MINISTERSTVO ŠKOLSTVÍ, MLÁDEŽE A TĚLOVÝCHOVY

SELF-EVALUATION REPORT MODULE 3

EVALUATED UNIT: Faculty of Textile Engineering (FT)

FORD: 2. Engineering and Technology (2000)

MINISTERSTVO ŠKOLSTVÍ, MLÁDEŽE A TĚLOVÝCHOVY

MODUL 3 SOCIAL RELEVANCE

SOCIAL RELEVANCE / SOCIAL BENEFIT OF THE EVALUATED UNIT[1]

3.1 General self-assessment of the social benefit of R&D&I in the fields of research at the evaluated unit, and of the evaluated unit as a whole

The evaluated unit gives a concise, general but informative account of the benefit of R&D&I in the fields in the 2014–2018 reporting period.

Self-evaluation:

The Faculty of Textile Engineering (FT) ***is one of the largest faculties in the EU involved in all-round textile material engineering*****.** Its quality staffing and many specialised laboratories with cutting-edge instruments provide it with the opportunity to work on R&D&I tasks alongside with its educational function, particularly in the unique field of technological and material engineering (research and development of fibrous structures in a wide range of areas). FT is a renowned leader in the field of nanofibres, and the discovery of the technology of production of nanofibrous formations makes it one of the prestigious higher education institutions in the world.

HTML links to additional documentation:

FT TUL Website: http://www.ft.tul.cz/en/
FT TUL Annual Report 2018: http://www.ft.tul.cz/en/document/2666
FT TUL Self-Evaluation Report 2014-2018: http://www.ft.tul.cz/en/document/2680
Nanofibres R&D&I and Cooperation Opportunities: http://www.ft.tul.cz/en/departments/department-of-nonwovens-and-nanofibrous-materials/department-profile

APPLIED RESEARCH PROJECTS

3.2 Applied research projects [2]

The evaluated unit presents a maximum of the five most significant (from the perspective of evaluated unit) applied research projects in the 2014–2018 reporting period from the complete list in the appendix (tables 3.2.1 and 3.2.2), particularly with regard to the results achieved or a project's potential for application.

Self-evaluation:

FV10416: Nanofibrous wound dressings, enhanced wound healing and reduced treatment times. Clinical trials are under way.
FV20287: Textiles and clothing for patients with specific skin conditions (EB, psoriasis etc.).
DF13P01OVV004: Conservation and protection of old prints were developed.

[1] *In accordance with Section 22(1) of Act No 111/1998 on universities, amending certain acts (the Universities Act), as amended.*

[2] *Under Section 2(1)(b) of Act No 130/2002, applied research is theoretical and experimental work aimed at gaining new knowledge and skills for the developing of new or substantially improved products, processes or services; applied research includes industrial research or experimental development, or a combination of both. Under Article 2 of Commission Regulation (EU) No 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty, industrial research means planned research or critical investigation aimed at the acquisition of new knowledge and skills for developing new products, processes or services, or for bringing about a significant improvement in existing products, processes or services. It comprises the creation of component parts of complex systems, and may include the construction of prototypes in a laboratory environment or in an environment with simulated interfaces to existing systems as well as of pilot lines, when necessary for the industrial research and notably for generic technology validation; experimental development means acquiring, combining, shaping and using existing scientific, technological, business and other relevant knowledge and skills with the aim of developing new or improved products, processes or services. This may also include, for example, activities aiming at the conceptual definition, planning and documentation of new products, processes or services.*

VI20172020059: Hybrid protective textiles for capturing chemical warfare agents and ionising radiation.
TA04011019: A new type of "smart" car upholstery for improved comfort and better moisture transport.

HTML links to additional documentation:
FT TUL Annual Report 2018: http://www.ft.tul.cz/en/document/2666
FT TUL Self-Evaluation Report 2014-2018: http://www.ft.tul.cz/en/document/2680
FT TUL Applied Research Projects: http://www.ft.tul.cz/en/research/projects/projects

3.3 Contract research [3]

The evaluated unit briefly comments on revenues from contract research for the 2014–2018 reporting period from the complete list in the appendix (tables 3.3.1 and 3.3.2).

Self-evaluation:
Contract research revenues were generated in keeping with the mission and vision of the FT from collaboration with:

- Industry chambers and manufacturers' platforms (*ATOK*, *CLUTEX*, *ČTPT*)
- Textile and clothing manufacturers and organisations using textiles (*SVITAP*, *Perla*, *Johnson Controls*, *Zentiva*, *Škoda Auto*, *Defence Research and Development Organisation*, etc.)
- Organisations from the field of culture, through creative artistic work

Consistent and continuous collaboration based on high levels of professionalism and tradition provides FT with the opportunity to get actively involved in the creation of national textile and clothing industry strategies and flexibly respond to market demand not only with new topics of joint CR projects but subsequently through the innovation of study courses.

The volume of CR slightly increases, with its scope limited by the capacity of FT.

HTML links to additional documentation:
FT TUL Annual Report 2018: http://www.ft.tul.cz/en/document/2666
FT TUL Self-Evaluation Report 2014-2018: http://www.ft.tul.cz/en/document/2680
FT TUL Mission, Vision, Strategy: http://www.ft.tul.cz/en/faculty
FT TUL List of National Activities: http://www.ft.tul.cz/en/research/cooperation/national-activities

3.4 Revenues from non-public sources (besides grants or contract research) from research work

The evaluated unit briefly comments on revenues for the 2014–2018 reporting period for R&D&I from non-public sources, besides grants or contract research (e.g. licences sold, spin-off revenues, gifts, etc.). It presents a complete list in the appendix (table 3.4.1).

Self-evaluation:
Revenues from activities (in the order of frequency): expert analysis, consultancy, testing, licensing fees and donations; revenues are generally constant and proportional to the size and capacity of the evaluated unit. The most significant benefit of this kind of collaboration is the current portfolio of contacts with prospective CR clients and the planning of joint projects.

HTML links to additional documentation:
FT TUL Annual Report 2018: http://www.ft.tul.cz/en/document/2666
FT TUL Self-Evaluation Report 2014-2018: http://www.ft.tul.cz/en/document/2680

[3] *For a definition of contract research for the purposes of evaluation in the universities sector, see Article 2.2.1 of the Community framework for State aid for research and development and innovation (2014/C 198/01).*

APPLIED RESEARCH RESULTS

3.5 Applied research results with an existing or prospective economic impact on society

The evaluated unit briefly comments on a maximum of the five most significant (from the perspective of the evaluated unit) applied research results that have already been applied in practice, or that will realistically be applied, in the 2014–2018 reporting period from the overview in the appendix (table 3.5.1).

