



IF4TM

Institutional framework for development
of the third mission of universities in Serbia

**Contribution of the IF4TM project
to the development of legal
framework for establishing the third
mission of Serbian universities**



IF4TM

D2.2.1 Contribution of the IF4TM project to the development of legal framework for establishing the third mission of Serbian universities

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| Project Acronym: | IF4TM |
| Project full title: | Institutional framework for development of the third mission of universities in Serbia |
| Project No: | 561655-EPP-1-2015-1-RS-EPPKA2-CBHE-SP |
| Funding Scheme: | ERASMUS+ |
| Coordinator: | UKG – University of Kragujevac |
| Project start date: | October 15, 2015 |
| Project duration: | 36 months |

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| Abstract | Overview of the contributions of the IF4TM project to the development of legal framework for establishing the third mission of Serbian universities |
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DOCUMENT CONTROL SHEET

| | |
|---------------------|--|
| Title of Document: | D2.2 Development of new policies and law amendments for establishing the third mission of Serbian universities v17 |
| Work Package: | WP2 |
| Last version date: | 07/05/2019 |
| Status : | Final |
| Document Version: | v.17 |
| File Name | D2.2 Development of new policies and law amendments for establishing the third mission of Serbian universities v17.doc |
| Number of Pages | 38 |
| Dissemination Level | Public |

The European Commission support for the production of this publication does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.



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1. The new Law on Higher Education adopted on 27th September 2017

Development of new Law on Higher Education was initiated in October 2016, by the decision of the Ministry of Education, Science and Technological Development on the appointment of the working groups for preparation of the Law draft (Decision provided in this document). The president of the working group and coordinator of work on new draft Law was Prof. Dr. Vesna Mandić, coordinator of the IF4TM project and deputy minister for higher education at that time.

Out of 15 members of the working group, nine members came from 6 partner institutions engaged in IF4TM project:

1. Ministry of Education, Science and Technological Development (Mirjana Popović, Ljiljana Todorović)
2. University of Kragujevac (Prof. Dr Vesna Mandić, Prof. Dr Nenad Stanišić)
3. University of Belgrade (Prof. Dr Ivanka Popović, Prof. Dr Vladimir Bumbaširević)
4. University of Niš (Prof. Dr Dragan Antić)
5. State University of Novi Pazar (Prof. Dr Miladin Kostić)
6. University of Novi Sad (Prof. Dr Dragan Milkov)



Република Србија
МИНИСТАРСТВО ПРОСВЕТЕ,
НАУКЕ И ТЕХНОЛОШКОГ РАЗВОЈА
Број: 119-01-347/2016-06
Датум: 20.10.2016. године
Немалата 22-26
Београд

На основу члана 23. став 2. Закона о државној управи („Службени гласник РС”, бр. 79/05, 101/07, 95/10 и 99/14), министар просвете, науке и технолошког развоја доноси

РЕШЕЊЕ
о именовану Радне групе за израду Закона о високом образовању

I

Образује се Радна група за израду Закона о високом образовању (у даљем тексту: Радна група) која има задатак да припреми предлог нацрта Закона о високом образовању

II

Радна група се именује у следећем саставу:

1. Проф. др Весна Мандић, в. д. помоћника министра, Сектор за развој и високо образовање, председник Комисије;
2. Мирјана Поповић, в. д. помоћника министра, Сектор за правне послове, заменик председника;
3. Проф. др Дејан Поповић, председник Националног савета за високо образовање, члан;
4. Проф. др Владимир Бумбаширевић, председник КОНУС-а, члан;
5. Проф. др Ђемиљ Далићанин, председник Комисије за акредитацију и проверу квалитета, члан;
6. Проф. др Драган Антић, ректор Универзитета у Нишу, члан;
7. Проф. др Милadin Костић, ректор Државног универзитета у Новом Пазару, члан;
8. Проф. др Милован Станишић, председник Универзитета Сингидунум, члан;
9. Проф. др Иванка Поповић, проректор Универзитета у Београду, члан;
10. Проф. др Драган Милков, председник Савета Правног факултета, Универзитет у Новом Саду, члан;
11. Др Ненад Станишић, професан Економског факултета, Универзитет у Крагујевцу и члан Стручног тима за реформу високог образовања, члан;

12. Проф. др Соња Маринковић, редовни професор Факултета музичке уметности, Универзитет уметности у Београду, члан;
13. Проф. др Бранко Савић, председник КАССС-а, члан;
14. Немања Бишевац, студент проректор Универзитета у Приштини са припремним седиштем у Косовској Митровици, члан;
15. Љилјана Тодоровић, правник, Сектор за развој и високо образовање, члан.

III

Радна група има задатак да припреми предлог нацрта Закона о високом образовању.

IV

Радна група је дужна да текст предлога нацрта Закона о високом образовању достави министру просвете, науке и технолошког развоја до 30. децембра 2016. године.

V

Ово Решење ступа на снагу даном потписивања.

Образложење

Чланом 23. став 2. Закона о државној управи прописано је да министар представља министарство, доноси прописе и решења у управним и другим појединачним стварима и одлучује о другим питањима из делокруга министарства.

На основу свега наведеног донето је решење као у диспозитиву.

Доставити:
- председнику и члановима Радне групе
- архиви



МИНИСТАР
Miladin Stanišić
Милadin Станишић



The working group had the total of 12 all-day meetings and prepared the draft of the Law in February 2017. The draft was sent to the Ministry which organized four public debates in May 2017, performed necessary amendments and obtained all necessary opinions from relevant institutions and ministries, in line with the common practice.

The Government of the Republic of Serbia confirmed the draft Law in September 2017 and forwarded it to the Assembly which adopted the Law on Higher Education on 27th September 2017. The Law came into force on 7th October 2017.

Larger part of the Law provisions included the amendments of the existing articles and introduces new provisions related to the aspects of third mission of universities, with all three pillars: knowledge and technology transfer, continuing education and social engagement.

In section 1.1, a short summary and explanation of the most relevant law provisions related to the third mission is provided.

1.1 Summary of new provisions in the Law on Higher Education relevant for the third mission of universities (project IF4TM)

The Law on higher education creates opportunities to educate creative young population that will acquire knowledge through the whole life, as well as to provide better international access to the education system.

New principles of higher education in Serbia that are introduced in the new Law include better connection with the pre-university education, promotion of cooperation with employers and industrial sector, strengthening innovative and entrepreneurial component of higher education, in order to create the higher education that fits the need of both society and labour market.

Additionally, it includes the aspects of protection of intellectual property in knowledge transfer process as well as the provisions on the academic integrity.

New principles of the Law on higher education are:

- Better connectivity with preuniversity education,
- Improvement of cooperation with business and industrial sector,
- Strengthening innovative and entrepreneurial component of higher education, in order to make it relevant for the society at large and suitable for the labour market needs,
- Protection of intellectual property in the technology transfer process, and
- Academic integrity.

New Law promotes **unity of education, scientific, research and art work and innovative activities**, as well as professional work. Since at higher education institutions besides educational process, also scientific, research, art and professional work is performed, it is expected that they have a key role in development of the economy and especially Serbia as the knowledge-based society. There is no successful economy and industry without innovations, and on the other hand there are no successful innovations (products, technologies, processes, organization) without high quality education and research, where the universities are recognized as the key actors.

Undoubtedly, the uniting of education, scientific and research work as well as establishment of scientific, research and innovation organizations for commercialization of results, will bring



the direct benefit to the economy of the Republic of Serbia, having in mind the fact that the higher education institutions will be able to offer **innovations and know-how** at much more competitive price than those imported from abroad.

Član 4 (Article 4)

Principi visokog obrazovanja

- ***Akademski integritet***
- ***Jedinstvo nastave i naučnoistraživačkog, odnosno umetničkog rada, kao i stručnog rada***
- ***Otvorenost prema javnosti i građanima;***
- ***Povezanost sa preduniverzitetskim obrazovanjem***
- ***Zaštita intelektualne svojine u procesima transfera znanja***
- ***Etc.***

Član 5 (Article 5 – paragraph 1)

Akademske slobode

Sloboda naučnoistraživačkog rada i umetničkog stvaralaštva, uključujući slobodu objavljivanja i javnog predstavljanja naučnih dostignuća, uz poštovanje prava intelektualne svojine.

Član 7 (Article 7)

Akademski integritet

Na akademskom integritetu zasnivaju se: očuvanje dostojanstva profesije, unapređivanje moralnih vrednosti, zaštita vrednosti znanja i podiznje svesti o odgovornosti svih članova akademske zajednice.

The main objective is to create new opportunities for **education of creative young population that will constantly adopt and create knowledge during their whole life**, as well as to provide better **international accessibility of the education system**.

