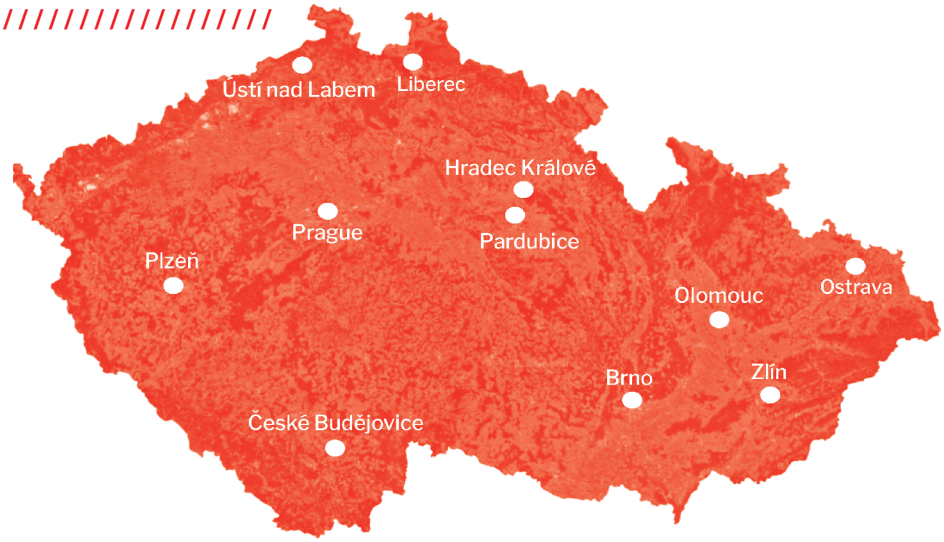

PERSPECTIVES OF CZECH SCIENCE 2018

View of Researchers and Science Managers on the Czech Research Area in International Context

Summary Report of a Survey

October 28, 2018
České Budějovice

Edited by: Tomas Mozga
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Perspectives of Czech Science 2018
October 28, 2018 | České Budějovice

Dear readers! How attractive is the Czech Republic (CR) for researchers? How many researchers have come or returned from abroad to the CR in recent years? Why did they take the decision to carry out research in the CR? How difficult is it to establish and develop an own independent research group in the CR? What are the working conditions for researchers in the CR? What type of services & support do Czech research institutions provide to researchers? How international are the Czech research institutions? What inspiration of good practise have researchers experienced at foreign research institutions? What are the needs of researchers working in the CR? How does the Czech Government help to increase the international competitiveness of researchers? What is the long-term scientific vision & policy of the CR? What are the research priorities of the CR? How do we strive for and evaluate the research quality? What are the most important challenges of the Czech Research Area? How competitive & successful is Czech science today?

In early spring of 2018 we started to prepare a public discussion focused mainly on the attractiveness & competitiveness of the Czech Research Area. In order to prepare for the discussion, we wanted to know what are the most important needs of researchers, what are the biggest obstacles they have to overcome on their way to independence and group consolidation and what services are provided by science managers in the CR. We realised that relevant summary data and complex view of the Czech research community are not available.

Therefore, 200 scientists & 140 top science managers (Directors, Rectors & Deans) of Czech research institutions were addressed and asked to fill in a short questionnaire mapping the current status, strengths & weaknesses of the Czech Research Area. We tried to get experience & point of view from as many researchers & science managers as possible. We collected all remarks & feedback during the summer months of 2018 (Sun 13 May – Fri 31 Aug 2018). Based on opinions of respondents, we try to pin-point the most relevant discussion topics.

In total, 80 researchers (40 %) and 25 science managers (18 %) contributed to the survey. The results show that researchers who have recently settled in the CR are much interested in positive development of the Czech Research Area, are open to share their international experience, and are generally motivated to improve the system. On the other hand, the number of respondents indicate low interest of science managers (the most responsible and powerful people) in the discussion about the Czech Research Area.

We are grateful to and acknowledge all researchers & science managers who have participated in the survey. In this report, you can find a summary of the mapping. We refrain from interpreting incoming opinions & remarks of the respondents.

Detailed analysis will be the subject of the public round table discussion entitled **"Perspectives of Czech Science: Coming to the Czech Republic to Do Excellent Research"** that will be held in the Science Campus in České Budějovice on **Friday 07 December 2018. Save the date and join us!**

https://www.bc.cas.cz/clanky/clanek-detail/4422-perspectives-of-czech-science-coming-to-the-czech-republic-to-do-excellent-research/

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Supplement 3: Twenty two managerial approaches of Czech research institutions to attract, select, support & evaluate incoming researchers

Perspectives of Czech Science 2018
PART 1: RESPONDENTS

1.1 Researchers in the survey

Figure 1: 80 researchers participated in the survey (see the Supplement 1 with the list of researchers). (A) Approximately one third are women and two thirds are men. (B) Most of the respondents are Czechs, one sixth are foreigners. (C) 67 (84 %) of respondents are currently working at a research institution in the Czech Republic, the remaining researchers (16 %) are working abroad.

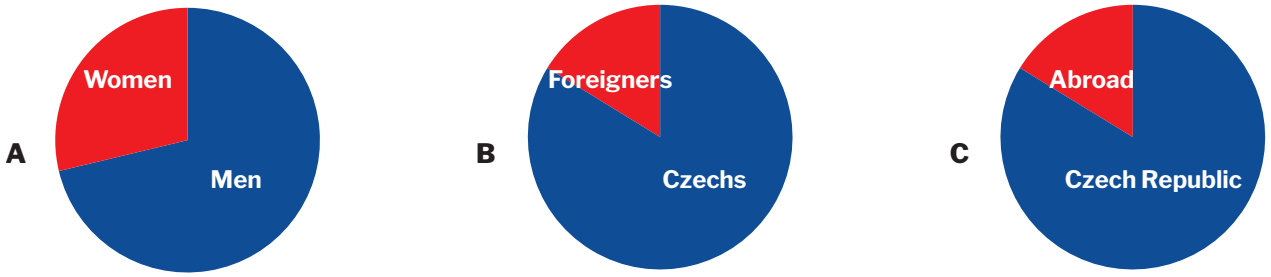
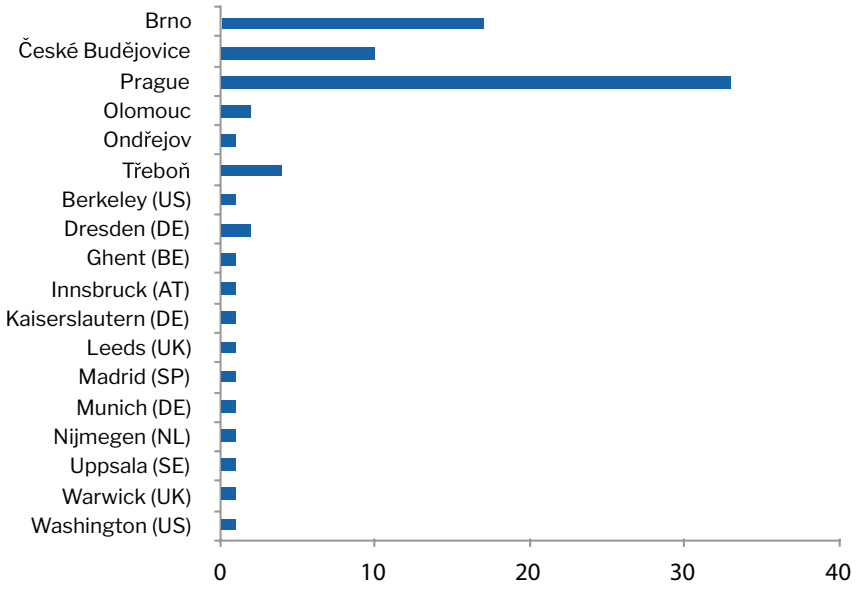
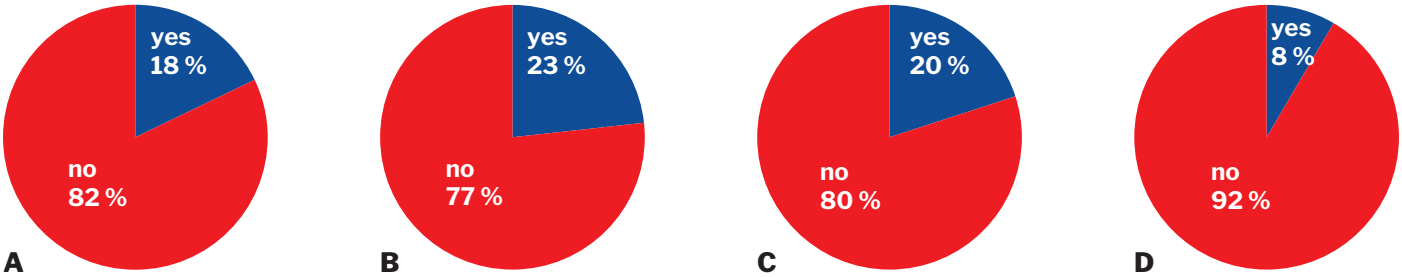


Figure 2: 67 respondents are currently working in 6 cities in the Czech Republic, the rest of 13 researchers are working in 12 cities abroad.



1.2 Science managers in the survey

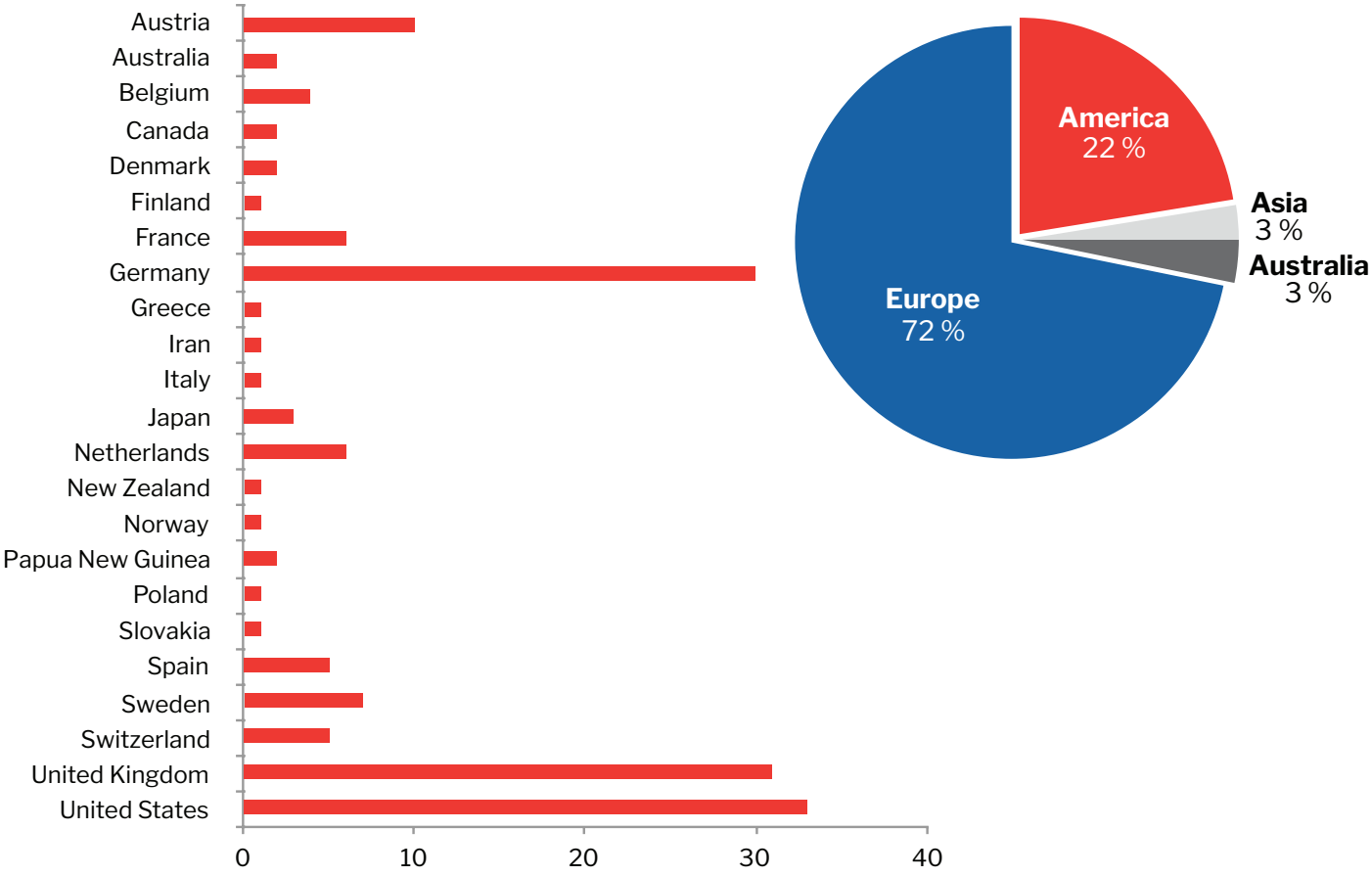
Figure 3: (A) 25 science managers out of 140 (18 %) provided their input for the survey (see the Supplement 1 with the list of science managers): (B) 10 representatives of institutes of the Czech Academy of Sciences (CAS, 23 %), (C) 4 representatives of universities (20 %) and (D) 6 representatives of faculties (8 %).



	yes	no	sum	yes %	no %
CAS / Directors	10	33	43	23.26	76.74
Universities / Rectors	4	16	20	20.00	80.00
Faculties / Deans	6	65	71	8.45	91.55
Other	5	1	6	83.33	16.67
All	25	115	140	17.86	82.14

Perspectives of Czech Science 2018
PART 2: INTERNATIONAL EXPERIENCE OF RESEARCHERS

Figure 4: (A) Respondents have mentioned 156 research stays abroad at 131 research institutions in 23 states around the world. (B) Research stays were realised in Europe (112), America (35), Australia (5) and Asia (4). Most frequent were research stays in the United States, United Kingdom and Germany.



