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Szanowni Państwo, Pracownicy, Absolwenci i Studenci Szkół Wyższych

Przekazujemy w Państwa ręce pierwszy w 2016 roku zeszyt „Pulsu Uczelni” – jesteśmy wdzięczni za efektywną współpracę oraz pełne życzliwości oceny! Dzięki wysiłkom Autorów, Recenzentów, Członków Rady Naukowej, Redaktorów i Zespołu Redakcyjnego mamy przyjemność ponownie podzielić się z Państwem rankingiem punktowym czasopism naukowych: aż 6 punktów za publikację w „Pulsie Uczelni” według eksperckiej oceny Ministerstwa Nauki i Szkolnictwa Wyższego (część B – Wykazu czasopism naukowych – Komunikat Ministerstwa Nauki i Szkolnictwa Wyższego z dnia 18 grudnia 2015 r.). Nie bez znaczenia dla tej oceny jest fakt, że artykuły publikowane na łamach „Pulsu Uczelni” umieszczane są w wielu uznanych międzynarodowych i polskich bazach indeksacyjnych i bibliograficznych, takich jak: Arianta, Bielefeld Academic Search Engine, CEJSH, CEON, DOAJ, DBC, EBSCO, Index Copernicus, MNiSW, PBN, Ulrich’s™ International Periodicals Directory, WorldCat. Jesteśmy dumni z tego sukcesu i zachęcamy Państwa do dalszego nadsyłania artykułów opisujących wyniki prac badawczych.

Z wielką satysfakcją informujemy również, że Polska Komisja Akredytacyjna, instytucja powołana do oceny jakości kształcenia w uczelniach wyższych, oraz Ministerstwo Nauki i Szkolnictwa Wyższego wyraziły zgodę na nadanie uprawnień Państwowej Medycznej Wyższej Szkole Zawodowej w Opolu do prowadzenia studiów II stopnia (magisterskich) na kierunku położnictwo oraz studiów I stopnia (licencjackich) na nowym kierunku dietetyka! To spektakularne osiągnięcie Uczelni z pewnością pozytywnie przyczyni się do zwiększenia oferty tematycznej naszego kwartalnika, wzmocni jego pozycję naukową i pozwoli na dalszy dynamiczny rozwój.

Kontynuując wspólny wysiłek, w części naukowej niniejszego zeszytu prezentujemy prace z różnych ośrodków naukowych w Polsce i na świecie: oryginalną na temat międzynarodowych zespołów badawczych jako skutecznego narzędzia promocji zdrowia i edukacji zdrowotnej oraz artykuły poglądowe poruszające problematykę prowadzenia i finansowania badań, łączenia badań z usługami i nauką empiryczną, innowacji w działalności instytucji naukowych, w tym artykuł dotyczący skuteczności pozyskiwania fundu-

szy europejskich, a także syntetyczny tekst o modelu informacji naukowej w Polsce.

Niniejszy zeszyt ukazuje się w przededniu III Międzynarodowej Konferencji „Pulsu Uczelni” – „Granty i projekty naukowe – od aplikacji do finansowania” (12–13 maja 2016 r.; której organizatorem jest PMWSZ w Opolu), stanowiącej kontynuację cyklu konferencji „Jak pisać prace naukowe? Gdzie publikować?”. Prelegenci z USA, Grecji, Holandii, Białorusi, naukowcy i specjaliści z całej Polski, panele szkoleniowe, debaty naukowe i dyskusje bez wątpienia sprawią, że konferencja ta będzie stanowić doskonałą okazję do poszerzenia wiedzy merytorycznej, doskonalenia umiejętności pisania projektów naukowych i pogłębionego spojrzenia na prezentowane zagadnienia.

Dziękujemy Władzom Uczelni, a w szczególności JM Rektorowi dr. Tomaszowi Halskiemu za dużą życzliwość i zrozumienie dla idei, dzięki której „Puls Uczelni” z czasopisma czysto informacyjnego stał się forum wymiany myśli naukowej nie tylko pracowników, ale także absolwentów, a zwłaszcza studentów szkół wyższych w Polsce i poza jej granicami. Dziękujemy wszystkim Patronom Konferencji za wiarę w przedsięwzięcie, dzięki któremu spotykamy się ponownie w Opolu.

Wszystkim Prelegentom dziękujemy za podjęcie trudu podzielenia się z uczestnikami III Międzynarodowej Konferencji „Pulsu Uczelni” własnymi, wieloletnimi doświadczeniami oraz wiedzą. Członkom Komitetu Naukowego i Organizacyjnego III Międzynarodowej Konferencji „Pulsu Uczelni” składamy serdeczne wyrazy wdzięczności za wielomiesięczny trud, czas, nieocenione rady oraz rezultaty, które są ukoronowaniem wspólnych wysiłków. Dzięki Państwa pracy do ogromne przedsięwzięcie może mieć miejsce i na trwałe wpisać się w dorobek naukowy środowiska akademickiego Opolu i regionu!

Zainteresowanie, z jakim spotkały się I i II Konferencja, jest najlepszym dowodem na to, że aktywność naukowa dla pracowników, absolwentów, studentów szkół wyższych, niezależnych badaczy, a także innych specjalistów, np. bibliotekarzy, działających na rzecz upowszechniania nauki, ma znaczenie. Dziękujemy, że zdecydowaliście się Państwo podjąć trud udziału w III Międzynarodowej Konferencji „Pulsu Uczelni” i przyjechali do Opolu z najdalszych miejsc Polski, Europy i świata.

**Serdecznie witamy Wszystkich
w Państwowej Medycznej Wyższej Szkole Zawodowej
w Opolu!**

INTERNATIONAL RESEARCH TEAMS – A SOCIAL TOOL OF HEALTH PROMOTION AND HEALTH EDUCATION

Międzynarodowe zespoły badawcze
– społeczne narzędzie promocji zdrowia i edukacji zdrowotnej

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A – przygotowanie projektu badania | study design, B – zbieranie danych | data collection, C – analiza statystyczna | statistical analysis, D – interpretacja danych | data interpretation, E – przygotowanie maszynopisu | manuscript preparation, F – opracowanie piśmiennictwa | literature search, G – pozyskanie funduszy | funds collection

SUMMARY

Background: Research centers, operating in a very dynamic, changing and complex environment in the first decade of the 21st century, face a number of major challenges. Universities set up virtual research teams (VRTs), whose cooperation proves extremely effective, despite geographical distances, borders, differences resulting from time zones, cultural and organizational dissimilarities. They work out common models which are then put into practical action in those academic institutions. For five years now VRTs formed by employees of the colleges of higher education based in Suwalki and Grodno have been working successfully.

Aim of the study: Assessment of joint activities developed by VRTs, based on an analysis of medical and social aspects of pro-health attitudes declared by students of Prof. Edward F. Szczepanik State Vocational College in Suwalki (SVC) and Yanka Kupala State University in Grodno (YKU).

Material and methods: The studies in Grodno and Suwalki were carried out by a VRT coordinated by SVC in Suwalki, within the framework of the "Pro-health program for the years 2013–2016". We used the online questionnaire system

LimeSurvey (social, organizational and statistical tool for implementation of health promotion and health education).

Results: Upon the analysis of 4,878 original electronic surveys, which were conducted in 2013–2015, Suwalki-Grodno-based VRTs obtained extensive knowledge of pro-health attitudes of students of both academic centers. As a result, there were created databases of, among others: a) studies on the impact of health-targeting behaviors, b) studies on the prevalence of psychoactive substances (alcohol, tobacco, drugs) among students, c) studies on knowledge about diseases related to addictions, and d) studies on the model of physical activity among students.

Conclusions: 1. Unconventional forms of work, including also the sphere of science, materialize along with socio-technological developments and the appearance of new, innovative communication media. 2. Activities of VRTs to a significant extent contribute to an international research cooperation. 3. Verification of the health policy implemented by both academic centers poses a challenge to actions undertaken by Grodno and Suwalki VRTs.

Keywords: virtual research teams, pro-health program, an online questionnaire system

STRESZCZENIE

Wstęp: Ośrodki naukowe pierwszej dekady XXI wieku, działające w niezwykle dynamicznym, zmiennym i złożonym środowisku, stają obecnie przed szeregiem ważnych wyzwań. W uczelniach powstają wirtualne zespoły badawcze (WZB), które niezwykle efektywnie współpracują ze sobą, pomimo odległości geograficznej, granic, różnic czasowych, kulturowych i organizacyjnych. Wypracowują wspólne modele, które następnie są wdrażane do działania w ośrodkach, które biorą w nich udział. Od pięciu lat w Suwałkach i Grodnie pracują wirtualne zespoły badawcze tworzone przez pracowników obu uczelni.

Cel pracy: Ocena wspólnych działań WZB na podstawie analiz medycznych i społecznych aspektów postaw prozdrowotnych studentów Państwowej Wyższej Szkoły Zawodowej im. prof. Edwarda F. Szczepanika w Suwałkach oraz Państwowego Uniwersytetu im. Janki Kupały w Grodnie.

Materiał i metody: Badania w Grodnie i Suwałkach wykonano w zakresie działań WZB koordynowanych przez uczelnię w Suwałkach, w ramach „Programu prozdrowotnego na

lata 2013–2016”. Wykorzystano internetowy system ankiet LimeSurvey (spoteczne narzędzie organizacyjne i statystyczne dla wdrożenia promocji zdrowia i edukacji zdrowotnej).

Wyniki: Suwalsko-grodzieński WZB z analizy 4878 autor-skich elektronicznych ankiet, przeprowadzonych w latach 2013–2015, uzyskał obszerną wiedzę na temat postaw prozdrowotnych studentów obu uczelni. Powstały bazy danych gromadzące badania dotyczące m.in.: a) wpływu zachowań studentów na zdrowie, b) rozpowszechnienia środków psychoaktywnych (alkohol, tytoń, narkotyki) wśród studentów, c) znajomości chorób związanych z uzależnieniami oraz d) modelu aktywności fizycznej wśród studentów.

Wnioski: 1. Niekonwencjonalne formy sposobów współpracy, także w dziedzinie nauki, powstają wraz z rozwojem społeczno-technologicznym oraz pojawieniem się nowych innowacyjnych mediów komunikacyjnych. 2. Działania WZB istotnie wspomagają międzynarodową współpracę naukową. 3. Wyzwaniem dla działań WZB z Grodna i Suwałk staje się ciągła weryfikacja polityki prozdrowotnej obu uczelni.

Słowa kluczowe: wirtualne zespoły badawcze, program prozdrowotny, internetowy system ankiet

(PU-HSP 2016; 10, 1: 3–8)

Background

There are clear concepts and the theoretical basis of international actions taken up by Virtual Research Teams (VRT). According to the definition found in The Encyclopedia of Management, a virtual band is described as a set of techniques and tools which, primarily, promote an exchange and dissemination of tacit knowledge [1]. In other words, virtual teams are formed due to the conformation of individuals, in our case – scientists – for execution of specific tasks.

The virtuality of such teams manifests itself in the fact that they use advanced communication technologies – a team of people on both sides of the national border can work together without a physical contact. A lack of modern communication technology (including the Internet, video conferencing and multimedia messages) prevents the formation of an effective VRT. The etymology of the concept of teamwork comes from business activities. It was used for the first time in the USA in the 1960's. It is worth mentioning that with time such teams began to engage employees in decision-making processes and resolving contentious issues. The result of that was teams carrying out specific tasks. This is a consequence of using modern technology, and it has led to the creation of virtual teams. A virtual team is a group of people cooperating with one another, separated geographically and in time, whose formation aims at setting up a specific project within the framework of, and sometime seven outside, the organization. Virtual teams are undoubtedly valuable assets in the form of a small number of people with complementary skills, who are committed to a common purpose and, at the same time, able to rely on each other [2]. The traditional concept of such a team seems to be the same, if there can be defined membership, group consciousness, a sense of common purpose and mutual interdependence in achieving the interoperability and the ability to act in a uniform manner [3], using, of course, innovative methods of communication.

Now, in the age of a global crisis, the creation of virtual teams is accompanied by cost savings of up to 50%. It seems that the model of teamwork enriched with elements of operation of an interconnected VRT may be the future of science. Equally important, resulting directly from the operation in the virtual world is that through the form of a temporary member of a team, employees can be transferred easily from one project to another, developing professionally and, at the same time, improving their skills in many disciplines. It must be emphasized that international teams of researchers represent different cultures, which also influences their greater creativity, and thus guarantees better results and effects of working together. All the mentioned arguments became the basis for the establishment of a VRT, formed by members of the academic centers in Suwalki and Grodno more than five years ago.

Another important element for the team collaboration is the assumption that in the years 2014–2020 the cross-border cooperation between Poland and Belarus is to be continued within the framework of the European Neighbourhood Instrument (ENI) by Cross-Border Cooperation Programme Poland–Belarus–Ukraine 2014–2020 [4] with the priority activities of the European Union (EU), taking into account the stable and sustainable development, aimed at improving the quality of life of citizens, through check-ups and preventive actions.

Aim of the study

The aim of this study was to assess joint activities taken up by the VRT, based on an analysis of medical and social aspects of pro-health attitudes of students of Prof. Edward F. Szczepanik State Vocational College in Suwalki and Yanka Kupala State University in Grodno. It was also to identify factors that determine the stable or variable pro-health stance and to indicate the impact of systematic and complementary educational activities to change health awareness, which lead consequently to building and strengthening pro-health at-

titudes. An important element of the research run by the VRT from Suwalki and Grodno is to increase the real chance to compete with other research centers.

The main types of cooperation, as part of the VRT, are cooperative research projects implemented in the framework of the International Agreement on Cooperation Science Teaching signed in 2012. VRTs are equivalent to classic research teams. The difference lies in concentration of employees or business partners based in different places on execution of a specific task, e.g. a research team examine pro-health attitudes of young people across the borderline or another team conduct epidemiological studies on the incidence of respiratory diseases among children in the region of Grodno and Podlasie, which allows a long-term and stable cooperation.

Research methodology – research techniques

Surveys conducted in cooperation with the Foundation for Education and Science (FES) are an implementation of the schedule of preventive and prophylactic use of the online system of LimeSurvey. The FES provides cooperating institutions with an online service that allows the latter to design and conduct their own surveys on the Internet, as well as to execute simple statistical processing [4]. LimeSurvey is distributed on the principle of a free software online survey system written in PHP and uses a MySQL, PostgreSQL or MSSQL. It is designed so that it is easy to use, allows users to develop and publish a number of surveys and to collect and analyze answers given by the respondents. Operating the system does not require specialist knowledge of programming languages, and users can use formatted text in questions and messages, availing themselves of a text editor.

Thanks to the solution the process of collecting and sorting information by providing respondents with an affordable form of participation in the study is greatly improved. It also allows VRTs to have quick insight into the quality of the collected data and to monitor the feedback. The LimeSurvey-based online survey questionnaire was made available in Polish, Russian and Belarusian.

Grouping of databases

The survey LimeSurvey system makes online questionnaires available, covering the following steps/procedures:

1. Registration data through computer-Speed Internet: respondents personally bring answers to survey questions on the online platform.

Assigned, at this stage, it is the first code to segregate data (e.g. data from various countries, universities, departments, etc. get appropriate identity codes).

2. The processing of data received: it checks whether all questions of the survey have been answered, rejecting incomplete questionnaires.
3. Analysis and visualization of results (e.g. screening using selected parameters-risk factors).
4. Formulate conclusions, requirements and recommendations.
5. Recording data and results in a form that allows continuous access to them.

Thus, conducted surveys allow not only to determine risk groups, but also to identify their specific features (separate databases), facilitating creation of appropriate application for them. Possible actions can include directing the respondents to further clinical or laboratory consultations (depending on their positive or negative belonging to high-risk groups).