Član 3 (Article 3)

Ciljevi visokog obrazovanja

- ***Prenošenje naučnih, stručnih i umetničkih znanja i veština;***
- ***Razvoj nauke i unapređivanje umetničkog stvaralaštva;***
- ***Obezbeđivanje naučnog, stručnog i umetničkog podmlatka;***
- ***Obrazovanje kreativne populacije koja neprekidno usvaja i stvara nova znanja***
- ***Obezbeđivanje jednakih uslova za sticanje visokog obrazovanja i obrazovanja tokom čitavog života;***
- ***Bitno povećanje broja stanovnika sa visokim obrazovanjem***
- ***Unapređenje međunarodne otvorenosti sistema visokog obrazovanja.***



Representatives of the industrial sectors are engaged in new councils and bodies dealing with the development of higher education and quality control:

- National Council for Higher Education (2 members out of 17)
- National body for accreditation and quality control in higher education – NAT (2 members of the NAT steering committee out of 7)

Član 11 (Article 11 paragraph 1)

Sastav Nacionalnog saveta

Nacionalni savet ima 17 članova, koje imenuje Vlada, vodeći računa o zastupljenosti pripadnika oba pola, i to:

- 1) šest članova iz reda redovnih profesora, vrhunskih stručnjaka u zvanju naučnog savetnika, odnosno umetnika sa međunarodno priznatim radovima ili osvedočenim doprinosom nacionalnoj kulturi, vodeći računa o zastupljenosti obrazovno-naučnih, odnosno obrazovno-umetničkih polja, kao i zastupljenosti univerziteta, na predlog Konferencije univerziteta;
- 2) dva člana iz reda profesora strukovnih studija, na predlog Konferencije akademija strukovnih studija i visokih škola (u daljem tekstu: Konferencija akademija i visokih škola);
- 3) sedam članova iz reda vrhunskih stručnjaka, odnosno umetnika sa međunarodno priznatim radovima ili osvedočenim doprinosom nacionalnoj kulturi, vodeći računa o zastupljenosti obrazovno-naučnih, odnosno obrazovno-umetničkih polja, na predlog ministarstva nadležnog za poslove visokog obrazovanja;
- 4) dva člana na predlog Privredne komore Srbije.

Član 16 (Article 16 – paragraphs 1, 2 and 3)

Upravni odbor

Organ upravljanja Nacionalnog akreditacionog tela je upravni odbor.

Upravni odbor ima sedam članova, koje imenuje Vlada, vodeći računa o zastupljenosti pripadnika oba pola.

Jednog člana Upravnog odbora predlaže Konferencija univerziteta iz reda redovnih profesora univerziteta, jednog člana predlaže Konferencija akademija i visokih škola iz reda profesora strukovnih studija, **dva člana predlaže Privredna komora Srbije**, a tri člana imenuju se na predlog Ministarstva.

The draft version of the Law introduced some new forms of **cooperation of higher education with the industry**. National Council for Higher Education is obliged to have meetings at least twice a year with the Serbian Chamber of Commerce, National Education Council, Council for applied studies and adult education and other bodies in order to jointly define priorities in the realization of higher education policy that is relevant for the economy, industry and labour market.



Član 12 (Article 12 – paragraph 5)

Nadležnost Nacionalnog saveta

*Nacionalni savet najmanje dva puta godišnje održava **sastanak sa Privrednom komorom Srbije**, odnosno jedanput godišnje sa Nacionalnim prosvetnim savetom, Savetom za stručno obrazovanje i obrazovanje odraslih i drugim profesionalnim udruženjima za razmatranje pitanja iz svoje nadležnosti i utvrđivanja prioriteta u sprovođenju politike visokog obrazovanja.*

At the level of higher education institution, the Law provides the opportunity for those institutions to form special advisory body **the Employers' Council**. The primary role of the Council is to initiate elaboration of new and innovation of existing study programs where students gain acquire competences recognized and required by employers. The Employers' Council need to cooperate closely with the management structures, committees for educational affairs and councils for education and science. The standards for accreditation of these study programs, to be established based on the Law, will regulate the opinion of Employers' Council as mandatory and this will be necessary part of the documentation to be submitted with the request for accreditation by the higher education institution.

Član 60 (article 60 – paragraph 3)

Organi visokoškolske ustanove

*Visokoškolska ustanova radi ostvarivanja saradnje na razvoju studijskih programa u skladu sa potrebama tržišta rada, može da ima **savet poslodavaca**.*

With aim to **professionalize the management of higher education institutions**, for instance, the Law instructs the universities to publish the call for appointment of the **manager** within the nine months from the date this Law enters into force. The responsibilities of the manager will be regulated by the university's general act.

Član 64 (Article 64 – paragraph 12)

Organ poslovođenja

*Univerzitet ima **menadžera**, čije se nadležnosti utvrđuju u skladu sa opštim aktom univerziteta.*

In the previous period, excellent experts from the industrial sector showed lack of interest in applying for acquiring teaching titles at higher education institutions, mainly due to the wages that are lower in higher education than in industry. Also the previous Law did not offer the possibility that anyone without the teaching titles (professors, associates) participates in the teaching process.

In order to overcome this issue and to provide the students with the opportunity to be taught with excellent experts from the business sectors, the category of **lecturer without the employment contract (industrial lecturer)** was introduced.

These lecturers can participate in teaching up to 30% of total active teaching hours in applied-professional courses.



Introducing this category of lecturers is particularly significant for IT sector.

Article 80 of the Law on Higher Education defines that higher education institution can engage the lecturer without work contract who has higher education degree (at least master) and necessary knowledge and skills in the area.

Član 80 (Article 80 – paragraphs 1 and 3)

Predavač van radnog odnosa

*Visokoškolska ustanova može na predlog stručnog organa angažovati u delu aktivne nastave, uključujući predavanja i vežbe, na prvom i drugom stepenu studija, najviše do trećine časova nastave na predmetu u toku semestra, **predavača van radnog odnosa** koji ima stečeno visoko obrazovanje najmanje master akademskih studija i koji ima neophodna znanja i veštine u odgovarajućoj oblasti i pokazuje smisao za nastavni rad.*

Predavač van radnog odnosa može biti angažovan isključivo na stručno-aplikativnim predmetima.

Nosioci predmeta zaposleni na visokoškolskoj ustanovi su odgovorni za obezbeđenje kvaliteta nastave koju realizuju predavači van radnog odnosa.

Opštim aktom samostalne visokoškolske ustanove bliže se uređuju način izbora i vreme na koje se angažuje predavač van radnog odnosa.

Sa licem iz stava 1. ovog člana zaključuje se ugovor o angažovanju u trajanju od najduže jedne školske godine sa mogućnošću produženja, a isplate po osnovu tog ugovora se realizuju iz sopstvenih prihoda visokoškolske ustanove.

It is regulated that with the aim of **commercialization of scientific results, artistic creations and inventions**, the higher education institution can **found a business entity** such as:

- Innovation centres,
- Centres of excellence,
- Technology transfer centres,
- Business and technology incubators,
- Science and technology parks and
- Other organizations for the support to the development of innovations.

Gained profit that belongs to the university, it can be used exclusively for the improvement of the higher education institution's activities.

The Law also provides the opportunity to the university to perform the innovation activities and provide the infrastructure support to the development of innovations and commercialization of scientific results to obtain additional budget (from a founder) for knowledge and technology transfer activities.

The significance of innovation activities is especially emphasized in the following documents:

- Government's Work Program by the Prime Minister Ana Brnabić, where this activity is recognized as key for the development of entrepreneurship based on knowledge and innovativeness,



- Priority objectives of the Government – for the Ministry of Education, Science and Technological Development three objectives have been defined, where the first one is “increase of capacity for innovations in society”,
- The Strategy Europe 2020 that emphasized “smart growth” as one of the priority areas that includes the growth of economy based on knowledge and innovations (scientific and technological research and development, education and digital society)
- Strategy of Scientific and Technological Development of the Republic of Serbia for the period 2016-2020 – Research for Innovations.

The primary objective of these acts is to exploit and commercialize the acquired know-how and results of scientific research at the higher education institutions by establishing the scientific, research and innovation organizations. In previous practice of higher education institutions, in large number of cases, due to inability to commercialize, the know-how and scientific research results were not exploited or researchers exploited them outside the higher education institution, regardless the fact that those results were obtained due to their work at the institution and using the resources and equipment of the institution.

Član 43 (Article 43 – paragraphs 6 and 7)

Visokoškolske ustanove

*U okviru delatnosti visokog obrazovanja visokoškolska ustanova obavlja naučnoistraživačku, umetničku, ekspertsko-konsultantsku i izdavačku delatnost, a može obavljati i druge poslove kojima se **komercijalizuju rezultati naučnog, umetničkog rada i istraživačkog rada**, pod uslovom da se tim poslovima ne ugrožava kvalitet nastave i naučnog, umetničkog, odnosno stručnog rada.*

*U cilju **komercijalizacije naučnih rezultata**, umetničkog stvaralaštva i pronalazaka, visokoškolska ustanova može biti **osnivač privrednog društva**, pri čemu ostvarenu dobit koja joj pripada visokoškolska ustanova može koristiti isključivo za unapređenje delatnosti visokoškolske ustanove.*

Član 44 (Article 44 – paragraph 1)

Univerzitet

*Univerzitet je samostalna visokoškolska ustanova koja u obavljanju svoje delatnosti **objedinjuje obrazovnu, naučnoistraživački, stručnu, umetničku i inovacionu delatnost** kao komponente jedinstvenog procesa visokog obrazovanja.*

Član 49 (Article 49 – paragraph 2)

Naučni instituti i druge organizacije u sastavu univerziteta

*Za obavljanje **inovacione delatnosti i pružanje infrastrukturne podrške za razvoj inovacija i komercijalizaciju rezultata naučnih**, odnosno umetničkih istraživanja univerzitet u svom sastavu može imati inovacione centre, centre izuzetnih vrednosti, centre za transfer tehnologija, poslovno-tehnološke inkubatore, naučno-tehnološke parkove i druge organizacije, u skladu sa zakonom kojim se uređuje naučnoistraživačka delatnost.*



Član 57 (Article 57 – paragraphs 5 and 6)

Organizacija visokoškolske ustanove

Univerzitet ima u svom sastavu fakultete, umetničke akademije ili druge visokoškolske jedinice, institute, naučno-istraživačke centre, **inovacione centre, centre za transfer tehnologija, centre za karijerno vođenje, savetovanje i podršku studentima, centre izuzetnih vrednosti** i druge organizacione jedinice, radi ostvarivanja studijskih programa iz srodnih disciplina, naučnih istraživanja, umetničkog rada, **razvoja inovacija i transfera znanja**, kao i efikasnijeg korišćenja resursa.