Researchers have experience from 131 foreign research institutions
Bergische Universität Wuppertal, Wuppertal, Germany, *www.uni-wuppertal.de*
Bishop Museum, Honolulu, Hawai, US, *www.bishopmuseum.org*
Blaise Pascal University, Clermont-Ferrand, France, *www.univ-bpclermont.fr*
Brandeis University, Waltham, US, *www.bio.brandeis.edu*
Cambridge Institute for Medical Research, Cambridge, UK, *www.cimr.cam.ac.uk*
Centre de Recherche Astrophysique de Lyon, France; *https://cral.univ-lyon1.fr*
Centro Nacional de Biotecnologia (CNB-CSIC), Madrid, Spain, *www.cnb.csic.es*
Christensen Research Institute, Madang, Papua New Guinea
Columbia University, New York, US, *www.columbia.edu*
Comenius University, Bratislava, Slovakia, *https://uniba.sk*
Cornell University, Ithaka, US, *www.cornell.edu*
Delft University of Technology, Delft, Netherlands, *www.tudelft.nl*
Durham University, Durham, UK, *www.dur.ac.uk*
Environmental Molecular Sciences Laboratory, Richland, US, *www.emsl.pnl.gov/emslweb*
Erwin Schroedinger International Institute for Mathematics & Physics, Vienna, Austria, *www.esi.ac.at*
ETH Zurich, Switzerland, *www.ethz.ch*
European Bioinformatics Institute (EMBL-EBI), Cambridge, UK, *www.ebi.ac.uk*
European Molecular Biology Laboratory (EMBL), Heidelberg, Germany, *www.embl.de*
Geological Survey of Denmark and Greenland (GEUS), Copenhagen, Denmark, *http://www.eng.geus.dk*
Georgia Institute of Technology (Georgia Tech), Atlanta, US, *www.gatech.edu*
Ghent University, VIB-UGENT, Ghent, Belgium, *www.psb.ugent.be* 3x
Goethe University Frankfurt, Frankfurt am Main, Germany, *www.uni-frankfurt.de*
Gregor Mendel Institute of Molecular Plant Biology (GMI), Vienna, Austria, *www.gmi.oeaw.ac.at* 3x
Hasselt University, Hasselt, Belgium, *www.uhasselt.be*
Heidelberg University, Heidelberg, Germany, *www.ipmb.uni-heidelberg.de*
Helmholtz Zentrum Berlin für Materialien und Energie (HZB), Berlin, Germany, *www.helmholtz-berlin.de*

Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Dresden, Germany, *www.hzdr.de*
Humboldt-Universität zu Berlin, Germany, *www.hu-berlin.de* 3x
Institute for Membrane Technology (ITM-CNR), Rende, Italy, *www.itm.cnr.it*
Institute of Cancer Research (ICR), London, UK, *www.icr.ac.uk*
Institute of Chemical Engineering Sciences (FORTH/ICE-HT), Patras, Greece, *www.iceht.forth.gr*
Institute of Science and Technology (IST Austria), Vienna, Austria, *www.ist.ac.at*
John Innes Center, Norwich, UK, *www.jic.ac.uk*
Karolinska Institute, Stockholm, Sweden, *www.ki.se*
Lawrence Berkeley National Lab, Berkeley, US, *www.lbl.gov*
Leibnitz Institute of Plant Genetics and Crop Plant Research (IPK), Gatersleben, Germany, *www.ipk-gatersleben.de*
Leibniz Institute of Polymer Research Dresden (IPF), Dresden, Germany, *www.ipfdd.de*
Lincoln University, Christchurch, New Zealand, *www.lincoln.ac.nz*
Los Alamos National Laboratory, Los Alamos, US, *www.lanl.gov*
Ludwig Maximilian University of Munich, Munich, Germany, *www.uni-muenchen.de* 2x
Lund University, Lund, Sweden, *www.lu.se*
Macquarie University, Sydney, Australia, *www.mq.edu.au*
Massachusetts Institute of Technology, Cambridge, US, *www.mit.edu*
Massachusetts Institute of Technology, Massachusetts General Hospital, Boston, US, *www.massgeneral.org*
Massachusetts Institute of Technology, Whitehead Institute, Cambridge, US, *http://wi.mit.edu*
Max Planck Institute for Informatics (MPI), Saarbrücken, Germany, *www.mpi-inf.mpg.de*
Max Planck Institute for Plant Breeding Research (MPIPZ), Cologne, Germany, *www.mpipz.mpg.de* 2x
Max Planck Institute for Solid State Research, Stuttgart, Germany, *www.fkf.mpg.de*
Max Planck Institute for Terrestrial Microbiology, Marburg, Germany, *www.mpi-marburg.mpg.de*
Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG), Dresden, Germany, *www.mpi-cbg.de*
Mayo Clinic, Rochester, US, *www.mayoclinic.org*
Molecular Biology Center Severo Ochoa, Madrid, Spain, *www.cbm.uam.es*
MRC Laboratory of Molecular Biology, Cambridge, UK, *www.mrc-lmb.cam.ac.uk* 2x
MRC Mitochondrial Biology Unit, Cambridge, UK, *www.mrc-mbu.cam.ac.uk*
National Marine Fisheries Research Institute, Gdynia, Poland, *http://mir.gdynia.pl*
New Guinea Binatang Research Center, Papua New Guinea, *http://baloun.entu.cas.cz/png*
National Institute for Materials Science (NIMS), Tsukuba, Japan, *www.nims.go.jp*
Orléans University, Orléans, France, *www.univ-orleans.fr*
Purdue University, West Lafayette, US, *www.purdue.edu*
Queen Mary University of London, London, UK, *www.qmul.ac.uk*
Radboud University, Nijmegen, Netherlands, *www.ru.nl*
RIKEN BioResource Research Center, Tsukuba, Japan, *www.riken.jp*
Rothamsted Research, Harmenden, UK, *www.rothamsted.ac.uk*
Schering-Plough Research Institute (now Merck), Kenilworth, US, *www.merck.com*
Scripps Research Institute, La Jolla, US, *www.scripps.edu*
Seattle Biomed, Seattle, US, *www.biomed.org*
Stanford University, Stanford, US, *www.stanford.edu*
Swedish University of Agricultural Sciences (SLU), Uppsala, Sweden, *www.slu.se* 2x
Technische Universität Berlin, Berlin, Germany, *www.tu-berlin.de* 2x
Technische Universität Dresden, Dresden, Germany, *www.tu-dresden.de*
Technische Universität Kaiserslautern, Germany, *www.uni-kl.de*
University College London, London, UK, *www.ucl.ac.uk* 2x
University of Alabama, Alabama, US, *www.ua.edu*
University of Alberta, Edmonton, Canada, *www.ualberta.ca*
University of Alcalá, Madrid, Spain, *www.uah.es*
University of Arizona, Tucson, US, *www.arizona.edu*
University of Basel, Basel, Switzerland, *www.unibas.ch*
University of Basel, Biozentrum, Switzerland, *www.biozentrum.unibas.ch*
University of Birmingham, Birmingham, UK, *www.birmingham.ac.uk*
University of Bonn, Bonn, Germany, *www.uni-bonn.de*
University of Bremen, MARUM, Bremen, Germany, *www.marum.de*
University of Calgary, Calgary, Canada, *www.ucalgary.ca*
University of California, Berkeley, US, *www.berkeley.edu* 2x
University of California, Irvine, US, *www.uci.edu*
University of California, San Diego, US, *https://ucsd.edu* 2x
University of California, San Francisco, US, *www.ucsf.edu*
University of Cambridge, Cambridge, UK, *www.cam.ac.uk*
University of Cambridge, Babraham Institute, Cambridge, UK, *www.babraham.ac.uk*
University of Cambridge, Gurdon Institute, Cambridge, UK, *www.gurdon.cam.ac.uk*
University of Copenhagen, Center for Permafrost, Copenhagen, Denmark, *https://cenperm.ku.dk*

University of Delaware, Delaware, US, *www.edel.edu*
University of Dundee, Dundee, UK, *www.dundee.ac.uk*
University of Edinburgh, Edinburgh, UK, *www.ed.ac.uk*
University of Edinburgh, Roslin Institute, UK, *www.ed.ac.uk/roslin*
University of Freiburg, Freiburg, Germany, *www.uni-freiburg.de*
University of Fribourg, Fribourg, Switzerland, *www.unifr.ch*
University of Geneva, Geneva, Switzerland, *www.unige.ch*
University of Girona, Girona, Spain, *www.udg.edu*
University of Helsinki, Institute of Biotechnology, Finland, *www.helsinki.fi*
University of Innsbruck, Austria, *www.uibk.ac.at*
University of Kansas, Lawrence, US, *https://ku.edu*
University of Konstanz, Konstanz, Germany, *www.uni-konstanz.de*
University of Leeds, Leeds, UK, *www.leeds.ac.uk*
University of Leiden, Leiden, Netherlands, *www.universiteitleiden.nl*
University of Missouri, Kansas City, US, *www.umkc.edu*
University of Oslo, Oslo, Norway, *www.uio.no*
University of Oxford, Oxford, UK, *www.ox.ac.uk* 4x
University of Pau, Pau, France, *www.univ-pau.fr*
University of Queensland, Queensland Brain Institute, St Lucia, Australia, *https://qbi.uq.edu.au*
University of Regensburg, Regensburg, Germany, *www.uni-regensburg.de*
University of Southern California, Los Angeles, US, *www.usc.edu*
University of St Andrews, St Andrews, UK, *www.st-andrews.ac.uk* 2x
University of Strasbourg, Strasbourg, France, *https://en.unistra.fr*
University of Strasbourg, ISIS, Strasbourg, France, *www.isis.unistra.fr*
University of Stuttgart, Institute for Computational Physics, Stuttgart, Germany, *www.icp.uni-stuttgart.de*
University of Sussex, Genome Damage and Stability Center, Brighton, UK, *www.sussex.ac.uk/gdsc*
University of Tehran, Tehran, Iran, *www.ut.ac.ir*
University of Texas (UTHSCSA), San Antonio, US, *www.uthscsa.edu*
University of Tokyo, Tokyo, Japan, *www.u-tokyo.ac.jp*
University of Tuebingen, Tübingen, Germany, *www.uni-tuebingen.de*
University of Valencia, Valencia, Spain, *www.uv.es*
University of Vienna, Vienna, Austria, *www.univie.ac.at* 4x
University of Wales, Cardiff, UK, *www.wales.ac.uk*
University of Warwick, Coventry, UK, *www.warwick.ac.uk* 2x
University of Zurich, Zurich, Switzerland, *www.math.uzh.ch*
Uppsala University, Uppsala, Sweden, *www.uu.se* 3x
Utrecht University, Utrecht, Netherlands, *www.uu.nl*
Virginia Tech, Blacksburg, US, *www.biol.vt.edu*
Wageningen University, Wageningen, Netherlands, *www.wur.nl*
Wellcome Trust Sanger Institute, Hinxton, UK, *www.sanger.ac.uk*
Woods Hole Oceanographic Institution, Whoods Hole, US, *www.whoi.edu*
Yale University, New Haven, US, *www.yale.edu*

Perspectives of Czech Science 2018
PART 3: VIEW OF RESEARCHERS

We asked 200 researchers to share their motivations for coming to carry out research in the Czech Republic (CR), their expectations from the Czech Research Area, their inspiration from abroad, their needs and suggestions for efficient and high quality institutional and governmental/state support and services that can improve their research work. We asked researchers to describe positives & negatives, strengths & weaknesses of their everyday research work abroad and in the CR.

1) *What motivated you to come and do research in the Czech Republic? (Fig. 5)*
2) *Were your expectations from the Czech Research Area met and in what aspects? (Fig. 6)*
3) *What do you appreciate about Czech Research Area and why? (Fig. 7)*
4) *What examples of good research support and services you have experienced abroad are you missing in the Czech Republic and why? (Fig. 8)*
5) *What specific things & services would make your everyday research easier and more efficient and why? (Fig. 9)*
6) *What are the most important challenges science in the Czech Republic is facing today and why? (Fig. 10)*

Figure 5: What motivated you to come and do research in the Czech Republic?

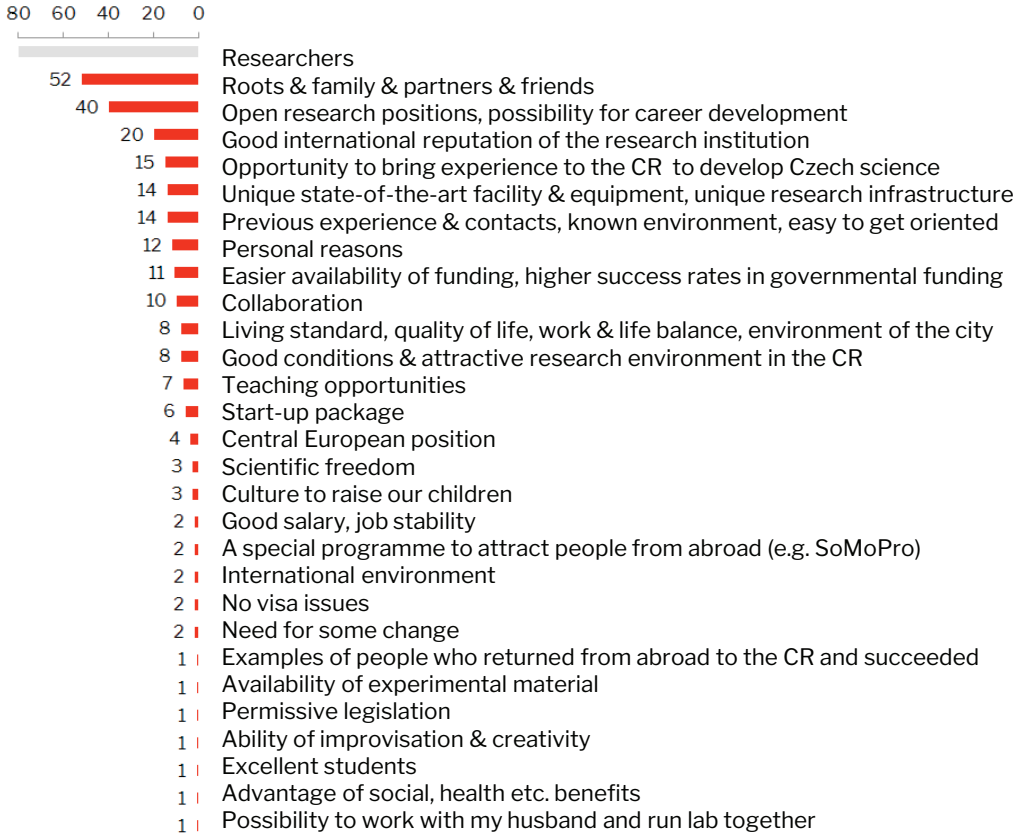
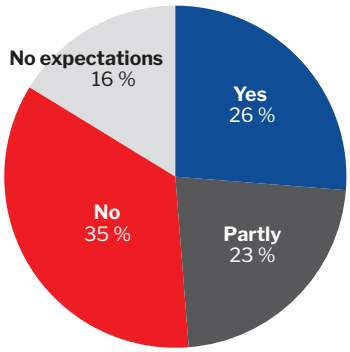


Figure 6: Were your expectations from the Czech Research Area (CRA) met and in what aspects? (A) 26 % of researchers are satisfied with the CRA, 23 % of researchers are satisfied partly, 35 % of researchers had different expectations & are disappointed with the CRA, 16 % of researchers had no expectations. The quality of Czech research environment is simultaneously appreciated (24 % of respondents) & critised (14 % of respondents). There are several other individual expectations which have been met (B) or have not been met (C).