The result of such a consolidation is not only a subjective assessment of the respondents (e.g. the assessment of their health condition), but the objective grouping them by device. A variety of tools and platforms can be used for testing, including platform e-learning and Moodle software package [5].

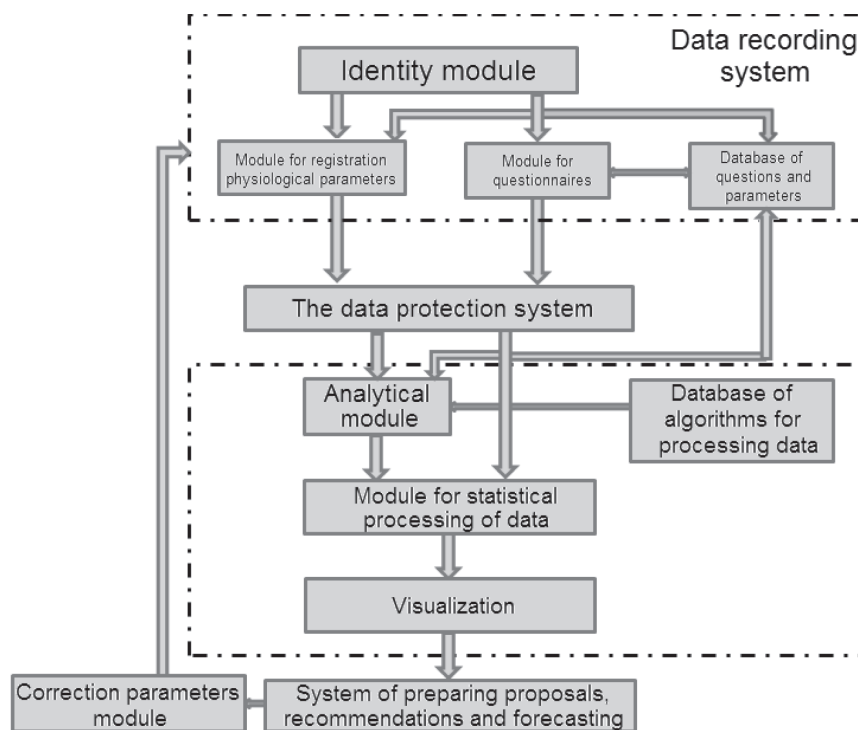


Figure 1. Modular test using the LimeSurvey methodology

In the next step, using a modular system LimeSurvey, the results are saved, including input parameters, i.e. the given country, university, date. Results can be monitored in a continuous manner (using one chosen model of reporting).

Ultimately, databases are created that contain a collection of data recorded in accordance with specific rules planned for a particular type of disease or gather-

ing groups of risk factors (e.g. smoking or excessive alcohol consumption). Conducting research with using LimeSurvey imposes minimum hardware requirements. The program enables simple statistical processing and allows building charts. For further analysis the user can export the data tables in Excel, SPSS or any other statistical program. LimeSurvey allows numerous safety profiles of different groups of respondents permitting to change the conditions of conducting surveys (adaptation of another questionnaire in terms of research already underway). Figure 1 presents a block diagram of the test, using the methodology LimeSurvey, and Table 1 summarizes the number of base data obtained by the VRT.

Table 1. The databases received by the VRTs

Research tasks set to Virtual Research Teams	Topics	Population		Academic year	Total
		PL	BY		
Assessment of alcohol consumption among college students in the borderland	Risky drinking	139	139	2010/2011	278
	Diet	226	237	2012/2013	463
		341	293	2013/2014	634
	Physical activity	341	293	2013/2014	634
	Smoking	139	139	2010/2011	278
		226	–	2012/2013	226
Evaluation of the quality of health care in the border area	General medical preventive examinations	341	293	2013/2014	634
	Dental preventive examinations	341	293	2013/2014	634
	Gynecological preventive examinations	341	293	2013/2014	634
	Environmental factors vs. family medical history	226	237	2012/2013	463
Total		2 661	2 217		4 878

During the application of “Pro-health program for the years 2013–2016”, according to the adopted model, more than 4,800 students were questioned. Respondents were selected by field of study. Research was made on groups that participate in classes with “health education” (including standards of education in all the analyzed directions included health education Universities are state-owned, and record training in health education is being implemented in standards, both in content and learning outcomes).

Results

As a result, the Suwalki-Grodno-based VRT obtained extensive knowledge regarding pro-health attitudes as declared by students of both academic centers. It was also possible to analyze the material and create a relevant database related to individual problem areas, i.e.: studies on the impact of health-targeted behaviors, studies on the prevalence of psychoactive substances (alcohol, tobacco, drugs) among students, studies on knowledge about diseases related to abuse of psychoactive substances and studies on the model of physical activity among students. We surveyed students on many topics such as: alcohol consumption and risky drinking, pro-healthy diet and preventive medical examinations (general medical, dental, gynecological) or environmental factors juxtaposed against students’ families’ medical histories (Table 1).

Selected aspects of research in the border area and their importance for the final proposals

Polish integration with the EU has created a new system of geopolitical relations, including those to be shaped between Poland and its Eastern neighbors. One of the conditions of the sustainable development of stable relations between Poland and East-European countries is formation of good liaisons between people working with one another. Strengthening relations between the societies of these countries seems to be particularly important from the perspective of borderland regions.

Therefore, overcoming mistrust and stereotypes is of particular importance in this respect. In the last few years there has been a far-reaching evolution of the functions of state borders. It is a consequence of globalization, integration, democratization of sociopolitical life and the increasing openness of many countries to economic exchange. On the other hand, the Polish eastern borders (on Russia – Kaliningrad region and Belarus) are the external border of the EU at the same time, with full consequences of this.

Suwalki region is a borderland with all the attributes of its remoteness (including health care and social service). The border, as an integral part of its characteristics, must have specified, both positive and negative, effects on the problems of its functioning and growth prospects. The integration process in the Polish-Belarusian area is limited by its peripheral location, which impacts the quality of life and competitiveness. The border region has the characteristic potentials of development, including common labor market, complementary functions in tourism, health care, etc. However, in the studied border area there is a lack of information on the specific characteristics that determine the quality of life there. This knowledge, however, is the basis for joint strategies and ideas that bring together complementary strengths of both parts of the border area.

Hence the VRT work is intended to fill in the existing information gap and prepare the database that

forms the basis for common cross-border regional development. The finale of joint actions should be improvement of the quality of life in the border area, strengthening responses for common sustainable development and regional planning.

The situation of the border area also raises new values, attitudes and behaviors that differ from those that may be found in ethnically homogeneous environments. For these reasons, they appear to be a good region to make all kinds of comparisons, including the attitudes of health education of youth. The most important social objective of such comparative testing is also strengthening and further development of neighborly relations, as well as agreement on and arrangement of other projects of cross-border cooperation, which helps to reduce the obstacles and differences that may divide the border area regions.

The starting point is the international survey of earlier published work by scientists from Poland, Belarus and Lithuania (important because of our geographical location) [6–11] and many other countries. They show that more than 50% of the population in these countries display improper behavior patterns regarding health. Factors that influence the proper lifestyle provide information on promotion of intervention. In this regard, an important role is played by university graduates, directly or indirectly connected with medicine and widely-understood health promotion. After graduation they, as members of the intellectual elite, should play the role of promoters/leaders of pro-health attitudes.

Conclusions of the methodology of the use of virtual research groups

Any action of an international VRT must be classified, as in business [12], through the prism of benefits:

- for the researcher – including travel time savings in order to implement joint scientific work, and consequently, the time flexibility of working hours, the possibility of remaining with their family,
- for the employer, or university – savings in the use of space laboratories, lecture halls, and above all a better chance to use highly qualified workers.

This puts an emphasis on the fact that a VRT activity generates technological innovations, information and communication, which in turn leads to stimulation of new ICT (information and communications technology) solutions. Researchers learn to better manage their professional and private lives, as well as prepare joint work to promote health education, physical activity and quality of life, from the regional activities to global. VRTs attract the best researchers for projects requiring competences on the highest international level. Each researcher of the project becomes a tool of international cooperation and this, in turn, leads to forming groups of specialists in different scientific fields, ones who make better use of the possessed knowledge and are capable of creating new elements of it as such. This results in an increase in the number and standard of scientific publications prepared by virtual teams as compared with the amount of work available from single-handed research workers. It increases the efficiency of the resulting assembly-oriented task. The knowledge collected by a VRT is available online from/to all its members. It is also important to move a virtual team's activities onto a network electronic platform

that allows simultaneous work on the same document and gives other team members an access to all documentation throughout the process of its creation. Staff expansion is of considerable importance for the system of work: they have a greater sense of responsibility, which contributes to a faster development and mobilization for completion of activities. Furthermore, stimulation through joint activities leads to obtaining better final effects (synergism). Individual work, focused on high results, also shows the contribution of each individual member of the team in achieving the objectives of the entire group (network), which raises the creativity of researchers and leads to sharing knowledge, resources and competences.

Incontrovertible is the fact that unconventional forms of work, even in science, are possible along with socio-technological developments and the appearance of new, innovative communications media. As long as the need to educate contributed to the creation of research centers and educational institutions, which eventually became schools and universities in the past, so now digital technology generates a specific form of virtual work in the cyberspace – VRTs. It is worth noting that although the Internet-based network integrates large human communities, cooperation and communication within small groups is still continued with success nowadays. They often become an effective center of creating/organizing new knowledge. When they find acceptance in the eyes of a critical scientific community, their activities are extended to other research teams. It is also important that new research groups can be admitted to participate in the already initiated activities, forming larger and larger circles which deal with research.

The basic problems faced by VRTs while developing their activities include: distribution, often along parallel lines, of designs, resulting from the implementation of individual universities' policies, timely provision of data necessary for the implementation of joint projects and project management, the results of which are the target product of the VRT activity. The advantage is execution of a contract which exceeds the capabilities of any single university. This is beneficial to each university and a VRT itself, which is appointed to perform a task that requires knowledge and skills in many different fields. The covenant which is formed is not in the strict sense a mere political covenant, but a science-oriented covenant that makes use of competence of an individual team. The basis is management of partners' competences, formation and further management of the VRT. Bearing in mind various aspects of public health, including local good practice in health and social care, the joint university policy should be reviewed. This especially should be achieved by collectively conducted scientific internships, during which a VRT consisting of specialists and experts in different fields, develop conclusions from studies at different stages and from different perspectives.

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DEVELOPING AND SUBMITTING A PROPOSAL FOR FUNDING IN THE FIELD OF HEALTHCARE RESEARCH OR CAPACITY BUILDING IN RESPONSE TO A CALL FOR PROPOSALS PUBLISHED BY THE EUROPEAN COMMISSION: LESSONS LEARNED AND EXPERIENCES GAINED BY THE RESEARCH GROUP OF CLINIC OF SOCIAL AND FAMILY MEDICINE OF THE SCHOOL OF MEDICINE AT THE UNIVERSITY OF CRETE IN GREECE

Opracowanie i składanie wniosków o granty badawcze w obszarze tworzenia potencjału i opieki zdrowotnej do europejskich instytucji finansujących: wnioski i doświadczenia zdobyte przez Grupę Naukową Kliniki Medycyny Społecznej i Rodzinnej Szkoły Medycznej Uniwersytetu Kreteńskiego w Grecji

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A – przygotowanie projektu badania | study design, B – zbieranie danych | data collection, C – analiza statystyczna | statistical analysis, D – interpretacja danych | data interpretation, E – przygotowanie maszynopisu | manuscript preparation, F – opracowanie piśmiennictwa | literature search, G – pozyskanie funduszy | funds collection

SUMMARY

With research and innovation being key elements to ensure a prosperous future for the European Union (EU) and figuring prominently in the Europe 2020 strategy, the EU funds research and innovation, and supports cross-border collaboration, but, also, local initiatives, to an unprecedented scale. The success of the funding-seeking effort heavily relies upon establishing a continuous flow of up-to-date information, including assessing the needs of researchers and practitioners seeking funding, not only regarding funding opportunities and requirements, but, also, about project and research manage-

ment tools, wider EU priorities and how to, respectively, utilize and embed these in any proposal. The experience of the Clinic of Social and Family Medicine (CSFM) of the School of Medicine at the University of Crete (UoC) in developing proposals, building consortia and securing funding has been substantial over the past decade, and the aim of this short introductory paper is to provide some background information to help fellow researchers better prepare for the development of a successful proposal.

Keywords: research in the field of healthcare, capacity building, innovation, proposal writing, calls for proposals published by the European Commission, funding

STRESZCZENIE

Mając na uwadze, że badania naukowe i innowacje są kluczowymi elementami zapewniającymi pomyślną przyszłość Unii Europejskiej, co jest także mocno podkreślone w strategii Europy 2020, UE na niespotykaną dotąd skalę kładzie nacisk na wsparcie badań naukowych i innowacji, współpracy międzynarodowej i lokalnej. Sukces wysiłków ubiegania się o finansowanie w dużej mierze zależy od zapewnienia statego przepływu aktualnych informacji, zwłaszcza dotyczących oceny potrzeb naukowców i praktyków poszukujących funduszy, nie tylko w odniesieniu do wysokości dofinansowania i wymagań formalnych, ale także biorących pod uwagę

narzędzia zarządzania projektem i badaniami, uwzględnienia szerszych priorytetów Unii Europejskiej, oraz ich zaadresowania i opisanie w każdym wniosku o dofinansowanie. Zebrane w ciągu ostatniej dekady doświadczenia w opracowywaniu wniosków, tworzeniu konsorcjów i zabezpieczaniu źródeł finansowania Kliniki Medycyny Społecznej i Rodzinnej (CSFM) Szkoły Medycznej Uniwersytetu Kreteńskiego (UoC) były znaczne. Celem tej krótkiej publikacji jest przybliżenie pewnych niezbędnych informacji, które mogą pomóc kolegom naukowcom w lepszym przygotowaniu udanego wniosku o dofinansowanie.

Słowa kluczowe: badania naukowe w dziedzinie opieki zdrowotnej, budowanie potencjału, innowacja, przygotowywanie wniosków, zaproszenia do składania wniosków publikowane przez Komisję Europejską, finansowanie

(PU-HSP 2016; 10, 1: 9–15)

Introduction

Research and innovation are key elements to ensure a prosperous future for the European Union (EU) and, therefore, figure prominently in the Europe 2020 strategy, thus, underpinning progress towards the 10 priorities of the Juncker Commission. With Horizon 2020, the EU funds research and innovation, and supports cross-border collaboration, but, also, local initiatives, to an unprecedented scale.

Three major challenges have been identified at EU level. These include improving the track record in terms of the relevance of research results, in other words, making it to market and being commercialized. Researchers need to be able not only to tap into appropriate resources, but, also, to have a greater overview of translational aspects of their work and the impact thereof. Although Europe generates more scientific output than any other region in the world, there is still a lot that remains to be improved in terms of quality and to produce the best possible scientific output. Additionally, science cooperation and science diplomacy are underdeveloped and should be considered underpinning factors and essential drivers in all project and programme work.

A unique challenge for healthcare researchers and practitioners, within and beyond academia, is to understand these aspects, stay well informed of resources available to them, structures supporting their work and the priorities thereof. Staying abreast of times in health research and healthcare capacity includes the strongly emerging cost-effectiveness component for any research effort, as illustrated by the additional emphasis captured as one of the four main thematic priorities for the current period, with emphasis on Health Technology Assessment (HTA). Similarly, continuing the efforts of the Innovative Medicines Initiative (IMI) (<http://www.imi.europa.eu/>), additional incentives and emphasis has been given in involving small- and medium-sizes enterprises (SMEs) when building consortia. Information regarding entrepreneurship can be found in the European Commission's Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs:

http://ec.europa.eu/growth/index_en.htm

This continuously emerging trend emphasizes the need to bring together academia and industry. The aim of this short introductory paper is to provide some background information on preparing for the devel-

opment of a successful proposal. A prerequisite for making the best of the information provided is to understand a funding agreement is essentially a starting point of multiple contractual obligations and, therefore, concepts and respective terminology, which may be technical, legal or belonging to the sphere of policy and/or other domains, should be well understood, and elucidated, if necessary, to better understand what is being requested and what should be put forth. A sound starting point is the main funding portal of the EU:

http://ec.europa.eu/contracts_grants/index_en.htm

Key structures, emerging thematic priorities for health, and funding mechanisms

It is important to be well informed about the EC calls for funding so as to be able to identify relevant open calls. Knowing the basic structures determining priorities and allocating funds for research and for capacity building overall, and, also, in the healthcare sector will help identify and assess relevant options, synergies and complementarities.