Self-evaluation:

Thirty-three patents, 48 utility models, five prototypes and 27 functional samples were recorded. The following are the most important areas of application:

A) Licences sold

UV 28912: Monitoring the physiological comfort in the boundary surface layer of car seats; the licensee is *Adient Strakonice s.r.o.*

B) Joint ownership agreements

UV 27368, *PV 307884*: Supplies of membrane outfits for the Slovak Army; the joint owners (the *FT* and *Svitap J.H.J., s.r.o.*) signed a licensing agreement with a licensee (*Nanomembrane s.r.o.*).

C) On the way to application

EP3077811A1: *Method and Device for Fatigue Testing of Photochromic, Fluorescent or Phosphorescent Dyes.* Talks are underway with prospective international buyers of the device.

An IP set (*PV 2015-117*, *PV 2015-404*, *UV 31723*) protecting the methods of production of the medical device *Emergency and chronic wound dressing*. For clinical trials (see 3.6) collaboration agreements were signed with the following hospitals: *Liberec*, *Bulovka Hospital Prague* and *Královské Vinohrady Prague*.
An IP set (*UV 304137*, *UV 306428*, *UV 306772*, *UV 307745*) protecting the principles of alternate current electrospinning for the production of nanofibrous structures. A confidentiality agreement with an agent has been signed.

HTML links to additional documentation:

FT TUL Annual Report 2018: http://www.ft.tul.cz/en/document/2666
FT TUL Self-Evaluation Report 2014-2018: http://www.ft.tul.cz/en/document/2680

3.6 Significant applied research results with an impact other than an economic one on society

The evaluated unit gives a concise account of a maximum of the five most significant (from the perspective of the evaluated unit) applied research results with an impact other than an economic one on society in the 2014–2018 reporting period (typically results from disciplines in the humanities and social sciences) from the overview in the appendix (table 3.6.1).

A) Results with a long-term application horizon, having impact on improving quality of life and health of individuals:

1) Emergency and chronic wound dressings whose structure accelerates healing
2) A 3D scaffold for thymus gland implant tissue regeneration
3) A nanofibrous layer to cover anastomoses on the large intestine after surgery
4) Small-diameter multi-layer vascular grafts

B) Innovative technologies and materials used in artistic work

FT's strategy also includes the application of R&D&I results in new methods and forms through artistic work. The results activate and creatively inspire relations among academics, students and the general public, giving rise to new challenges and opportunities such as a collection of Braille-embossed clothing (see 5).

HTML links to additional documentation:

FT TUL Annual Report 2018: http://www.ft.tul.cz/en/document/2666
FT TUL Self-Evaluation Report 2014-2018: http://www.ft.tul.cz/en/document/2680

COOPERATION WITH THE NON-ACADEMIC ENVIRONMENT AND TECHNOLOGY TRANSFER

3.7 The evaluated unit's most significant interactions with the non-academic application/corporate sphere

The evaluated unit gives a concise account of the most typical users of its outputs. It explains whether and how it identifies them and how it works with them. It provides examples of a maximum of ten of the most significant interactions with the non-academic environment in the 2014–2018 reporting period.

Self-evaluation:

As a leading institute, FT is involved in long-term work on the concepts of development of the textile and clothing industry in collaboration with industry chambers, trade associations and employer organisations, and through 44 framework collaboration agreements works on specific R&D&I tasks.

- *Nanomembrane s.r.o.*: Development of know-how in the field of nanofibrous layers acting as a steam-permeable clothing membrane
- *Ministry of Interior – Directorate General of Fire Rescue Service*: Artistic design and technical specifications of the *Fire Service uniform* (protected through industrial design rights)
- *Defence Bio-Engineering and Electro-medical Laboratory* (*DEBEL*), *Defence Research and Development Organisation* (*DRDO*), Ministry of Defence, India - A two-year contract for research of a shape-memory material for improving thermal insulation properties of clothes.
- *L&L products, s.r.o.*: Commissioned research in the field of composite materials for the automotive industry (a confidential agreement)
- *Rieter CZ s.r.o.*: A joint project - *Processing waste and recycled textile fibres*

The results of linking scientific and artistic work are regularly (nine times a year) presented through exhibitions (*Galerie N*).

HTML links to additional documentation:

FT TUL Annual Report 2018: http://www.ft.tul.cz/en/document/2666
FT TUL Self-Evaluation Report 2014-2018: http://www.ft.tul.cz/en/document/2680
FT TUL R&D&I Cooperation: http://www.ft.tul.cz/en/research/cooperation/national-activities
FT TUL Laboratories: http://www.ft.tul.cz/en/labs
FT TUL Organised Conferences: http://www.ft.tul.cz/en/research/conferences/conferences

3.8 System and support of technology transfer and intellectual property protection (can be extended to the whole university, emphasising the specific features of the evaluated unit)

The evaluated unit gives a concise account of its system of technology transfer. It conducts an evaluation of the quality of its applied research and the effectiveness of technology transfer using the data presented in the appendix (table 3.5.1). This commentary will highlight the number of filed and granted patents (Czech and international) and licences sold.

Self-evaluation:

FT develops the strategy described in the TUL Guideline (see the Appendix).

TUL granted four sole-ownership licences **and** 35 TUL joint-ownership agreements **were signed.**
In terms of its capacity, FT's collaboration with the application area is appropriate. Due to the fast innovation spiral, typical of the textile industry, the results of collaboration are more beneficial in terms of knowledge rather than finance.

HTML links to additional documentation:

TUL Strategic Development Plan for 2020 with a Forward View to 2030:
https://www.tul.cz/files/documents/xlkz8i/The-TUL-Strategic-Development-Plan-for-2020-with-a-forward-view-to-2030.pdf

FT TUL Annual Report 2018: http://www.ft.tul.cz/en/document/2666

3.9 Strategy for setting up and support of spin-off firms or other forms of commercialization of R&D&I results (can be extended to the whole university, emphasising the specific features of the evaluated unit)

The evaluated unit gives a concise account of the practical use of its intellectual property in the form of setting up spin-off firms or other forms of commercialising R&D&I results (both with or without the participation of the university) established by the evaluated unit (university), another entity controlled by the evaluated unit (university), or an employee of the evaluated unit, presenting the model for their functioning and coordination, and control of intellectual property management of the evaluated unit (university).