A

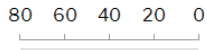


B

C

Figure 7: What do you appreciate about the Czech Research Area and why?

Figure 8: What examples of good research support and services you have experienced abroad are you missing in the Czech Republic and why?



	Researchers
19	Administrative support... (a)
19	More funding opportunities, more flexibility of funding, more freedom... (b)
16	Centralised core facilities with special lab managers & specialists... (c)
15	Start-up grants, support of early career researchers
13	Visionary leadership & responsibility from top management
12	Mentoring, clear career system, career development, training in leadership...
11	Support of foreigners (work permits, taxes, social security, health insurance, flat rentals)
10	Project support in writing grant applications, professional project managers
8	Competitive salaries
7	Childcare, kindergarten within the campus, lactation room
6	Open competitions for institutional positions; stable tenure track positions
6	International environment of the institution
6	Unique, state-of-the-art facility & equipment, research infrastructure
5	English as a working language, all documents, agreements, guidelines, etc. in English
4	Educational frame for PhD students, supervision of PhD students... (d)
4	Stores with commonly used chemicals & lab materials, flexible delivery of products
3	Institutional funding
3	Truly merit based evaluation, the pressure on top quality publications & venues
3	Fully focused on science, live by science, enthusiasm, high motivation; collegiality...
3	Happy hours & science chats, events
2	Funding of interdisciplinary research
2	More seminars, funding for speakers
2	Well defined positions Master, PhD, postdoc... , targeted education of PhD students
2	Open access institutional repositories, access to online libraries, local library
2	Updated website
2	Discounts for chemicals & commercial services, less prices
2	Ministry of Science
2	Tech transfer support, applied research
1	Inspiration: HHMI, EMBO, Wellcome Trust
1	Work ethics
1	Networking within the institution
1	Research environment
1	Unity of Purpose
1	International collaboration
1	Existence of various associations in the RI
1	Good laboratory practice
1	No “inheritance” of labs
1	Laboratory space
1	No feeling of hierarchy
1	Regular control of group leaders if they are doing things properly
1	Brain hunting
1	Data analysis, specialists handling big data sets & statistical analysis
1	Functional ordering system
1	No tenders
1	Moving researchers with instruments, grants
1	Changing laboratories in each step of the research career PhD, postdoc
1	Reintegration fellowships
1	Short-term student internships
1	Private funding bodies for basic science, private investors
1	Involvement of industry
1	Review of grant proposals is based solely on scientific novelty & answering big questions
1	Senior researchers are fully paid by the institute and never by grants, secured salaries
1	Tax exempt for university purchases
1	Fast bureaucracy e.g. the animal experiment approval process
1	Conference / meeting organisation
1	Outreach & networking via social media
1	Information
1	Sport areas
1	Dining space / kitchen
1	Edible food

(a) Administrative support, help with purchasing & shipping needs, IT support, HR Office: advertising & recruiting new employees; less administrative work

(b) More funding opportunities, more flexibility of funding, large long-term grants, no fragmentation of resources, short & easy grant proposals, short evaluation process, quick funding opportunities for new ideas, simple rules, less restrictions within grants, more freedom of grant holders to use money

(c) Centralised core facilities with special lab technicians (e.g. media & glassware preparation, waste disposal technicians, IT, etc.) & lab managers for operation of highly sophisticated instruments

(d) Educational frame for PhD students, supervision of PhD students, Thesis Advisory Committees, more formalised PhD school, students need to meet specific milestones

Figure 9: What specific things & services would make your everyday research easier and more efficient and why?

(a) Simpler procurement & funds management rules, less restrictions within grants, more freedom for use financial resources, setting salaries, money distribution within the project, more flexibility, simple reporting, cancelling the project time sheets, to avoid parallel submission of Czech & English versions of the project; Possibility to correct minor formal mistakes, support excellent science instead of good form-filling skills; Extension of GACR grants during parental leave, not interruption when the team is employed from the grant; There is very short time between announcement of a grant competition and necessity to begin the grant (1 month for GACR)

(b) English as the main working language; department meetings, websites, forms & documents, GACR guidelines, grant applications, etc. in English; it puts burden on all Czech-speaking researchers who translate for colleagues and limits the foreign researchers

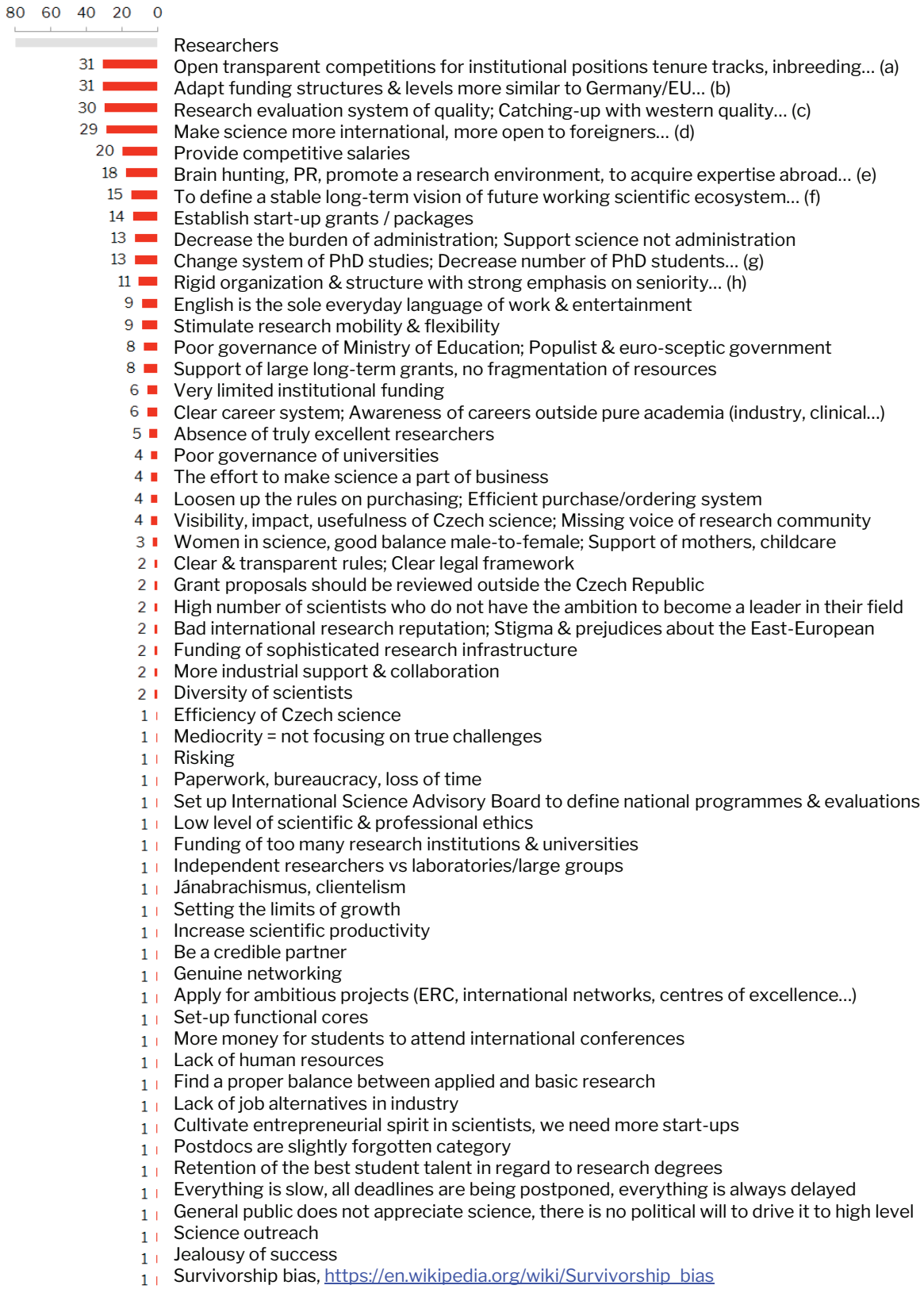
(c) University / faculty / institute leadership with scientific vision; clear rules; Problem solving mentality, always ready to look for solutions, not explaining why something cannot be done; Open-minded decision-makers; Financial planning; Stop managerial/political practices in science

(d) Higher competition of PhD students, competitive salary for PhD students, Short-term mobility funding for students to establish contacts

(e) Funding diversification, more ways to get funding; More support for young researchers, trust to young researchers; More funding of basic research

(f) More international environment, more openness to world, compare ourselves with the best researchers in the world; The environment supporting the high-profile research & talented scientists

Figure 10: What are the most important challenges science in the Czech Republic is facing today and why?



(a) Open transparent competitions for institutional positions tenure tracks; Courage to trust a new generation of scientists with international experience // Inbreeding, "Old dogs' puppies"

(b) Adapt funding structures & levels more similar to Germany/EU; Increased public funding; Efficient use of funding, Sustainability of funding; Non-transparent & chaotic distribution of funding; One grant agency distributing money for basic, health & applied research, too many grant agencies; The starting date should be free (grants have to start in January after being announced in December); Loosen up the rules on grant spending

(c) Research evaluation system of quality; Catching-up with western quality, support of excellence & talents; Implement regular evaluation of research groups; Quality of published papers instead of quantity, focused on content; Transparency; Get rid of mediocrity in science; Set-up high standards; Replacement of incompetent people; Public rejection of Syková, Bezouška types and people who support them; Lack of self-cleaning properties that allow development of self-citing teams like those of René Kizek, Vojtěch Adam

(d) Make science more international, more open to foreigners; Compete with international institutions; Critical mass of talents/excellency; Attracting bright students & researchers from overseas to build good international teams // Isolation

(e) Brain hunting, PR, promote a research environment, to acquire expertise abroad // Brain drain: researchers with money/potential are leaving the country, the best scientists work outside the CR (Jiří Friml, Marek Basler, Martin Jínek, Petra Hájková, Mirka Uhlířová, Jana Roithová, Jiří Bartek, Jiří Lukáš...)

(f) To define a stable long-term vision of future working scientific ecosystem; To define a strategy for long-term sustainability; To define real problems and quickly solve them; Vision where to go, what do we want, how to get there?; Vision what the Czech Republic expects from science, politicians not supporting such vision; no vision, no action; Installing best people as leaders

(g) Change system of PhD studies; Decrease number of PhD students; Efficient selection of PhD candidates; Work on motivation, self-confidence, communication & collaborative skills; Old fashioned education system based on memorizing things

(h) Rigid organization & structure with strong emphasis on seniority; Old conservative researchers holding their positions and power; Large resistance of the current structure to make changes; Get rid of old habits; Mentality of average; Lack of ambition; Egoism, promotion of ego; So many people doing science in socialist times haven´t realised that things have changed

For more details see the Supplement 2: "Researchers' remarks on the Czech Research Area".

Perspectives of Czech Science 2018
PART 4: VIEW OF SCIENCE MANAGERS

We asked 140 top science managers of Czech research institutions to share their visions and strategies that in their views can improve everyday research work in the CR.

1) *How do you motivate excellent researchers to come from abroad to the Czech Republic to establish their own independent junior/senior research group at your research institution?*
2) *Which incoming researchers have established their research groups at your research institution in the last 10 years?*
3) *How do you select the best junior/senior researchers to become junior/senior group leaders at your research institution?*
4) *What are the needs of (incoming) researchers?*
5) *What type of services and support do you provide to (incoming) researchers at your research institution and why?*
6) *How and how frequently do you evaluate junior/senior group performance at your research institution and why?*
7) *What are the most important challenges science in the Czech Republic is facing today and why? (Fig. 11)*

Details can be found in the Supplement 3: "Twenty two managerial approaches of Czech research institutions to attract, select, support & evaluate incoming researchers".

Figure 11: What are the most important challenges science in the Czech Republic is facing today and why?

(a) Lack of long-term vision, clear scientific policy, legal rules, strategy at all levels, stability of funding, sustainability of research groups, stable & predictable framework...

- In many universities and institutes it is now no ambition to risk research with high quality
- Extremely complicated government structure of the Czech universities involving Academic senates at the faculty and university
- level as key players, where senior researchers and research leaders at the institutions (full professors) are often under-represented.
- A large number of research institutions has been established within the previous programming period (OP VaVpI). One could thus say that we have an excess infrastructure capacity for science in the CR but not enough money to support it in the long-term and not enough talented people to work there. Certain consolidation and concentration of capacities and activities could increase efficiency of the whole system and make it more sustainable in the long-term perspective.
- Political decisions that may divert research funding from some fields to others (especially from basic to applied research, or even directly to industry), strong pressure towards short-term economic profits from R&D
- Expected strong increase in redistribution of R&D budget that will have to be allocated to many recently opened EU-funded centres during their sustainability period (such money may have to be drawn from other resources)
- To select the best institutes that will be responsible for only science (without teaching and other activities). These 3–5 promising institutes in the CR will be fully supported and they will hire only the best postdocs in order to educate them to become the best scientists – it is a model of NIH institutes. It is good that e.g. the CAS institutes enjoy a broad independence, but it would be often helpful if the CAS leadership (especially the 3 deputy chairpersons) push for improvements at underperforming institutes (however, there is a danger that such an activity might be counterproductive, if the chairperson has incorrect ideas...). I am afraid that only a minority of the institutes (or university faculties) elect good enough (progressive, demanding) directors and deans. Some people claim that the present system based basically on election by a subset of employees should be replaced by appointments by some "enlightened" personalities and politicians; I would not agree with such an idea.
- There should be much more support for the real excellence, similar to Praemium Academiae; there should be at least 5-times more such awards, which could be even prolonged, if successful. Bypassing a deep artificial gap between applied and fundamental science. The two research communities in the CR split vigorously few years and for example many projects with bit of each (which are often very useful) have little chance to be funded. Nowadays the best chances have either very theoretical work (GAČR).
- Lack of suitable and applicable legal rules of home and remote office work
- Extremely strict and inflexible conditions of some national grant schemes
- The rigidity of the system – low ability to adhere diversity into the system (leaky pipeline); Underestimation of soft skills and leadership skills of researchers
- Underestimation of professional management and administration and its role for the research institutions
- Not so much space for young generation – especially in medicine
- Publish in a high prestigious journals, including Nature, Science, Cell
- New system for research assessment / too many risks, too amateurism
- To put the institutes of the CAS and university departments closer ("České Budějovice model"!), e.g. by establishing a common postgraduate school
- To put institutes of the CAS closer
- Scientist should know much more about start-ups, IP protection – other possibilities how to sell their results (not only articles), in this way – more start-up projects for scientists should be provided Growing salaries in industry
- No motivation
- Clientelism
- Brain drain
- Climate changes and their impact to agriculture and forestry. We are facing the most dramatic climate change from 1900. It is necessary not only to study these changes but also to develop new strategies used in the mentioned sectors.
- Advanced genome editing systems. Discovering of CRISPR and following technologies enable us to edit genome of all systems extremely easily. We will use these methods to add specific features to plants and animals to be more resistant to climate changes, to produce more secondary metabolites, peptides or proteins etc.
- Security challenges. There are more and more threats including IT security on one side and food and environment security. We are working on development of methods to detect pathogens in different environments as well as we are focusing on issue connected with artificial intelligence.