The Directorate General (DG) for Health and Food Safety (DG SANTE) allows the selection of parameters for continuous informational updates by visiting the main portal, creating an account, building an agent to regularly retrieve relevant call information, and subscribing to the mailing lists for call updates:

<https://ec.europa.eu/coreservices/mailling/index.cfm?controller=login&action=index&serviceid=1>

The main page for structures within the DG SANTE, other agencies, social media providing real-time information and an overview of trends is, also, useful:

http://ec.europa.eu/dgs/health_food-safety/index_en.htm

One important source of information is the Consumers, Health Agriculture and Food Executive Agency (CHAFEA) (<http://ec.europa.eu/chafea/>) administering funds through various mechanisms. CHAFEA is accountable for implementing the Health Programme that is the main EC instrument to implement the EU Health Strategy developed by DG SANTE, operationalized in funding through various mechanisms.

The priority objectives of the new Health Programme for 2014–2020 are part of the Regulation (EU) No 282/2014 of the European Parliament and of the Council of 11 March 2014 on the establishment of

a third Programme for the Union's action in the field of health (2014–2020). They are as follows:

Objective 1: Promote health, prevent diseases, and foster supportive environments for healthy lifestyles. In practice: identify, disseminate and promote the up-take of evidence-based and good practices for cost-effective disease prevention and health promotion measures by addressing in particular the key lifestyle related risk factors with a focus on the Union added value.

Objective 2: Protect citizens from serious cross-border health threats by identifying and developing coherent approaches and promoting their implementation for better preparedness and coordination in health emergencies.

Objective 3: Support public health capacity building and contribute to innovative, efficient and sustainable health systems. In practice: identify and develop tools and mechanisms at Union level to address shortages of resources, both human and financial, and facilitate the voluntary up-take of innovation in public health intervention and prevention strategies.

Objective 4: Facilitate access to better and safer healthcare for Union citizens. This would be achieved through increasing access to medical expertise and information for specific conditions, also beyond national borders. It would also entail helping to apply research results and developing tools for the improvement of healthcare quality and patient safety through, inter alia, actions contributing to improve health literacy.

The budget of the new Health Programme is € 449 394 000 for 2014–2020. This amount is to be shared between the different objectives of the Programme. Funding opportunities include:

- Grants for action co-financed by the competent authorities responsible for public health in the Member-States (called "Joint Actions");
- Grants for actions (projects) co-financed by other public, non-governmental or private bodies, including international health organisations;
- Grants for the functioning of non-governmental bodies;
- Procurement contracts*.

By visiting the CHAFEA site, detailed information can be retrieved regarding these tools and about how to tackle practical matters, and most importantly, a detailed overview of the main thematic priorities and respective objectives is also, presented at:

http://ec.europa.eu/health/programme/docs/factsheet_healthprogramme2014_2020_en.pdf

In greater detail, along with the full text of the Regulation at:

http://ec.europa.eu/health/programme/policy/index_en.htm

The European Commission (EC) and the Member-States are mandated by regulations establishing the rules for the European Structural and Investment Funds* (ESIF), Horizon 2020, and other EU programmes directly managed by the Commission in the areas of research, innovation and competitiveness (i.e., COSME, Erasmus+, Creative Europe, European Union Programme for Employment and Social Innovation ("EaSI") and the digital services part of the Connecting Europe Facility – to ensure coordination, synergies and complementarities. This aspect is crucial when

identifying conflicting or complementary priorities and funding opportunities**. Multiple resources are provided by the Proposal Submission Service of the EC in the context of Horizon 2020:

<http://ec.europa.eu/research/participants/portal/desktop/en/home.html>

Most importantly, the current "Proposal Submission Service – User Manual" providing information and links to relevant resources and all technical information to establish submission-readiness can be retrieved from:

http://ec.europa.eu/research/participants/data/support/sep_usermanual.pdf

The first chapter of this document, also, provides sufficient information regarding the proposal submission process relevant either to EC Grant Proposal Process (i.e., information on how to participate, information about Horizon 2020 online manual, certain references, documents, the Beneficiary Register, a financial capacity self-check and information about the participation of enterprises) or to the Proposal Submission Preparatory Checklist (i.e., a clear guidance on the steps that you have to follow: decision on the funding opportunity, selection of partners, registration in the European Commission Authentication Service (ECAS), or, as necessary, entity/organization and partner registration in the Beneficiary Register through the Participant Portal), as well as an overview of "quick steps" to the online submission process and the assessment of the draft and submitted proposal.

Additionally to these technical elements, some attention should be paid on combining funding mechanisms and embedding proposals in the appropriate regional and local context, as well as into longer-term efforts for needs-based research priority setting and for relevant capacity building. There are numerous useful resources mapping regional and local priorities, but the overarching document on how to combine funding tools can be retrieved at:

http://ec.europa.eu/regional_policy/sources/docgener/guides/synergy/synergies_en.pdf

As previously mentioned, depending on the topics of interest, it is, also, important to map synergies with other agencies and funding structures within and outside the EU Structures. Accordingly, other relevant programmes and financing instruments should be identified. For example, for social innovation and equal access to services, the Employment and Social Innovation (EaSI) programme*** provides funding; a guide and details of such synergies and respective funding with emphasis on SMEs can be found in the relevant portal:

<http://ec.europa.eu/social/main.jsp?langId=en&catId=1081>

From a strategic perspective, to better understand the context under which thematic priorities are determined and policy-makers determine actions, it is important to familiarize researchers with interrelated concepts on research and innovation on a global rather than simply European context. We, therefore, recommend utilising "Science, research and innovation performance of the EU – A contribution to the open innovation, open science, open to the world agenda: 2016" as a "stepping stone" to understand these aspects. This publication, along with many other useful ones can be retrieved or order from the EU Bookshop:

http://bookshop.europa.eu/en/editions/2016/PAPER/EN/?EditionKey=KI0415512ENC_PAPER&JumpTo=OfferList

We, also, strongly recommend familiarizing the team to work on any proposal with basic concepts and terminology utilized in calls or technical annexes and/or to be used, and/or to be avoided. There are many useful publications from consulting agencies, academic institutions, etc.; a good starting point could be the publications of the European Commission, as for example:

http://ec.europa.eu/translation/english/guidelines/documents/misused_english_terminology_eu_publications_en.pdf

Experience gained by the Core Team of the Clinic of Social and Family Medicine (CSFM) of the School of Medicine at the University of Crete (UoC), Greece

The CSFM of the School of Medicine at the UoC has been successful in securing funding for research and for capacity building in the context of the Seventh Framework Programme (FP7) and of Horizon 2020. Despite the resource limitations and the variety of the activities and thematic areas in which the CSFM is engaged, a strategic approach in priority setting, and an intensive skill and knowledge transferability process and research management has allowed the Core Team to secure funding through various tools and mechanisms, and for a wide array of activities. This strategy has been applied to national and local efforts alike, and with equal success. Part of this success has been to selectively lead efforts remaining realistic regarding capacity, and to seek knowledgeable partners so as to engage and participate in the efforts of peers across Europe. An indicative list of recent European project follows, but we have selected two of our main projects to highlight the most relevant and useful aspects from a practical perspective, one research project and a capacity-building project.

I. OTC SOCIOMED (<http://www.otcsociomed.uoc.gr/joomla/>) research project

The project focused on the inappropriate supply and consumption of non-prescribed medicines, a well-established public health issue and priority recognized by the World Health Organization (WHO) and the EU, both for developing and developed countries, and it was funded in the context of the 7th Framework Programme (FP7). The proposal was developed through the collaboration of EU Member-States, but, also other neighbouring countries (e.g., Turkey) given geographical relevance, and historical and organizational traits in terms of how the healthcare provision paradigm was shaped in the Mediterranean basin, and with international partners to best ensure wide dissemination of results, maximum impact and relevant informing for future decision- and policy-making.

A crucial element for the success of the proposal was not only aligning the objectives to the key priorities of the call and of the EU, but, also, anchoring the methodological framework in a robust theoretical framework. The theory-specific approach drove the generation of methodological tools to identify and understand primary care physicians and primary care patient behaviour towards prescription and consumption of medicines. The approach was interdisciplinary

as methodology was grounded on the theory of planned behaviour (TPB; Ajzen, 1991) [1] seeking to identify predisposing behavioural factors that will enable the alteration of the problematic behaviour, and providing a validated model for theory-guided interventions, allowing the consortium to tailor it so as to address the behavioural components playing an influential role in the irrational prescription and consumption of medicines. Systematic reviews were conducted to ensure wide capturing of data internationally so as to develop tools to assess of the extent of OTC misuse in countries of Southern Europe, the identification of influential factors on the intentions of primary care physicians and patients concerning irrational prescription and misuse of medicines. The output of the reviews was then coupled with the primary research output, in a mixed methods (i.e., qualitative and quantitative) approach, to elicit semantically rich yet quantitatively robust data in terms of identified factors, and to ultimately design and implement a feasibility pilot intervention to allow for relevant recommendations to policy makers [2].

The benefits for the Union were concretely mapped in advance, both in terms of bridging a research gap and in terms of informing policy actions. Southern European countries would benefit double from the progress and the know-how of Northern European countries invited to participate. Awareness of the team on generation a research network was high and this was highlighted in the proposal. The previous collaboration of some of the consortium members was flagged to demonstrate adequately that the capacity of delivering as a team existed already, particularly given the level of funding requested and the complexity of the proposed work. The previous work in relevant research areas was further presented to support the generation of a network consisting of various intersecting disciplines that ensures evaluation, discussion and widespread dissemination of emerging knowledge throughout European primary healthcare settings. Indeed, the various consortium members participating in this proposal have continued working together, and the members of the core research group moved on to draft research strategy for seeking further funding and highlighting further priority areas.

II. EUR-HUMAN (<http://eur-human.uoc.gr>) capacity-building project

The EUR-HUMAN project is a one-year project that aims to enhance the capacity of European Member-States who accept migrants and refugees in addressing their health needs, safeguard them from risks, and minimize cross-border health risks. This initiative will focus on addressing both the early arrival period and longer-term settlement of refugees in European host countries. The UoC is the Coordinator in a consortium of eleven partners. The institution that has the role of the coordinator in a consortium should focus on the following: clarify terminology and identify all key documents, be responsible for the pre-registration data (topic, type of action, participants, short summary) and disseminate key documents to the members of the consortium by providing simple and clear instructions. As the Coordinator of the EUR-HUMAN project, the UoC had an important role not only on the administrative and coordination tasks but also on the scientific

framework and structure of the proposal. According to the experience gained, forming the first outline of the proposal is a crucial task. In order to achieve that, the first step is to decide what you wish to achieve, to determine the addressee, which is the current status of the market or the target group. Then, develop a three-page outline, describing the aim and the objectives of the proposal, its target group and major tasks (i.e., Work Packages) and the proposed members comprising the consortium (specific institutions and countries or types of organizations that would lend optimal expertise for the proposed work). Additionally, designing and formulating the consortium requires careful and selective actions. On the basis of the intended consortium table it is possible to invite partners, explore alternatives and reform the table. When choosing partners, a special focus should be given on three tasks: stay consistent with the objectives of the proposal, include a number of EU countries based on relevance and appropriate for your proposal (do not cover the whole EU map artificially; previous collaboration with the consortium strengthens potential impact) and keep partners motivated during the whole process (e.g., provide them with a plan for their contribution and mutually agree on a working method).

The EUR-HUMAN proposal was not an exercise aimed at sustaining and expanding research efforts, but a proposal to address reinforcing capacity for a pressing matter representing a national and European priority. The most challenging task in developing this proposal was to stay consistent with the aim and the target group and to avoid generalizing and changing the objectives, whilst at the same time incorporate the input from the multi-disciplinary consortium in the proposal development process. Furthermore, completing and assigning the Work Packages to each participant, as well as choosing the methodological framework of the project and matching the descriptions of each Work Package, are significant aspects to be considered. A well-established and previously used methodology is expected to have high impact on the proposal. In addition to the above, several technical and management details should be given high priority. Based on the duration of the project and its major tasks (Work Packages), the coordinator has the responsibility to decide the final time schedule and sub-actions like the milestones and the deliverables. For instance, the EUR-HUMAN project that is a one-year project has fifteen deliverables and fifteen milestones; a number that is considered to be functional for the effective operation of the project. The same holds for the management structure, the communication and dissemination plans, where clear and transparent processes should be followed.

III. Other collaborative projects – some key recommendations

Other projects of relevance with the CSFM leading or participating as partner, include projects with high visibility at pan-European level, as for example, QUALICOPC, RESTORE [3], EU-WISE [4], SPIMEU, FRESH AIR, etc. A more detailed overview of the activities of the CSFM Core Group can be found under: <http://www.fammed.uoc.gr> The CSFM is currently

preparing to launch an effort at integrating innovative research management and best practice knowledge brokering by creating a small sub-team with a focus on: intellectual property, commercialisation, global partnering, providing supporting services to the School of Medicine of the UoC, and, also, creating a page to provide systematic and continuous updates on available project and research management resources.

For all the projects we have led or participated in, anchoring any proposed work in a strong theoretical model, underpinned by a strong, previously used, and – ideally – validated intervention model is considered to be a major strength of the proposal. Relevant referencing and assessment of feasibility and sustainability are important, and, for very valid reasons, we have seen these elements become essential components, rather than simply nice “add-ons”, over the years. Similarly, impact is key and should be assessed along with the relevant publication plan not simply by examining dissemination aspects, but by rendering these sufficient for relevant decision-making. Of course, all such aspects should be supported by robust proposal writing, with appropriate citations and relevant reference selection which extends beyond purely scientific aspects and into policy agendas, briefs, white papers, and, depending on the context and the thematic priority, legislation, guidance, etc.

According to our experience, and independently of whether the proposal developed will focus on research or capacity building, special attention should be given:

- On realistic expectations and commitment when proposing work with long-term horizon in projects with a large consortium – the lean and relevant Description of Work (DoW) will have to be revisited often enough during execution.
- Each partner should have a clear understanding of the aim and structure of the proposal, so as to be able to develop the Work Packages, matched to the overall DoW, and to perform tasks for which they carry the responsibility effectively during the project. An essential element extending beyond the successful securing of funding to the successful project performance and execution of the work described, is reporting; accountability and responsibility of these aspects should be clarified and Coordinator and Partners should have clear roles and responsibilities (R&Rs) with dedicated personnel, contacts and, if possible, simple and easy-to-follow processes in place.
- Partners should have a comprehensive understanding of their obligations under which funding is secured and its continuity ensured, not excluding, diligent performance of task as described and reporting thereof in a timely manner. These aspects may turn into major challenges, if not managed properly. For instance, partners often find hard to understand the difference between the vision/scope of the project and the objectives, results, approach/methods and the impact when developing a proposal, but, also, when reporting on tasks performed.
- Partners should keep in mind the following questions per part. The vision refers to “why” and “who” is the future target group, objectives offer

an answer to “why” and “who” (near future and during the project), results refer to “what” (during the project), overall and Work Packages’ methodological approach refers to “how” (during the project) and the impact refers to “why”, “who”, “what” and “how” (after the project’s completion).