Self-evaluation:
Not applicable.

HTML links to additional documentation:

RECOGNITION BY THE SCIENTIFIC COMMUNITY

3.10 The most significant individual awards for R&D&I

The evaluated unit presents a maximum of ten examples of the most significant R&D&I awards received (in the Czech Republic and in other countries) in the 2014–2018 reporting period.

Self-evaluation:

A) Academics

- Prof. Militký, 2018: The ***Lifetime Achievement Award in Textile Science*** (2018) presented by the Association of Universities for Textiles (*AUTEX*). Nicknamed the "Textile Oscar" by trade insiders, this award gives international recognition to the excellent results achieved at the Faculty of Textile Engineering TUL.
- Prof. Militký, 2016: ***Honorary Lifetime Contribution Award,*** the Textile Bioengineering and Informatics Society (*TBIS*).
  Prof. Hes, 2016: The ***Innovation Award*** given by *The Textile Institute Manchester* for technical innovation and innovation in marketing and economic development in the textile industry.

B) PhD students

- Ing. Klíčová, 2018: The ***Innovator of the Year Audience Award*** at the international conference *The Falling Walls in Berlin* for R&D&I in the field of nanofibrous plasters for improving healing after large intestine surgeries (attended by 3000 participants from 57 countries).
- Ing. Horáková, 2016: The ***Théophile Legrand Innovation Award Textile Serving Human*** - 1st place for a project dealing with vascular grafts.

HTML links to additional documentation:
FT TUL List of Individual Awards: http://www.ft.tul.cz/en/faculty/awards
FT TUL Annual Report 2018: http://www.ft.tul.cz/en/document/2666
FT TUL Self-Evaluation Report 2014-2018: http://www.ft.tul.cz/en/document/2680

3.11 Recognition by the international R&D&I community

The evaluated unit provides the following information / examples demonstrating recognition by the international scientific community in the 2014–2018 reporting period, with a commentary:
It presents a maximum of ten examples of its academic staff's participation on the editorial boards of international scientific journals (e.g. editor, member of the editorial board) in the appendix (table 3.11.1),
It presents a maximum of ten examples of the most significant invited lectures by the evaluated unit's academic staff abroad in the appendix (table 3.11.2),
It presents a maximum of ten examples of the most significant lectures by foreign scientists and other guests relevant to the R&D&I field in the appendix (table 3.11.3),
It presents a maximum of ten examples of the most significant elected memberships of professional societies (table 3.11.4).

Self-evaluation:

R&D&I excellence - Evaluation of results in international rankings

With the total number of 251 documents between 2014-2018 in the Materials Science-Textiles research sub-area, TUL (FT TUL) comes 7th among the other, approximately 2814 organisations in the world (of those 37.8% documents are in Q1 and 28.0% in Q2).

Membership of FT in associations

FT is involved in creating EU-level strategies, is a member of the Association of Universities for Textiles (*AUTEX*) and the global *Textile ACADEMY*, Winthertur. As a member of the Association of Textile-Clothing–Leather Industry (*ATOK*) it takes part in *EURATEX* (*European Apparel and Textile Confederation*) meetings.

Accreditation of FT's study programmes in English

- All study programmes run are accredited by the European Federation of National Engineering Associations (*FEANI*) and the industry organisation *The Textile Institute Manchester*.
- Thirty-four of the total number of 61 PhD students are international, which is the maximum capacity with respect to the Faculty's size.

D) Collaboration with international partners

Eighty-seven agreements in effect (America (3), Europe (60), Asia (21), and Africa (3)).

Staffing links (table 3.11.1-4)

- **Involvement in editorial councils**
  For 2018 the Journal Citation Reports index 24 trade journals in the Materials Science-Textiles research sub-area. FT has its academic staff members on the editorial councils of seven of those (according to AIS 2×Q1, 4×Q2, 2×Q3).
- **Invitation lectures given by experts at FT** as part of
  - *international conferences* (annually FT holds one international conference attended by more than 100 participants),
  - *short stays* (every year there are approximately 15-20 week-long stays).

HTML links to additional documentation:

FT TUL List of International Activities: http://www.ft.tul.cz/en/research/cooperation/international-activities
FT TUL List of European Partners: http://www.ft.tul.cz/en/research/cooperation/european-partners
FT TUL List of International Partners: http://www.ft.tul.cz/en/research/cooperation/international-partners
FT TUL Annual Report 2018: http://www.ft.tul.cz/en/document/2666
FT TUL Self-Evaluation Report 2014-2018: http://www.ft.tul.cz/en/document/2680
FT TUL Organised Conferences: http://www.ft.tul.cz/en/research/conferences/conferences
International Conference of Structure and Structural Mechanics of Textiles (STRUTEX): http://strutex.ft.tul.cz/
Fiber Society Spring Conference: https://thefibersociety.org/Conference-Information/Past-Conferences
9th Central European Conference (Fibre-Grade Polymers, Chemical Fibres, Special Textiles): http://cec2017.ft.tul.cz/
North European Symposium for Archaeological Textiles (NESAT XIII): http://www.nesat.org/nesat_13/info_en.html

POPULARISATION OF R&D&I

3.12 The most significant activities in the popularisation of R&D&I and communication with the public

The evaluated unit gives a concise account of its main activities in the area of popularisation of R&D&I and communication with the public in the 2014–2018 reporting period, and presents a maximum of ten examples that it considers the most significant.

Self-evaluation:

FT's strategy is to focus on the general public and prospective students. Examples by type: with emphasis placed on the synergy effect of such activities:

Presenting R&D&I results in popular science form through various media outlets

- *Hyde Park Civilizace* - A popular science TV programme - a talk about the application of nanofibres.

Presentation of smart and highly functional textiles in artistic outputs

- *EXPO* (2015) Milan, IT (themed as Feeding the Planet, Energy for Life). On display: A fluorescent yarn fabric, a 3D patterned fabric, nanofibres in arts and application of optical fibres.
- Designblok Prague. (*2017, 2018*). Students' works.