Univerzitet može imati u svom sastavu fakultete, umetničke akademije i druge visokoškolske jedinice sa svojstvom pravnog lica.

Član 58 (Article 58 – paragraphs 2 and 3)

Integrativna funkcija univerziteta i drugih samostalnih visokoškolskih ustanova

Univerzitet integriše funkcije svih ustanova i jedinica u svom sastavu, a posebno fakulteta, tako što sprovodi jedinstvenu politiku čiji je cilj stalno unapređenje kvaliteta nastave, usavršavanje naučnoistraživačkog, odnosno umetničkog rada, inovacione delatnosti i pružanja podrške studentima u akademskom i karijernom razvoju.

Radi ostvarenja ciljeva iz stava 2. ovog člana, univerzitet, odnosno akademija strukovnih studija, posebno ima nadležnosti u sledećim oblastima:

- 1) strateško planiranje;
- 10) **upravljanja intelektualnom svojinom u procesima prenosa znanja;**
- 12) **formiranje i razvoj jedinstvenog informacionog sistema;**
- 13) **obrazovanje tokom čitavog života;**
- 14) **karijerno vođenje, savetovanje i podrška studentima.**

Član 59 (Article 59 – paragraph 4)

NAUČNOISTRAŽIVAČKI I UMETNIČKI RAD

U cilju **komercijalizacije rezultata naučnoistraživačkog ili umetničkog rada** univerzitet, odnosno druga visokoškolska ustanova može biti **osnivač** naučnih instituta, inovacionih centara, centara izuzetnih vrednosti, centra za transfer tehnologija, poslovno-tehnološkog inkubatora, naučno-tehnološkog parka i drugih **organizacija za obavljanje inovacione delatnosti i pružanje infrastrukturne podrške za razvoj inovacija i komercijalizaciju rezultata istraživanja**, u skladu sa zakonom.

Rapid technical and technological development and need for fluctuation of highly educated labour force leads to the problem where graduated students find it hard to find a job because of the fact that employers do not think they have adequate practical knowledge and skills, or expected competences.



Short cycle study programs are introduced as a mechanism of professional development of graduated students with the aim to increase their employability. Those programs are clearly defined in terms of structure, purpose and learning outcomes. They are in range from 30 to 60 ECTS (one or two semesters) for which the certificates are issued on successfully completed short study programs and gained competences.

In this way, higher education institutions can respond more rapidly to the labour market demands. On the other hands, individuals with higher education degrees will be more flexible and will enter the labour market more easily due to newly gained competences. Either way, this measure will reduce the number of unemployed in Serbia with university degree. On the other hand, it is possible in areas such as ICT to increase the number of experts who would gain new knowledge and skills at recognized programs performed by representative higher education institutions.

Član 34 (Article 34 – paragraph 4)

Vrste studija

*Radi stručnog osposobljavanja lica sa stečenim visokim obrazovanjem za uključivanje u radni proces, izvodi se **kratki program studija** koji ima jasno definisanu strukturu, svrhu i ishode učenja i za koji se izdaje sertifikat o završenom kratkom programu studija i stečenim kompetencijama.*

Član 39 (Article 39 – paragraph 16)

Obim studija

***Kratki program studija** može se izvoditi u obimu od 30 do 60 ESPB bodova.*

The Law provides the opportunity for organization of **short studies** for students who are employed or could not (for any other reason) participate in the study programs regularly. This encourages the lifelong learning and has positive impact on the number of people with high education. When enrolling the study year, the student of short studies program choose the number of subject necessary to achieve at least 30 ECTS which is a half of what is necessary for students financed by the budget. Meeting the needs of employed students, this Law provides them with the opportunity to keep the status of a student until the deadline defined by the triple number of school years necessary for realization of the study program, while for regular students the rule of double number of school years is applied.

Član 96 (Article 96 – paragraph 6)

Organizacija studija

Visokoškolska ustanova može da organizuje studije uz rad za studente koji su zaposleni ili koji iz drugog razloga nisu u mogućnosti da redovno prate nastavu.



Član 102 (Article 102– paragraphs 5 and 7)

Pravila studija

Student koji studira uz rad pri upisu odgovarajuće godine studija opredeljuje se, u skladu sa studijskim programom, za onoliko predmeta koliko je potrebno da se ostvari najmanje 30 ESPB bodova, osim ako mu je do kraja studijskog programa ostalo manje od 30 ESPB bodova.

Student iz st. 4. i 5. ovog člana koji se sam finansira, plaća deo školarine obračunat srazmerno broju ESPB bodova za predmete za koje se opredelio.

Član 109 (Article 109 – paragraph 2)

Prestanak statusa studenta

Student koji studira uz rad, student sa invaliditetom, student koji je upisan na studije po afirmativnoj meri i student koji ima status kategorisanog vrhunskog sportiste zadržava status studenta do isteka roka koji se određuje u trostrukom broju školskih godina potrebnih za realizaciju studijskog programa.

Special attention was also paid to the European integration in the education, and process of harmonization of educational system of Serbia with development trends in Europe.

Član 32 (Article 32)

Evropske integracije u obrazovanju

Ministarstvo se stara o usklađivanju sistema obrazovanja i vaspitanja Republike sa trendovima razvoja u Evropi i preduzima sve potrebne radnje za:

- Obezbeđenje punopravnog učešća u programima EU za saradnju u oblasti obrazovanja i obuka i praćenje efekata učešća u ovim programima.*
- Ostvarivanje učešća predstavnika Republike u radnim grupama i aktivnostima koje se organizuje u sklopu otvorenog metoda koordinacije, Bolonjskog procesa i drugih sličnih inicijativa koje su pokrenute na nivou EU i Evrope u celini.*

U cilju efektivnijeg učešća u navedenim inicijativama Ministarstvo ostvaruje saradnju i sa obrazovnim ustanovama.

As support to the development of the second dimension of the third mission (continuing education), the new Law includes provisions related to the lifelong learning activities.

Član 111 (Article 111, paragraphs 1, 2 and 3)

OBRAZOVANJE TOKOM ČITAVOG ŽIVOTA

Visokoškolska ustanova u okviru svoje delatnosti može realizovati programe obrazovanja tokom čitavog života van okvira studijskih programa za koje je dobila dozvolu za rad.

Uslovi, način i postupak realizacije programa iz stava 1. ovog člana uređuju se opštim aktom ustanove.

Licu koje je savladalo program iz stava 1. ovog člana ustanova izdaje uverenje.



The Law determines the legal framework for **unique information centre for education (JISP)** established and run by the Ministry and obligation of higher education institutions to enter and update the information from the registries they have into the JISP, within the adequate electronic registries.

Ministry runs a **registry of accredited higher education institutions; accredited study programs; students; employees at higher education institutions**. For the purpose of keeping the registry for students and protect the individual information, a **unique education number (JOB)** is created and it remains the same through all levels of education and is key to connect all information on a student from JISP. This will be unique individual number that is assigned to a freshman upon his/her enrolment, if not received in the previous education levels.

The purpose of the data assessment is to provide the indicators for monitoring and improving the quality, efficiency and effectiveness of the higher education system, planning of educational and enrolment policy, monitoring students' progress, quality of study programs, students' employability, professional status, professional improvement, work of higher education institutions, etc.

Član 114 (Article 116 – paragraphs 1, 2 and 3)

Jedinstveni informacioni sistem prosvete

Jedinstveni informacioni sistem prosvete (u daljem tekstu: JISP) uspostavlja i vodi Ministarstvo.

Sve visokoškolske ustanove unose i ažuriraju podatke iz evidencija iz člana 113. ovog zakona u JISP, u okviru odgovarajućeg registra, u elektronskom obliku.

*Ministarstvo vodi **registar**:*

- 1) akreditovanih visokoškolskih ustanova;*
- 2) akreditovanih studijskih programa;*
- 3) studenata;*
- 4) zaposlenih u visokoškolskim ustanovama.*

Član 115 (Article 115 – paragraphs 1, 2 and 3)

Jedinstveni obrazovni broj

*Za potrebe vođenja registra iz člana 114. stav 3. tačka 3) ovog zakona i zaštite podataka o ličnosti formira se **jedinstveni obrazovni broj (u daljem tekstu: JOB)** koji prati njegovog nosioca kroz sve stepene obrazovanja i predstavlja ključ za povezivanje svih podataka o studentu iz JISP-a.*

JOB predstavlja individualnu i neponovljivu oznaku koja se sastoji od 16 karaktera i koja se dodeljuje studentu u automatizovanom postupku preko JISP-a, na zahtev visokoškolske ustanove, pri prvom upisu studenta na visokoškolsku ustanovu.