- Additionally to the overall R&Rs (Coordinator – Partners), a clear description of the role of each partner in the consortium embedded into the DoW is vital to form an effective proposal.

Furthermore, evaluators pay attention to maintain a relative balance regarding:

- Budget allocation between the partners and responsibilities (i.e., efforts, funding, cost categories);
- Roles of each consortium member;
- Appropriate number, timing and relevance for the scope of work of the Work Packages.

To summarize the main points put forth:

- Identify the most relevant thematic priority and funding mechanism for the nature of your work and your research and capacity-building priorities;
- Regularly monitor information and train personnel to develop strategic and research priorities that are relevant for your organization, national and local context, ideally, matching these to EU objectives, priorities, etc.
 - Parallel to these steps read previous reports and project descriptions, familiarize the team with previous work that received funding and is of relevance (i.e., ensuring continuity of activities) and develop and maintain a list of potential partners on the basis of expertise, experience, but, also, previous collaboration – particularly where this has been documented;
- Read calls identified paying particular attention on verbiage, expectations, matching of aims to overall objectives, innovative collaboration and network building and expansion;
- Pay particular attention to expected impact, scaling up, feasibility and sustainability concepts, as well as dissemination activities in a manner sufficient to ensure informed decision- and policy-making;
- Identify theoretical models and interventions of relevance and train personnel on methodology that can be of relevance in different context; it is important to remember there is an expectation to contribute with highly skilled personnel and to have already systematically examined bibliography to submit proposals with high originality and relevance for the thematic priorities identified.

Conclusion

It is important to remember this is a quickly changing landscape. Dedicated resources at institutional level are necessary to ensure research priorities are assessed strategically and capacity building remains relevant. Research strategy with organizational aspects, including strengths and limitations should be factored

in and taken into consideration when establishing consortia. The success of the funding-seeking effort heavily relies upon establishing a continuous flow of up-to-date information, including assessing the needs of researchers and practitioners seeking funding, not only regarding funding opportunities and requirements, but, also, about project and research management tools, wider EU priorities and how to, respectively, utilize and embed these in any proposal.

Additionally, research and project managers should reach out to the newly formed professional bodies, such as the European Association of Research Managers and Administrators (EARMA) and the European Community of Project Managers and Administrators (ECPMA) or its local chapters for up-to-date access to toolboxes with links, and for exchanging ideas and practices on a project and programme management and leadership level.

Academic research generates new ideas and highly specialized scientific knowledge carrying tremendous translational potential for novel practices and to inform decision- and policy-making. Therefore, it is important to secure sufficient funding so as to ensure the continuity of efforts and the sustainability of initiatives. Therefore, we believe funding through successful proposals in calls should be complemented by embracing entrepreneurship, building networks with partners from various sectors and exploring the commercialization of new ideas, always aligning institutional priorities with local, national and European research and innovation priorities.

The sources of funding

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The conflict of interests

The authors do not report any conflicts of interests.

Notes

* In most cases, the grants will contribute 60% of the costs of the action/project. This figure rises to 80% in specific cases, e.g. Joint Actions with the involvement of Member-States with a low Gross National Income. The specific criteria will be detailed in the annual work programme.

** ESIF refers to: ERDF – European Regional Development Fund, Cohesion Fund, ESF – European Social Fund, EAFRD – European Agricultural Fund for Rural Development and EMFF – European Maritime and Fisheries Fund, whereas the broadband part of digital CEF is addressed in a separate guide on broadband investments to be published here: <http://s3platform.jrc.ec.europa.eu/digital-agenda>. The Regulation 1303/2013 laying down common provisions of the ERDF, ESF, Cohesion Fund, EAFRD and EMFF; Regulation 1299/2013 on specific provisions for the support from the ERDF; Regulation 1300/2013 on the Cohesion Fund; Regulation 1304/2013 on the ESF and Regulation 1302/2013 on a European grouping of territorial cooperation (EGTC).

*** EaSI is an instrument to promote a high level of quality and sustainable employment, with emphasis, however, on guaranteeing adequate and decent social protection, combating social exclusion and poverty and improving working conditions, thus, closely interrelated to capacity building and health research on multiple levels.

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GRANT PROPOSALS STRENGTHENED BY EXPANDED DIMENSIONS, MULTIPLE LAYERS

Wnioski grantowe poszerzone o nowe wymiary,
wielowarstwowość

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A – przygotowanie projektu badania | study design, B – zbieranie danych | data collection, C – analiza statystyczna | statistical analysis, D – interpretacja danych | data interpretation, E – przygotowanie maszynopisu | manuscript preparation, F – opracowanie piśmiennictwa | literature search, G – pozyskanie funduszy | funds collection

SUMMARY

This is not a research report but rather a brief, summary description of an extensive, multi-year and multi-faceted communication research project addressing an issue of considerable importance to communities in the U.S. state of North Carolina, though the issue is common in all other states as well. The project sought to identify strategic communication approaches to encouraging proper disposal of cooking grease among selectively identified population segments. Improper disposal of cooking grease is linked to Sanitary Sewer Overflows, a problem leading to significant public health risks, environmental dangers and mounting repair costs. The case illustrates the merits of incorporating a communication

component into public health research grant proposals. What we have learned from this experience is that grant proposals should explore the potential for multi-faceted and collaborative project designs. Limiting proposals to the narrow parameters of the request lacks creative vision that may set your proposal apart. In our case, we defined a problem of sewage overflows as having dimensions of public health, environmental safety and fiscal consequences, then we added the potential for experiential learning, service learning and personal and professional development for our students. Taking this approach amplified the impact of the funding and contributed directly to our winning proposal.

Keywords: public health, strategic communication, experiential learning, service learning, community engagement

STRESZCZENIE

Prezentowany artykuł nie jest raportem naukowym, ale raczej podsumowaniem intensywnego, wieloletniego i wielowarstwowego projektu badawczego dedykowanego problemowi o wielkiej istotności dla populacji mieszkańców Północnej Karoliny, choć sam problem istnieje także i w wielu innych stanach USA. Celem projektu było poszukiwanie skutecznych narzędzi strategicznej komunikacji, dostosowanej do różnych określonych grup społeczeństwa, zachęcającej do właściwego pozbywania się zużytego tłuszczu kuchennego. Niewłaściwa utylizacja olejów smażalniczych jest powiązana z problemami drożności rur kanalizacyjnych, mogącymi prowadzić do zwiększenia ryzyka zdrowia publicznego, zagrożeń środowiska naturalnego oraz rosnących kosztów utrzymania i naprawy kanalizacji. Przypadek ten ilustruje zasady zastosowania właściwych komponentów komunikacji w ramach przygotowywania grantów naukowych w dziedzinie zdrowia

publicznego. To, czego nauczyło nas to konkretne doświadczenie, to świadomość, że w składanych wnioskach przy ubieganiu się o grant, ich autorzy powinni podkreślić wielostronność i elementy współpracy w ramach proponowanego projektu. Ograniczanie oferty do wąskich parametrów pozbawia projekt twórczej wizji, co może wpłynąć na jej odrzucenie. W naszym przypadku, określiliśmy problem nadmiaru ścieków w wymiarze jego wpływu na zdrowie publiczne, bezpieczeństwo środowiska oraz jako powodujący konsekwencje finansowe, a następnie dodaliśmy, że przedstawia on ponadto potencjał doświadczalno-poznawczy, uczenia świadczenia usług dla dobra społeczności lokalnej, jak również osobistego i zawodowego rozwoju naszych studentów. Przyjęcie takiego stanowiska istotnie wzmocniło wpływ na pozytywne pozyskanie funduszy i przyczyniło się bezpośrednio do ostatecznego uzyskania grantu na realizację naszego projektu.

Słowa kluczowe: zdrowie publiczne, komunikacja strategiczna, eksperymentalne uczenie się, uczenie świadczenia usług, zaangażowanie na rzecz społeczności lokalnej
(PU-HSP 2016; 10, 1: 16–18)

Background

It seems unlikely that a U.S. professor of public relations would be invited to speak at a medical conference and submit an article to appear in this publication. Of course, it is an honor to have these opportunities, though I feel woefully unqualified in both instances. Nevertheless, I hope my remarks will prove of some value. I believe conference planners felt I might provide useful counsel on designing research projects capable of attracting grant support, and I will do my best to offer suggestions in that regard. I will use one recent research project to illustrate my key points.

Description of the project

The project began more than two years ago and elements of the project continue to this day. So far, the project has earned roughly \$250,000 in grant support – nearly one million PLN.

The project involves cooking grease disposal and clogged sewers – not a topic typically discussed during medical conferences, but one that has a direct impact on public health and therefore appropriate for the occasion. My aim in relating this story to you is to demonstrate how the mindful crafting of a research project to incorporate multiple layers or components that benefit a variety of constituencies can strengthen the potential for that project to be funded. In this case, I and the other members of the research team seized upon a real problem and proposed an approach to addressing that problem, an approach that introduced fresh perspectives and data-driven strategies. The result has been increased understanding of the nature of the problem and fresh, bold ideas to diminish negative consequences.

This is a case study describing an effort to address the problem of improper disposal of fats, oils and grease (FOG) by population segments in selected cities in the U.S. state of North Carolina. The research and planning team is comprised of faculty members of my home campus, the University of North Carolina at Charlotte. The North Carolina Urban Water Consortium approved and funded the project.

Despite increased system cleaning, root control, rehabilitation, and a long-standing public education program, North Carolina water utilities continue to experience frequent grease-related sanitary sewer overflows (SSOs). These SSOs are routinely associated with improper disposal of fats, oils, and grease (FOG). FOG that is poured down drains or otherwise introduced into the sewer system hardens over time, eventually resulting in blockages. As blockages grow in size and regularity, the probability of SSOs in and near homes and businesses increases. When a sewer line clogs, untreated wastewater is unable to proceed through the system and backs up into living spaces or up through manhole covers and into the street. In dwellings, this often leads to property damage as well as the real possibility of humans or pets coming in contact with bacteria-infested wastewater. On the street, rain will wash contaminated waste into creeks and streams, creating the possibility of fecal coliform bacteria being introduced into waterways precipitating swimming advisories and threats to wildlife. According to the U.S.

Environmental Protection Agency, raw sewage can carry bacteria, viruses, protozoa (parasitic organisms), helminths (intestinal worms), and borrioughs (inhaled molds and fungi). The diseases they may cause range in severity from mild gastroenteritis (causing stomach cramps and diarrhea) to life-threatening ailments such as cholera, dysentery, infectious hepatitis, and severe gastroenteritis.

The basic direct cost just for clearing a clogged sewer is around \$4,000, and that does not include addressing any resulting property or structural damage or required corrective/preventive action. There are no definitive reports on the cost of SSO's in the U.S., but those costs would include system repairs, property damage, health-associated costs, fines and other expenses and would likely reach hundreds of millions of dollars. Throughout the U.S., communities pay to clean up and repair SSO-related damage to sewers, homes, roads, and park and recreation areas. These costs are passed along to consumers and rate payers through taxes and fees. The direct and indirect costs of correcting FOG related SSOs could be significantly reduced, as would risks to public health, if consumers would follow proper disposal procedures.

So this is a complex problem, one with environmental, public health and cost dimensions. A maxim in the U.S. is that to a 5-year-old with a hammer, the whole world is a nail. It is not surprising, then, that when a group of communication researchers analyzed this issue, of course we identified it as a communication problem. In this instance, I think the argument for that is persuasive. To diminish the incidents of sanitary sewer overflows, we needed to change people's behavior, and changing behavior requires effective communication. In fact, it would be difficult to conceive of a problem involving human behavior that did not have a considerable, perhaps dominant communication dimension.

Therefore, our research proposal to the North Carolina Urban Water Consortium revolved around developing a strategic communication plan incorporating the identification of discrete, segmented publics; the crafting of unique, focused messages for each public segment; and the planning of communication strategies and tactics to achieve specific goals and objectives. To develop such a plan requires extensive secondary and primary research, and that effort constituted the first phase of the project. In North Carolina, SSO data identified certain high-density neighborhoods as having elevated incidents, and census data revealed those neighborhoods to represent disproportionately high percentages of Latino residents. Consequently, the research team concentrated on the development of more focused communication efforts directed at those population segments to diminish health, safety and cost consequences. The initial research program led to a 140-page report and collateral presentations to state and municipal officials. Upon approval of the overarching approach to this communication issue, the UNC Charlotte faculty team, supported by graduate and undergraduate students, continued with the development of program materials, working closely with individual municipal utility agencies to tailor materials, strategies and messages to local needs. Those municipalities are now engaged in the early stages of program implementation.

This second phase of the overall project, developing communication materials based on the strategic plan, permitted us to incorporate an additional dimension that further enhanced the merits of the project in the judgment of the funding agency. We included in our proposal the incorporation of project activities into an experiential learning opportunity for advanced public relations students. There is growing recognition in the U.S. of the value of experiential learning and service learning as they contribute to a student's academic experience [1–7]. As part of this phase of our proposal, we advocated the establishment of a "PR Practicum" – an elective course for advanced students, highly selective and limited in size. This course would allow students to work for an actual client and toward addressing a societal issue – in this case, an issue involving public health, environmental safety and monetary costs. Student participation in such an act of "civic responsibility" helps to build mutually beneficial relationships with multiple stakeholders and strengthens the students' awareness of their own citizenship [8–9]. The funding agency very much appreciated the additional benefit that would accrue and endorsed our approach.

Preliminary results of the project

Although communication plan implementation is ongoing, preliminary results are impressive. On the one hand, water utility agencies in the state report their confidence that the recommended communication strategies and tactics appear to be having the desired result. Surveys of utility managers convey the managers' favorable impressions of communication materials and tactics. Awareness of the problem among targeted publics seems to be increasing as is interest in working together with the utilities to reduce the consequences of SSOs. Of course, behavior change is the true goal, and that will be measured by the number of SSOs that occur in the years ahead; the time lag between behavior change and desired results in this case prevents immediate measurement of goal attainment at this time. On the other hand, surveys of students completing the PR Practicum point strongly to the merits of such a course in their personal and professional development. Roughly 2/3 of the students reported having been offered and accepted highly desirable jobs in PR within six months of graduation.

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Final remarks

What we have learned from this experience is that grant proposals should explore the potential for multifaceted and collaborative project designs. Limiting proposals to the narrow parameters of the request lacks creative vision that may set your proposal apart. In our case, we defined a problem of sewage overflows as having dimensions of public health, environmental safety and fiscal consequences, then we added the potential for experiential learning, service learning and personal and professional development for our students. Taking this approach amplified the impact of the funding and contributed directly to our winning proposal.

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The conflict of interests

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EUROPEAN INNOVATION PARTNERSHIP ON ACTIVE AND HEALTHY AGEING (EIP ON AHA) – THE OPPORTUNITIES FOR POLISH SCIENTISTS AND INSTITUTIONS

Europejskie Partnerstwo Innowacji
na rzecz Aktywnego i Zdrowego Starzenia się (EIP on AHA)
– możliwości dla polskich naukowców i instytucji

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A – przygotowanie projektu badania | study design, **B** – zbieranie danych | data collection, **C** – analiza statystyczna | statistical analysis, **D** – interpretacja danych | data interpretation, **E** – przygotowanie maszynopisu | manuscript preparation, **F** – opracowanie piśmiennictwa | literature search, **G** – pozyskanie funduszy | funds collection

SUMMARY

Europe is facing great social and economic challenges now, being a result of the ageing process progressing faster than ever. This, however, might be perceived also as an opportunity for innovation, as well as an additional impulse for the so-called "Silver Economy". To address these new needs and opportunities, the European Innovation Partnership on Active and Healthy Ageing (EIP on AHA) was initiated by the European Commission in 2012. After three years of its activity, it has proved to be a strong movement of European stakeholders committed to innovation, with its overarching target to increase the average healthy lifespan by two years by 2020. The 'Triple Win' strategy for Europe is based on the concepts

of enabling the EU citizens to lead healthy, active and independent lives while ageing, improving the sustainability and efficiency of social and health care systems, and boosting and improving the competitiveness of markets for innovative products and services.