Long-term work with talented individuals in primary and tertiary education

- (*2014-2017*) Regular tuition as part the Children's University project
- (*2015-2018*) Hosting a Clothing and Textile competition (500 pupils)

HTML links to additional documentation:

FT TUL Annual Report 2018: http://www.ft.tul.cz/en/document/2666
FT TUL Self-Evaluation Report 2014-2018: http://www.ft.tul.cz/en/document/2680
FT TUL Media: http://www.ft.tul.cz/en/faculty/media

APPENDICES (TABLES)

3.2 Applied research projects

3.2.1 Projects supported by a provider from the Czech Republic

As the beneficiary						
Provider	Project title	Support (EUR thousand)				
		2014	2015	2016	2017	2018
MoI	Research of the possibilities for application of a new materials (focusing on nano-materials) and advanced technologies for protection of people against the exposure to CBRN materials, with emphasis on critical infrastructure (*VG20102014049*)	44.83				
MEYS	Nanofibrous materials for tissue engineering (*ED3.1.00/14.0308*)	94.90	45.62			
MEYS	Support of the creation of excellent research and development teams at the Technical University of Liberec (*EE2.3.30.0065*)	234.63	288.44			
GACR	Polymer solutions in an external field: molecular understanding of electrospinning (*GAP208/12/0105*)	29.85	29.85			
MoC	Survey, conservation and care about library collections after year 1800 - materials and technologies (*DF13P01OVV004*)	53.24	53.20	53.24	51.93	
MoH	Nanofibrous Biodegradable Small-Diameter Vascular Bypass Graft (*NV15-29241A*)		52.94	66.62	62.13	58.21
MEYS	Development of hemocompatible electrospun scaffolds (*8J18DE012*)					2.91
GACR	Improved growth of human skin cells on biomimetic nanofibrous matrices for active wound healing (*GA17-02448S*)				38.00	38.00
TACR	Sophisticated hybrid tapes for fabrication of composites by precise winding (*TJ01000292*)				13.64	50.85
MoI	Smart textile against CBRN agents (*VI20172020059*)				102.04	93.59
MEYS	CxI TUL Management Mechanisms with a focus on increasing the quality of the results of R&D&I activities (*EF16_028/0006198*)				161.03	119.56
MEYS	Hybrid Materials for Hierarchical Structures (*EF16_019/0000843*) – FM, FT, CxI					776.13
MEYS	Student Grant Competition (*SGS*)	130.44	142.9	160.5	159.59	206.51
Total		587.90	612.98	280.36	588.36	1345.76
As another participant						
Provider	Project title	Support (EUR thousand)				
		2014	2015	2016	2017	2018
TACR	Interdisciplinary research and development of special functional textiles and extraordinary physiologically user friendly end-products based on new generation cellulose or synthetic fibres designed for specific innovative market suitable applications (*TA01011253*)	65.23				

TACR	Water nanodispersion for functional surface treatment (*TA01010613*)	14.94				
MIT	Environmentally Acceptable Ways of Felting (*FR-TI4/296*)	13.34				
TACR	Nanofibres and abrasive nanoparticles as a base of new generation tools for fine polishing of surfaces *(TA03010609*)	38.11	38.11			
TACR	Proposal of new sophisticated 3D textile structures with elements of hi-tech and smart materials used for upholstery covering of car seats to improve their product capabilities (*TA04011019*)	15.13	40.99	38.22	37.59	
TACR	Matrix systems for healing of skin defects for human and veterinary use (*TA04010065*)	7.88	15.47	14.76	14.57	
TACR	Heat exchangers with polymeric hollow fibres for energetic systems of buildings (*TH01020139*)		9.30	9.30	9.34	9.34
TACR	Energy efficient line lighting systems (*TH01021163*)		37.10	43.23	38.22	18.91
MIT	Intelligent textiles for seniors (*EG15_019/0004528*)					7.55
MIT	Sky Paragliders a.s. - research and development of technical textile for airplane saving parachute systems (*EG15_019/0004588*)					18.34
MIT	Meditex - research and development of new types of advanced textile materials with high potential intended to be applied in special textiles for medical and convalescent care (*FV10098*)			27.50	53.58	53.58
MIT	Hybrid safety products (*FV10356*)			14.01	52.31	52.31
MIT	Nanofibrous Wound Dressing (*FV10416*)			30.19	95.65	95.65
MIT	Senior Tex-Smart Modular clothing and textile products with integrated electronic microsystems for improving the health care of the aging population and handicap people (*FV10111*)			20.03	55.93	55.71
MEYS	Wearable IoT (*LTE217018*)					9.68
MIT	TEXDERM - Textiles and clothing showing increased comfort intended for specific needs of children suffering from dermatological troubles (*FV20287*)				20.62	41.66
MoH	Treatment of diabetic wounds using nanofibrous dressings releasing platelet lysate components (*NV18-01-00332*)					32.06
TACR	PROSYKO - Pro-Active System of Commercialisation at TU Liberec (*TG01010117*): CxI-FT sub-projects	9.61	24.22	45.83	42.55	30.83
MEYS	Innovative products and environmental technologies (*ED3.1.00/14.0306*): CxI-FT sub-projects	188.38	125.95			
Total		352,63	291.14	243.06	420.36	425.60

3.2.2 Projects supported by a provider from another country

As the beneficiary						
Provider	Project title	Support (EUR thousand)				
		2014	2015	2016	2017	2018
Total						
As another participant						
Provider	Project title	Support (EUR thousand)				
		2014	2015	2016	2017	2018
Total						

3.3 Contract research

3.3.1 Research work contracted by a client from the Czech Republic

Client	Research title	Revenues (EUR thousand)				
		2014	2015	2016	2017	2018
Svitap JHJ spol. s. r.o.	Development of the technology and the innovation of new machinery for producing nanolayers and the application of the new generation of nanofibrous membranes for barrier-free clothing. (*RIV/46747885:24410/14:#0003867*)	7.85				
ČTPT z.s.	Selected topics of the application of textile structures (*RIV/46747885:24410/14:#0003866*)	7.47				
Johnson Controls, a.s.	Special measurement of technical fabrics (*RIV/46747885:24410/14:#0003868*)	1.77				
Svitap JHJ spol. s. r.o.	2015 Annual Report (*RIV/46747885:24410/15:00003350*)		12.98			
Grammar AG	Report of car seat tests for Grammer (*RIV/46747885:24410/15:00003340*)		6.26			
Pumax spol. s r.o.	Seamless - expert development (*RIV/46747885:24410/15:00003503*)		4.67			
ČVUT	Artificial muscle (*RIV/46747885:24410/15:00003329*)		5.96			
Zentiva k.s.	Development and production of ODF (*RIV/46747885:24410/15:00003328*)		26.15			
L a L Products s.r.o.	Patterning using pilot line STRUTO (*RIV/46747885:24410/15:00003327*)		2.69			
Perla, netkaný textil, a.s.	Using PERVIN for electrospinning (*RIV/46747885:24410/16:00003628*)			3.70		
Alucon, s.r.o.	Design of storage jets for interoperable storage tows (*RIV/46747885:24410/16:00003609*)			2.24		
Zentiva k.s.	Development of new products (*RIV/46747885:24410/16:00002215*)			39.23		
Škoda Auto	Feasibility study-textile evaluation. A report from the first project stage (*RIV/46747885:24410/16:00003629*)			4.61		
H&D a.s.	Development of high durability working gloves for hot operations (*RIV/46747885:24410/16:00003634*)			3.36		