Ukoliko je studentu JOB dodeljen u ustanovama preduniverzitetskog obrazovanja, visokoškolska ustanova neće potraživati od JISP-a dodelu novog JOB-a.



Član 121 (Article 121)

Svrha obrade podataka

*Svrha obrade podataka o kojima visokoškolska ustanova vodi evidenciju jeste **praćenje i unapređivanje kvaliteta, efikasnosti i efektivnosti rada visokoškolske ustanove i zaposlenih, praćenje, proučavanje i unapređivanje obrazovnog nivoa studenata u procesu obrazovanja i ostvarivanje prava na izdavanje javne isprave.***

*Svrha obrade podataka iz registara iz člana 114. stav 3. ovog zakona jeste **obezbeđivanje indikatora** radi praćenja i unapređivanja kvaliteta, efikasnosti i efektivnosti sistema visokog obrazovanja, **planiranja obrazovne i upisne politike**, praćenje obuhvata i napredovanja studenata, praćenje kvaliteta studijskih programa, **zapošljivosti studenata**, profesionalnog statusa i usavršavanja nastavnika, rada visokoškolskih ustanova, planiranje i praćenje finansiranja sistema visokog obrazovanja, stvaranje osnova za sprovođenje nacionalnih i međunarodnih istraživanja u oblasti visokog obrazovanja, kao i bezbedno, efikasno i racionalno čuvanje podataka i izveštavanja o obrazovnim indikatorima po preuzetim međunarodnim obavezama.*



2. Strategy on Scientific and Technology Development of the Republic of Serbia for the Period 2016 - 2020 – Research for Innovations

<http://www.mpn.gov.rs/wp-content/uploads/2015/08/Strategija-ingleski-jezik.pdf>

Since the general objective of the Strategy is to improve the efficiency and effectiveness of scientific and research system, support the development of new knowledge and technologies, creation of quality research staff in order to generate economic and social development, the Strategy provides six specific objectives and recommends the set of measures to achieve them:

- Encouraging the excellence and relevance of scientific research in the Republic of Serbia
- Strengthening the links among science, industry and society with the aim to boost innovations
- Establishing the efficient system of science and innovation management in the Republic of Serbia
- Providing the excellence and availability of human resources for science, industry and social activities
- Promoting the international cooperation in the area of science and innovation
- Increasing the investments in research and development by promoting the public investments and encouraging the investments of public sector.

2.1 Measures for achievement of Objective 1 relevant for IF4TM contribution – Encouraging of excellence and relevance of scientific research in the Republic of Serbia

Introduction of focused basic research

The Strategy foresees the introduction of focused basic research whose result need to meet the challenges and needs of the society that will be financed based on the *top-down* research based on previously defined topics defined by the body to be published at national level for the purpose of monitoring of scientific, research and innovative development of the Republic of Serbia in consultation with the relevant ministries. The partner coordinated projects required by two or more ministries will be financed. In this way, the budgetary funds previously divided among more ministries will be used in an optimal way.

The contribution of IF4TM project was in terms of recommending the introduction of the Program of focused basic research that needs to have applicable results and that are in line with strategic priorities, or current needs of society for solving the high profile problems.

This is why this program includes the financing of research in thematic frameworks following the principle of project “top-down” financing that is of public interest and that is determined by



the Ministry of Education, Science and Technological Development in consultation with other relevant ministries.

Improvement of technical and technological research

As one of the measures to achieve excellence and relevance of scientific research in Serbia, a step forward needs to be made in the area of technical and technological sciences in terms of development of new and improvement of existing technologies, products and services. In order to achieve this, it is necessary to introduce joint research projects with industry for the purpose of solving concrete problems within topics for previously defined end users. This measure is highly important since the direct cooperation with the industry during the research is key for rapid product development, raising the technology readiness level (TRL) and reducing the commercialization period.

Development of scientific infrastructure

For raising the excellence in science it is necessary to provide high quality of equipment and infrastructure that quality of scientific and research work and innovative development depends on and that will be available to medium and small enterprises, especially those newly founded that participate in the program for innovation support. Efficient and rational use of unspent funds from credit lines (EIB, CEB) as well as providing the budgets and grants, will enable investments in research infrastructure in a transparent way and prevent fragmentation and duplicating of resources.

Promotion of science and innovations

Special attention within the strategy measures for encouraging the excellence and relevance of scientific research is focused on the promotion of science, research and innovations. The promotion of excellence in science includes the establishment of dialogue and better communication of research sector with industry, ministries, mass media, pupils, students and professors and other actors key to development of science.

As one of the measures, it is recommended to establish regional centres for promotion of science, as place where the pupils, students and people in general will have a chance to learn more about science, technology, innovative methodologies, etc.

Additionally, it is recommended to promote Competition for Best Technology Innovation through defining of clear and precise measures for selection and evaluation of innovations, but also through some additional activities such as competition for students ("Student Innovator") and pupils ("Pupils Innovator").

Student innovator: At the stage of constituting of this program, besides the examples of good practice in other countries, experiences and practice in this area undertaken by the Faculty of Agriculture and University of Kragujevac will be taken into account as very valuable. The plan is to organize the annual national competitions for best student ideas, within IF4TM project, with support of the Ministry for Education, Science and Technological Development, where in the first year the students of all public, several privates ones as well as student from colleges would participate.

Pupil innovator: the program of support to the development of the innovativeness among secondary school pupils needs to be developed in the forthcoming period. The examples of good practices from other countries, and particularly the elements of dual education systems related to the development of creativity and innovativeness will serve as a starting point.



Creativity Centres (established within IF4TM project) and Centres for Promotion of Science will be included in the development and implementation of the program.

Technology and business incubators and establishment of spin-off companies

In cooperation with other ministries, the Ministry of Education, Science and Technological Development will develop models for establishment of systematic and functional support for forming and development of technological and business incubators, which directly provide the forming of new knowledge-based enterprises. For that purpose, recommended strategic measures for development of technology and business incubators presented in the Strategy Development Plan for Development of BIs and STPs in Western Balkan Region, including its Action Plan (both developed within WBCInno TEMPUS project) will be considered. The models of positive practice in developed countries will be used in terms of realization of financial support.

More intensive process of establishing spin-off companies is one of the key conditions for successful knowledge and technology transfer of research results to the industry. To create the environment for development of these companies, this area needs to be regulated in terms of legal framework first that will lead to the more efficient management and commercial exploitation of IP generated at publicly funded research institutions but also to the maximized return effects for the country and development of society. In this process it is necessary to develop financial instruments available for early development of innovative companies, such as special programs and funds that contribute to the establishment and more rapid development of these companies.

In order to create conditions for the development of these (spin-off) companies, it is necessary, first of all, to regulate this area in order to achieve efficient management and commercial exploitation of intellectual property resulting from the publicly-funded scientific research organizations, such as universities, faculties and institutes, and also, to maximize the return effects for the state and development of society.

Establishment of the new model of financing the scientific and research activities

Within this measure, the contribution of the IF4TM project team refers to the introduction of new funding system in the form of public calls for competitive financing of the focused basic research based on the “top down” approach”.

The model of partner coordinated projects between two or more ministries will be directed toward the solving of complex problems and significant social challenges, in order to use optimally the budget for financing the research and development in the areas defined by more ministries including the members of the Council for development and innovations.

Improvement of the program of technological development through thematic framework for research

Some additional changes in the system to promote relevance of scientific results provided by IF4TM project team members are:

- “Top-down” approach that is sufficiently flexible to respond at the same time to the needs of industry and science is supported
- The additional value of the project was commercialization of IP generated in this way (licensing, selling, establishment of spin-offs and start-ups). This kind of investments in the real sector long-term will lead to clearly defined areas that can be supported through



the other forms of funding as well, through the programs of Ministry for Education, Science and Technological Development or by other ministries.

Key performance indicators for strategic goal 1, relevant for IF4TM contribution: The relevance of scientific research:

1. The number of patent applications/patents or other forms of intellectual property (domestic or international);
2. Co-authorship/Invention with researchers from industry or the public sector;
3. Expertise on international or national plan (with the confirmation of the Scientific Committee);
4. Participation in commissioned projects (of domestic or foreign party from the public or donor organizations);
5. The share of projects realized with the participation of the private or public sector;
6. Revenue from the knowledge transfer;
7. The level of private sector investments in the establishment of new technology companies;
8. Revenues generated by the research from international organizations or private sector (national and international).

2.2 Measures for achieving Objective 2 relevant for IF4TM contribution – Strengthening of links among science, industry and society with the aim to boost innovations

Encouraging application of scientific and research results

Since the generation and development of technological innovations greatly depends on links between scientific and research sector with the industry, the Strategy recommends the whole set of measures to establish and promote these links, which will lead to creation of new intellectual property and consequently new products, processes and services.

Having this in mind, it is necessary to introduce the measures for encouraging the application of results obtained within the scientific and research work. One of those measures is related to the financial support to the realization of results, especially those with high levels of technology readiness for application in industry.

Further development of the Innovation Support Project

Cooperation between two sectors will have the support through the work of Innovation Fund whose main objective is to support the innovation activities (both in financially and advisory terms) that were generated from the partnerships of scientific and research institutions with enterprises.