Now, the EIP on AHA opens new calls that enable new stakeholders to become partners of this collaboration. This provides a unique opportunity to Polish institutions, as well as scientists. In order to help them use this opportunity effectively, the history, aims, structure and achievements of the EIP on AHA are shortly described in this paper.

Keywords: EIP on AHA, ageing, Europe, Silver Economy, innovation

STRESZCZENIE

W wyniku nasilonego – bardziej niż kiedykolwiek dotychczas – procesu starzenia się, Europa mierzy się obecnie z ogromnymi wyzwaniami społecznymi i ekonomicznymi. Sytuacja ta może być jednak postrzegana jako szansa dla wyzwolenia innowacyjności oraz impuls dla tak zwanej srebrnej gospodarki. W celu sprostania tym nowym wyzwaniom i potrzebom, Komisja Europejska zainicjowała w 2012 roku powstanie Europejskiego Partnerstwa Innowacji na rzecz Aktywnego i Zdrowego Starzenia się (European Innovation Partnership on Active and Healthy Ageing – EIP on AHA). W ciągu trzech pierwszych lat swojej działalności Partnerstwo potwierdziło, że jest silnym ruchem europejskich interesariuszy, zainteresowanych wprowadzaniem w życie innowacji, aby osiągnąć przysięcający EIP on AHA nadrzędny cel, jakim jest wydłu-

żenie przeciętnego trwania życia w zdrowiu o 2 lata przed rokiem 2020. Strategia „Potrójnej wygranej” zakłada umożliwienie mieszkańcom Europy prowadzenia zdrowego, aktywnego i niezależnego życia pomimo starzenia się, poprawę odporności człowieka i efektywności systemów opieki socjalnej oraz zdrowotnej, a jednocześnie rozwój i wzrost konkurencyjności rynków medycznych dzięki wprowadzeniu innowacyjnych produktów i usług.

Obecnie Partnerstwo otwiera się na nowe wezwania, co pozwala nowym interesariuszom zostać członkami tego ruchu. Stwarza to unikalne szanse polskim instytucjom i naukowcom. Aby ułatwić skorzystanie z tych możliwości, w niniejszym artykule dokonano krótkiego przeglądu historii, celów, struktur oraz dokonań EIP on AHA.

Słowa kluczowe: EIP on AHA, starzenie się, Europa, srebrna gospodarka, innowacje

(PU-HSP 2016; 10, 1: 19–23)

Background

Over the last century, Europe has experienced a considerable economic development, improved living conditions and great advances in medical sciences, which has resulted in more effective healthcare systems. These factors have contributed to the emergence of a new situation at the beginning of the third millennium: Europe is facing a completely new demographic challenge. The increased percentage of older people in Member States may be perceived both as an opportunity for the boost of Silver Economy, as well as a source of continuous rise in healthcare and social security costs. Regardless of which of these two perspectives is adopted, the consequences of this demographic challenge for individual national healthcare systems are acute. Older people represent a large proportion of the population affected by chronic diseases or multiple chronic diseases. Therefore, in order to adapt and get ready to respond to the needs of these new patients, the design of the European healthcare systems has to be revised and redefined.

This is one of the numerous reasons for which ageing has become a major concern for European researchers, and policymakers. This was also reflected by the actions taken by the European Commission which has identified active and healthy ageing as a major societal challenge common to all European countries, and an area which presents a considerable potential for Europe to lead the world in providing innovative responses to this challenge.

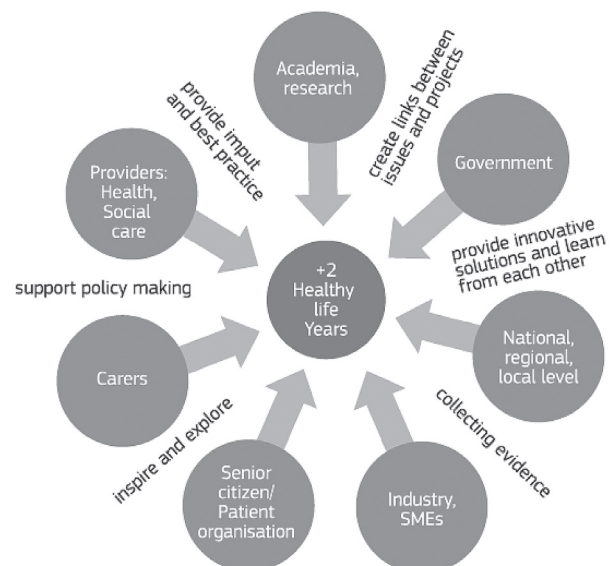


Source: [1].

Figure 1. Triple win strategy for Europe

In response to these challenges, the European Innovation Partnership on Active and Healthy Ageing (EIP on AHA) [1] was initiated by the European Commission with the following objectives, which altogether stand for the ‘Triple Win’ strategy for Europe (Figure 1):

- To enable the EU citizens to lead healthy, active and independent lives while ageing;
- To improve the sustainability and efficiency of social and health care systems;
- To boost and improve the competitiveness of the markets for innovative products and services, responding to the ageing challenge at both the EU and global level, thus creating new opportunities for businesses.



Source: [1].

Figure 2. The overarching target of the EIP on AHA is to increase the average healthy lifespan by two years by 2020, with a number of cohesive approaches

This is realised in the three areas of prevention and health promotion, care and cure, and active and independent living of the elderly. The overarching target of this partnership is to increase the average healthy lifespan by two years by 2020, using a multiphase and multidimensional approach (Figure 2).

Table 1. The EIP on AHA Action Groups

Action Group A1: Better prescription and adherence to medical plans for older patients
Action Group A2: Personalized health management, starting with a Falls Prevention Initiative
Action Group A3: Prevention and early diagnosis of frailty and functional decline, both physical and cognitive, in older people
Action Group B3: Replicating and tutoring integrated care for chronic diseases, including remote monitoring at the regional level
Action Group C2: Development of interoperable independent living solutions, including guidelines for business models
Action Group D4: Innovation for age friendly buildings, cities and environments

Several layers of collaboration have been created within the EIP on AHA. At first, there are 'Action Groups' – which are assemblies of stakeholders committing to work on a number of actions related to ageing. So far, 6 Action Groups have been created (Table 1), covering diverse drivers of active and healthy ageing. Individual stakeholders, or a group of stakeholders could go for 'commitment' – a piece of work with an identifiable outcome. In the latter case, the 'collaborative work' was in place. Finally, several 'Reference sites' have been identified, these being the coalitions of regions, cities, health providers and care organisations that were able to give evidence of their impact on citizens and systems in terms of a comprehensive and innovative-based approach to active and healthy ageing.

After three years of intensive work (the first period of the EIP on AHA activity covered the years 2013–2015), the European Innovation Partnership on Active and Healthy Ageing has become the largest European community of stakeholders engaged in the develop-

ment and deployment of innovation for Europe's ageing society and an important part of the European social and healthcare landscape. Originally set up by the European Commission, it has become a vivid collaboration of diverse European stakeholders, sharing the vision of prosperous economies and happy societies due to the broad introduction of the concept of Active and Healthy Ageing into daily life. Today, the partnership brings together leading industrial players, research institutes, a vibrant ecosystem of innovators, start-ups, SMEs, end-user organisations, regional and national authorities, which have invested in the scaling up of innovative solutions for the ageing society. Together they develop the tools, ideas and innovative socio-economic models that can support the development, deployment and impact measurement of some of the most innovative solutions for active and healthy ageing. Achievements of the EIP on AHA Action Groups are summarised in the 'State of Play' publications available online [2].

Second period of the EIP on AHA activity: Renovated Action Plans

Within the first period of its activity, the EIP on AHA proved to be a mature collaboration of European stakeholders able to initiate a cross-European movement towards active and healthy ageing. Over this period, several lessons were learnt, according to which the Action Groups prioritised new areas for their activities. This process was supported by the European Commission, which provided clear guidelines to renovate the existing Action Plans in the EIP on AHA Strategic Implementation Plan [3] and Operational Plan [4].

Now, the new perspective of the EIP on AHA collaboration for the period 2016–2018 is open. For this period, each Action Group has agreed on the Renovated Action Plan, which sets both basic, as well as operational objectives for the period. These documents are available online at the EIP on AHA portal [2].

Table 2. Synergies as accepted by the Task Force in December, 2016

Ref.	Title	General Objectives	Interested AGs
SYN_01	Information technology and adherence in ageing population with chronic diseases and polypharmacy	To increase the adherence to treatment of elderly adults with chronic diseases and polypharmacy (i) assessing the role of ICT-based solutions, such as advanced processing of data, decision support applications and remote monitoring and consultation systems, and (ii) implementing tailored ICT-based interventions; it is expected that the knowledge that will be created will support stakeholders to take action towards improving the life quality of the population of the elderly.	A1, A2, A3, B3, C2
SYN_02	'Masters of AHA' – educating seniors, health and social carers and entrepreneurs	To contribute to the development of the dynamic and sustainable care systems of tomorrow through a distinctive Masters in Gerontology and Geriatrics that will encompass education, stakeholder empowerment and inter-disciplinary, inter-professional research, according to different backgrounds and competences	A1, A2, A3, B3, C2, D4

Table 2 contd.

Ref.	Title	General Objectives	Interested AGs
SYN_03	Patient and citizen Empowerment across the EIP Action	To develop a consensus view of what patient empowerment is, sharing progress plans regarding the evolution of the respective patient/user empowerment objectives within the different Action Groups. On the basis of a common understanding of both the content of the topic and what the different groups are doing, to look across the EIP as to how this more holistic perspective can contribute to scaling up of good and effective practices via transverse, as well as vertical processes and can support the overall objectives of the EIP.	A1, A2, A3 B3 C2 D4
SYN_04	Maturity Model for Scaling-up Innovative Solutions in Europe	To share learning and expertise through the development of the B3 Maturity Model for Integrated Care and by developing other specific challenges and a self-assessment tool; To test and validate the Maturity Model(s) as a tool supporting the scaling-up and replication of innovative solutions in Europe and as a tool facilitating knowledge transfer and the exchange of good practices in Europe.	A1, A2, A3 B3 C2
SYN_05	Active and Healthy Ageing in the framework of Responsible Research and Innovation	To create an ecosystem around RRI for AHA by identifying the current state of the actions and initiatives, fostering policy dialogue amongst the relevant stakeholders in the AHA, proposing a new roadmap trying to involve as many local and regional stakeholders as possible and providing and monitoring the progress indicators.	A1, A2, A3 B3 C2 D4
SYN_06	Falls and fall injuries – A Grand Societal Challenge involving prevention and healthy ageing of seniors	To enable macro-, meso- and micro-level analysis including, on the one hand, governance and policy-making based screening, prevention, rehabilitation and monitoring. On the other hand, it will include an integration with the Silver Economy and will be related to WHO's consultation on the Global Strategy and Action Plan on Ageing and Health; To support regional and municipal levels to act and become deeply engaged in fall prevention campaigns, thereby enabling and promoting early frailty and fall risk assessment, and identifying frail and faller profiles; To raise awareness and promote behavioural changes amongst citizens in prevention of frailty and fall injuries.	A1, A2, A3 B3 C2 D4
SYN_07	Impact of a Community-based Programme on Frailty Prevention and frailty Mitigation (ICP – FPM)	To set up a public health approach to manage frailty in community dwelling older adults, to be validated in different EU member states (at least six) through integration within the community, primary care and the assessment of good practices and impact, including an ICT tool.	A1, A2, A3 B3 C2
SYN_08	Multi-morbidity of chronic respiratory diseases in old age adults: an under-recognised societal problem	Chronic respiratory diseases (CRD) are major chronic diseases intertwined with ageing. CRDs negatively impact AHA. Prevention and control of CRD in the ageing population is a priority. A stepwise action plan is proposed including scientific societies and patient organisations.	A1, A3 B3

With the beginning of March 2016, the new call for Reference sites was open, and a new EIP on AHA Portal has been launched. However, probably the most important news is that also a new call for commitments has been opened. This is an opportunity for the established members of the EIP on AHA collaboration, as well as for the newcomers to come forward with projects and initiatives that they will implement in the coming 3 years. By submitting their commitment, they will become a partner of the EIP on AHA, sharing all the member benefits. The commitments should be

submitted online via the portal and should be in line with the renovated Action Plans 2016–2018. Along with commitment, stakeholders may get involved in the synergies, which are to reinforce the collaboration of the Action Groups on specific matters of common interests. Synergies are referenced as thematic working groups, whose interests are cross-cutting to one or several Action Groups under the EIP on AHA. For the time being, as many as 8 diverse synergies have been accepted (Table 2).

Is the EIP on AHA an opportunity for Polish stakeholders?

Very few Polish stakeholders participated in the EIP on AHA collaboration within the first period of its activity. Now, with the new calls open, Polish stakeholders are invited to join the collaboration on the equal conditions as their West European counterparts. However, when assessing the opportunities that the EIP on AHA brings to Polish scientists, and Polish stakeholders, one has to understand its role well. Despite some expectations, the EIP on AHA is not a funding line. Therefore, all those expecting it to be a direct source on financial support for either scientific research, or social innovations might be disappointed. On the other hand, several calls for proposals, including Horizon 2020 calls, are dedicated for the EIP on AHA partners. Several funding opportunities are available, as well. Their details are available on the EIP on AHA portal [5].

What other sort of benefits may the participation in the Partnership bring? Undoubtedly, an opportunity to learn the best practices, proven to work in other regions, is an unquestionable asset here. The same is true of sharing experiences and ideas on the European forum. This might be the first step in the search for private and public investors, ready to invest in the scaling up process. In such a case, being a part of the Active and Healthy Ageing movement may be a sort of 'quality mark' that distinguishes a stakeholder among the others.

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SCIENTIFIC INFORMATION IN POLAND AS A MODEL AND REPRESENTATION OF SCIENCE

Informacja naukowa w Polsce jako model i wyobrażenie nauki

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A – przygotowanie projektu badania | study design, **B** – zbieranie danych | data collection, **C** – analiza statystyczna | statistical analysis, **D** – interpretacja danych | data interpretation, **E** – przygotowanie maszynopisu | manuscript preparation, **F** – opracowanie piśmiennictwa | literature search, **G** – pozyskanie funduszy | funds collection

SUMMARY

Science as a corpus of scientific statements is a simplified image; science is a social phenomenon, inseparable from the context, to which scientific information also belongs. It brings us not only the contents of what science holds, but also the image of science, scientific roles, research priorities, and many others. It is not only that institutions, products and routines of scientific information reflect the features of scientific endeavours; they also point to what is important and worth making an effort. They surround the scholar as a “white noise”, distributing a set of values, which are not fully verbalized and which are not openly taught. In earlier decades the dominating motifs were the scientific Weltanschauung and the respect

for hierarchies in scientific communities. Currently, in Poland, it is publishing in journals. Institutions of scientific information strengthen and proliferate that model, and a cultural complex has emerged, with articles and their citations as its constitutive features. Theoretically, the system of scientific information is designed to support also empirical research and data collecting. It is obvious, however, that these elements are not only less vulnerable to parameters; they are also not so directly linked to individual success. And just this remains an object of everlasting desire, preserving mental barriers, which keep the scientific endeavour in Poland far from teamwork and social responsibility.