Perspectives of Czech Science 2018
SUPPLEMENT 1

List of researchers & science managers participated in the survey

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Researchers' remarks on the Czech Research Area

Researchers

Ambition to do breakthrough discoveries. I have feeling that the system and thinking of too many Czech scientists is set up to just "survive" and compare yourself to your neighbour (when real competition is not in the CR). Grants are small and fragmented and there is a pressure to publish incremental small papers (otherwise you take a risk of losing funding/not getting it next time). Numbers of papers are more important than their quality and real impact in the field. I have also issue with motivation/work ethic of many students (in comparison to what I experienced at the top US institution). Also, grants are for short time – in molecular biology it takes at least 3–4 years to conduct research and publish it in top journal (top 5–10 %).

The discipline is much relaxed: especially most of the Czech students have much lower ambitions and therefore also efficiency than in abroad. This might be given low salaries of PhD students and postdocs (low income = low activity), but also because they do not see their living in science (clearly, not everyone should be a group leader and there are almost no other permanent employees in the research here – no place for highly-skilled technicians, lab managers, etc. that are essential for top research).

Generally "focus on science", at all levels-PhD students, Postdoc, group leader, funding agencies, universities... In the USA everybody in academia "was living it". Here somehow there is always some administrative issue or other "issue" and lack of enthusiasm. Also academic environment needs to be international. Scientists without successful experience from outside of the Czech Republic should not be allowed to be group leaders – that would disrupt inbreeding which is present everywhere in Czech science and it is really not healthy.

Limited motivation to do the research right – too many grant agencies (especially those financed by various ministries) do not control the quality of the outcome of the research, but only its quantity – how many "pieces" of the outcome are earned. This, together with generally insufficient salaries in the research demotivate people from doing reasonable research making sense. Many people do, because they have internal motivation to do so, which is wonderful, but the system cannot be based only on this, because many high-quality researchers would then leave for abroad, decreasing the local average.

Better strategy to accept people from abroad and work with them – foreign students (we have almost no concept how to advertise ourselves) and foreign employees to strengthen our research, improve its quality and even replace our people going abroad. This is getting better, but very slowly and insufficiently. We need a lot of foreigners here since otherwise the system is not prepared for them and they do not feel good with us. Having more foreigners here would also motivate growth of competitiveness in Czech students and researchers – they need to know that there are people around working hard to earn their good (!) living in science.

I appreciate the possibility to study particular problem, because it is just interesting. Despite the fact that the research funding is more and more applied (often pretending it is applied), and more and more difficult to obtain, it was possible (in 2008) to get funding for studying biological phenomenon just for the sake of understanding interesting biology. I think that this atmosphere is still present in scientific community of this country more than abroad.

A critical mass. The vast investments into building new research centres during the last 15 years or so indeed have had very positive impact. The instrumentation in the CR is comparable to that in abroad. This has clearly attracted some researchers who came to the CR to set up their labs. So there are quite some well recognised labs in the CR already who do research that matters. However, there are even more researchers who, to be to blunt, do a substandard research at their best. This is not because people in Sweden or Switzerland are smarter than here, but they have learned how to do a high quality research by being exposed to it on daily basis. This is not always the case in the CR. So there really has to be a change from building new and new centres or (often virtual) institutions every 5 years with the same crowd, to bringing people who really have potential to make a difference from outside and supporting good quality labs already established.

I notice a huge difference between Czech and some universities abroad in terms of collaboration between fields. In case the researcher discovers some interesting finding or phenomenon, in abroad (s)he can contact immediately people from other fields of expertise. I don't see anything like that at my institution, people are mostly closed at their departments, or even worse, trying to hide their stuff from others...

In my former lab I worked with people from 15+ countries from different research backgrounds. It led to great exchange of experiences/ideas. It was not acceptable to do PhD and Postdoc in one institution (or even lab!). Here scientists sit too long at one place and it leads to stagnation (personal & institutional).

I met better scientists in the CR. I think that researchers from Czech have greater general knowledge and ability to improvise, which might (though not always) lead to great science. I also think that Czech researchers are more able to think out of box.

A bad international research reputation, which is partly explained by simple prejudice, but also on a general lack of ambitions/openness in the way of doing research in the CR. This is especially true for researchers that spent their entire career in the CR. This lack of ambition also feeds on a complex of inferiority compared to "Western" research institutions. I would say this is the biggest challenge: to change it, it is not enough to promote people to do research stays abroad, it is also important to renew the whole educational program at universities: what I see at my university is that the Bachelor/Master programs were made 30 years ago and haven't moved much, therefore producing new scientists with exactly the same "low ambition" state of mind. And the problem is that, like everywhere else, too few researchers are interested in taking care of levelling up ambitions for teaching. At my institution, I am struggling to implement new programs since some (relatively old) researchers do not want to change this.

There are issues which are very institution-specific. For instance at some institutions, a PI has minimal freedom to define salaries and to provide bonuses. Similarly, the amount of money we have for running the lab (buying new chair, repairing fridge, buying stationary, sending student/postdoc to workshop) is quite small – and very similar between groups that have grants, and group that do not, or even do not apply for a grant. I know it is a problem of certain institutes and it differs remarkably in the country.

Responsibility and recognition. I have my group paid from my grants. So I have a lot of responsibility. But in the university system I'm on the toddler level: the postdocs are even in the same job category as I am. I'm not officially their boss, this is the Head of the Department. Between me and the Dean there are three other people (Head of "Group", Head of Department, Head of Section) with executive power. At least one of them and sometimes all three of them need to sign any document I produce. This creates huge diffusion of responsibility. There are too many people that should be responsible, so that no-one feels responsibility in the end.

Old dogs. "You can't teach an old dog new tricks." It's amazing how this is true also for views of people in academia. Most importantly, many people doing science in socialist times or in the nineties haven't realised that things have changed. They are used to low number of graduates, with numbers sufficient only to replace people being retired. In that view, anyone looking only a bit promising needs to be kept as it'd be seen as a huge loss if they left science, or their chair more precisely. Hence it needs to be prevented. Mobility, apart from few months visits, is essentially a bad thing. That's one of the reasons why we have so many retention programmes (Junior GACR, Podpora postdok of AVCR, Postdok GACR that some people want to resurrect, ...) or why some people don't see 8 year PhDs as a problem, the person will stay anyway. Other popular opinions and views are: a) Universities are for teaching, AVCR is for research. b) Low salaries are fine, we didn't get paid a lot either. Many senior researchers don't realise that if they used the same money to hire two people instead of three (the two having then 1.5 times higher salary) or one and used the money left for a start-up package, they would be able to attract better candidates who would bring grants so that the actual cost for institution would be lower. But yes, these people would be doing something else "than we do here", so we don't need them anyway.

Brain drain is worse than ever. The best people leave, acquire expertise abroad, build international reputation and never even consider coming back (I mean 'our' EMBO Gold medallists Friml and Basler, Martin Jinek, Petra Hajkova, Mirka Uhlirova etc.). Even when we finally do attract some talented people, they leave when their expectations are not met (Bojdys, Roithova). Senior people from abroad who do want to contribute to the development of Czech science are pushed away.

Students

We lack standards for international PhD students. When I was in the UK, I knew what my stipend will be for my whole PhD and everyone had the same. Once I was in the system, the only administrative thing to be done was to send the money to my account. In the CR, I have to remember every month to send a stipend to my student. Other students are paid by DPP/DPC, others by contracts, it's a mess that takes time to administer. My student is international yet studies in Czech, as the English programme comes with hefty tuition fees which the grant agency wouldn't pay, unlike in the UK. I need to discuss these things with the prospective PhD students when interviewing them which wastes more time, creates confusion and deters some of them.

The giant hurdle is finding good students and postdocs (once you acquire the money through funding) to accomplish the aims of funded projects. The issue with the students is most likely due to our specific location, but the inability to pay postdocs a competitive European salary makes it challenging to recruit the best candidates.

I was surprised how extremely hard it is to find PhD students and postdocs. I had resources for well-paid positions for which I expected I would get many applications, but I had hard time getting any reasonable people interested in those positions, none of them from the CR.

Large stipends for research students (masters and PhD levels) to encourage them to stay and study/research in the CR, rather than neighbouring European countries (e.g. Germany) that offer larger stipends'. I have lost two PhD students due to low stipends and the complaints of students not being to adequately manage (to some extent it is possible to offset this by employing students on ones grants, but because this stream of funding is often unsecured at the time of student's application, often as the grant application is still pending, this causes uncertainty that acts to the detriment of recruitment).

PhD students. Solve how all the PhD students from basic research will continue their carrier. What is the future of those who do not plan to pursue a scientific carrier? What is the point of their studies? Make a policy that would re-think the number of PhD students, postdocs and their future possibilities.

Somebody should tell the Czech students, that they should really go abroad for their PhD or Postdoc. It's absolutely crucial part of the professional development and a lot of students just think they are fine if they stay at one institution for their entire professional life.

PhD student funding system. The state pays to the universities per capita of CZ PhD student. Accepting foreign (except for Slovak) students is associated with much higher costs. This strongly favours Czech PhD students, sometimes without real interest in doing science.

The next generation of researchers imprinted with old dogs' views. Former students, now members of groups of old dogs. Some might think they are great because big professor has chosen them to work in their department or group. But they have never gone through any explicit comparison or evaluation such as when one applies for a postdoc abroad. They think that independence means that they can pick what sample will be measured on Thursday. And they can write a Junior grant about that and they can get it from GACR (with aggregated success rate maybe over 50%), so they really can think they are doing everything right and well.

A good educational frame for PhD students. In the CR, there are barely any courses/training adapted to a PhD level, none of them are mandatory, the supervision of PhD students is very insufficient (no official PhD committee ensuring the project is going well, PhD students are not closely supervised by their supervisors, PhD students have a second job, finish their PhD in more than 6 years). All of this was controlled in Sweden, and pressure was put on both supervisor and student to finish the PhD in 4 years maximum.

Czech universities should have more funds for students to attend international conferences. It's essential that students experience the international environment as soon as possible. It's relatively small-scale funding, which can have a huge impact on future career of the students, but I haven't found any such option at my university. I have experienced an interesting model of funding conferences in Switzerland: students could get funding for 1 conference a year and they would get reimbursement according to their status (Master student – 90 % of the costs, PhD students – 75 % of the costs, Postdocs – 60 % of the costs). Such system keeps students interested in the most cost-efficient way, and at the same time, the motivated students will be able to attend.

I've seen many junk or formal forms, it'd be good to get rid of them. For example, I spent few days with the "Individual student plan of a PhD student". This included not only writing it and discussing or searching what should be put in but also trying to get access to the IT system for the PhD student who has not yet arrived. Through these days I realised that the ISP is a completely useless thing, it doesn't matter anyway, and I should simply put in some acceptable junk as everyone does and send it further. This then went for approval to the Head of Department, then to doctoral committee, to the head of the committee, and finally to the head of all the doctoral programmes. I doubt that these people spent more than minute on the Plan and maybe only checked if the number of exams is sufficient. I don't have a problem having responsibility for my PhD student. I don't think that the dozen or more people sitting in the doctoral committee who have never met him feel any responsibility.

Positions

Planning and support in long-term. A system of tenure track positions is mostly missing here. The current system is simply a "grey zone" without clear and transparent rules. There are ways (incoming grants, EU funds) that allows to hire researchers from abroad with fat salaries, but there are no meaningful ways how to attract them stay after the grant expires – why would a competitive scientist accept a position of assistant professor with 70–80 % salary drop, no tenure track and no institutional funding (still typical for many universities)? It is all about money, as always. But I do not think the lack of money is the main issue, it is about how is the pile of gold being distributed. It is slowly changing in a way that "money starts to follows the quality", but there is still a lot of work to be done, so the difference between the best and the worst performer is indeed substantial (hence motivating) in terms of funding and not some 10 % as we often see now.

Increase the dynamics of research groups. Make a fair system of opening new positions for young group leaders. There should be several of these at each institution, there should be a fair open competition for such a position and the person should have aprox. 5 years to prove his/her abilities, and obtain a start-up package including sal-

ary, technician/administrative support and salary for 1 student. Nowadays it is possible to get a position like this, but there is no system and no rules.

It is quite important for young people who are starting the lab, to get decent start-up money. Without that, they are immediately forced to team up with somebody "established", and this makes the whole system rigid, and independent position is, in reality, not so independent.

Lack of support for junior groups. It is so obvious. We have to invest in the future. Modern science is about mobility and Czechs are no exception, the best talents go abroad but they want to come back. There is no reliable mechanism to bring them in.

Transparent system of rules for acceptance of researchers for permanent positions = there is no strategy to improve the research output in long-term. Most researchers are accepter for temporary position first and they are not given any instructions about the expectations of the institution to prolong their contract for permanent. This is done without clear rules. Also the system of attestations should be adjusted to slowly improve the research quality and not only get rid of the worse of the bad.

Permanent staff members who are neither researchers nor lecturers. Both in DE and NL such people are responsible for maintaining advanced instrumentation which is being used by PhD students and research staff members. They ensure continuity in operational know-how for expensive instruments. In the CR, this maintenance is done either by PhD students or by senior researchers because institutions are not willing to pay for non-research staff.

We also understood that the cost of living was less in 2009 Czech Republic, so we were willing to accept a 70 % reduction in our salary. However, it is very hard to argue that the current cost of living here is significantly cheaper than most places in Europe or the US. All large expenses cost approximately the same or actually higher (i.e. houses, cars, electronics, vacations). It is frustrating that such a demanding job doesn't allow for routine reasonable wage increases as a scientist reaches new levels in his/her career due to continuous achievements.

It'd be helpful to agree on standards, especially for salaries. First, life is much simpler if one thing (postdoc salary, PhD salary) doesn't have to be discussed every time when hiring a new person or writing a grant. The negotiating position of a young researcher is not so strong before getting the actual grant. Therefore, I might not be able to offer high enough salary as someone senior without postdocs from abroad can think that X thousand CZK should be enough. In any case why should one PhD live on a stipend and other on twice that when they do the same work? Second, having standard and sufficient salaries is also a simple way how to improve quality as higher salary attracts more applicants so that one, or the selection committee, can select the best one. In fact, selection from several candidates for a job position is the basic measure how to improve the quality of institution, a one which only few institutions here have adopted. At junior group leader level, the best candidate will more likely cover their salary from grant so the overall cost for the institution would be the same or lower than in the case of a person with a smaller salary that didn't go through a proper selection procedure. Problem solved.