The support to further development of Innovation Support Project in the Republic of Serbia will be provided especially due to the fact that this program proved to be successful instrument for supporting the generation of new intellectual property and commercialization of new technologies, products and services. This program particularly provides the opportunity for researchers and research organizations to actively participate in the innovation process and



establish cooperation with foreign institutions and end users of technologies, products and services.

Establishment of joint innovation projects of private sector and scientific and research organizations

It is very important to introduce the research and development potential into enterprises, particularly through the support to technology and development projects of private companies and scientific and research organizations. In that sense, the mechanism that will through incentives promote and strengthen the project cooperation of these two sectors will be established in order to create new market-oriented products, processes and services.

Besides, this form of support includes also the mechanisms of financial support to commercial projects and early development of technology that is not yet mature for the market.

Promotion of the knowledge and technology transfer

In order to further improve and strengthen the cooperation between two sectors that are key to technological development and development of innovations, scientific and research sector and industry, a centralized office for technology transfer will be established within the Innovation Fund.

This office will work on connecting the scientific and research organizations and university technology transfer offices with buyers and investors from private sector in this way open the new possibilities for gaining the profit through licensing and expanding the scope of services for private sector. Also, the financial support will be provided for those research projects that have high commercialization potential.

In the second year of the Strategy implementation, Proof-of-Concept Program will be implemented in order to raise the level of technology readiness and to bring developed technologies closer to the market and facilitate their commercialization. The guide for proof-of-concept will be developed at state universities in Serbia (within IF4TM project), that will be piloted on selected research groups. These pilot projects will include the evaluation of intellectual property and development of the commercialization strategy.

In order to improve the relevance of research in the Republic of Serbia and raising their technological readiness to be as close to the market conditions as possible and to enable their commercialization and application in the economy, the Proof of Concept programme will be developed during the second year of implementation of this Strategy. State-owned universities in the Republic of Serbia will develop a Guide for the Implementation of the "PoC" programme and it will be piloted in selected research groups, and for these groups additional valuation of intellectual property and the strategy for commercialization will be done under the programme.

Support to the establishment of companies based on scientific and research work

As a step forward in support to the development of innovations and commercialization of the scientific and research results, the Strategy foresees the support mechanisms for establishing and development of "spin-off" companies. It is necessary to legally regulate this kind of support to the technology transfer, particularly having in mind their effect on preventing the "brain-drain", opening new jobs and return of investments in research.



Establishing of research and development clusters and competitive networks

Besides “spin-off” companies, the Strategy envisages the measures to support the establishment and development of science and technology parks and research and development clusters. This kind of support will enable more intensive technology transfer, coordinated research, networking of institutions and staff and creating new jobs. Having in mind that in Serbian industry, small and medium enterprises are dominant and that they as such have limited research resources and innovative capacity, forming competitive clusters will allow the cooperation with science and research organizations to develop in creating new values and development of innovation with higher added values.

Key performance indicators for strategic goal 2, relevant for IF4TM contribution:

1. Spending on science from the private sector as % of GDP;
2. The number of registered enterprises based on knowledge and innovation;
3. The number of joint projects of business and science;
4. A new product on the market;
5. The increase of revenue achieved through: the licensing of patents, technology transfer, agreements on the use or development of technology, advisory services, etc.
6. The number of implemented researches and services in companies through the application of innovation vouchers;
7. The share of companies with technological innovation (as % of the total number of companies);
8. Revenue from innovative products;
9. The number of “spin-off” companies;
10. Ranking of the Republic of Serbia in the international context: Innovation Union Scoreboard, Global Innovation Index, etc.

2.3 Measures for achievement of Objective 3 relevant for IF4TM contribution – establishment of more efficient system of science and innovation management in the Republic of Serbia

Improvement of legal framework

In order to successfully implement the planned measures and mechanisms of support for development of excellence in science and development of innovations, it is necessary to establish the efficient system for their management as well. Having this in mind, the Strategy foresees the improvement of legal framework by forming the body at national level to monitor the scientific, research and innovative development, identify the development problems in society and industry, recommend the measures for boosting the application of scientific and research results, define the strategic priorities, etc.

Tasks, methodology, composition and appointment of this body will be regulated by the law.



Establishing of strategic management in scientific and research organizations

Besides the establishing of management system at the republic level, it is necessary to introduce more efficient systems of management at the level of scientific and research organizations. This means the inclusion of innovations in basic activities of these organizations, so it is planned to develop individual programs of development in line with the recommendations provided in the Strategy. These programs also need to include the mechanisms for monitoring the success of its implementation (key performance indicators).

Forming of the Council for development and innovations

As recommended by IF4TM project team members, the Strategy foresees the forming of the Council for Development and Innovations. The main objective of the Council will be to determine public policies and strategies as well as reaching decisions related to the economic and global development of the country as the knowledge-based society through mobilisation of national scientific and research capacities.

Key performance indicators for strategic goal 3, relevant for IF4TM contribution:

1. Improving the legislative framework: Strengthening mechanisms of the “knowledge economy”;
2. New laws adopted and implemented: the Law on Scientific and Research Activity, the Law on Higher Education, the Law on Innovation Activity: institutions are implementing the laws;
3. The number of conducted analysis of the scientific research organizations, primarily institutes;
4. The number of institutes that have implemented restructuring in accordance with the amended mission.

2.6 Measures for achieving the Objective 6 relevant for IF4TM contribution – Increasing the investments in research and development through public funding and encouraging the investments in research and development by private sector

Increase of investments in research and development from public funds

In order to achieve the progress in scientific, research and innovation area, it is necessary to increase the investments from public sector. The analysis of budget resources of the Ministry of Education, Science and Technological Development that were invested in development of science and research show that those funds were not only insufficient but also inefficiently directed.

The Strategy recommends that these investments are directed to researchers, research projects and purchase of equipment, while the funds for building new objects will be lower than before. Also, it is necessary to increase the investments in material resources for research, as a precondition for achievement of high quality and applicable results.



Other ministries will allocate the budgetary funds for research and development for projects of focused basic research to be realized, while public companies and institutions will direct the investments in research and development directly to the joint projects with universities and institutes.

Increase of investments of business sector in research and development

Besides budgetary funds from public sector, it is necessary to increase the investments of business sector in research and development, particularly through the introduction of incentives systems such as tax and customs incentives, credit lines for funding the development as it is practice in European Union.

Investment in research and development from other national and international sources

Besides these two sources of funding, and having in mind the good practice in Europe, the legal framework for establishment of Venture Capital Funds will be formed, since it proved to be the successful model of donation investments in research and development. Besides, certain resources will be provided for preparing of international research projects, in order to boost the participation of scientific, research and industrial sector in this kind of projects.

Key performance indicators for strategic goal 6, relevant for IF4TM contribution:

1. Adopted Programme for Capacity Raising for the participation of the Republic of Serbia in Horizon 2020;
2. Committee for International Cooperation is established;
3. Appointed representative in Brussels as well as the professional network of national contact points;
4. Chapter 25 is closed;
5. The number of projects in HORIZON 2020 involving teams from the Republic of Serbia;
6. The number of applications for projects HORIZON 2020 involving teams from the Republic of Serbia in relation to the total number of researchers;
7. The number of projects with coordination compared to the total number of projects in which the Republic of Serbia is participating in HORIZON 2020;
8. The number of companies that took part in Horizon 2020 projects;
9. The number of companies that run projects in Horizon 2020;
10. The number of Serbian consortia involved in the Horizon 2020 projects;
11. The number of Serbian consortia that run projects in Horizon 2020;
12. The share of publications with foreign researchers as co-authors;
13. The share of research and development financing from foreign sources;
14. The number of incoming and outgoing mobility which was accomplished through international exchange programmes;
15. The number of jointly programmed research programmes at the regional and global level.

3. Action Plan for the Strategy for Scientific and Technological Development of the Republic of Serbia for the period 2016-2020

The members of IF4TM project teams contributed to the development of the Action Plan for the Strategy for Scientific and Technological Development of the Republic of Serbia in the period from September to December 2017:

- Prof. Dr. Vesna Mandic, University of Kragujevac
- Daniela Zlatic Sutic, Intellectual Property Office
- Prof. Dr. Dragan Domazet, Belgrade Metropolitan University.

The contributions refer to the activities such as:

- Recommendations on activities related to the IP management legislative (relevant for Specific objective 1)
- Proof-of-Concept Program (relevant for Specific objective 2, Measures 2.2 and 2.3)
- Joint projects with industry (relevant for Specific objective 2, Measure 2.2)
- Establishment of Technology Transfer Centre in Kragujevac (relevant for Specific objective 2, Measure 2.3)
- Guidelines for Proof-of-Concept Program (relevant for Specific objective 2, Measure 2.2)
- Piloting of Proof-of-Concept Program with selected 10 research teams (relevant for Specific objective 2, Measure 2.3)
- Competition for best student ideas as support to the Competition for best technological innovation (relevant for Specific objective 1, Measure 1.8)
- Establishment of new mechanisms for financing the innovations, particularly Crowdfunding (relevant for Specific objective 2, Measure 2.3)

The Action Plan encompasses the whole set of measures and related activities, grouped within six objectives presented in the Strategy:

- **Specific objective 1** – Encouraging excellence and relevance of scientific research in the Republic of Serbia
- **Specific objective 2** – Strengthening of links between science, industry and society with the aim of boosting innovations
- **Specific objective 3** – Establishing of more efficient system for science and innovations management in the Republic of Serbia
- **Specific objective 4** – Ensuring excellence and availability of human resources for science and industry and social activities
- **Specific objective 5** – Improving the international cooperation in the area of science and innovations
- **Specific objective 6** – Increasing investments in research and development through promoting public funding and encouraging the business sector investment in research and development



Activities within these six specific objectives and their proposed strategic measures, relevant for the IF4TM project, its objectives, expected impact and achieved results, are as follows:

Measure 1.2: Introduction of focused basic research

- 1.2.1 Focused basic research contributes to the realization of partner coordinated projects between two or more ministries, leading to the optimal use of budget for funding the research and development.