Keywords: scientific information, reference service, science publishing, citations, research data

STRESZCZENIE

Nauka jako zbiór twierdzeń naukowych to uproszczony obraz; nauka jest zjawiskiem społecznym, nieodłącznym od kontekstu, do którego również należy informacja naukowa. Niesie nam ona nie tylko określone treści wypracowane w trakcie badań naukowych, ale także wizerunek nauki, rolę naukowe, priorytety badawcze itp. Instytucje, produkty i procedury informacji naukowej nie tylko zatem odzwierciedlają wyniki przedsięwzięć naukowych, ale wskazują również adeptom nauki, co jest ważne i warte wysiłku. Otaczając uczonego niczym „biały szum”, upowszechniają cały zespół wartości, które są słabo zwerbalizowane i nie podlegają świadomemu rozpowszechnianiu. Kiedyś w podejmowaniu przedsięwzięć badawczych chodziło głównie o wchłanianie wartości naukowych i poczucia hierarchii. Obecnie w Polsce jest to publikowanie w czasopiśmie; instytucje informacji naukowej

nastawione są na wzmacnianie i upowszechnianie tego modelu. Uczelniane systemy obsługi badań naukowych premiuje publikację artykułów, a w skali kraju wyrósł swoisty kompleks kulturowy z artykułami i ich cytowaniami jako elementami konstytutywnymi. Właściwie nie widać innej miary sukcesu naukowego, choć teoretycznie system informacji naukowej jest zaprojektowany tak, by doceniane były także badania empiryczne i gromadzenie danych. Widać jednak, że te elementy oceny są nie tylko mniej podatne na parametryzację – są także mniej bezpośrednio związane z indywidualnym sukcesem uczonego. On zaś pozostaje wciąż przedmiotem największego pożądanego, nadając trwałość barierom mentalnym, które oddalają naukę w Polsce od pracy zespołowej, a nawet od poczucia odpowiedzialności społecznej.

Słowa kluczowe: informacja naukowa, służby informacyjne, publikowanie w nauce, cytowanie, dane naukowe

(PU-HSP 2016; 10, 1: 24–27)

Awareness of information

Scientific information (SI), defined in the past with much stress laid on its supposed importance [1], can be loosely referred to as an apparatus external to scientific output, scientific procedures, and scientific institutions, yet serving the purpose of communicating scientific findings to their actual and potential users. It seems to consist of next to everything. First of all, it is a body of text. Then it is mostly what human phenomena happen to be – organizations, procedures and protocols, techniques, infrastructure, and values.

When we think of scholarship and knowledge, we seldom attach much significance to information and communication, considering it auxiliary and secondary. On the other hand, we are ready to admit, that without information and communication, knowledge is never a Zimanian social undertaking, and thus is no longer science [2]. Other kinds of knowledge can be created and transmitted with non-verbal personal experience and imitation, like arts and crafts, or with insight and enlightenment which are not subject to falsification, like religion. Scientific information wires expected data, information and knowledge with access points. Without them, they all remain an undiscovered land. Or perhaps do not exist at all.

Scientific information may take on the format of a system and it may not. We, in Poland, could expect that a real system would emerge from the SYNAT project, because of the copious government funding secured for numerous institutions, which, in the years 2010–2012, got involved in the quest for a “platform” to support science, education, and the “realm of national heritage” [3]. However, the very platform never came into being, nor blueprints for it; only several studies did. But does any country have a real system, feeding scholars with information from some giant integrated discovery and delivery service? Or is it enough to remark that scientific information satisfies itself with many intertwined systems, and exists wherever there is a wide field of diversified practice, reinforced with theories on its own, or if not theories, some kind of awareness?

The awareness seems to accumulate, especially around the issue of completeness and productivity. SI, no matter how systemic, if at all, is perceived as an installation which skims goods at one point (community, school, journal, country, discipline) and delivers them to certain destinations. These, again, are humans and organizations, or other installations, like books, libraries, repositories. The delivery is expected to be lossless, or relevant, and fertilizing. SI to science is apparently what agricultural tools are for crops.

White noise

When we take a second look, however, we experience the need for more adequate a metaphor. When it comes to nutrition, farming machinery never replaces vegetables; a bottle of milk is just void without that liquid. But in SI we encounter mixed messages and media, and next to the “internal” content of the scientific text, we have sets of intermediaries, textual in their nature (or, more precisely: lexical, narrative, pictorial, and tabular), which are not direct results of research,

but which open up the way to see and understand what they hold. Next to the actual scientific statements we have surrogates which also may contain some data and some information, and the borderline dividing those two kingdoms is not sharp [4].

It is obvious that we heavily rely on those resources; moreover, we do not try hard to fence them out. We use them, and by doing it, we consume scientific information very much the way that we consume science. First of all, we have abstracts and summaries, and we often read them not only to see what is worth “real” reading, but to gain some knowledge without actual reading at all (of the original full-length work). Then, we have reviews, new books columns, reports, popular works, press releases, which provide us with necessary context and, perhaps, help us build a general opinion, which precedes empirical work. Then, we have bibliographies, references, links, and citations, which let us know what sources are prevailing and worth following. Unless we have chosen to bring back to life some forgotten lines of thought and discoveries, we generally tend to stick with the winners. And then we have reviews of our works submitted for publication and numerous others, which we become acquainted with when we participate in the life of our learned community – seminars, faculty councils, grant projects, expertise. We are surrounded by white noise of scientific information, which tells us not only what to research, but also what to claim.

This relation can be reversed. As SI, as a white noise, is not exactly what we want, or what we think we should manage as information workers and use as scholars, we start looking for clear formal channels of communication. Perhaps this is the cultural source of the need of scientific information arranged as systems. But whenever we may think we are close to build and exploit such channels, we find them to contain not only “scientific” matter, but also social, and thus – political.

Symbolic overflow and productivity assessment

To start with, we used to have libraries, which performed reference work (ośrodki informacji naukowej – scientific information centres), usually by helping students and scholars consult printed bibliographies and indexes. The libraries had a potential of their own – now long lost – to show the adepts what science is, what its value is, how it is governed, how it grows. It was not mere practicality which stood behind establishing “central libraries” for particular areas of scholarship, it was also a social need of maintaining symbols and – teaching hierarchies which the scientific establishment found crucial to observe. – So we had the main medical library, the central agricultural library, the central military library – outside of the system of higher education (however, in Poland engineers and economists were sober enough to attach the label of central libraries to libraries of leading universities). Of course, it was at some point rationalistic to select one library which would hold “everything” on the topic, and to some extent it still is in the countries which have scarce information resources and inadequate technologies, but in Poland, with the advent of the era of automation

and telecommunication, those libraries mostly fell into oblivion or changed their scope of activities [5].

Eventually, library catalogues were the first finding aid to go online, books at some point became much easier to retrieve than journal articles. Later, articles also made their way to major library catalogues, like WorldCat. But before it happened, new tools were created to support searches in serial collections, namely bibliographic databases. They quickly started to assimilate new features – there were abstract databases, databases with citations, and eventually full-text databases, which did not neglect to include the abstract and the list of references of the paper, and also to inform about citations the paper received after publication.

This process was doubled by another one: the importance of a journal paper rose sharply in the 1990s, and in Poland, evidently – after the year 2000, because it provided material which was subject to statistics. With the economic and political necessity to measure productivity of particular scientist and scientific units, bibliographies of journal contents gained in unprecedented importance. Books, of course, also received citations, and Google Scholar monitored that process along the citations received by papers, but scientific information followed another way. Most effort was devoted to securing access to superb bibliographies of periodical contents, like Web of Science or Scopus. Books were not important, because expensive (i.e. natural and applied) scholarship seldom uses books for expression. There are periodicals and conference proceedings at stake there. SI practice, services and collections have been wrapped around papers and about the golden chains of subsequent citations. Costly services were imported by consortia (in Poland – mostly within the framework of the government-funded “national licence”), even if the actual common practice of users in need of pdf files was to search them by Google [6]. Seen from the level of tools handed to librarians or directly to scholars, scientific endeavour involved mostly writing scientific papers and collecting citations. Journals were and still are in the eye of cyclone, not that much critique, prizes, patents, prestigious scholarships, reviews, professorships and memberships.

Solutions and industries, made in Poland

Only one thing equaled receiving citations – publishing in a journal which had already been heavily cited. If it cannot be the actual Impact Factor, there are other ways for the paper to qualify as measurably prestigious. Then the citations are already collected for the lucky author by somebody else – her or his labour was not to write a citable paper, but to place a paper in a hard-to-get title. – In this country we have now a whole industry, devoted to feeding the race of scientific journals, all 3.5 thousand of them or so, indeed a scholarly Derby. Nobody has counted the cost – perhaps forming a major item in the research budget of the country.

Thus, scientific information, with the support of research managers and tycoons, is showing us science as a paper writing business, or not even as much writing as publishing. And not indeed all of the publishing, just “being there”. Not having succeeded in setting up a single platform for scientific information [7], but ha-

ving enough services supporting quick and effective literature searches, the country is currently testing POL-on, zintegrowany system informacji o nauce i szkolnictwie wyższym [the integrated system of information on scholarship and higher education] (<https://polon.nauka.gov.pl/>). *Polska bibliografia naukowa* (PBN, Polish Bibliography of Science), which is associated with POL-on, does cover books, but it does not cover citations. The emerging POL-index, a database of journal contents, will cover citations [8]; the way the data are collected brings about the human repetition of the work performed by Google robots. Books remain no focus; most of them are noted in no module of POL-on or PBN, but in NUKAT, a union catalogue established in 2002 by academic libraries. NUKAT does not inform of citations either. But it remains the only tool to watch texts originating in Poland as they are absorbed by the other countries’ information networks by the way of being included into library collections (please note that advanced library catalogues include electronic publications) or by publication of translations. But NUKAT is not the cream of scientific information in Poland, and it does not reflect or support the basic model of the scholar as a submitter of successful papers to highly cited journals.

Obviously, the well-deserved BazTech (<https://baztech.icm.edu.pl>) and BazEkon (http://kangur.uek.krakow.pl/bazy_ae/bazekon/) are interested mostly in journal contents. So is the agricultural service AGRO (<http://agro.icm.edu.pl/>). The newly-established BazHum (<http://czasopisma.bazhum.hist.pl/>) faithfully follows in the wake. But several other databases maintained by research libraries are mostly traditional bibliographies.

From publications paradigm to data paradigm?

And there is yet another service – a hosting and aggregating platform YADDA (<https://ceon.pl/pl/oprogramowanie/yadda-main/platforma-yadda>), designed and operated by the University of Warsaw Interdisciplinary Centre for Mathematical and Computational Modelling. We cannot understand why it cannot grow into what SYNAT was going to become, and to what extent its work will be repeated by numerous operators gathered around POL-on. We are mentioning YADDA here because on the home page of its website it lists data as a material that it can store. We are curiously looking at it, because there is practically no mention of data and data repositories in the scientific information discourse. Research organizations do busy themselves with data, but they are not open databases, and their existence – along with the importance of both collecting data and of making them accessible for scholars, as well as for interested public – is missing the lay eye. We are aware of the importance of the topic, and of the fact that it would require a separate study. It just seems worth stating here that orientation on research data in information practice might substantially change the image of science in Poland – from that of personal success guaranteed by well-located and positioned written work, to that of revealing secrets of nature or of culture in the field or in a lab. The absence of this model tells us a lot about the condition of scholarship in Poland, somewhat more than metrics.

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4. A further study may show that the theory of paratext, developed by Gérard Genette for literary works, applies here. Cf. Genette G. *Paratexts. Thresholds of interpretation*. Cambridge: CUP; 1997.
5. Probably the National Library of Technology (<https://www.techlib.cz>) is an impressive example of how this trend could be avoided and reversed. On the other hand, we visited some time ago a central medical library in a country which happened to escape most of the shift towards democracy in Eastern Europe, and it was probably the only research library in the country, in which we could hardly spot any computers. It did not look a busy place, either. A most dignified professor was naturally the director of that library, and he gave us a treat in his office.
6. Studying the scientific information practice of JISC in the UK in the years 2010–2011, this author noticed, that their “national licence” NESLi2 brought to England, Wales, Scotland and Northern Ireland mostly full-text journals, and not many bibliographic or bibliometric resources. Cf. Derfert-Wolf L., *Zarządzanie licencjonowanymi zasobami elektronicznymi w skali kraju. Przykłady zagraniczne*. In: Dudziak D, Ziótek M., red. *IV Wrocławskie Spotkania Bibliotekarzy*. Wrocław: Oficyna Wydawnicza Politechniki Wrocławskiej; 2014: 263–284.
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8. Specialized databases like BazTech and BazEkon, which are products of academic libraries cooperation, have done it for years now.

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ON RESPONSIBLE RESEARCH AND INNOVATION – AN OLD CONCEPT CLAD IN NEW CLOTHES

○ odpowiedzialnych badaniach i innowacjach
– stare pojęcie w nowych szatach

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A – przygotowanie projektu badania | study design, B – zbieranie danych | data collection, C – analiza statystyczna | statistical analysis, D – interpretacja danych | data interpretation, E – przygotowanie maszynopisu | manuscript preparation, F – opracowanie piśmiennictwa | literature search, G – pozyskanie funduszy | funds collection

SUMMARY

A fast evolution of science and technology often raises controversies. Numerous cases of research results which had been questioned or rejected by public opinion have clearly demonstrated that public concerns can be neither ignored nor reduced to the question of risk. Science no longer enjoys a special status and society is getting more and more concerned about the purposes and motivations of research, and demands to be included in the decision making process on research agenda. The article presents a concept of Responsible Research and Innovation – its roots and potential to address the problem of (a lack of) legitimacy without doing harm to research. The author points also that the concept of Responsible Research and Innovation (RRI) raises a lot of

controversies. It looks like yet another attempt to manage science and to steer it more towards politically defined goals. Although it calls for public opinion to be more involved in setting agenda for research, it does not explain clearly how this involvement should actually be organized to be labelled "responsible". When analysed in depth, RRI appears to be quite complicated as it defines responsible research and innovation both through their outcomes and through a set of requirements that research and innovation processes should fulfil. Finally, it causes confusion since it gathers too many differing aspects of research and innovation-related activities under the same roof.

Keywords: responsibility, innovation, science society interactions

STRESZCZENIE

Szybki rozwój nauki i technologii często budzi kontrowersje. Liczne przykłady badań, które zostały zakwestionowane lub odrzucone przez opinię publiczną pokazały dobitnie, że obawy społeczeństw nie powinny być ani ignorowane, ani ograniczane do kwestii ryzyka. Nauka nie cieszy się już specjalnym statusem w społeczeństwie, a obywatele są coraz bardziej zainteresowani celami i motywacją stojącą za prowadzonymi badaniami naukowymi i domagają się włączenia w proces decyzyjny dotyczący przedmiotu i zakresu prowadzonych badań. Niniejszy artykuł prezentuje pojęcie „odpowiedzialne badania i innowacje” (OBI) – jego źródła, a także potencjału do rozwiązania problemu (braku) legitymizacji bez szkody dla samej nauki. Autor wskazuje również, że pojęcie to budzi wiele kontrowersji. Wygląda ono bowiem jak kolejna próba wywar-

cia wpływu na naukę i pokierowania zainteresowań naukowców w stronę politycznie zdefiniowanych celów. Chociaż pojęcie to zakłada większe zaangażowanie opinii publicznej w ustalaniu agendy badawczej dla nauki, nie wyjaśnia ono jednak precyzyjnie, jak takie zaangażowanie powinno wyglądać, aby dane badania naukowe lub działalność innowacyjną można było określić jako „odpowiedzialne”. Kiedy przyjrzymy się bliżej definicji OBI, to okazuje się, że termin ten jest dość skomplikowany, jako że odpowiedzialne badania i innowacje definiowane są zarówno pod kątem ich wyników, jak i spełnienia przez sam proces badawczy czy innowacyjny określonych parametrów. Poza tym, pojęcie OBI może powodować pewną dezorientację, że względu na to, iż łączy zbyt wiele różnych aspektów działalności badawczej i innowacyjnej.

