²⁹ E.g. the BMWi's funding "Weiterentwicklung von Erfindungen" (*further development of inventions* – within the SIGNO funding programme for universities) and the funding measure of the Federal Ministry of Education and Research (BMBF) – "Validierung des Innovationspotenzials wissenschaftlicher Forschung – VIP" (*Validating the innovation potential of scientific research*)

³⁰ Certificate courses are offered by the Institute of Intellectual Property and Media Law at TUD (IGEWEM)

³¹ A service of the Transfer Unit

- **Dealing with inventors who are not employed by TU Dresden**

Scholarship holders working at TUD, visiting researchers and students can transfer their inventions to the University. They will then also receive a 30 % share of the inventor remuneration resulting from the exploitation proceeds. However, in contrast to job-related inventions, the inventor remuneration for this group of inventors will be calculated after deduction of costs.

- **Drafting exploitation agreements**

In the transfer of property rights, TUD reserves a right of use for its own research and teaching as well as for research for and with third parties. Furthermore, participating scientists are guaranteed freedom of publication. In principle, in the case of licensing, a non-exclusive licence will be granted. If the licensee wishes to have an exclusive licence, the area of use for his/her needs is defined and the right of use is limited to this area. If intellectual property rights are sold, TUD is entitled to a grant-back licence free of charge for those areas of use in which research is to be carried out with or for other potential exploitation partners.

When it comes to licensing, TU Dresden provides several licensing models. In principle, a down payment is charged upon conclusion of the licence agreement. In addition, revenue-based royalties are agreed. Milestone-related performance payments are also possible, such as those associated with the progressive development of drugs in the clinical phases.

In the case of licence agreements with spin-off companies, the down payment may be waived if the TUDAG participates in the spin-off. In the event of an exit, TUD itself will receive part of the TUDAG's proceeds (Dresden model).

In the case of a patent purchase, a portion of the purchase price is waived for equity participation of the TUDAG analogous to the model described.

Analogous to the contract design described, exploitation contracts are also concluded for research results not eligible for intellectual property rights, e.g. computer programs, process instructions or formulations.

- **Dealing with inventions made jointly with non-university institutions**

In the case of joint inventions, the costs of filing the application for intellectual property rights are borne in proportion to the respective inventor's share. Exploitation proceeds are apportioned in the same way.

If, in the case of contract research or joint inventions, the application for intellectual property rights is filed solely by the invention partner, TU Dresden will ensure co-application in order to guarantee the visibility of its research results in patent searches.

Uniform regulations regarding joint inventions are pursued together with the partner institutions of DRESDEN concept through the use of model contracts.