Measure 1.3: Improvement of technical and technological research

- 1.3.2 Joint research projects with industry will be introduced in the area of technological development.

Measure 1.4: Improving the system for evaluation of scientific research

- 1.4.1 Improved system for evaluation of scientific research will increase the quality (excellence) and impact of the science on development of industry, society and social innovations (relevance).

Measure 1.8: Promoting science and innovation

- 1.8.1 Communication between scientific community and business sector, other ministry, civil society and society at large will be promoted.
- 1.8.2 Establishment of regional centres for promotion of science and interactive scientific centre in Belgrade.
- 1.8.3 Realization of numerous promotional tools and campaigns in order to promote science and innovations.
- 1.8.4 support to the promotion and popularization of innovation and innovative entrepreneurship

Measure 2.1: Encouraging the application of scientific and research results and establishing the Innovation Fund.

- 2.1.1 Strengthening the links between science and research organizations and business subjects through provision of additional resources for activities of the Innovation Fund.

Measure 2.2: Establishing the joint innovation projects of the private sector and scientific and research organizations

- 2.2.1 Establishing the mechanisms that will allow incentives for intensified project cooperation between private sector and scientific and research community.
- 2.2.2 Establishing the process of selection of the projects that will be competitive, public and realized with the assessment of international experts, based on the model of Early Development Program and Program for Cofinancing Innovations.
- 2.2.3 Application of the block chain technology in industry.

Measure 2.3: Improving the knowledge and technology transfer and establishing the business entities based on the scientific and research work (“spin-off”) and promotion of innovation ecosystem.

- 2.3.1 Establishing the main office for technology transfer that will allow the transfer of IP from academic sector to practical application in industry.



- 2.3.2 Commercialization and application of research programs in industry will be provided through realisation of the Proof-of-Concept Program.
- 2.3.3 Establishing and development of technological business entities based on research projects that will prevent the brain drain and create new jobs.
- 2.3.4 Program of support to the opening regional innovation “start-up” centres.

Measure 2.4: Establishing of public-private partnership

- 2.4.1 Support to the Innovation Fund for innovative business (as part of the program for development of business entities and innovations in Western Balkans) will enable the synergy of initiatives for regional integration and development.

Measure 2.5: Science and technology centres of excellence

- 2.5.1 Establishment and development of science and technology parks at university centres that will allow creating new jobs, business and technology transfer.

Measure 3.1: Promotion of institutional framework

- 3.1.1 Establishment of bodies (at national level) that will contribute to the improvement of institutional framework in the area of innovation activities.
- 3.1.2 Law regulating the innovation activities need to define activities, work methodology, composition and appointing the members of this body.

Measure 3.2: Establishing the strategic management of scientific and research organizations

- 3.2.2 Change of the management system in every scientific and research organization will allow inclusion of innovations in their activities, as well as introduction of key performance indicators.

Measure 4.6: Improving the gender and minority equality in science and innovations

- 4.6.2 Support to the development and promotion of women in innovation entrepreneurship

Measure 5.2: Strengthening the participation in European Framework for Science and Innovation Horizon 2020

- 5.2.6 Establishing the mechanisms for support to the participation of small and medium enterprises in Horizon 2020.
- 5.2.8 Elaboration of the Strategy for research and innovations for smart specialization of the Republic of Serbia. Cooperation with Joint Research Centre of the European Commission will be widened (particularly in the area of development of smart specialization strategy, exchange of information, access to data bases and support to the process of joining EU).

Measures 6.2 and 6.3. Increasing the investment in research and development

- 6.3.2 Creating the legal framework for establishing the venture capital funds.
- 6.3.3. Defining the Venture capital funds with the participation of the government.
- 6.3.4 Introduction of new instruments for encouraging the early development of innovative SMEs and attracting private funds.



4. National recommendations for universities and institutes in Serbia for intellectual property management in technology transfer activities

Prof. dr Vesna Mandic, the coordinator of IF4TM project and the president of WG2, and Prof. Dr. Nenad Stanisic, member of WG3 on IF4TM project, as members of Higher Education Reform Experts Team (HERE team), appointed by the Ministry of Education, Science and Technological Development upon the initiative of European Commission, worked on the development of publication the [National recommendations for universities and institutes in Serbia for intellectual property management in the technology transfer activities](#), in period from December 2015 to March 2016. The other authors of this publication are Prof. Dr. Vera Markovic, Prof. Dr. Vladica Cvetkovic and Dr Dragana Ćorić, from the University of Nis, University of Belgrade and University of Novi Sad, partner institutions on the IF4TM project.

The aim of publication is to recommend the set of national recommendations for universities and research organizations based on the recommendations of the European Commission for intellectual property management in publically funded organizations and Code of Ethics in activities of knowledge transfer. These recommendations are presented as general guidelines illustrated by the examples of good practice and number of links for some useful information.

In order to promote and further apply the recommendations at the university and institute level, the Expert team organized 5 info days at the University of Belgrade, University of Novi Sad, University of Nis, University of Kragujevac and State University of Novi Pazar in May and June 2016.

The spokesmen of the info days were the authors of the publication: Dr. Vesna Mandić, Dr. Nenad Stanišić, Dr. Vladica Cvetković, Dr. Vera Marković and Dr. Dragana Ćorić. There were more than 100 participants: professors and researchers of these five universities that were introduced with the recommended measures for establishment of sustainable intellectual property management at Serbian universities, as the main aspect of the first pillar of university's third mission (technology transfer and innovations, TTI).

Additionally, this publication is crucial for the implementation of D3.0 The Guidelines for the Technology Transfer and Innovations.

The publication gives a preview of set of measures and actions, examples of good practice and exemplary model of documents and forms, within 18 recommendations for efficient intellectual management, especially for publically funded research:

1. To develop of special policy for intellectual property protection as the part of the long-term strategies and its establishment as the mission of public research organizations;
2. To provide the clear rules for employees and students related to the intellectual property management;
3. To improve the identification, commercial exploitation and where necessary intellectual property rights protection;
4. To provide incentives for all relevant staff involved in application of the IPR protection policy;



5. To create the development of coherent portfolios for protecting of IPR in specific technology areas that allow to manage their exploitation;
6. To raise awareness and gain basic knowledge on IP and knowledge transfer through training of students and researchers;
7. To develop the policy and strategy for publishing and wider dissemination of research and development results;
8. To consider possible mechanisms and potential partners for industrial exploitation of research results, as well as the selection of the most suitable ones for improvement of the technology transfer process;
9. Although proactive policies of IPR protection and knowledge transfer can create additional income, this cannot be considered as the main objective of the research and results exploitation;
10. To provide the professional services in knowledge transfer (legal, financial, commercial, IP protection);
11. To develop and publish the policy on licensing in order to harmonize different practice and provide equity;
12. To develop and publish the policy of establishment of spin-off companies, encouraging the staff in publically funded organizations (PRO) to participate in the process;
13. To determine the clear principles related to the share of financial profit generated from income from technology transfer between public research organizations and innovators;
14. To monitor the activities and achievements of IPR protection and knowledge transfer and to publish them regularly;
15. The rules regulating the collaborative and contracted research need to be harmonized with the mission of all contract parties (public scientific and research organizations and industrial partners);
16. To provide the clear principles of ownership share in IP in collaborative and contract research projects;
17. Recommendations for the share of ownership of IP in collaborative research projects;
18. To determine the access rights between parties in the project as early as possible, ideally before the project starts.

At organized info days, the conclusions and recommendations on inclusion of the Ministry of Education, Science and Technological Development, Ministry of Economics, Ministry of Finance and Ministry of Justice were adopted related to their engagement in the process of implementation of recommendations and strengthening of the first (education) and second (research) mission of universities and their adaptation to the development of third mission (innovation and social contributions), establishment of fund and/or program for support to universities with the aim of covering the costs of application and maintaining of patents at international level, introduction of incentives programs for cooperation of universities with enterprises, etc.