In Germany and other countries, group leaders have a stronger position, because they sign employment contracts themselves and the grants go directly to them. This makes also moving to another institution, with moving people and instruments with them, much easier than in the CR. Senior researchers are also fully paid by the institution, and this salary is NEVER replaced by grant money when they get a grant. In this way, in times of crisis with less grants at least the salaries of the long-term staff are secured, contrary to the CR where huge salary cuts or even layoffs for senior researcher can easily be the consequence of such situations.

English
People speaking English. This is obvious but if we want to attract people from abroad we need to have everything in English as well. Some people that were born after '89 still don't speak reasonable English. For example, I had to translate in a bank for my student when he was opening a bank account. I also helped some of my postdocs with accommodation in the student halls of residence when they arrived as the staff doesn't speak English.

I would say the greatest impediment to realising any expectations one may have is the language. One acknowledges ones responsibility as an immigrant to integrate into Czech life, but the work within the sphere of international scientific research is conducted in English; hence it would smoothen the transition is institutes (e.g. support and administrative staff) and funding agencies (e.g. guidelines and announcements of calls) employ English as their primary business language (in addition to Czech – as most, if not all, modern day native scientific researchers use English in their daily work).

More support to foreigners – this is very much needed as moving to the CR is not as easy as moving to a western country due to strong language barrier. Not sure what specifically should it be, but maybe an online discussion group, handouts on how things work in the CR (public health insurance, flat rentals, etc.). Maybe we should ask the foreigners and pay them to help prepare such support.

Mentoring
Support of a mentor scientist. An established PI that would occasionally meet with a young PI to discuss different problems associated with starting a new group. A successful scientist that can give you constructive feedback about your scientific endeavours and your plan to achieve them. Ideally, this responsibility would not fall onto the head of the institution or boss of the new PI, a person who might not be in the best position to offer advice that is truly best for the individual and not inspired from some agenda of the institution itself.

In addition to a group leader in abroad, students and postdocs had allocated mentors (postdoc/senior researcher/group leader of a different group) – their role was to help with both experimental/technical part, but also with career progression and potentially they were person to discuss if you have problem with your group leader. It was very useful to have someone else who should help you. And they were usually nice and helpful. In the CR, I would feel strange asking someone for career advice etc (especially when you come as a new person).

I have seen very poor or even non-existent mentoring in the CR. It starts on the level of PhD students who in many places do not have Thesis Advisory Committees (supervisors are too busy to participate in such events), postdocs are completely unorganized and almost completely lack the ambition to continue in the scientific career (no one leads them towards it, they are useful to their existing PI's), junior PI's are left to fend for themselves – they almost completely lack the notion that they could and should seek a better position elsewhere at a certain point in their careers.

Support
Administration doing its work itself, not asking me to do it (even illegal things!) For example: having a dedicated person at the university that would do the admin stuff for postdocs (getting visa, accommodation, etc.). We have severely understaffed grant department, so they can't do the work they should do. For example, one has to calculate the institutional part and grant part of salaries in GACR grants. I have no understanding why the management is fine with this state.

While I think that the administration/support facilities have improved over time, our institution still lacks a general procurement agent responsible for all purchasing and shipping needs. The project department has also grown over the years and now offers more services, but this is still not on the same level as many other international places of research. Also an office fully responsible for purchasing big equipment and dealing with open bids. Finally, a good human resources office would be instrumental in promoting our institution to future students interested in a scientific career or to generally inform the public of how their tax money is being used to advance science. It would be amazing if these HR people could assist PIs with the time consuming the burden associated with advertising and recruiting new employees.

Real help from the administrative staff – e.g. when I had a health and safety training in the UK, it was in a small group, we went through the building and I learned a lot about the best practice and safety regulations of my work. Here we have regular training for many people which does not contain almost any useful information, the person doing the training has no idea about our work, is not familiar with the situation in the building and cannot give us any real advice – the training is only to show its existence required by the law without any real benefit.

Centralised services instead of every faculty or department having a specific person for the same task. We have to do a lot of tendering to buy equipment. For that, the faculty hired a lady which sometimes takes ages to respond. Having a centralised university office would mean that (i) there would be more people so that at any point one can reach someone, (ii) there would be people that have more experience, (iii) we would save money. I had similar experience with faculty student registry office, they didn't know the current admission requirements two weeks before application deadline and told PhD student to apply for incorrect visa, and when getting a postdoc from abroad, I've heard that some faculties even try to prohibit people from getting a postdoc from outside the EU as they don't know how to process the paperwork.

Career-oriented support stuff including help with grant preparation (if you want to apply with Marie Curie to Cambridge, they almost write the half of the application for you and provide huge help to make is as good as possible (they correct what you write and advice on how to improve it), they know all the tricks. In the CR, you are alone. There are some seminars on how to write a good for example Marie Curie proposal, but it is different than a "personalised" project proposal expert who reads and improves your application. Also, in Cambridge, you could ask for help as "what should I do if I want to achieve this and that in my career".

My experience from abroad is that scientists really do just research and for administration of grants etc. they have massive support from high quality administrative workers. In the CR, most of this stuff has to be done by researcher himself/herself and therefore he/she loses time which should have been spent to do actual research.

Administrative support. During the 6 years I have spent in abroad, I did not have to do any administration (I had to write one grant resume for one Fellowship – I had 3 individual fellowships during those 6 years). Everything else was taken care of. Budget, ordering, reporting, travel. I could fully focus on research.

More administrative support (e.g. help with PhD students, no ridiculous language requirements imposed on international PhD students, no uneccesary and expensive degree nostrification, support with finding housing, etc.). Now, scientists get very little administrative support from their institutions and spend too much time doing such things instead of research.

People in management that know what support should look like and try to move as much administration to the administration people. I was quite often told to 'find out' some information concerning the exact use of grant money. For example, I was told to find out if investment money from ERC grant are 'capital money for investment' or 'investment money for capital' or something like that, I have no idea about what the difference is, and I should not have to care about that.

Simple forms. In Vienna, the form used to claim expenses from a business trip required cost of travel, hotel, conference fee (three numbers) plus personal details. In Prague, we have a form which cannot be described without a brain damage. I had to ask where I should put conference fee. I have to find out the time when I crossed the border. We are also expected to calculate per diem costs ourselves.

Forms with instructions, administration that tells you what they want. Our administration has read too much of Kafka. For example, I was buying expensive equipment and I had to fill some form to do that. Few days later I get a call that I should fill another form which contains data from the first one. After I mentioned that I don't have another document that the administration wanted, the lady said that I don't have to fill the second one. I actually discussed what forms and documents I need with that particular lady two weeks before and she didn't mention that.

Facility
Institutional service facilities well supporting researchers – for example complex microscopy and imaging facility or FACS with well trained technicians (bring the sample to well serviced devices and get a professional help) – very often we have really great equipment in the CR but it is not used as much as it could and there are no technicians specifically operating the equipment and ready to work out specific solutions with the researcher. Often the high-tech equipment is bought for one lab, not used enough and it is operated by researchers who do not have time to take a good care of it or get a proper training etc. We need to learn how to build better infrastructures, how to share equipment but for that, better visions for infrastructure supporting our real needs are necessary.

Both the institutes I worked at in the UK had a number of highly centralised core support facilities (e.g. media and glassware preparation, waste disposal technicians, IT). In my experience these are lacking from most Czech institutes and one would perhaps consider some specific centralised funding (e.g. from government) to ensure the basic needs of research institutes are adequately met, and not just pieced together in an ad hoc and often unsatisfactory manner.

Functional cores. Most molecular biology labs now need to incorporate genomics, proteomics, lipidomics and metabolomics data into their research. Labs that have access to these services are at a great competitive advantage over all others. Therefore, a state-sponsored -omics core run by well-trained individuals that work strictly as a service (i.e. pay) for CZ labs would be key. Here I see a major weakness of the CRA. While we are good in acquiring expensive and top-notch equipment, we are not able to hire experience staff that would run and maintain it. This is lately extremely disappointing and demotivating.

Central services. We have some but far less developed than elsewhere. Central services are frequently big bodies that provide expensive analyses for the whole institution – very typically here either different labs do the same "at small scale" or outsource the analysis to private companies, which is then more expensive than in-house services.

Available funds (in the frame of the institutional budget) for investment funding is very limited, especially considering the very low limits on what is even considered an investment (40 000 CZK). As scientific projects often lead a lab into new avenues that are important to explore, it should be possible to purchase the equipment needed to complete these tasks, within reason. Of course, it is even better if there is widespread interest for an instrument within the institution.

Technicians preparing media, washing dishes, etc. payed by the institute and working for the whole institute. In the CR, it is usually up to a group leader if he employs a technician (and for example our boss here could have a technician payed by the department and he refused and said we could do it all ourselves – making everyone in the lab angry). Having such support can save lot of time which can be dedicated to "proper science".

Permanent skilled technical staff – e.g. in UK it is typical that 1 leading researcher has at least 1 lab manager on permanent position and perhaps the department share several skilled technicians on various advanced techniques. This is not existing at our institution – only researcher have permanent position and everyone else is on grants, which is very vulnerable for discontinuity and less of results.

Purchase

I believe, the CR has done an excellent progress in being able to provide funds for its scientists. It is also now able to attract and keep high quality scientists. However, the thing that didn't change yet is bureaucracy. I would compare it to the CR buying high quality horses (scientists), providing them with excellent food (funds) but still keeping the reigns very tight (bureaucracy). Such a horse will never be able to run in a high quality and competitive way. The change in bureaucracy needs to follow too. It is crazy to constantly expect scientists to go through tenders with so many of their orders. Nowadays, you have to go through tenders with orders over 40 000 CZK. 40 000 CZK might have been a lot of money many years ago but today you can't even buy a decent water bath or shaker for it. I don't understand the paranoia behind the option of letting scientist decide and buy what they want, from whom they want, from the money that they so painstakingly obtained. Some argue that scientist would put the money in their own pocket through ordering from their suppliers, which would lead to corruption. I find this reason to be ridiculous. If other countries trust their scientist enough to allow them to spend their own funds the way they find fit and it works perfectly fine (there are certainly no tenders in USA, they have no such concept in basic research), then why is it so difficult for the CR to trust their scientists too? Many scientist work with extremely dangerous chemicals and bacterial and viral agents and the state trusts them that they will not use them to wipe out half of the country or the world. So, if they trust them in such an important matter why do they have such a difficult time in trusting them how they spend those several thousands of CZK from their funds! Nowadays, if a scientist doesn't use his/her funds wisely to help him/her do needed experiments, he/she will not produce results, then they will lose their lab and with it the status in the society. That is far more important for the scientist than to pocket a few thousands of CZK, therefore the scientists are very careful how they spend their money. Therefore, the CR should give a chance to its scientists to prove that they are not a bunch of money pocketers and that they can wisely spend their own money and make their own decision regarding what they buy and from whom and for how much. Tenders should be modified or completely dropped in basic research. They should certainly raise the bar for the need of tenders. Let's say, for example, only items over 2 million CZK should need to go through tenders.

I am now in the situation where I have secured myself an excellent funding, I have great projects and ideas but I can't get hold of the crucial equipment I need for doing those experiments because of the enormous time length needed for the tenders. I ordered the most basic equipment (microscopes, centrifuges, incubators, freezers...) in December 2017 and now, 6 months later, they are still not here and will not be coming for another 6 months at least. However good a scientist is, he/she can never be competitive with foreign scientists if he/she can't get hold of the most basic scientific equipment even though they were successful in obtaining big money funds. As a molecular biologist, I am being prevented to apply my talents, money funds, enthusiasm and ideas towards making Czech science better because I can't get hold of my basic equipment. As of now, the only thing me and my people can do in the lab is to vortex our own fingers on our mini-vortex machines (the big ones need to make it through the tender first). In the US, if you want to order a scientific equipment the only limitation of how fast you will actually have that equipment on your bench is the speed of your internet connection and the speed of the shipping company. In the CR, we need to get closer to this scenario in order to be really competitive with the rest of the world and to fully realize our scientific potential.

The system of tenders in the CR can be very frustrating. I know that this is not easily solvable problem. But I lost at least half of the year just by buying instruments necessary for my everyday work. If one needs to buy more expensive instrument it takes basically one year. The worst think is that even money which are in place and need to be spend within grant/funding which is running will be lost in many cases. e.g. ERC refunds money for instruments which are in use for the duration of the project. I lost part of this money because I had to wait one year for the whole tender procedure... I have lost this one year also in science. I did not want to buy the instruments because I had a lot of money but because I needed it for my research.

The bidding process is incredibly slow and often results in labs not able to procure the exact reagents needed. This often leads to wasted time in experiments to realize the new reagent doesn't work the same. In the end, the PI must waste more time figuring out how to cheat the system to get the item we need. We currently need to justify all of our spending every year, so it seems that these strict limits are redundant and simply have the effect of making the labs inefficient and we all know scientific progress is slow to begin with.

I am significantly burdened on a daily basis by our purchasing system. The requirement for Czech distributors often makes purchasing a complicated and confusing task, not to mention this must increase the cost of the item. Further, while trying to buy an item, you are often to ask to email them in order to get better price. Purchasing should be unified by the institution and the best prices should be negotiated. But this collides with our laws about open bidding process, making purchasing in the CR very frustrating.

Funding

Institutional funding is inadequate in the CR. Scientists are constantly writing grants and grant reports which severely limits their creativity and the ability to ask big question not to mention the distraction from actual scientific work. Especially junior scientists are vulnerable in such an environment. Creative minds are superseded by skilled operators who build scientific imperia beyond their scientific abilities. With all that experience in grant writing, we are not better off, since our scientists do not reach the investigator driven ERC and similar funding.

If we want to compete with colleagues abroad, we need to have similar environment. For example, Czech funding scheme should match international programs (we don't need to invent something better... we just need to keep it similar to existing principles abroad). If somebody applies for EMBO Installation Grant, does not get it but has still very good score, there should be some funding scheme in the CR. Similarly with ERC, HFSP. There are several good reasons: (i) we will encourage people to apply for these grants more, (ii) it will be more efficient for applicants (they will focus on the scientific part of the proposal, not on understanding the forms...), (iii) it is also efficient for funding agency (and cheap) – all the scoring is already done. And ERC, EMBO, HFSP have good reviewers. Similarly, it would be great, if GACR (and other funding sources) keep the same rules for a while. Adjusting and learning new rules every year is amazingly non-efficient. If we change traffic rules every year (because we have some improvement), it will not make driving either safer, or more efficient.