Słowa kluczowe: odpowiedzialność, innowacje, relacje nauka–społeczeństwo

(PU-HSP 2016; 10, 1: 28–31)

It takes a lot of time before even the most promising basic research brings any tangible results or any technological invention makes it to the marketplace. Therefore it is hard to predict what impacts any research or technology may have on society. Innovation process looks completely different when seen from various perspectives and interests of scientists are not always in line with those of non-scientists [1–3]. There are many cases in which innovations have been rejected by their potential users (failure to introduce GMO in Europe is one of the most frequently listed here)[4–6]. The reasons behind a rejection may vary – sometimes it is a clear collision between the research results and values and beliefs of society, often however they seem to be completely irrational. In any case, it has become clear that although science and technology are capable of changing our lives and provide us with many benefits, scientists are under increased pressure to justify their research activities and their knowledge claims to broader society. And this is not only about anticipating problems with implementation of any concrete technology [7] – it is rather a problem of (a lack of) legitimacy of science [8–9]. Therefore, one can observe a growing pressure on research and innovation to be better aligned with interests of society and for societal and ethical considerations to be integrated into science and technology development. Some put this pressure in a broader context and describe it as a process of revision of a social contract, which for many years has guaranteed the scientific enterprise a special status in Western societies and autonomy against any social scrutiny. This pressure is being fuelled by past and present public controversies over nuclear power plant accidents, climate change, widespread environmental pollution and many other disputes dating back decades. What all these disputes have in common – apart from the general conclusion that they illustrate that science no longer enjoys a special status – is the fact that they explore the question of responsibility and argue that researchers' responsibility cannot be reduced to their professional roles.

The debate on responsibility has been gradually taken over by policy makers. The concept of *Responsible Research and Innovation* (RRI) can be described as the newest output of this debate. It gained its momentum during the preparations of the EU Horizon 2020 program, where it has been linked with the economic crisis and with the assumption that the so-called *Grand Challenges* – due to their very nature – cannot be solved by researchers only. One of the most frequently cited examples of this approach comes from a speech given by Maire Geoghegan-Quinn, the then European Commissioner for Research, Innovation and Science who said:

"As the Europe 2020 Strategy makes it clear, to overcome the current economic crisis we need to create a smarter, greener economy, where our prosperity will come from research and innovation. Science is the basis for a better future and the bedrock of a knowledge-based society and a healthy economy. After ten years of action at EU level to develop and promote the role of science in society, at least one thing is very clear: we can only find the right answers to the challenges we face by involving as many stakeholders as possible in the research and innovation process. Research and in-

novation must respond to the needs and ambitions of society, reflect its values, and be responsible [...]” [10].

Obviously, the final version of the concept of RRI, as promoted by the EU, turned out to be a compromise between the European Commission and the European Parliament – that is why it embraces both the economic aspect of innovation and the societal aspect of research. One has to remember though that these efforts were not separated from the outside world. To a large extent they reflected the needs expressed by other stakeholders, such as industry representatives, civil society organizations and scientists themselves [11].

Although the very term RRI is relatively new it would be hard to claim that it popped up suddenly and out of the blue. On the contrary, its content (not the exact wording) can be easily traced back and found in the previous Framework programmes of the European Union. Some look for its roots in the 4th EU Framework Programme which was launched in 1994 and tried to link societal issues with those directly related to research by the so-called ELSA (which stands for *ethical, legal and social aspects of emerging sciences and technologies*). Others claim that the whole debate on relations between science and society started much earlier. In 2013, under the auspices of the European Science Foundation, a group of experts led by Ulrike Felt of the University of Vienna published a report on *Science in Society* [12–13], in which the process of RRI was divided into five major steps. According to this report, the evolution started a bit earlier – that is with the slogan *Information politics and monitoring of citizens* which appeared in 1989, only to be replaced with *Raising Awareness of Science and Technology* in the 1990s and then by *Dialogue, participation and governance* in the early 2000s. All these were smashed away by *From Science and Society to Science in Society* in 2007 and currently – with the Innovation Union – had to leave the floor for the term *Responsible Research and Innovation*. Obviously, changing terminology does not mean a semantic change only – it rather reflects an ongoing debate on the embedment of science and innovation in a broader, socio-economic context. It is worth noticing here that none of these terms – either RRI or its predecessors – has been invented by the research community itself. They were rather initiated by science policy makers or funding bodies and implemented in a top-down manner. In other words, we can observe a long lasting process which – at first – looks like changing labels and replacing one phrase with a new catchy one. But, in fact, by observing this process, one can understand how priorities have been changing over these two decades and how consequent terms were used to put more emphasis on some specific features of the described phenomenon [14].

It is very difficult to explain what *Responsible Research and Innovation* really means as the concept is still under construction and even experts are not unanimous regarding its definition. But no doubt RRI, as a new approach to research and innovation, puts a lot of emphasis on the question of responsibility and points at a broad group of stakeholders who should actually share this responsibility. The most frequently cited definition of RRI, proposed by Rene von Schomberg assumes that “RRI is a transparent, interactive process by which societal actors and innovators become mutually

responsive to each other with a view to the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products (in order to allow a proper embedding of scientific and technological advances in our society)" [15]. This approach however lacks lightness and simplicity which would make it understandable to non-experts. Therefore, in order to reach a broader audience it is worth quoting another definition, proposed by experienced science communicators who wrote that "RRI is the idea that since research and innovation have an impact on society, scientists as individuals and the research and innovation community as a system have a social, even societal, responsibility. Conversely, politicians, industries and citizens can't leave the burden of responsibility on the scientists' shoulders only – they need to define where society wants to go and get involved in setting research agendas that will take us there" [16].

The concept of *Responsible Research and Innovation* raises a lot of controversies. First, it looks like another attempt to manage science and to steer it more towards politically defined goals. No matter how successful we are going to be in implementing this concept, it cannot change the fact that unforeseen effects of technologies are utterly unpredictable. We can push science to be more accountable, more community based and more responsive to the needs of society but we have to be careful and do not cross a thin red line beyond which a scientific freedom might be at risk. Besides, the question of responsibility, so important in the context of RRI, needs to be further discussed and nuanced so that it takes into account obvious differences between curiosity driven research and applied research.

Second, RRI refers to societies and argues that public opinion should be more involved in setting agenda for research [17]. It is not clear however how this involvement should actually be organized [3, 18] to be labelled "responsible". In addition, the different contexts we find throughout Europe confront us with different challenges, and ask for different solutions. The uptake of the idea of RRI is much more visible and vigorous in such countries as the UK or the Netherlands than in Eastern Europe. Moreover, even if we do our best to involve all stakeholders in RRI-like practices, there is no guarantee that the values society holds dear will always be in harmony with whatever solutions to societal problems are technologically possible [19].

Third, although the term gathering research and innovation under the same roof may look promising, in reality it rather causes confusion. Even if we put aside concerns about potential overlap between RRI and *Corporate Social Responsibility* (CSR) we have to admit that most innovations are initiated and take place in the private sector, whereas most responsible research is – or will be – inspired by public authorities and publicly funded. The question is how we can encourage private sector to contribute to RRI and how some aspects of RRI – e.g. openness – can be accommodated and balanced with various different interests and positions of private companies?

Finally, sometimes one can get too much of a good thing. RRI when analysed in depth appears to be quite complicated. It defines responsible research and inno-

vation both through their outcomes and through a set of requirements that research and innovation processes should fulfil [20–21]. It attempts to encompass all stages of R&I – from organisation of the research agenda and research teams, involvement of research target groups in R&I, implementation of the research results, feedback towards stakeholders and evaluation of the results, open access to the results by third parties, monitoring and evaluation of R&I to education. The fact that RRI serves as an umbrella term adds to its ambiguity and makes it a perfect tool for politicians rather than for researchers. Does RRI, as a concept, really possess a potential to become something more than just another fashionable buzz-word which sooner or later will be replaced by another term? Can something invented outside scientific community become an effective policy instrument and really transform our approach to research and innovation?

The concept of "responsible innovation" is relatively new. The use of the term suggests that over the past decades, innovation has not been all that responsible. Indeed, the negative impact of innovations on individuals, societies and eco-systems was often neglected in favour of economic growth. The emergence of responsible research and innovation can be understood as a new approach towards research and innovation, in which social and ethical aspects are explicitly taken into account and economic, socio-cultural and environmental aspects are balanced [20, 22]. One has to remember though that the impacts of technological innovations have always been difficult to predict. Even the idea of technology foresight, which was so popular in the 1970s and later, has been significantly modified and now it is more about monitoring of research and innovations processes and making them more dynamic and inclusive [23]. And the question of responsibility, which is at the core of RRI concept, is scattered and the fact that knowledge is co-produced by many "authors" does not add to its clarity [20].

It is natural for societies to react to a fast evolution of science and technology. Controversies and numerous cases of research results being rejected have clearly demonstrated that public concerns cannot be reduced to questions of risk. Society is getting more and more concerned about purposes and motivations of research and wants to have a say on them, too [24]. The key question now is how to address these concerns without doing harm to research and without expecting too much of society. Saying "no" is always easier and faster than making an effort to understand the aim and possible outcomes of research. Making an informed decision is not easier than casting a vote and science is no less susceptible to demagoguery than any other sphere of life.

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DEVELOPMENTAL PROJECTS OF UNIVERSITY LIBRARIES PROVIDING ACCESS TO SCIENTIFIC E-RESOURCES FINANCED FROM NATIONAL AND EU FUNDS

Projekty rozwojowe bibliotek akademickich
w zakresie udostępniania e-zasobów naukowych finansowane
ze środków krajowych i unijnych

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A – przygotowanie projektu badania | study design, **B** – zbieranie danych | data collection, **C** – analiza statystyczna | statistical analysis, **D** – interpretacja danych | data interpretation, **E** – przygotowanie maszynopisu | manuscript preparation, **F** – opracowanie piśmiennictwa | literature search, **G** – pozyskanie funduszy | funds collection

SUMMARY

Scientific libraries at universities are interested in transforming traditional scientific resources in the print form into their digital equivalents and also in providing, when possible, a free access to these resources via the Internet. The development of digital versions of scientific work and research and providing access to them can be financed from sources other than the university budget. An overview of main external sources of funding and an analysis of project documentation indicate availability of funds within the scope of activities popularising knowledge, Regional Operational Programmes and Operational Programme Digital Poland, scheduled for implementation in the years 2014–2020. The above-mentioned national and EU funds remain at the disposal of the Ministry of Science and Higher Education, Ministry of Development and Marshall's Offices. They serve the implementation of small, medium and large projects concerning the development of

scientific e-resources by universities in cooperation with their libraries with the subsidy level of 100% of eligible expenditure of the project. The scale of the project being implemented should match the experience of the participating entities held in project management to date, and its execution should contribute to the development of knowledge-based economy and open science resources. It is therefore advised that universities and libraries which do not have enough experience in obtaining and implementing library projects financed from external sources apply for projects with uncomplicated structure and low budget. Whereas universities and libraries experienced in applying for external, national and European project grants, and the implementation of small, medium and large project, should create their own project portfolios for the funding of the development of digital scientific resources.

Keywords: scientific e-resources of libraries, financing of library projects, national funds, EU funds

STRESZCZENIE

Biblioteki naukowe szkół wyższych są zainteresowane transformacją tradycyjnych zasobów naukowych w formie drukowanej na ich elektroniczne odpowiedniki, udostępniane w miarę możliwości w wolnym dostępie poprzez sieć internetową. Przygotowanie elektronicznych wersji prac i badań naukowych oraz ich udostępnienie, może zostać sfinansowane z innego źródła niż budżet uczelni. Przegląd głównych, zewnętrznych źródeł finansowania oraz analiza dokumentacji projektowej, wskazuje na dostępność środków w ramach działalności upowszechniającej naukę, regionalnych programów operacyjnych i Programu Operacyjnego Polska Cyfrowa, zaplanowanych do realizacji w latach 2014–2020. Wspomniane środki krajowe i unijne pozostają w dyspozycji Ministerstwa Nauki i Szkolnictwa Wyższego, Ministerstwa Rozwoju oraz urzędów marszałkowskich. Służą one realizacji małych, średnich i dużych projektów dotyczących tworzenia e-zasobów naukowych przez uczelnie we współpracy

z ich bibliotekami, a poziom dofinansowania wynosi do 100% wydatków kwalifikowalnych projektu. Skala realizowanego przedsięwzięcia powinna odpowiadać doświadczeniu podmiotów w dotychczasowym prowadzeniu projektów, a ich realizacja winna przyczynić się do rozwoju gospodarki opartej na wiedzy i otwartych zasobów nauki. Wskazane jest zatem, by uczelnie i biblioteki, które nie posiadają wystarczającego doświadczenia związanego z pozyskiwaniem i realizacją bibliotecznych przedsięwzięć projektowych finansowanych ze środków zewnętrznych, aplikowały o projekty mające prostą strukturę i niski budżet. Natomiast szkoły wyższe i biblioteki, posiadające doświadczenie w zakresie aplikowania o zewnętrzne, krajowe i europejskie dotacje projektowe oraz doświadczenie w zakresie realizacji projektów małych, średnich i dużych, powinny tworzyć własne portfele projektów służące finansowaniu rozwoju cyfrowych zasobów nauki.

Słowa kluczowe: e-zasoby naukowe bibliotek, finansowanie projektów bibliotek, środki krajowe, fundusze unijne

(PU-HSP 2016; 10, 1: 32–34)

Background

Scientific libraries functioning as organizational units of universities should themselves actively search for external funding to implement projects which serve the development of new e-services for academic, social and economic environment. Rendering scientific and research achievements freely accessible via the Internet is an indispensable basis in terms of laying strong foundations for the open science in Poland. Actions aimed at transformation of traditional scientific resources into electronic ones, involving mainly their development, digitization and providing access to them, often require high expenditure. Potential financing sources for the aforementioned undertakings may be external funds, coming from outside the university budget and remaining at the disposal of regional and national institutions.

Main funding sources for library projects

With a view to identify the most important and up-to date funding sources for projects, which serve the development of scientific e-resources at university libraries, an analysis of research material in the form of project documentation developed by relevant ministries and marshal's offices was performed, followed by a synthesis indicating types of projects that could be financed or co-financed from national or European funds.

Scientific libraries focused on the execution of small projects (potential subsidy up to PLN 1 million), whose goal is to make scientific library resources available in the electronic form, are eligible to apply for funds allocated to projects connected with knowledge popularizing activities. The Administrator of these funds is the Ministry of Science and Higher Education, which opens the calls for applications for funding once or twice per calendar year. It ensures financing of projects focused on development or providing access to unique resources, which are crucial for science and its heritage, or characterized by a high level of scientific expertise, while ensuring free and common electronic access to

the items developed. The above-mentioned ministerial initiative is financed from national resources, connected with science financing, up to 100% of the value of the undertaking. Applications are evaluated by an interdisciplinary Team responsible for science popularizing activities and the project duration cannot be longer than 24 months [1].

University libraries which prefer to implement medium size projects (potential subsidy amount up to PLN 4 million), involving construction and modernization of ICT systems for digitization of resources, digitization of scientific papers, building and extension of digital repositories, creating open access platforms for resources made available within the scope of digital services, should apply for funding from Regional Operational Programs for 2014–2020. Funding for the implementation of this type of projects remains at the disposal of Marshal's Offices, acting as a Managing Authority for EU funds deriving from the European Social Fund and European Regional Development Fund [2]. The above-mentioned institutions organize calls for applications for funding of projects in individual provinces, by the publicly announced deadlines. An entity applying for project funding may obtain financial support of up to 95% (funding from the European and national resources) of eligible expenditure of the project and the portfolio of the co-financed undertakings varies between individual provinces. Application forms are subject to formal and substantive evaluation, and the project duration is specified in the documentation of each particular contest.