Grund a.s.	3D fabric for specific end use3D (*RIV/46747885:24410/16:00003717*)			11.21		
L a L Products s.r.o.	L L Products (*RIV/46747885:24410/17:00004985*)				34.30	
Zentiva k.s.	Development of ODF films (*RIV/46747885:24410/17:00004989*)				54.25	
Total		17.09	58.71	64.36	88.55	

Note: List and describe contract research work with the revenue for the calendar year in question.

3.3.2 Research work contracted by a foreign client

Client	Research title	Revenues (EUR thousand)				
		2014	2015	2016	2017	2018
Mubea Carbo Tech GmBH	Mechanical tests of exterior car parts for a project (*RIV/46747885:24410/14:#0003869*)	9.27				
Defence Bio-Engineering and Electro-medical Laboratory (*DEBEL*), Defence Research and Development Organization (*DRDO*)	Preliminary concept review document for research services, design, development & supply of advanced insulation materials (*RIV/46747885:24410/14:#0003870*)	126.10				
Defence Bio-Engineering and Electro-medical Laboratory (*DEBEL*), Defence Research and Development Organization (*DRDO*)	Final technical report on the collaborative R&D effort - phase V (*RIV/46747885:24410/16:00003795*)		140.11	89.80		
Total		135.36	140.11	89.80		

Note: List and describe contract research work with the revenue for the calendar year in question.

3.4 Revenues from non-public sources (besides grants or contract research)

3.4.1 Overview of revenues from non-public sources raised for the 2014–2018 reporting period

Revenue type	Revenues (EUR thousand)				
	2014	2015	2016	2017	2018
Expert analysis, consulting, testing as part of supplementary activities	22.72	34.57	80.28	84.84	53.45
Donations for R&D&I	5.45				
Licences	10.47	9.08	4.75		
Total	38.65	43.65	85.03	84.84	53.45

Note: List funds for R&D&I from non-public sources, besides grants or contract research (e.g. licences sold, spin-off revenues, gifts, etc.) in each calendar year.

3.5 Applied research results with an economic impact on society

3.5.1 Overview of applied research results in the 2014–2018 reporting period

List and describe the results that have already been applied in practice, or that will realistically be applied, with an existing or prospective economic impact on society. Under "patents" and "licences sold", list all the results; under other results list a *maximum* of five items. Unless otherwise specified below, the definition of a result must correspond to the definitions under the Methodology for Evaluating Research Organisations and Research, Development and Innovation Purpose-Tied Aid Programmes, Appendix No 4: Definitions of Types of Results.

Results	Year	Title
European patent		
American patent		
US10041189B2 The result of the patent is, used by Nanoprogres, z.s., Pardubice, on the basis of the Works Contract of 7 December 2017. (TUL: 60%)	2018	A method of production of polymeric nanofibres using electrospinning of a polymer solution or melt in an electric field
Czech licenced patent		
307613 Licensing talks under way (FT: 16.6%)	2018	A louvre for louvre fire protection doors, especially high-speed louvre fire protection doors, and louvre fire protection doors, and louvre fire protection doors, especially high-speed fire protection doors with these louvres
307377 The patent is used based on a licensing agreement by Jap - Jacina, s.r.o. (FT: 12.5%)	2018	A mobile flood protection wall
306772 The result of the patent is used by Nanoprogres, z.s., Pardubice, on the basis of the Works Contract of 18 December 2017, part Granting Know-How. (FT: 50%)	2017	A method of producing polymerous nanofibres using electrospinning a polymer solution or melt, an electrospinning electrode for this method and equipment for producing polymerous nanofibres fitted with at least one such electrode
306428 The result of the patent is, used by Nanoprogres, z.s., Pardubice, on the basis of the Works Contract of 11 December 2017, part Granting Know-How. (FT: 50%)	2016	A linear fibrous formation with a polymerous nanofibre shell enveloping the supporting linear formation making up the core, and a method of and equipment for its production
305698 A licensing agreement with AQUATEST a.s. from 28 April 2016, valid until 28 April 2018. (FT: 50%)	2015	A biomass carrier for bioreactors
305702 A joint ownership agreement (FT, GRUND) (FT: 60%)	2015	A textile anti-slip mat, especially a bathroom mat

305675 A joint ownership agreement (FT, VIOLA NANOTECHNOLOGY) (FT: 75%)	2015	A method of increasing the hydrostatic resistance of polymer nanofibre layers, a layer of nanofibres with increased hydrostatic resistance, and a multi-layer textile composite material containing at least one such layer
304873	2014	Pressure and/or force sensor
Other foreign patents		
JP6360492B2 The result of the patent is used by Nanoprogres, z.s., Pardubice, on the basis of the Works Contract of 7 December 2017 (TUL: 60%)	2018	A method of producing a polymer nanofibres by spinning a solvent solution or melt of polymer in electric field, and the linear form of the polymer nanofibres prepared by this method
RU2672630C2 The result of the patent is used by Nanoprogres, z.s., Pardubice, on the basis of the Works Contract of 7 December 2017 (TUL: 60%)	2018	Method for production of polymeric nanofibres and linear formation from polymeric nanofibres prepared by this method
CN105008600B (TUL: 60%)	2017	A method of producing polymerous nanofibres using electrospinning a polymer solution or melt, and a linear formation from polymeric nanofibres prepared by this method
Licences sold		
UV 28912 (utility model) The TUL granted a licence to ADIENT Strakonice, s.r.o. (FT TUL: 100%)	2015	A measuring device for monitoring the physiological comfort in the boundary surface layer of car seats
UV 27368 (utility model) The TUL and SVITAP (a joint ownership agreement) – granted a licence to NANOMEBRANE, s.r.o.	2014	Textile composite
307884 The TUL and SVITAP (a joint ownership agreement) – granted a licence to NANOMEBRANE, s.r.o.	2019	A method of producing a textile composite used primarily for outdoor applications, which contains at least one polymer nanofibre layer, and a textile composite prepared using this method
UV 21770 (utility model) A licensing agreement with Kalas Sportswear s.r.o. Tábor	2014	A device to indicate change of direction and braking
Significant analyses / surveys / studies		
Not applicable		
Spin-off with a stake held by the evaluated unit		
Not applicable		
Spin-off with no stake held by the evaluated unit		
Not applicable		
Prototypes		
Not applicable		
Varieties and breeds		
Not applicable		
Other (utility models)		
UV 29028 TUL(30%) and VÚB(70%) - a joint ownership agreement	2015	Fabric, especially knitwear, for protecting users in cold climates