Science stops in the CR in January, everyone is just writing grant reports for funding agencies. I was shocked to see what level of detailed accounting scientists in the CR routinely do. I have come never even close to that level of grant micro-management; for this we have experienced people in a grant office.

Lack of domestic funding opportunities, or at least dissemination of the options available.To be more specific, the Czech Science Foundation (GACR) is the primary route of funding for a lot of researchers (European/International grants are more like the cherries in the cake – good if you can get them) but there is only one call per year! There is no reason why the GACR could not make more than one call per year (I understand its Polish and Hungarian counterparts make at least two calls per year). This would soften the blow of not getting a grant funded by minimising the time in which one can reapply with an improved application (potentially including fresh preliminary data) from what is now over a year (i.e. from the point of initial application, through initial decline, to acceptance of an improved grant proposal, one would have to wait in excess of 18 months until the funding became available.

Funding landscape in the CR is a jungle. It needs to be civilized. How can it be that one of the most impactful researchers in life sciences is 'rewarded' for a Cell paper by an audit from the funding agency (GACR) and a hefty fine? How can it be that a finished grant competition is cancelled? Why are so many structural grant resources concentrated into the hands of a few grant wizards without proper accounting for scientific productivity?

When I started my independent career I was eligible for application in our main (I believe it is supposed to be main source of funding) grant agency (GACR) within Junior grants where I was successful. But after expiration of this grant I directly have to compete with all the seniors in the CR. I know that few of my colleagues from the institution who came from abroad did not get funding from GACR for 4 years. I am absolutely sure that this is not because they do not do good science (they publish meanwhile in very good journals) but simply because one cannot compare people doing science for 20 years with someone who does it for 5.

I believe that often the grant money are distributed among people who know each other (simply said). The CR is a small country and many people know each other within the scientific community. Maybe I am wrong but, I already experienced several times that reviews of my proposals which came from abroad were much more positive than the ones coming from the CR. Unfortunately I have no clue how to deal with this kind of things but I have the feeling (and I have discussed that with other colleagues from abroad) that some jealousy, leanness exists in the community. On one hand we are trying to attract more young people-good people from aboard, but on the other hand the situation in this sense can be very demotivating and discouraging.

In the CR, the money are strictly controlled. You can't buy e.g. a chair or a computer if your old ones wear out; generally (if I would exaggerate a bit), it is difficult to buy anything you do not have in the grant application 4 years in advance; more trust in established teams and more freedom (as long as the money are balanced by quality publications and research) would be welcome.

More flexible funding system. There is very short time between announcement of a grant competition and necessity to begin the grant (e.g. 1 month for GACR). This makes it difficult to find persons, who will work on the grants and indirectly favours the persons, who are already in the system (no matter if good or not). For comparison, German DFG allows up to 1 year delayed start of the grant.

More time-flexibility in research funding. Current funding from GAČR or MŠMT requires that all project members are known by name at the time of proposal submission which implies that they already work at the institution. For example, the German DFG assumes that the postdoc position is filled only after the funding has been grants, and it allows to postpone the use of the money in case that the position is not filled immediately. In contrast, the Czech law requires that only up to 5 % of project budget can be moved to the next year.

In all three other countries where I have worked before, research funding was far less bureaucratic. In particular, in funding agencies like the DFG are much more flexible to actually serve the research needs. For example, when a project cannot start immediately because the key person to be hired on its needs a visa, the project start can be delayed (up to 6 months without even asking for permission, longer with prior approval of the grant agency) with-

out loosing months of the grant. Similarly, when the PI saves money compared to the original approved budget plan, this can be used for extending the project at the end, e.g. converting a 3-year into a 4-year project. Further, public tenders are usually not needed. Even for major equipment like an HPLC unit, a market search is enough, and the researcher is free to choose a company within the budget that was granted after the market search (i.e. he/she may re-negotiate with a company that initially made a more expensive offer). In this way, the budget can be most efficiently used for science, and companies that make dubious "cheap" offers can easily be rejected.

There should be some good program for getting money for postdocs. If I apply for GACR, I know the result in November and I can/have to hire the person from January. Similarly, I am able to tell people in the lab, that I have money for them (or not) in November. I do not complain that science is competitive and tough, but this funding scheme is unrealistic. The funding should encourage PI to find good postdocs.

Better strategy (and funds) to increase mobility of the research staff (not only students) on regular basis = sabbaticals – after several years of research many people get tired of the routine (I can see it on my colleagues as well). New ideas and new energy is needed, which can be obtained when collaborating on a new topic or writing a new book abroad.

The GACR should change the policy and should not be as rigid as it is now. I don't see any reason, why the grants have to start all in January, after being announced only in December. The starting date should be free up to the researcher, so that he has time to find a student and employee. The current system is basically generating loss of several month of student time (given that the researcher starts searching for the student only after (s)he gets the grant...).

The GACR offers few opportunities, both in terms of different types of projects and frequency of call. Moreover, time of project evaluation is long, and there is no information that project was rejected at the early stage of evaluation (this is especially difficult for those who rely on success of their proposal for further work. It would be much more convenient to know in June that your project was rejected at the first stage).

To be fair, there are several reasons for inbreeding. One of them is that it is not simple to move between institutions even within the CR. The rules for government funded science foundation are set in a way that it is the institution, not the scientist, who is the actual legal recipient of the grant. The researcher is just a "middleman". Applying the principle "money follows the scientist" common in many western countries would definitely help here.

Keep stability! This is a systematic problem. For example GACR changes its structure of grants and their rules essentially on a yearly basis. This is detrimental to stability. Even their relatively small changes in rules trickle down and create a complex system of administrative rules and grants where no two grants are the same. This is insane. GACR rules affect internal rules in various organisations. Every change in GACR rules leads to a creation of a new internal rule. However, the old rules do not disappear so the rules pile up...

The 3 year limit on GACR funding is ridiculous, good science can rarely be completed on such a short time table. Very often GACR project is written on a subject that has been already thoroughly investigated. The 3-years limit is hurting new PIs since they did not have enough time to attain "preliminary" data.

Also, the strict limits placed on spending awarded funding, presumably to eliminate corruption, actually often leads to wasteful spending. It is almost impossible to predict every detail of every CZK that will be spent over the lifetime of the grant. It would be best if the money was awarded as some block sum or at least make it easier to move money between various packages within the grant. This is becoming even more ridiculous for MSMT grants and the MSMT's extremely tight policies represent very frustrating burden on PI's. If the PI is awarded a grant, s/he should be completely trusted that s/he will spend the money to his/her best judgment followed up by an annual report. For example, the EMBO Installation Grant represents such grant as the money can be spent freely and can be even forwarded to the following years.

All the bureaucracy associated with the grants requires a huge amount of a busy PI's time. Unless there would be support staff assigned to handle these requirements, it should really be considered if all of these checks are actually producing the required outcome – to increase the quality of science from Czech labs.

Environment
Governmental politics and bureaucracy flooding us with paperwork and making many obstacles to legal immigration. The second point strongly damages the picture of the CR abroad and makes it very difficult to attract good people, which would bring more "fresh wind".

Lack of understanding – politicians doing the decision making frequently do not understand the principles of research, do not know what to expect as a result or how to support science. Therefore, we lack any positive strategy how to improve our situation = interventions should be done not to "control research" (prevent steeling, laziness

etc.), but to “help the work”. To do so, the responsible decision-makers must be more familiar with the research practice.

Low quality of the average – we have too many research bodies with low quality of research. Clearly, we cannot have in the CR only top facilities, but what we call average is not average by international standards despite it takes a lot of funds. The government should select the top institutions and promote those (not only financially but also by some freedom = relief from administration, etc.), select the average institutions and try to bring those to the average level of the west (in these the situation here is worse than compared to the US or the UK), and select the worse ones and close those (this is a normal procedure – we do not need to keep everything what does not prove itself sustainable).

The animal experiment approval process takes two weeks in the US, while it takes frequently months here (right now I am waiting for a new accreditation of our animal facility with changes I requested more than a year ago! – the research grants are typically for 3 years!!!

There are some excellent and enthusiastic researchers, who try to implement some changes. However, they are not supported at the governmental level. The CRA desperately needs a complete reform of laws regulating research and universities. No political party has a vision to do it and there are no people in politics, who could do it well. Moreover, if some changes would be proposed, all Czech researchers (including the enthusiastic reformers) would be staging public protests.

I knew about the level of nepotism, inbreeding, and all that before going to the CZ, but I didn’t expect that clever people would stand by it so hardly. I didn’t expect that there would be very few people that care about the development of university or faculty, in contrast to development (or survival) of their own group or department. I didn’t expect clever people to be pushing measures that obviously hurt quality without realising that. There are several cases of that, for example: (i) The, now abandoned, necessary condition of having two named collaborators on Junior GACR grants. This was in direct conflict with the goal of Junior GACR grants to allow people to set-up new independent research groups. An obvious non-sense which the GACR council failed to recognise as an obvious non-sense. (ii) Internationalisation has a high priority in long-term plans, yet many practical measures go against it. For example, we want international PhD students to pay enormous tuition fees at our institution, higher than what they would pay in Cambridge. Who we think is going to come? (iii) Getting more ERC grants has been also a priority for some years, but there is very little done towards achieving that. We don’t have many ERC Starting Grants because everyone is trying to support young researchers, ideally every single one young researcher. Usually this means giving them low risk grant money or institutional money to continue what they have been doing. Ideally also hiring them as assistants directly after their PhD. All this reduces their chances for developing independent careers and ideas. Moreover, it means that little or no job positions are then available for people with own ideas who would have a higher chance to get ERC or similar grants.

Less “Balkan”-style. It’s happened too many times to me that something could be done once but couldn’t be done the same way when I tried to do the same next time. Last year, I booked an accommodation for a postdoc in the student halls of residence without a problem. This year, I was told that I can’t do that. My colleague still managed to do that at around the same time. Update: Two weeks later I also might be able to do that. Final update: In the end, it took me two months to book the accommodation for my postdoc.

Rules done by people who understand what they mean. Many things relevant for my work are discussed in the academic senate, but not all its members have come into contact with some of them, yet they want to make the rules. For example, the members of the senate discussed and agreed on the text on the website with rules for the admission to PhD studies. There was no mention of the need for diploma recognition and the Czech and English versions factually differed. This is hardly surprising as probably only one of the twenty members of the senate had a PhD student from abroad and knew what the process looks like.

Czech institutions lack the so-called “Unity of purpose”. They are collections of fiercely independent researchers fighting for their own survival and/or domination of others. I have not encountered the same level of collegiality, togetherness and feeling that we are all playing for the same team that characterizes the excellent foreign institution I had the privilege to work for.

The model where a student after doing a bachelor, master, and PhD thesis (with eventual short postdoc in abroad to qualify for a junior GACR grant) ends up getting research assistant position at the very same place is still very common in the CR. On one hand it is perhaps understandable that PI’s want to keep a really good students because it is difficult to find one, but cons are obvious as well – a situation where a department mainly consists of a former PhD students of the department head may in short-term bring results, but in long-term it is inherently against change, new points of view, and moving things forward. However, I’m not in favour to ban inbreeding as such (I believe the less rules the better), but preferably mobility should bring extra points in grant or position applications.

Conference / meeting organisation – organisation of meetings is a part of the prestige of the institution – the institution shows off. Our institution has no policy on conference organisation, no facilities, no infrastructure – we can outsource this but then this lacks any significance for the institution; the staff is not motivated to organise anything – we focus only on publications, although presentation is an integral part of communication in science with probably even larger impact (representation). This is well known in the UK and the US and universities also run a reasonable business on that.

Dining space where people who brought their own food and those who are eating canteen or buffet food could sit and eat together – there must be some way compatible with Czech hygiene laws. This service allows people who for some reason bring their own food (half of my lab) to join in the main social activity of the day and therefore lowers stress and promotes communication and collaboration. More international and lighter food in the canteen and buffet would also help a lot.

Departmental happy hour – socializing while chatting about science. What I miss most from my postdoc abroad is the ease with which it was possible to arrange science chats from very short to longer ones. Partly it is cultural and partly the people at Oxford had broader interests and were better scientists overall, but departmental happy hour is a good way to encourage science chats. Apart from improving collaboration, this is also important for mental health and for keeping motivation up.

Existence of various associations in the research institutes, e.g. Postdoc association (those associations are either organized by specific person from the institute who is paid for it or it is volunteer based and events are organized by the members themselves, organized events includes: social activities, sport activities, talks, career development seminar... this is a great way for integration of newcomers to the institute as well as good way for networking).

Czech science lacks visibility and impact. I rarely meet invited speakers at major conferences who come from the CR. Petr Svoboda becomes an EMBO member at a very young age and based on a career that he completely carved out in the CR and no one seems to notice. Friml and Basler get EMBO Gold medals and who points out that they are Czech scientists?

Insufficient strategy to represent the institutions – on public as well as among scientists from abroad. Also to advertise study here to foreign candidates for the study. We need to show off – we need diverse facilities we could show (remember that we are still frequently internationally perceived as “Eastern Europe” where science is “underdeveloped”. This has still practical impacts – top publications, international grants.

Survivorship bias or survival bias which is the logical error of concentrating on the people or things that made it past some selection process and overlooking those that did not, typically because of their lack of visibility. This can lead to false conclusions in several different ways. It is a form of selection bias.
https://en.wikipedia.org/wiki/Survivorship_bias

Vision
The lack of thought-out concepts and coherent strategies for the research development which can be found on all levels (from government to faculty leadership) is unbelievable. It appears that no one is willing to accept the responsibility for “real” decisions (there are no long-term perspectives: “we will do this and that in the next 10–20 years because it is necessary to achieve a mutual benefit”). This is very bad leadership since no one knows what to expect in the nearest future and no one resolves the real troubles.

Lack of strong leaderships with certain “vision where to go” at many institutions. It seems that many (certainly not all) institutions somehow developed into the current state (with all the old personal relationships) and they just keep this current, mostly very average and nowhere particularly heading, state. What do we want? How to get there? Talking way too often about supporting excellence but what is actually the excellence, how do we see it?

Leadership that is open to listening to regular troubles of the research staff and knows (based on comprehensive analysis and data, not feelings) what should be done in long-term to improve the situation. This starts with the government and goes down basically to every level (and yes, not-knowing what is the strategy for the future I am probably not the best leader myself – basically I am balancing on every year basis to ensure the continuity in the research as the current situation allows).

Lack of vision what the CR expects from science, politicians not supporting such vision (no vision, no actions). Big part in this problem arises from us, scientists and scientific institutions – we need to have visions and we need to be able to explain their importance to the public to get the support. This is especially true, I think, for basic research, whose significance is not understood almost at all. This goes together with perception of culture, science and education in general in the Czech society and this is probably the biggest challenge of all.