4.1 Summary review of the recommendations of rectorates of five public universities and participants of info days related to the implementation of National Recommendations

- To forward the National recommendations to the Ministry of Education, Science and Technology Development and to request a meeting with their representatives related to the implementation of recommendations that are to be implemented at the state and ministry level.
- It is necessary to support at the state level the financial activities of knowledge transfer through targeted incentives programs and measures, and the effects of their implementation needs to be monitored by the relevant ministry
- To include (besides the Ministry of Education, Science and technological Development) other ministries as well – Ministry of Economics, Ministry of Finance, Ministry of Justice
- To present the National Recommendations to the KONUS and the State Universities Council
- To organize workshops in order to train staff at universities and faculties within the legal and financial departments, as well as the special units such as TTOs, to interpret and prepare acts, contracts and other legal documents related to the IP management
- To integrate certain recommendations in the legal framework and to design the incentives for their implementation
- To strengthen I (education) and II (research) mission of the universities and to adapt them to the third university mission (innovation and university's social engagement)
- To introduce the incentive programs of cooperation of universities and enterprises
- Management of IPR and processes of knowledge transfer should be incorporated in the one of integrative functions of the university
- Through special programs and establishing the support funds to universities to cover the costs of application and maintaining the patents at international level.
- To define the clear role of enterprises (responsibilities and rights) and their rights to IP through new cycle of national scientific projects in order to increase their participation in the projects, and thus provide the balance of fundamental and applied research in programming and financing
- To develop the model of contract for joint research projects (SRO and enterprise) for applying for projects (part of application documentation)
- To solve the status of the technical solutions, acknowledgments and publication models
- Ministry need to recognize the TTO, KTO and other university units and through the systematization of work position to finance those positions that have been so far funded from universities' own resources or donations.



- To introduce the tax incentives for cooperation of the university with industry
- To provide assistance in writing patent applications made by scientific and research organizations
- The results of research that are publicly funded need to be visible and easily available so that potential users from industry can be properly informed
- To facilitate public procurement realized at research organizations from funds provided within the knowledge transfer and from the market
- To include the employers and representatives of the enterprises in the Boards/Committees that recommend/consider and/or adopt curricula and study programs at faculties.



5. Strategy of intellectual property for period 2018-2022

At the meeting of the Serbian Government, held on October 11, 2018, the Strategy of development of intellectual property for period from 2018 to 2022 (Official gazette of RS, no. 78/2018 from 19 October). The part of this strategy is the Action Plan for implementation of the Strategy for development of intellectual property for period 2018-2022. The draft of the Strategy is under jurisdiction of the Intellectual Property Office whose representatives worked on the strategy text during 2017 and 2018 taking into consideration the findings from the meetings screening on progress of Serbia through negotiation of Chapter 7 – Intellectual property and other findings based on the analysis of the state-of-the-art in this area. The Office represents the Ministry of education, science and technological development before the Serbian Government. The Strategy defines the main objectives and concrete measures for their achievement. The Strategy is available [here](#).

The significance of the intellectual property reflects in the fact that its consistent and determined protection we create better conditions for strengthening of economy of Republic of Serbia. Besides, the protection of IP in line with the European standards is condition for admission of Republic of Serbia to European Union. This is the main subject of the Chapter 7 – Intellectual property in negotiations for admission of Republic of Serbia to EU that was opened on June 20, 2017 and is one of first 10 chapters that are open in the process of negotiating the admission to EU.

The first strategy of intellectual property in Republic of Serbia for 2011-2015 (Official gazette of RS, no 49/11) adopted by the Government in June 2011, was realized with significant results that were achieved and the aim of the strategy was to develop the system of IP in line with the best international practice. The strategic objectives were:

- Adjusting the national legislative with European legislation
- Promoting the IP rights implementation
- Economic exploitation of the IP rights
- Raising the awareness on the significance of IP rights

In last two objectives of the previous strategy related to the implementation of IP rights and raising awareness on IP significance, much was achieved through activities of Education and information Centre (EIC) of the Office, established in 2010. Within the Centre, many lectures were organized at universities and institutes with the aim to introduce this area into education which complies with the objectives of the universities' third mission.

In 2010, during the project dedicated to the establishment of EIC, the first Technology transfer Centre was established at the University of Belgrade. However, there is still a need to institutionally introduce to HEI curricula the topic of intellectual property and to further work on building the capacities for transfer of research results to industrial activities and better connections of science and industry.

The main objectives of the Strategy of development of IP for period 2018 to 2022 are as following:

1. Harmonization of the national with European legislation in the area of intellectual property
2. Promotion of the IP rights implementation



3. Education and raising awareness for knowledge transfer in function of promotion of IP application in industry.

In new strategy, the Objective 3 is directly connected with the objectives of IF4TM project and participation of the Office as partner on the project was in the period when this strategy was elaborated during 2017 and 2018. The adoption itself was delayed due to the changes in Government caused by the elections.

ГЛАВНИ ЦИЉ 3: Образовање и подизање капацитета за трансфер знања у функцији унапређења примене интелектуалне својине у привреди

Source: the Strategy on intellectual property

Accomplishing the above mentioned objectives will contribute to the creation of social and economic environment suitable for creative work and creation of various literature, science, music, invention and other products. This will help create better climate for faster economic growth of the Republic of Serbia and arrival of new investments. The realization of main objectives is thoroughly established based on the specific objectives, realized through the realization of specific measures.

In modern knowledge-based economy and Lisbon strategy adopted by EU in 2000, the education, scientific and technological research and innovations are key factors of competitiveness and sustainable development. The Strategy of scientific and technological development of the Republic of Serbia for 2016-2020 (Official gazette of RS, no. 25/16), Strategy for support to the development of SMEs, entrepreneurship and competitiveness for period 2015-2020 (Official gazette of RS, no.35/15), Strategy for education development in Serbia until 2020 (Official gazette of RS, no.107/12), have the common objectives for connecting science and industry in order to apply the research results generated on universities, institutes and other scientific and research institutions through exploitation of different forms of IP by industrial entities.

The EU projects, through funding framework Horizon 2020 for research, are focused on the market application of results from research organizations through consortiums where at least one industrial entity is included. With the Bylaw on process, valuation and quantitative presentation of scientific and research results (Official gazette RS, no. 24/16, 21/17 и 38/17), valuation of results expressed through patents in the area of technical and technological and bio-technical sciences has been increased and the researchers are encouraged to go towards the protection through patenting.

Measures for achievement of main Objective 3 of the Strategy are as follows:

1. Introduction of teaching on the topic of intellectual property at universities through accredited study programs, independent subjects or within other subjects adjusted to the education profiles, as well as through the LLL courses (one of the objectives of the IF4TM project)
2. Formal introduction of third mission of universities in the Law on higher education (Official gazette RS, no. 88/17, 27/18 – other laws and 73/18) (also the objective of the IF4TM project achieved through mentioned legal solution)
3. Raising the level of knowledge on system of protection and management of the intellectual property of researchers at universities and other research institutions through different courses organized by the Intellectual property office through its Centre for education and information (EIC) and in cooperation with WIPO, EPO, Technology



transfer center and other organizations for supporting innovations (part of the objectives reached within the IF4TM project).

4. Adoption and implementing of the “National recommendations for universities and institutes in Serbia for management of IP in the knowledge transfer activities” developed within the HERE team appointed by the Ministry of Education, Science and Technological Development.

http://erasmusplus.rs/wp-content/uploads/2016/06/Nacionalne-preporuke_web.pdf

5. Raising the knowledge level of industrial entities on protection and exploitation of IP rights through activities of Intellectual property office and EIC in cooperation with institution for support to innovations (chambers of commerce, entrepreneurs associations, development agencies, etc.), providing the services to business entities through Diagnostics of IP or other tools developed within the EU projects (Iport, VIP4SME) where Office was a partner and other organizations services.
6. Enabling the more important support through different programs of financing for innovations (Ministry of education, science and technological development, Ministry of economy, office of the minister for innovations and technological development, Innovation fund) and support to the protection of IP abroad for the purpose of successful exploitation and commercialization at foreign market.

“Мере за постизање главног циља:

1. увођење наставе о интелектуалној својини на универзитетима кроз акредитоване студијске програме, самосталне предмете или у оквиру других наставних предмета прилагођених образовним профилима, као и кроз курсеве континуираног образовања;
2. формално увођење треће мисије универзитета у Закон о високом образовању („Службени гласник РС”, бр. 88/17, 27/18 – др. закон и 73/18);
3. подизање нивоа познавања система заштите и управљања интелектуалном својном истраживача на универзитетима и другим истраживачким установама кроз различите курсеве које организује Завод за интелектуалну својину кроз Центар за едукацију и информисање или у сарадњи са WIPO, EPO, Центри за трансфер технологије и друге организације за подршку иновацијама;
4. усвајање и имплементирање „Националних препорука за универзитете и институте у Србији за управљање интелектуалном својном у активностима трансфера знања” израђених у оквиру Стручног тима за реформу високог образовања (ХЕРЕ тим) који је именовало Министарство просвете, науке и технолошког развоја;
5. подизање нивоа знања привредних субјеката о заштити и искоришћавању права интелектуалне својине кроз активности Завода за интелектуалну својину – Центра за едукацију и информисање у сарадњи са организацијама за подршку привреди (привредним коморама, удружењима привредника, развојним агенцијама, итд.), пружањем услуга привредним субјектима кроз услугу Дијагностике интелектуалне својине или уз помоћ других алата развијених у оквиру пројеката Европске уније на којима је Завод за интелектуалну својину учествовао (Iporta, VIP4SME), кроз активности и услуге других организација;
6. омогућавање значајније подршке кроз различите програме финансирања иновација (Министарство просвете, науке и технолошког развоја,



Министарство привреде, Кабинет министра за иновације и технолошки развој, Фонд за иновациону делатност) и подршку за заштиту права интелектуалне својине у иностранству ради стварања предуслова за успешну комерцијализацију на страним тржиштима.”