UV 28953 TUL(30%) and VÚB(70%) - a joint ownership agreement	2015	Fabric, especially knitwear, for protecting users in cold climates
UV 27192 TUL and POLPUR, s.r.o. - a joint ownership agreement	2014	A layered material / fabric for polishing hard surfaces
UV 31332 TUL(30%) and VÚB(70%) - a joint ownership agreement	2017	Knitted fabric used especially for bedclothes, made from blended yarns
UV 27338 TUL(30%) and VÚB(70%) - a joint ownership agreement	2014	Fabric, especially knitwear, used as clothing for RA patients

Note: "Licence" refers to a licence for a result of R&D&I in the broadest sense of the word (licences for patents, utility models, industrial designs; copyright licences for software and other works, and any other licences).

For the purposes of this methodology, a "spin-off" is a juridical person established to commercialise knowledge, usually with the inclusion/transfer of the rights to this knowledge to such juridical person. List all instances of legal persons.

3.6 Significant applied research results with an impact other than an economic one on society

3.6.1 Overview of applied research results for the 2014–2018 reporting period with an impact other than an economic one on society

Result type	Name	Anticipated impact
1) F_{uzit}	Chvojka J, Lukáš D, Mikeš P, et al. Emergency and chronic wound dressing. [utility model]. Registered on 24 April 2018 under No. *UV 31723*. Dzan L, Krchová S, Chvojka J, et al. A method of producing a formation from biodegradable and biocompatible nanofibres, especially for wound dressings, and a device for this method. [invention application]. Submitted on 20 February 2015 under No. *PV 2015-117*. Chvojka J, Lukáš D, Kuželová-Košťáková, et al. Skin and wound dressings containing cannabidiol and / or its derivate / derivates, polymerous nanofibres and / or microfibres containing cannabidiol and / or its derivate / derivates, and a method of producing polymerous nanofibres and / or microfibres containing cannabidiol and / or its derivate / derivates. [invention application]. Submitted on 16 June 2015 under No. *PV 2015-404*.	Materials designed to act as emergency and chronic wound dressings. They consist of a layer of nanofibres and microfibres made of a biocompatible and biodegradable material acting as a membrane, thus being permeable. The new structure enables faster healing and shorter hospital treatment, leading to cost saving and improved health of individuals. For the material to be certified as a medical device clinical trials are under way, a time demanding process for Class IIB medical devices. Verifying its full functionality is expected to lead to a strong position to search for a commercial partner. ***In the future this method of using textile layers should help improve patients' health.***
2) J_{imp}	Erben J, Jencova V, Chvojka J, Blazkova L, Strnadova K, Modrak M, Kuzelova	The article proposes and describes production, characterisation and testing of biodegradable tissue

	Kostakova E. The combination of meltblown technology and electrospinning – The influence of the ratio of micro and nanofibres on cell viability. *Materials Letters* ***173*** (2016), 153-157.	scaffolds made up from microfibres electrospun from melts and electrospun nanofibres. This material is used to develop 3D electrospun structures (scaffolds) for tissue regeneration of thymus gland implants. American scientists grow stem cells for these unique tissue scaffolds to create a functional organoid. The project "Fibrous three-dimensional scaffolds for preparation of thymus organoid – T cells immunotherapy" received the *Théophile Legrand Innovation Award Textile serving Human 2019*. ***This method of using textiles could help combat autoimmune diseases in the future.***
3) J_{imp}	Rosendorf J, Horakova J, Klicova M, et al. Experimental fortification of intestinal anastomoses with nanofibrous materials in a large animal model. *Scientific Reports* **10**, Article number 1134, Nature Publishing group, 2020. 12 pages. ISSN 2045-2322.	The team of Markéta Klíčová and Jana Horáková at the Department of Nonwoven Textiles and Nanofibre Materials of the FTE TUL has been developing a nanofibre layer to cover from the outside the anastomosis of the large intestine. After part of a large intestine affected by a carcinoma has been removed, the healthy parts of the organ are surgically joined using anastomosis. This location often causes post-surgery complications which, according to studies, lead to death in 6–22% of patients as the content of the intestine may leak through the anastomosis, causing an infection in the body. The solution is unique in that it combines two materials - a hydrophilic nanolayer, which adheres to the wound, covers it and facilitates healing, and a hydrophobic top layer, which isolates the anastomosis from the abdominal cavity. ***This method of using textile layers could lead in the future to improved healing after large intestine surgeries.***
4) J_{imp}, P	Yalcin I, Horakova J, Mikes P, Gok Sadikoglu T, Domin R and Lukas D. Design of Polycaprolactone Vascular Grafts. *Journal of Industrial Textiles* **45**(5), 2016, 813-833. Horáková J, Mikeš P, Jenčová V, Chvojka J, Lukáš D, Šaman A. Vascular grafts, especially small-diameter vascular grafts [patent]. Granted on 24 August 2016 under No. *306213*.	Vascular grafts are frequently used in surgery. There are three types of grafts divided according to the diameter of the artificial vessel. Small vascular grafts are very difficult to produce. The article describes the production of small-diameter vascular grafts to be used in surgery. The research is supported by patent 306213 - Vascular grafts, especially small-diameter vascular grafts. Jana Horakova, a PhD student at the FTE TUL, and her team came ***top at the prestigious Théophile Legrand Innovation Award Textile serving Human*** for research in this area.
5) O	Hrubošová Z. 3D printing of Braille Labelling for Blind People. In: *Proceedings of the 44th Textile Research Symposium*. 14-16 December 2016. Indian Institute of Technology, Delhi, India.	The paper deals with the embossing of Braille on clothing fabric using 3D print. The visually impaired can get the necessary information about their garments, being able to read symbols about care for clothing, colour and other data. The author came second in the international competition ***Théophile Legrand Innovation Award Textile serving Human 2016***.