Staff responsible for identification of imperfections, deficiencies and shortcommings. In the UK, the institution made evaluations of its running and people were asked what can be improved in their routine work. In the CR, it is difficult to suggest any improvement and even when suggested we are typically explained why the change is not possible. This is not a positive approach to solve problems and the leadership has then no idea what are the tiny little daily troubles wasting time of the employees.

Evaluation
Really bad evaluation practice at all levels from individual PI's to whole institutions. Publication/citation metrics plays an extraordinary role in the CR. It plays too strong role everywhere but it seems we became world masters in it. Publish (rather more, although average, get your name on whatever paper you can no matter what) or perish! Research and researchers are evaluated primarily based on such metrics everywhere, from grant proposals, looking for a job to getting salary bonuses. Typical reaction: "They accepted our paper, hooray!... Congratulation, what is the impact factor?". Instead of "Congratulation, what is it about, what did you discover?" or "Hirsh index just 12? Well, we should not support the grant proposal". It is a big challenge to change such culture, to do deep peer reviews at all levels of evaluation but it starts with us, researchers, we do such evaluation, we use such criteria. Evaluation 2017+ goes in a good direction but are we really ready to step away from such culture when it actually favors the average majority? With lack of vision, it is going to be hard.

Relying on external assessment. Some people think that high quality of institutions can be reached by making the quality assessment (Metodika) better. This is dangerous if such people are heads of Departments, Deans, or Rectors. One of the clear issues of Metodika would be if members of Metodika panels gave marks on national scale and not on international scale, so that universities getting the highest (national) mark would think that everything is fine. We can only be as good as those that we compare with. If we want to stay mentally in the Eastern Europe, we can compare with EU13 universities and be satisfied, but I think we should try better. No methodology is going to improve the quality of research done at the university. The quality is decided by the quality of the people (whatever the definition) that work at the institution. If institutions continue not to care about who they hire, they will simply continue to be average or to decline.

Twenty two managerial approaches of Czech research institutions to attract, select, support & evaluate incoming researchers
What are the most progressive & competitive Czech research institutions from the international point of view?

Case 01: Research institution with 11 incoming researchers

How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?

- Open recruitment procedure that is internationally promoted
- Grant Office support (assistance also in Czech grant schemes)
- 5 years contract with adequate starting budget and possible extension, lab space
- Access to 12 core facilities equipped with cutting-edge technologies in life, nanotechnologies and material sciences
- English speaking environment and Czech language courses
- Welcome office for foreign researchers and their relatives in-house
- Informal inquiry can be used by candidates
- The University also opens special AWARD that provides a budget of approx. 230 000 USD per year for a five year period
- Promotion of the city as good place for living and working

How do you select the best researchers to become group leaders at your research institution?

- There is always open international recruitment procedure organised, being promoted by various means and channels (online, in printed media, web, by researchers, etc.).
- In the selection committee, there are internal and external members. There is always researcher from abroad in the committee.
- Group leaders are academic employees, therefore also the rules for selection of the academic employees have to be followed.
- The application should include CV, a list of publications, description of skills and experience related to the advertised position, brief outlook of future research interests and contacts for at least two referees.
- Shortlisted candidates provide a public lecture at the institute and go through face to face meetings with selected group leaders and core facility heads. The selection committee interview all candidates and finally determine the ranking of candidates for the position according to the level of competence of the candidate.

What are the needs of (incoming) researchers?

- English speaking environment (including people from administrative departments)
- Documents and information systems in English
- Welcome office so that they can focus on research
- Proper onboarding (“adaptation”)
- To have networking opportunities
- It is useful to offer informal mentor (especialy to junior group leaders)
- Professional service by administrative departments (e.g. grant office helps in preparation of grant applications, etc.)

What type of services and support do you provide to (incoming) researchers at your research institution?

- Access to 12 core facilities equipped with cutting-edge technologies in life, nanotechnologies and material sciences
- English speaking environment (people, documents, systems, internal communication)
- Welcome office for foreign researchers in-house
- Professional service by administrative departments (e.g. grant office helps in preparation of grant applications, etc.)
- Start-up package
- The institution aims to offer open, transparent, fair and inclusive working environment. Having international environment is one of the strategic goals of the institute. Currently, we have app. 33 % of international staff, and we would like to continue in the internationalisation of the institute (including administrative staff).

How and how frequently do you evaluate group performance at your research institution and why?

- Junior group leaders are evaluated after 4-5 years by the International Scientific Board (ISAB). The institution defines junior research group leaders as researchers that established their first independent

labs within the past 5–6 years and adopted the process of evaluation of junior group leaders after five years of their independence to decide on whether they will continue their research at the institution. The evaluation board receives written background documents (evaluation report and reviews on the evaluation report provided by the external reviewer). The central part of the evaluation is an on-site interview that consists of presentation and panel discussion among researcher and ISAB members. The result of the evaluation is a written assessment of the candidate and the recommendation for the Director.
The recommendations are afterwards commented by Deputy Director for Science.

There can be three possible outcomes of the evaluation:

1) The group leader passes the evaluation. The group leader will be promoted to a senior research group leader position.
2) The group leader does not pass the evaluation. The group will be discontinued and will finish its activities at the institution within one year. During this period group activity will be limited (cannot submit grants under the institution, cannot hire new employees and students).
3) The group leader does not pass the evaluation but shows promising development with a potential to fulfil evaluation criteria within one year. The group will be re-evaluated in one year with only two possible evaluation outcomes, passes or does not pass, with all implications as outlined in points 1 and 2. Some activities of the group may be limited prior to the final evaluation.

> Senior group leaders are evaluated every four years by the international committee composed of external members. The peer review process is based on written background documents showing the previous performance and other statistical data about the research group, and on-site visit with members of the group in different degrees (including PhD students). The outcome of the evaluation is beside the expert feedback on RG performance also the evaluation by grades A – D, where D indicates the low performing RG and can lead to termination of the group. The annual evaluation is based only on the scientometry of publishing outcome and is a part of the budget of RG. It is an incentive tool to promote publishing of excellent results.

> Reasons for the evaluation of research performance is evident. Based on the results of the evaluation, Director decides on termination of those groups that do not reach the standard of the institution. This opens necessary space for the opening of new research groups and for maintaining dynamics of the institution.

Case 02: Research institution with 3 incoming researchers – group leaders & x junior researchers

How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?

> We offer above-average competitive salaries.
> We offer access to state-of-the-art scientific infrastructure and instrumentation.
> We offer extensive help with administration issues and make efforts to provide an English speaking environment without language barriers.
> We offer an inspiring and stimulating environment of a very dynamically growing institution that at the same time builds upon its centuries long tradition.
> We make use of the charm of the city which is a very convenient place to live. This is reflected in the university motto “Genius loci”.
> We have prepared a new scheme of Junior research grants aimed at researchers coming from abroad or those who spent some time abroad.

The factors that limit the interest of excellent foreign researchers to establish their own research group at our intitution may include the lack of a stable long-term funding and also a certain lack of clear long-term perspectives of carrier advancement. Excellent foreign researchers are usually not willing to rely on grant funds only and expect adequate institutional support for a sufficiently long period. For these reasons it is much easier to attract junior foreign researchers (junior postdocs, PhD students) than researchers aiming to establish their own research group. The institution also lacks sufficient free office space and free laboratories that could be assigned to the newcomers, which limits the flexibility of the institution to establish new research groups.
The reputation of Czech research institutions is not fully comparable to that of the top universities in the world, although much progress has been achieved during the past years.

How do you select the best researchers to become leaders at your research institution?

> Every newly established position of an academic employee is publicly advertised and the employee is selected in a tender. Similarly, positions of Heads of Departments are advertised every three years. A selection committee nominated by the dean of the faculty interviews the applicants, evaluates their materials and submits its recommendation to the dean who makes the final decision. The composition of the selection committee is specified by the internal regulations the institution. Evaluation of the applicants is comprehensive and takes into account their professional CV, personal recommendations

from their previous institutions, publication record, ability to obtain external funding (scientific grants), participation in research projects, training of PhD students, professional skills and experience. Specific rules exist for selection of heads of research groups at the VaVpI centres and the final decision there is made by directors of those centres.

- In order to apply for the position of docent or professor, you have to hold the corresponding academic title. The appointments to Associate Professorships (docent) and Full Professorships (profesor) in front of the Scientific boards that play a key role in the whole system.
- It should be noted that employees at purely research positions who are not academic employees do not have to be selected in a tender and are often appointed directly, especially at junior positions.
- Larger departments are often internally structured into several research groups. However, leaders of those groups are usually not formally selected. Such group leaders can control their grant money. However, the institutional money are controlled by heads of departments so a close cooperation between the head of department and the group leaders at the department is crucial. The group leaders usually emerge naturally in the course of time and define themselves by the ability to obtain grants and become principal investigators of research projects, by ability to attract PhD students and junior postdocs and establish and pursue their own research direction.
- Within the current system, the position of a head of department is really not the same as a position of a leader of a research group. Heads of department have many administration duties and they are responsible for both research and teaching activities at the department. Nevertheless, very often the senior group leaders and professors become heads of departments because in this way they can also directly control the institutional resources allocated to the department.
- In order to support the process of establishing independent junior research group leaders, the institution introduced a new scheme of junior research grants that could help to identify and support prospective junior group leaders this year. Grant applications will be considered by evaluation committees at faculties, supported by project rapporteurs and external evaluators, and the final decision will be made by the Scientific board.

What are the needs of (incoming) researchers?

- Adequate and competitive salary/fellowship that covers all costs of living.
- Administrative and logistic support, assistance with the complicated administrative procedures in the Czech Republic.
- Help with settling down in the Czech Republic (accommodation, health and social insurance, tax issues etc.). This is especially important for researchers arriving from outside the EU due to the often complicated visa requirements.

PhD students and (junior) postdocs:

- They seek sufficiently interesting and promising research topic, excellent supervisor and research team to be member of, stimulating research environment, and a decent personal financial support. Generally, PhD students and postdocs very often consider whether a PhD or a postdoc in a chosen group will be beneficial for their future carrier and whether it would be helpful for them when seeking a more senior position in academia in the future.

Researchers seeking to establish their own research team:

- Stable financial support for the researcher and their team for a defined and sufficiently long period of time (e.g. 3 or 5 years).
- Clear rules of performance evaluation and perspective of career advancement in case of excellent performance (such as tenure track position).
- Available laboratory and office space, sufficient research facilities and equipment.

What type of services and support do you provide to (incoming) researchers at your research institution?

- We offer extensive support regarding administrative tasks such as visa and residence permit as well as health insurance and social security. This support is provided at the faculty and department level. We do everything possible to reduce the administrative and logistic burden related to settlement of foreign researchers in the Czech Republic so that they could fully concentrate on their research.
- We constantly improve the ability of the administrative staff to communicate in English. Our goal is that all documents and key information are provided in English so that the foreign researchers do not face any language barrier upon their arrival.
- We offer help to foreign PhD students (holders of Fischer fellowships) to obtain a specially negotiated student loan in a bank which helps them to pay their student fee in advance in a single instalment if they prefer to do so. We have changed the internal rules such that the foreign PhD students studying in the English programmes can pay their student fees in monthly instalments, advance payment is not compulsory.
- We offer temporary accommodation at the dormitories, dining, Czech language courses, kindergarten, school and summer camp for employees' children, access to academic sport centre.

How and how frequently do you evaluate group performance at your research institution and why?

- The official evaluation is performed annually (i.e. once a year) and the exact procedure is partly specific for each faculty. The evaluation of individual employees is performed by their supervisors (usually a head of department or head of a research group at the VaVpI Centres). Some faculties perform evaluation of departments, and the VaVpI Centres have their own rules for evaluation of their research groups. Large departments can have their own (informal) rules to monitor and evaluate performance or research teams within the department.
- The institution is currently implementing a comprehensive system of quality evaluation and monitoring (including evaluation of quality of science and research as its central piece). This system involves quality evaluation at all levels including the level of departments. The goal of the evaluation shall be to identify strong and weak points and to help to improve the performance and quality of the evaluated activities.
- It should be noted that the evaluation is unavoidably related to allocation of resources (distribution of money). A comprehensive evaluation may provide basis for strategic and reasoned decisions on (re) allocation of resources. For many years, the financial resources for science and research that the institution receives from the Czech Ministry of Education (money for long-term development of research organization, RVO) have been distributed to faculties according to the RIV points gained and this procedure (with some modifications) is mostly followed also by the faculties down to the department level. This approach certainly stimulated research activities and it has been instrumental in significantly increasing the scientific output of the institution. Nevertheless, it is an open question whether such approach could provide the right incentives to the scientists also in the future and whether it could stimulate the desired production of high-quality outputs and scientific excellence across the whole institution.

Case 03: Research institution with 24 incoming researchers

How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?

- Topics (research programmes)
- Manage and lead their own programme
- Friendly atmosphere, personal contacts
- Up-to-date equipment
- Receiving the HR AWARD and adhering to the European Charter and Code for researchers
- Professional office for building international relations in R&D
- Bilingual institution

How do you select the best researchers to become group leaders at your research institution?

- We attract them by research programmes, using personal contacts, personal references, special projects etc. Selection is based upon personal interview or previous experience with students.

What are the needs of (incoming) researchers?

- To have a competitive salary abroad
- To have transparent strategy plan in R&D
- To have transparent strategy plan in HR (including a long term career plan)
- To have money for research
- To have qualified co-workers according to their position and type of research

What type of services and support do you provide to (incoming) researchers at your research institution?

- Kindergarten
- Cafetiere
- Fitness center
- Introducing the institute, commented tour
- Informal meetings to promote networking

How and how frequently do you evaluate group performance at your research institution and why?

- There is a continuous evaluation of performances of every research group in the Institute, plus a yearly evaluation. It is based on the (1) scientific output (number and quality of publications, grants submitted and awarded, awards), (2) collaboration (within- and outside the Institute, interdisciplinary, with academia, industry, international), (3) economic sustainability and profitability. Personal and career development (education and qualification of the personnel, continuous education, involvement of pregrad and PhD students, junior researchers, domestic and international short- and long-term stays)

Case 04: Research institution with 16 incoming researchers

How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?
- > Group Leaders: we offer to establish their own scientific group
- > Postdocs: to work on exciting projects in a dynamic institution

How do you select the best researchers to become group leaders at your research institution?
- > The research has to within broader type of research done at the institution. Then the main criteria are their personality, track-record and the scientific plan. The selection is done by an independent international scientific advisory board.

What are the needs of (incoming) researchers?
- > Space, equipments
- > Students, postodocs
- > Family needs

What type of services and support do you provide to (incoming) researchers at your research institution?
- > Novel group leaders have 5 years of full support, starting package for equipment etc.