Source: the Strategy on intellectual property

The main indicators for implementation of the strategy objectives for the Main objective 3 are identified as:

- Number of trainings for teachers who will teach IP
- Developed curricula in the area of IP for teachers who will teach IP
- Number of programs and subjects, especially at technical faculties, within which IP topic will be taught\
- Formally introduced third mission of the universities into the Law on higher education as the goal of the international project IF4TM where Ministry is the partner as well as the Intellectual property office. The third mission goals are to enable universities to include beside higher education and researcher as main activities also the obligation to transfer technologies and to include in their offer the courses of continuing education and to carry out socially responsible activities
- Number of courses held at faculties and universities
- Adoption of the bylaws on IP at all state universities
- Number of established offices for technology transfer and number of employees in them
- Number of trainings and seminars on IP for industry
- Number of programs for financial support to the IP protection.

From all above mentioned we can see that the Strategy includes the indicators as estimated results set as the goals of IF4TM project and which are formulated as the recommendations from the held Policy seminar organized in April 2016.

ГЛАВНИ ИНДИКАТОРИ ЗА ПРАЋЕЊЕ СПРОВОЂЕЊА СТРАТЕГИЈЕ

Главни индикатори за праћење спровођења Стратегије развоја интелектуалне својине за период од 2018. до 2022. године су:

3. Конкретан циљ: образовање и подизање капацитета за трансфер знања у функцији унапређења примене интелектуалне својине у привреди

– Број обука за наставнике који ће предавати интелектуалну својину;

– Израђени курикулуми из области интелектуалне својине за наставнике који ће предавати интелектуалну својину;

– Број програма/предмета, нарочито на техничким факултетима, у оквиру којих се изучава интелектуална својина;

– Формално уведена трећа мисија универзитета у Закон о високом образовању као циљ међународног пројекта „Институционални оквир за развој треће мисије универзитета у Србији – IF4TM, у коме као партнер учествује Министарство



просвете, науке и технолошког развоја и Завод за интелектуалну својину. Циљеви треће мисије су да универзитети поред високог образовања и научних истраживања као основних делатности, уведу као обавезу и трансфер технологија, да у понуди имају и курсеве континуираног образовања као и да спроводе друштвено одговорне активности;

- Број обука одржаних на факултетима, институтима;*
- Доношење правилника о интелектуалној својини на свим државним универзитетима;*
- Број основаних канцеларија за трансфер технологија и број запослених у канцеларијама за трансфер технологије;*
- Број обука/семинара о интелектуалној својини за привреду;*
- Доношење закона о иновационој делатности;*
- Број програма финансијске подршке за заштиту интелектуалне својине.*

Source: Strategy of Intellectual Property

In order to spread the information and building the competences of teachers, the Intellectual Property Office as partner provides the support in realization and education of teachers but it is also important that HEIs work on introducing the IP into their curricula as part of the subject or as individual subject within existing programs in order to gain wider knowledge on his matter in future graduates who will provide their contribution in society through gaining knowledge on IP in business and commercialization of research results if they remain in the scientific profession.

Additionally, it is of great importance the contribution of IF4TM project to the Strategy for Intellectual Property and the fact that all partners are working on the same objective and that for the application of IP rights in industry it is necessary also to finance innovation and apply other legislative as the support to their application. Some of the legislation can be adoption of the bylaw on management of the IP at all universities as well as the raising awareness among researchers to base their work on the market needs.



6. Law on the Science Fund

The Law on the Science fund adopted at the Government session on November 15, 2018 and was forwarded to the Assembly procedure.

Establishment of the Fund for science represents the institutional upgrade of the system and society based on the knowledge that contributes to the promotion of the links between the research, technological development and industry, and encourages and supports the development of technologies and generation of innovations.

Established Science Fund and its functioning through financial support to the projects will contribute to higher competitiveness and quality of results, more efficient application of research results, availability of all programs and projects results, as well as development of scientific staff, integration in international scientific and technological projects and systems, cooperation with scientific diaspora, and regulation of protection of IP and data in line with the recommendations from Policy Seminar held in 2016, following the principles of IP protection in transfer of knowledge from academy to industry.

The Fund programs are defined based on the Strategy of scientific and technological development of Republic of Serbia, Smart specialization (RIS3) and other sector strategies relevant for development of society. Their structure include the recommendations from the IF4TM project and Policy seminar held in April 2016 in the following elements:

- 1) **PEOPLE** – programs is designed for development of human resources through funding of different activities – support to research, forming laboratories, international cooperation, etc. The programs is dedicated to young scientists, post PhDs, researchers recognizable in international research area and researchers from diaspora.

One of the recommendations from the IF4TM policy seminar was to invest more in capacity building of human resources, and less in buildings and other infrastructure for education and research.

Program namenjen razvoju kadrova kroz finansiranje različitih aktivnosti - podrška istraživanju, formiranje laboratorija, međunarodna saradnja i dr. Program je namenjen izvrsnim mladim naučnicima, postdoktorandima, istraživačima koji su u toku svoje dugogodišnje naučne karijere prepoznatljivi u međunarodnom istraživačkom prostoru i istraživačima iz dijaspore, u cilju formiranja laboratorija u Republici Srbiji i izvrsnih timova koji imaju značajnu perspektivu;

Source: Law on science fund

- 2) **INFRASTRUCTURE** – program supports the formation, building, maintaining and promoting the institutions and laboratories of strategic importance in line with the strategy of scientific and technological development of the republic of Serbia, smart specialization (RIS3), road map for research infrastructures and other relevant strategies.

In line with the recommendations from the Policy seminar it is necessary to provide more significant investments in scientific and research infrastructure



and modern equipment necessary for high quality research in order to provide excellent results.

Infrastruktura - Program podrške formiranju, izgradnji, održavanju i unapređenju institucija i laboratorija od strateškog značaja, u skladu sa strategijom naučnog i tehnološkog razvoja Republike Srbije, pametnom specijalizacijom (RIS3), mapom puta za istraživačke infrastrukture i ostalim relevantnim strategijama;

Source: Law on science fund

- 3) **COOPERATION** – the program of strategic support to international cooperation and inclusion of individuals, teams and institutions in relevant international projects (Horizon2020 and other).

In line with the recommendations with the Policy seminar, the financial incentives will be provided for those team who are successful in international projects (especially in Horizon 2020), so the researchers and their institutions are encouraged to be more competitive.

Saradnja - Program strateške podrške međunarodnoj saradnji i uključivanju pojedinaca, timova i institucija u relevantne međunarodne projekte (Horizont 2020 i druge). Podrška istraživanjima i razvoju timova koji su ostvarili zavidan rezultat na pozivima Horizont 2020 (i drugim odgovarajućim), ali nisu finansirani;

Source: Law on science fund

- 4) **INNOVATION** – the program of cooperation with industry are realized with the Innovation fund and other industrial entities. The program aims at the realization of projects with the participation of partners from business sector and with mandatory direct application of research results.

In line with the recommendations from Policy seminar new provisions of the Law on innovation activities that need to be adopted during 2019 need to support the opportunities for creation of stronger links between university and industry in the area of innovative activities, including the flexible mechanisms of financing.

Programi saradnje sa privredom realizovani sa Fondom za inovacionu delatnost i drugim privrednim subjektima. Program ima za cilj realizaciju projekata sa učešćem partnera iz privrednog sektora i sa obaveznom neposrednom primenom rezultata istraživanja;

Source: Law on science fund

In the process of drafting the Law on Science Fund of the republic of Serbia, the representatives of scientific community, industry and Ministry of education, science and technological development.



7. Smart specialization strategy

The key element of the smart specialization is the Research and Innovation Strategy for Smart Specialization (RIS3). One of the important segments to successfully design and implement the strategy is the entrepreneurial discovery process (EDP) which presents the continuous public-private dialogue between four spheres of modern innovation society (so called quadruple/helix), which is academic, government sector, industry and civil society. General frame process for development of RIS3 in Serbia based on EU standards is defined in the document “Smart specialisation framework for Enlargement and Neighbourhood countries“ from 2018. phases of general framework of smart specialization for joined members of EU are as follows:

1. Decision on launching the process
2. Analysis of strategic mandates
3. Analysis of existing economic, scientific and innovative potential (quantitative)
4. Detailed analysis of priority domains (qualitative)
5. Process of entrepreneurial discovery

At the Policy seminar held in 2016 within the IF4TM project, the participants defined some recommendations that considered during the development of the smart specialization strategy. One is especially concerning the mapping of regions in Serbia in order to identify strengths, specificities and potential in both industrial and research sector, but also to connect them with the market on national and EU level.

Taking into account these considerations, the recommendations of relevant stakeholder and in line with general framework regulated by the Joint Research Council, within the development of smart specialization strategy the three phases were completed including the analysis of current economic, scientific and innovative potential as well as qualitative study of examples of innovative potential specially focused on development of software industry in Serbia.

The importance of the strategy is reflected, among other things, in the fact that it will help to establish a better link between scientific-research and innovation activities, on the one hand, and the economic and industrial structure on the other, which lies at the heart of the third mission of the university, the TTI and SE dimensions. This will enable better coordination between scientific-research and industrial policy.

It is expected that draft Strategy S4 will be completed by MEST, supported by the Joint Research Council, until the end of 2019 and further proceeded to adoption procedure.



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Co-funded by the
Erasmus+ Programme
of the European Union

Co-funded by the Erasmus+ Programme of the European Union

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