University libraries prepared to implement large projects (potential subsidy amount over PLN 4 million), concerned with developing and providing access to scientific resources in the digital form via the Internet by preserving them in the electronic form and adding metadata in a machine readable format, are afforded an opportunity to apply for EU funds within the scope of priority axis 2 of Operational Program Digital Poland for 2014–2020. The Administrator of the project funds for providing a wide and comprehensive access to scientific e-resources is the Ministry of Development, which designated Digital Poland Project Centre as an

Intermediary Body, responsible for the organization of public calls for applications, as well as supervision of implementation and financial settlement of projects financed from the European Regional Development Fund. An entity applying for funding may be awarded a subsidy of up to 100% (obtained from European and national funds) of eligible costs of the project and the portfolio of eligible expenditure includes the purchase of IT equipment, digitization equipment and the remuneration of program staff. Applications are subject to a formal and substantive evaluation, and the maximum project duration time is 36-months [3].

Conclusions

An overview of the most important potential funding sources for development activities of university libraries within the scope of electronic accessibility of scientific resources, which has been presented, indicates availability of national and European funds. Therefore, universities, in consultation with their libraries, should apply for external funding, depending on their development strategy, current needs and experience in obtaining grants. It is advisable that universities and libraries having no or little experience obtaining and implementing projects financed from outside the university budget should apply first for funds to realize small scale, simple projects with low budget. This will allow them to gain necessary skills in project management, implementation and financial settlement. On the other hand, universities and libraries which are experienced in project implementation can build their own

portfolio of projects composed of complementary small, medium and large undertakings connected with digitization of research results and scientific papers, which will be financed from external funds. This will allow universities and related libraries to develop dynamically in the area of e-resources, which will be an impulse for cooperation of open science and knowledge-based economy.

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SUMMARY OF MY EXPERIENCES AS AN UNDERGRADUATE RESEARCHER IN THE U.S. AND AS A FULBRIGHT STUDENT RESEARCHER AT THE INSTITUTE OF IMMUNOLOGY AND EXPERIMENTAL THERAPY IN POLAND

Podsumowanie moich doświadczeń w prowadzeniu
badań naukowych w Stanach Zjednoczonych oraz w Polsce
w Instytucie Immunologii i Terapii Doświadczalnej
w ramach stypendium Fulbrighta

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A – przygotowanie projektu badania | study design, B – zbieranie danych | data collection, C – analiza statystyczna | statistical analysis, D – interpretacja danych | data interpretation, E – przygotowanie maszynopisu | manuscript preparation, F – opracowanie piśmiennictwa | literature search, G – pozyskanie funduszy | funds collection

SUMMARY

Over the course of my undergraduate studies in Molecular and Cellular Biology and the experiences following my graduation, I became increasingly interested in research that can directly improve patient care. My research experiences in the U.S. include studying cytochrome P450 enzymes in Nanodiscs at the University of Illinois Urbana-Champaign and examining immune evasion by acute lymphoblastic leukemia cells at the University of Colorado Cancer Center. Beyond work in the laboratory, I also participated in a year-long project to implement a water delivery system in Honduras, leading to my interest in infectious disease research. My interest in this

field grew after learning about phage therapy, a way of treating antibiotic-resistant infections, during an honors virology seminar. Only a few research groups are dedicated to studying phage therapy, which includes the Institute of Immunology and Experimental Therapy (IET) in Poland. I was fortunate enough to receive a U.S. Fulbright research grant to study the immune response to phage therapy under the mentorship of Prof. hab. n. med. Andrzej Górski at the IET. In this article, I will discuss my involvement at U.S. and European institutions, the insights I have gained, and how other students can similarly get involved in research.

Keywords: U.S. Fulbright Student, undergraduate, research opportunities, international exchange

STRESZCZENIE

Studia magisterskie z zakresu biologii molekularnej i komórkowej oraz późniejsze doświadczenia zawodowe sprawiły, że zaczęłam coraz bardziej interesować się badaniami mogącymi bezpośrednio poprawić poziom opieki nad pacjentem. W USA w Nanodiscs na Uniwersytecie Illinois w Urbana-Champaign prowadziłam badania nad cytochromem P450, a w Cancer Center na Uniwersytecie Kolorado pracowałam nad mechanizmami unikania odpowiedzi immunologicznej stosowanymi przez komórki rakowe ostrej białaczki limfoblastycznej. Oprócz pracy w laboratorium, brałam także udział w jednorocznym projekcie dotyczącym wdrażania systemów dystrybucji wody użytkowej w Hondurasie, który przekierował moje zainteresowania naukowe w stronę chorób zakaźnych. Dodatkowych inspiracji dostarczyło seminarium wirusologiczne, na którym dowiedziałam się o terapii fagowej, nowo-

czesny metodzie leczenia infekcji wywołanych bakteriami opornymi na antybiotyki. Zaledwie kilka grup badawczych na świecie zajmuje się terapią fagową, wśród nich znajduje się polski Instytut Immunologii i Terapii Doświadczalnej (IIT). Miałam niezwykle zaszczyt otrzymać grant naukowy Polsko-Amerykańskiej Fundacji Fulbrighta, który pozwolił mi studiować zagadnienia z zakresu immunologii i jej wpływ na terapię fagową, pod kierunkiem prof. dr. hab. n. med. Andrzeja Górskiego z IIT. W poniższym artykule pragnę przedstawić swoje doświadczenia i spostrzeżenia dotyczące kontaktów z amerykańskimi i europejskimi instytucjami, udziału w międzynarodowych projektach badawczych, a także opiszę, w jaki sposób inni studenci mogą zaangażować się w podobne przedsięwzięcia.

Słowa kluczowe: stypendysta Fulbrighta, doktorant, wymiana międzynarodowa, możliwości naukowe

(PU-HSP 2016; 10, 1: 35–38)

Research experiences at U.S. institutions

Over the course of my undergraduate studies, I became increasingly interested in basic science research that can directly improve healthcare. My involvement in projects both in and out of the laboratory has shown me how scientific expertise can be harnessed for the practical benefit of people in the real-world.

In 2015, I graduated from the University of Illinois Urbana-Champaign *Magna Cum Laude* with a B.S. degree in Molecular and Cellular Biology with Honors and minor in Chemistry. In my second year, I began working as an undergraduate student researcher in the laboratory of Dr. Aditi Das, PhD, studying human cytochrome P450 (CYP) enzymes using Nanodiscs as lipid bilayer models. CYPs are responsible for the metabolism of numerous both xenobiotic and endogenous substrates. My independent project focused mainly on two specific CYP enzymes, CYP5A1 and CYP2C8. CYP5A1 produces the clotting agent thromboxane in platelets [1]. I worked to establish the role of an active site residue that influences thromboxane production, leading to the publication of a research article that I co-first-authored [2]. I also presented this work at the 2014 Midwest Enzyme Chemistry Conference and won best undergraduate poster presentation [3]. The other part of my project focused on CYP2C8, which metabolizes the chemotherapeutic drug paclitaxel (Taxol), as well as dietary polyunsaturated fatty acids to produce eicosanoid signaling molecules [4]. I examined how polymorphic variants of CYP2C8 alter the electron flow between CYP2C8 and its redox partner enzyme cytochrome P450 reductase.

Over the course of working in the lab of Dr. Das, I also published two first-author review articles pertaining to recombinant CYP expression techniques [5] and the involvement of CYPs in producing a specific class of eicosanoids called endocannabinoids [6]. In 2013, I was also awarded two fellowships to support my research, namely the University of Illinois Molecular and Cell Biology Research Fellowship and an American Heart Association Research Fellowship. In my final semester of study, I submitted a departmental senior research thesis that was awarded highest distinction. Overall, the experience of performing this research

taught me how to pose scientific inquiries, design experiments, and how to overcome various challenges, both scientific and administrative. Most importantly, I realized for the first time that understanding the underlying science behind physiological phenomena has the potential to improve lives and was inspired to incorporate research into my future career.

In exploring a career as a medical researcher, I also completed an intensive 10-week fellowship at the University of Colorado Cancer Center under the guidance of Dr. Christopher Porter, MD. Here, I studied the cellular pathway BCR-ABL in driving immune system evasion by acute lymphoblastic leukemia cells. This project helped to greatly expand my skills to include cell- and animal-based studies. I presented my work at a final poster symposium [7] and was included as a co-author on an upcoming poster presentation at the American Society of Pediatric Hematology/Oncology annual meeting.

Involvement in international development

Beyond my work in the laboratory during my undergraduate years, I also participated in a year-long project devoted to engineering and implementing a clean water delivery system in rural Honduras. This project was unique in that it took into account not just technical concerns, but also the sociocultural and political dynamics of the community being served by the water system. Similar projects had previously failed, not due to technical inadequacies, but rather because of a lack of genuine understanding for local cultural practices and failure to engage the project beneficiaries in decision-making. Therefore, we engaged the community throughout the process of construction, governing water use, and by educating community members about infectious waterborne diseases. My role was to design and carry out health education in the local community that ensured people understood, for instance, why chlorination of their water would be important in combating gastrointestinal illness. What I took away from the project was an appreciation for the use of technical expertise in a way that considered the unique needs of the community. In addition, this experience opened my eyes to global health concerns,

especially that of inadequate antibiotic stewardship in developing regions, inspiring me to pursue infectious disease research.

Experience as a U.S. Fulbright researcher in Europe

My interest in infectious disease research grew after learning about phage therapy, a way of treating antibiotic-resistant infections, during an honors virology seminar. This motivated me to apply for a U.S. Fulbright research grant to conduct research at the Ludwik Hirszfeld Institute of Immunology and Experimental Therapy (IET) PAS in Wrocław, Poland under the guidance of Prof. dr hab. n. med. Andrzej Górski. I was fortunate enough to receive this grant and currently my research at the IET aims to characterize the human immune system response following phage delivery. Novel antibiotic drugs are increasingly difficult to design and resistance to existing drugs is a growing concern worldwide. Bacteriophages (or simply "phages") are viruses that target and eliminate bacteria, and may therefore prove essential to combating complex bacterial infections. Interestingly, the successful therapeutic potential of phages was first demonstrated by French microbiologist Dr. Felix d'Herelle in 1919. However, with the advent of antibiotic drugs only a handful of laboratories in Eastern Europe continued research on therapeutic phages throughout the 20th century [8]. Of particular note is the IET in Poland that is one of two phage therapy centers worldwide. The IET has been instrumental in developing phages to treat a variety of bacterial infections, including the methicillin-resistant *Staphylococcus aureus* "superbug" that now plagues hospitals worldwide [9–10]. Positive clinical results in treating patients using phage therapy have been obtained at the IET for decades. Nevertheless, a more complete and rigorous understanding of phage-mediated bacterial elimination is needed for this treatment to gain wide-spread clinical use. In particular, the antibody response of the human immune system during phage therapy is not fully understood and may be a limiting factor for phage therapy [11]. Therefore, a main goal of my project has been to better characterize the immune system responses using *in vitro* phage characterizations and *in vivo* animal models.

Outside of working in the lab during my Fulbright grant, it was also interesting to examine the similarities and differences of conducting research and providing medical care in Europe versus the United States. Conversations with researchers at the IET were very enlightening, as was the meeting with Dr. Daniel de Vos and Dr. Jérôme Gabard who are leading an EU-funded Phase I/II clinical phage therapy trial to treat burn victims [12–13]. In February 2016, I also participated in an EU-NATO Fulbright Seminar in Belgium. During the conference, we met with leaders at NATO headquarters, the European Court of Justice, and the European Commission, and the U.S. Missions to the EU and NATO. Each of these presented chances to learn about the current issues facing the EU/U.S. and how EU institutions influence regulations, including those pertaining to research funding and healthcare. To learn more specifically about Polish healthcare system, I have spoken with Prof. Górski who is a practicing MD/

/PhD about his experiences. More personal conversations with co-workers and friends about their understandings of the Polish medical system have also been informative. I hope that by increasing my awareness about these issues, I can serve as a more informed medical researcher and care provider.

In all, my experiences thus far have inspired me to pursue a career as a physician-scientist, as this will allow me to utilize research for the good of future patients in both developed and developing nations. In particular, the field of infectious diseases is of great interest to me and I hope to integrate basic science research with clinical practice in an international setting.

Hints and tips

- Maintain contact with anyone and everyone whose work you find interesting, regardless if they are directly in your field. Be curious and keep an open mind to learning about different topics.
- Express consistent interest in research by devoting time to working in a laboratory for extended periods of time, ideally on a specific project.
- Study and do well in fundamental science coursework, but remember that having a perfect grade record does not always correlate with success in conducting research. Research also requires one to think creatively, solve problems and remain resilient to overcome challenges.
- Take writing intensive coursework, read research papers, and practice language skills because science careers require one to communicate with others both orally and in writing. Learning how to use clear, convincing language in publications, grants, fellowship applications, poster presentations, and conference talks is essential.

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The conflict of interests

The author does not report any conflicts of interests.

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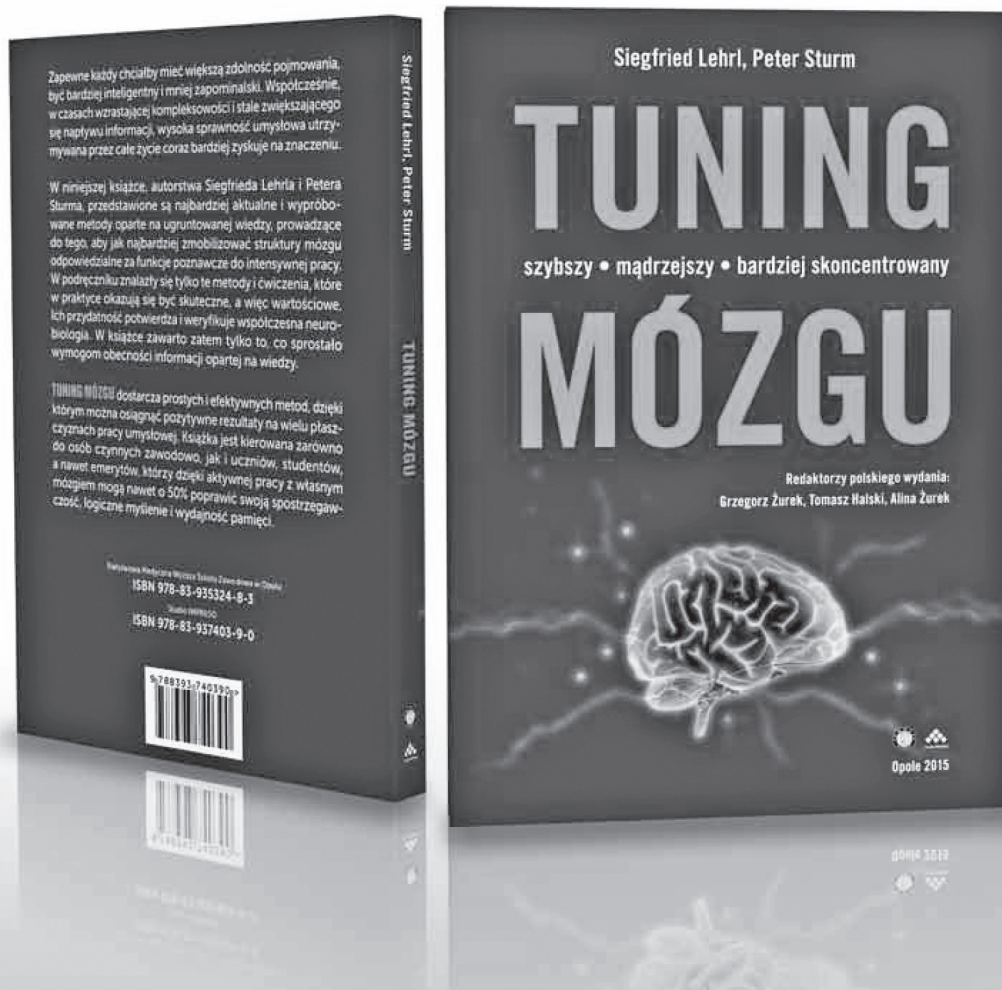
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