Note: List and describe a maximum of five results (in line with the Definitions of Types of Results) that have already been applied in practice, or that will realistically be applied. These are typically results from disciplines in the humanities and social sciences, for which you should briefly describe their anticipated impact.

3.11 Recognition in the international R&D&I community

3.11.1 Participation of the evaluated unit's academic staff on the editorial boards of international scientific journals in the 2014–2018 reporting period

Name, surname and title(s) of the evaluated unit's member of staff	Title, publisher, city(-ies) and country(-ies) of origin of the scientific journal
Prof. Ing. Jiří MILITKÝ, CSc. 2014-2016	*Composites Part B: Engineering*, Elsevier SCI LTD. ISSN: 1359-8368. (Editorial Board) JCR 2018 Materials Science-Multidisciplinary (AIS Q1 5/88) JCR 2018 Materials Science-Composites (AIS Q1 4/25)
Prof. Ing. Luboš HES, DrSc., Dr.h.c.	*Journal of Industrial Textiles*, SAGE Publication INC, Thousand Oaks, CA, USA. ISSN: 1528-0837. (Editorial Advisory Board) JCR 2018 Materials Science-Textiles (AIS Q1, 3/24)
Prof. Ing. Luboš HES, DrSc., Dr.h.c.	*Textile Research Journal*, SAGE Publication LTD, London, England. ISSN: 0040-5157. (Editorial Advisory Board) JCR 2018 Materials Science-Textiles (AIS Q1 4/24)
Prof. Ing. Luboš HES, DrSc., Dr.h.c.	*Journal of Natural Fibres*, Taylor & Francis, Philadelphia, PA, USA. ISSN: 1544-0478. (Editorial Board) JCR 2018 Materials Science-Textiles (AIS Q2 11/24)
Prof. Ing. Jiří MILITKÝ, CSc.	*The Journal of The Textile Institute*, Taylor & Francis LTD., Oxon, England. ISSN: 0040-5000. (Editorial Board) JCR 2018 Materials Science-Textiles (AIS Q2 7/24)
Prof. Ing. Jiří MILITKÝ, CSc.	*Autex Research Journal*, Technical University Lodz, Lodz, Poland. ISSN: 1470-9589. (Scientific Programming Board) JCR 2018 Materials Science-Textiles (AIS Q2 9/24)
Prof. Ing. Jiří MILITKÝ, CSc.	*Fibres & Textiles in Eastern Europe*, Inst. Chemical Fibres, Lodz, Poland. ISSN: 1230-3666. (Scientific Board) JCR 2018 Materials Science-Textiles (AIS Q3 14/24)
Prof. Ing. Luboš HES, DrSc., Dr.h.c.	*Fibres & Textiles in Eastern Europe*, Inst. Chemical Fibres, Lodz, Poland. ISSN: 1230-3666. (Scientific Board) JCR 2018 Materials Science-Textiles (AIS Q3 14/24)
Prof. Ing. Luboš HES, DrSc., Dr.h.c.	*Journal of Engineered Fibres and Fabrics*, SAGE Publication LTD, London, England. ISSN: 1558-9250. (Editorial Board) JCR 2018 Materials Science-Textiles (AIS Q2 10/24)
Prof. Ing. Luboš HES, DrSc., Dr.h.c. Until 2018	*Textil ve Konfeksiyon*, EGE UNIVERSITY, Izmir, Turkey. ISSN: 1300-3356. (Scientific Board) JCR 2018 Materials Science-Textiles (AIS Q2 10/24)

Note: List a maximum of ten examples of academic staff's participation on the editorial boards of international scientific journals (e.g. editor, member of the editorial board, etc.).

3.11.2 The most significant invited lectures by the evaluated unit's academic staff at institutions in other countries during the 2014–2018 reporting period

Name, surname and title(s) of the evaluated unit's member of staff	Invited lecture title	Name of the host institution, conference or other event
Prof. Ing. Jiří MILITKÝ, CSc. Plenary speaker	Electrically Conductive Structures for Protective and Smart Textiles	Advances in Textile Materials and Processes (ATMP 2018), 19.-20.11.2018, IIT Kanpur, India

Prof. Ing. Jiří MILITKÝ, CSc. Plenary lecture	Advanced Textiles with Electromagnetic Shielding Functions	The 9th Textile Bioengineering and Informatics Symposium (TBIS 2016), 12-15/07/2016, Melbourne, Australia
Prof. Ing. Jiří MILITKÝ, CSc. Medal lecture	Advanced Carbon Structures from Waste	The 11th Textile Bioengineering and Informatics Symposium (TBIS 2018), 25-28/07/2018, Manchester, UK
Prof. Ing. Jiří MILITKÝ, CSc. Keynote speech	Textile based line lighting system	The 7th Textile Bioengineering and Informatics Symposium (TBIS 2014), 6-8/08/2014, Hong Kong, China
Prof. Ing. Jiří MILITKÝ, CSc. Plenary lecture	Recent Development in the Field Of Technical Textiles	International conference on Advance Materials, Textiles and Processes (ICAMTP-17), 14-15/10/2017, Kanpur, India
Prof. Ing. Jiří MILITKÝ, CSc. Keynote lecture	Nano Membranes For Wastewater	International Conference on Wastewater Management (ICWW 2017), 17-19/08/2017, Coimbatore, India
Prof. Ing. Luboš HES, DrSc., Dr.h.c. Plenary lecture	Thermophysiological and Barrier Properties of Sport and Protective Clothing in Wet State	12th Clotech Conference 2017: Innovative Materials and Technologies in Made-up Textile Articles, Protective Clothing and Footwear, 11-14/2017, Lodz, Poland
Mohanapriya VENKATARAMAN, M.Tech., Ph.D. Plenary lecture	Selected Applications of Linear Composites with Side Emitting Optical Fibres	12th Clotech Conference 2017: Innovative Materials and Technologies in Made-up Textile Articles, Protective Clothing and Footwear, 11-14/2017, Lodz, Poland
Prof. Ing. Jiří MILITKÝ, CSc. Keynote Speech	Multilayered perpendicular nonwovens for advanced thermal and acoustic insulation	45th Textile Research Symposium in Kyoto 2015, 14-16/09/2015, Kyoto, Japan
Prof. Ing. Bohuslav NECKÁŘ, CSc. A cycle of invitation month-long lecture visits	Theory of Yarn Structures	Indian Institute of Technology Delhi, 2015, New Delhi, India – 15th annual edition

Note: List a maximum of ten examples.

3.11.3 The most significant lectures by foreign scientists and other guests relevant to the R&D&I field at the evaluated unit during the 2014–2018 reporting period

Name, surname and title(s) of the lecturer	Lecturer's employer at the time of the lecture	Invited lecture title
Prof. Viatcheslav FREGER	The Wolfson Department of Chemical Engineering, Technion – Israel Institute of Technology	Opportunities in membrane technology for textile materials (*STRUTEX 2018*)
Dr. hab. Ing. Marcin BARBURSKI	Lodz University of Technology, Faculty of Material Technologies and Textile Design, Institute of Architecture of Textile	Formation of the textile structures for a specified purpose (*STRUTEX 2018*)

Prof. Pierre OUAGNE	National Engineering School of Tarbes, France. Head of the composite, bio-composite and textile research centre	From fibre extraction to woven fabric manufacturing for reinforcing composites (*STRUTEX 2018*)
Dr. Ing. Vincent PLACET	Department of Applied Mechanics – FEMTO-ST Institute, University of Franche-Comté	Mechanics of biobased fibrous assemblies: from a single fibre to a composite material (*STRUTEX 2016*)
Dr. Caroline SCHAUER	Department of Materials Science and Engineering Drexel University, Philadelphia	Electrospinning Natural and Synthetic Polyelectrolytes for Biomedical Applications (*The Fibres Society Spring 2014 Technical Conference*)
Dr. Arun Pal ANEJA	Department of Engineering, East Carolina University, NC, USA	Squaring the Circular Economy: Textile Redesign (*9th Central European Conference 2017*)
Prof. Dr. Henry Yi LI	School of Materials, The University of Manchester	Bioengineering Smart Functional Textiles (*9th Central European Conference 2017*)
Prof. Izabella KRUCINSKA, Ph.D.	College of Commodity Science, Lodz University of Technology	The Review of the Technologies of Chemosensory Nonwoven Fabrics (*9th Central European Conference 2017*)
Prof. Ana Marija GRANCARIC, Ph.D., C.Col., FSDC	Faculty of Textile Technology, University of Zagreb	Textile Sensors in Textile Reinforced Composites (*9th Central European Conference 2017*)
Prof. dr. ir. Lieva Van LANGENHOVE	Ghent University, Faculty of Engineering and Architecture, Department of Materials, Textiles and Chemical Engineering	Intelligent Textiles (*Autex study programme - E-Team NMSP "Textile Engineering" accredited in Gent, Belgium*).

Note: Relevant solely for the R&D&I field. List a maximum of ten examples.

3.11.4 The most significant elected membership in foreign of professional societies relevant to the R&D&I field at the evaluated unit during the 2014–2018 reporting period

Name, surname and title(s) of the evaluated unit's member of staff	Name of professional society	Type of membership
Prof. Ing. Jiří MILITKÝ, CSc.	FEANI (European Federation of National Engineering Associations) is a federation of professional engineers that unites national engineering associations from 33 European Higher Education Area (EHEA) countries.	President of Czech Monitoring Committee of FEANI Brussels
Prof. Ing. Jiří MILITKÝ, CSc.	Textile Bioengineering and Informatics Society	Vice-Chairman of International Executive Committee
Prof. Ing. Luboš HES, DrSc., Dr.h.c.	International Measurement Confederation	IMEKO TC12 (Temperature and Thermal Measurements) Member for Czech Republic
Doc. Ing. Michal VIK, Ph.D.	International Commission on Illumination	Official division 1: Vision and colour member

Ing. Irena LENFELDOVÁ, Ph.D.	International Federation of Knitting Technologist	National Sections of the International Federation of Knitting Technologists
Ing. Jiří HAVLÍČEK, CSc.	ATOK – Association of Textile-Clothing–Leather Industry	An administration board member
Ing. Gabriela KRUPINCOVÁ, Ph.D.	CLUTEX – Technical textile cluster	Vice-president
Prof. Dr. Ing. Zdeněk KŮS	ČTPT – Czech Technology Platform for Textile	An administration board member
Doc. Ing. Lukáš ČAPEK, Ph.D.	Czech Society for Biomechanics, z. s.	Vice-chairman of the Society for Biomechanics
Ing. Pavla TĚŠINOVÁ, Ph.D.	AUTEX E-TEAM	A member of the Accreditation Review Committee of the Autex joint study programme - E-Team follow-up Master's course "Textile Engineering"

Note: List a maximum of ten examples.

SUMMARY LIST OF ADDITIONAL DOCUMENTATION IN MODULE M3

Document Title	Criterion	Location (HTML link)
FT TUL Website	3.1-3.12	http://www.ft.tul.cz/en/
FT TUL Self-Evaluation Report 2014-2018	3.1-3.12	http://www.ft.tul.cz/en/document/2680
FT TUL Annual Report 2018	3.1-3.12	http://www.ft.tul.cz/en/document/2666
Nanofibres R&D&I and Cooperation Opportunities	3.1	http://www.ft.tul.cz/en/departments/department-of-nonwovens-and-nanofibrous-materials/department-profile
FT TUL Applied Research Projects	3.2	http://www.ft.tul.cz/en/research/projects/projects
FT TUL Mission, Vision, Strategy	3.3	http://www.ft.tul.cz/en/faculty
FT TUL List of National Activities	3.3	http://www.ft.tul.cz/en/research/cooperation/national-activities
FT TUL R&D&I Cooperation	3.7	http://www.ft.tul.cz/en/research
FT TUL Laboratories	3.7	http://www.ft.tul.cz/en/labs
FT TUL Organised Conferences	3.7, 3.11	http://www.ft.tul.cz/en/research/conferences/conferences
TUL Strategic Development Plan for 2020 with a Forward View to 2030	3.8	https://www.tul.cz/files/documents/xlkz8i/The-TUL-Strategic-Development-Plan-for-2020-with-a-forward-view-to-2030.pdf
FT TUL List of Individual Awards	3.10	http://www.ft.tul.cz/en/faculty/awards
FT TUL List of International Activities	3.11	http://www.ft.tul.cz/en/research/cooperation/international-activities
FT TUL List of European Partners	3.11	http://www.ft.tul.cz/en/research/cooperation/european-partners
FT TUL List of International Partners	3.11	http://www.ft.tul.cz/en/research/cooperation/international-partners
FT TUL Media	3.12	http://www.ft.tul.cz/en/faculty/media