How and how frequently do you evaluate group performance at your research institution and why?
- > Junior research groups: after 3 years prelim evaluation, after 5 years "binary" yes or no evaluation. If successful the group is promoted to senior group. If not successful, the group is closed within one year. Important is to make this process with all the respect and support of people.
- > Senior research groups are evaluated every 5 years with ranking – excellent, satisfactory, needs improvement, recommended to close down.

Case 05: Research institution with 15 incoming researchers

How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?
- > We encourage excellent researchers to apply for funding such as ERC or OP RDE "Excellent teams" which allow to provide funding for the whole research group coming to the institution with the researcher
- > We encourage excellent postdocs to apply for MSCA-IF
- > We participated in OP RDE call – International mobility of researchers which allowed us to create 14 new positions
- > The Department of R&D provides consulting and seminars to raise awareness about the funding opportunities for postdocs

How do you select the best researchers to become group leaders at your research institution?
- > Researchers have to compete for external funding and that will eventually allow them to create their own research group.

What are the needs of (incoming) researchers?
- > Infrastructure and friendly creative environment
- > Lab equipment
- > Funds to hire PhD students and postdocs, technicians
- > Project administration support
- > Administrative support to meet the legal requirements for the entry and employment

What type of services and support do you provide to (incoming) researchers at your research institution?
- > Project consulting & administration support
- > Accommodation for the first months in the university dorms and help for friend or family members
- > Research Fellows Conference – to better integrate and get to know incoming researchers and their research topics, networking
- > Czech language for foreigners

How and how frequently do you evaluate group performance at your research institution and why?
- > Annual evaluation based on the complex internal performance assessment scheme including publications, projects (both granted and submitted), activities in research community and popularization and teaching activities. Serves to department heads, deans and university leadership for strategic management decision making.

Case 06: Research institution with 11 incoming researchers

How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?

> Offering them good conditions (salary, equipment, fair system of grant overheads use)
> Sometimes they first join an existing group and become independent somewhat later.
> We have a special program of Fellows – establishing a small research group evaluated after 3 years; then it can become a regular junior or standard group

How do you select the best researchers to become group leaders at your research institution?

> We advertise open positions and accept best candidates based on their CV, presentation, interview.

What are the needs of (incoming) researchers?

> Good conditions (salary, equipment, fair system of grant overheads use, day care for children...)

What type of services and support do you provide to (incoming) researchers at your research institution?

> Good conditions (salary, equipment, fair system of grant overheads use, day care for children...)

How and how frequently do you evaluate group performance at your research institution and why?

> First after 3 years; then, when established as standard groups every 5 years.

Case 07: Research institution with 8 incoming researchers

1) How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?

> Most frequently: direct contact of local groups at given departments with promising candidates (often expat Czechs considering return to CZ), negotiating options and opportunities
> Occasionally: well-publicised international call when a new group is to be founded or when a replacement for a senior leader is sought (only at some departments)
> Whole-institution competitive support mechanism: GRANT projects (budget up to 3M CZK/year, duration 3 years that can be prolonged to 5 years; 50 % of the budget given by the rectorate, 50 % contribution is up to the faculty/department); the requirement of local contribution limits candidates to those that are already negotiating with a given department (typically through one of the options above)

How do you select the best researchers to become group leaders at your research institution?

> Considering a strong autonomy of different fields within the intittution as well as long-term visions of individual departments, there is at present no unified selection mechanism. These are the most typical:

General most frequent mechanism

> Groups are formed when sufficient competitive funding (usually a large grant, e.g., junior GACR project) is acquired by a PI who is to form the core of his/her research team; in case of successful establishment of such a group (success being typically confirmed by sufficient publication activity and by acquiring additional funding, e.g., new project after the first one is terminated), it usually becomes an integral part of a given department

Specifically considering researchers from abroad (or another institution)

> Most frequently: direct contact of local groups at given departments with promising candidates (often Czechs considering return to the CR after long-term stays abroad), informal negotiations about possible collaboration and establishing a group with subsequent motivation to apply for relevant funding to support whole group (junior GACR grants, institutional grants) or at least the incoming researcher him/herself (MSCF)
> International selection procedure when a new group is to be founded or when a replacement for a senior leader is sought (only at some departments)
> A specific, more generous case of the above was open call for tenure tracks at the department of organic chemistry (including basic funding of junior researcher), application for institutional grant and junior GACR grant was expected

What are the needs of (incoming) researchers?

> Apart from general needs that everyone has (good working conditions, accessible infrastructure, reasonable interpersonal relationships...), specific requirements of those coming from abroad (to some extent even Czech expats):
> Extensive administrative support in English (for research, accounting and other economic agenda, personal agenda, study agenda for incoming PhD students that are to become team members, etc.)
> Availability of high-quality information about funding opportunities (for research projects, funding of

postdocs and PhD students in CZ), sufficient warning about administrative requirements that may result in rejecting grant applications for formal reasons (this is unusually frequent in CZ)
> Knowledge about the long-term career perspectives in CZ in general and at a given institution in particular – what is an equivalent of tenure track, understanding how peculiarities of Czech legislation (working law, university law) influences formal procedures (e.g., formal "reopening" the position even of well-established researchers), etc.
> Understanding how the group will be affected by a possible drop in funding in the future or entire lack of projects for a certain period (does this mean the end or is the department/institution willing to support the group for some limited time? if so, to what extent?)

What type of services and support do you provide to (incoming) researchers at your research institution?
> There are few specific services provided to incoming researchers at the whole-institution level, apart from administrative support for those applying for international projects specifically focusing on mobility (e.g., MSCF). General support includes:
> Grant and economic agenda largely available in English
> "Scouting" for funding opportunities, and regular summary of these in a form of newsletter
> Regular seminars on various funding mechanisms (e.g., ERC, Horizon 2020)
> In addition, individual departments with international teams usually try to provide sufficient administrative support (in English) to those not familiar with local specifics (including, e.g. support in communication with Czech bureaucracy such as Foreign Police or taxes). This may, however, largely depend on goodwill of the local department head and/or staff.

How and how frequently do you evaluate group performance at your research institution and why?
> Evaluation of group performance is not centralized at present. Budget is to a large extent divided to departments based on their previous performance (in teaching and research, with important role of scientometry), which motivates the departments themselves to stimulate quality.
> A whole-university mechanism for assessment quality of science is being implemented at present (informed peer review, in natural sciences to largely based on scientometry and assessment of selected best outputs) but this will only evaluate individual fields, not research groups.
> As research groups are even smaller units within the departments, it is the agenda (and obligation) of the department head to consider their performance when implementing longer-term strategy of the department (both considering budget issues and human resources, i.e., recruiting new people or termination contracts).

Case 08: Research institution with 8 incoming researchers

How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?
> Top research facilities
> Interdisciplinary research teams
> International English-speaking environment
> Interesting research projects and long-term strategy
> Long-term perspective
> Reasonable funding

How do you select the best researchers to become group leaders at your research institution?
> Good candidates are often identified based on the previous collaboration experience within the international projects and networks: it is easier to recruit individuals who have a positive experience and visited the centre previously. Positions are advertised internationally and throughout the network. The selection is based on their CV, references, expertise, personality.

What are the needs of (incoming) researchers?
> English-speaking working environment
> Friendly non-working environment (language, housing, health care, schools for kids)
> Administrative and organizational support
> Research infrastructure
> Scientific challenges
> Clear perspective

What type of services and support do you provide to (incoming) researchers at your research institution? (Please make a list of provided services with a short description/explanation.)
> Administrative and organizational support (re-settlement, visa, work permit)
> Personnel services, career development

- Project office (assistance with the project preparation and implementation)
- Access to students

How and how frequently do you evaluate group performance at your research institution?
- Evaluation of the individuals by their supervisors once a year, international scientific advisory board evaluation of the centre and the research teams (once in 3 years).

Case 09: Research institution with 7 incoming researchers

How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?
- I have earlier seriously tried to attract experienced researchers in the fields we teach but we are not strong in research. This was without success. We were simply not able to offer competitive conditions. In the field of electrical engineering and computer science the salaries are really high and we cannot pay these people 5-times more than our core staff if they have comparable performance. And at that time Prague was not eligible for European funding from structural programmes (VaVoI).
- However, we often announce new positions internationally and sometimes hire people from abroad. Some of them later establish their own research group, but it takes some time.
- We are looking for each opportunity to find external funding for seed money to attract people from abroad. OP VVV call for excellent teams was an example of such tool, but the total funding was simply not enough, so even excellent projects were not funded. Occasionally we are able to find support from industry.

How do you select the best researchers to become group leaders at your research institution?
- We have standard rules for the selection process, which includes asking candidates for their programmes, evaluating the written applications, motivation letters and research programmes and interview with the pre-selected candidates.

What are the needs of (incoming) researchers?
- Seed money for equipment and to hire people
- Competitive salary, housing
- Administrative support

What type of services and support do you provide to (incoming) researchers at your research institution?
- We try to create an international environment, so that English is standard

How and how frequently do you evaluate group performance at your research institution and why?
- We evaluate each researcher annually.

Case 10: Research institution with 5 incoming researchers

How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?
- To establish own independent research group
- Scientists form Asia and South America – to come to EU
- Ratio salary/services is very good in CZ
- To check our IP conditions – 90 % is going to inventor

How do you select the best researchers to become group leaders at your research institution?
- Based on his/her results, based on the projects he/she can manage, he/she should be team player / team influencer

What are the needs of (incoming) researchers?
- Salary
- Accomodation
- Country safety
- Possibility to establish their groups

What type of services and support do you provide to (incoming) researchers at your research institution?
- One person who will help with foreigner police
- Personal Help with renting of the flat
- PR of their obtained results

How and how frequently do you evaluate group performance at your research institution and why?
- We have not many of them – so we are able to evaluate it once a year

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Case 11: Research institution with 5 incoming researchers

How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?
- On 6 October 2017, the institution subscribed to the principles enshrined in the European Charter for Researchers and in the Code of Conduct for the Recruitment of Researchers (C&C and we are trying to fulfil all principles which are part of C&C
- We offer good working conditions, fair pay, fair treatment, secure career, power and involvement in decisions.

How do you select the best researchers to become group leaders at your research institution?
The researcher has to meet the following requirements to become leader of a research group:
- To be a university teacher or experienced postdoctoral researcher and work at a university institute or a non-university research institution.
- To have acquired several years of (international) research experience after completing doctorate.
- To have outstanding subject competence.
- To have the idea for his/her own outstanding research project.
- To publish in internationally prestigious journals.

What are the needs of (incoming) researchers?
- Residence permit, Visa
- Housing
- Insurance
- Family connected problems – school for kids etc.
- Language

What type of services and support do you provide to (incoming) researchers at your research institution?
- Residence permit, Visa
- Housing
- Insurance
- Tax, Pensions
- Family connected problems – school for kids etc.
- Language & Czech culture
- Medical care
- Banking

How and how frequently do you evaluate group performance at your research institution and why?
- Leaders of research teams evaluate the performance of team members in connection with the implementation of the project activities plan and results. Each evaluation takes place at least once a year as an interview with team leader.

Case 12: Research institution with 4 incoming researchers

How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?
- Offering interesting and multidisciplinary team work
- Offering reasonable salary, high at local scope
- Friendly atmosphere, preventing loneliness and homesick, help with living splace etc.
- Assistance and support during moving
- Help with the employment of family members if applicable

How do you select the best researchers to become group leaders at your research institution?
- Good visions and organizational and communicational skills

What are the needs of (incoming) researchers?
- Research topic, cooperation, team
- Financial support
- Place to live
- Good company

What type of services and support do you provide to (incoming) researchers at your research institution?
- > Often put some project application together to rise funds.
- > Help with moving things and finding place to live.
- > Help with documents, bank accounts, insurance etc...

How and how frequently do you evaluate group performance at your research institution and why?
- > At least two times a year! Evaluation of activity is unfortunately enforced by generally harsh conditions in science.

Case 13: Research institution with 4 incoming researchers

How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?
- > By enabling to them to continue working on their topic as it is fitting to the institutional research framework.
- > By the experimental equipment of the Institute (both laboratory and field).

How do you select the best researchers to become group leaders at your research institution?
- > The selection process includes mainly the evaluation of publication record, abilities to write promising project proposal, problem solving skills (both of scientific and administrative manner), ongoing teaching and tutoring the student thesis, experiences with the scientific work abroad, etc.

What are the needs of (incoming) researchers?
- > They basically need to have some background, at least at the beginning of their stay. Someone who would help them to arrange ordinary necessities (renting a flat, buying the car, etc.).
- > Colleagues open to spend sometimes even free time together.
- > To obtain quickly some funding for their own research.

What type of services and support do you provide to (incoming) researchers at your research institution?
- > Temporary accommodation so they can find the suitable flat by themselves without any pressure.
- > Flexible working hours so they can occasionally spend some time in their homeland.

How and how frequently do you evaluate group performance at your research institution and why?
- > The evaluation of the group performance is newly conducted every six-months based on the analyses of all results (both biblio- and non-bibliometric). Once a year, the evaluation process is accompanied with the interviews with group leaders and team members. The reason is to obtain the picture where is the research heading and to learn whether there are some obstacles that need to be solved on the institutional level.

Case 14: Research institution with 3 incoming researchers

How do you motivate excellent researchers to come from abroad to to establish their own independent research group at your research institution?
- > By promoting international research environment within the institute
- > Including the institute within close international collaborations

How do you select the best researchers to become group leaders at your research institution?
- > An open and uniform process of scientific attestations

What are the needs of (incoming) researchers?
- > Scientific excellence of the institute to develop their careers
- > Administrative support to deal smoothly with Czech institutions
- > Adequate financial support

What type of services and support do you provide to (incoming) researchers at your research institution?
- > Administrative support by a local senior scientist
- > Assistance with housing if requested
- > Language courses provided (Czech for foreigners, English for local administrative staff)
- > Providing important forms, contracts and directives in bi-lingual (Czech/English) versions

How and how frequently do you evaluate group performance at your research institution and why?
- > Annual evaluation in connection with the rules of various agencies supporting these groups financially.
- > Five-years internal attestations.

Case 15: Research institution with 2+40 incoming researchers & students

How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?
- > Opportunity to participate within international high professional teams (currently about 25 nationalities), excellent research infrastructure (being part of ESFRI) and projects
- > Provision of creative and supporting environment
- > Nominations for awards dedicated to excellent researchers and international bodies
- > Interdisciplinary long-term cooperation
- > Cooperation with various range of national and international research organisations, infrastructures, universities, public service and other stakeholders

How do you select the best researchers to become group leaders at your research institution?
- > Based on open (public) call, according to the personal and professional qualities suitable for team leaders, according to previous achievements, research results and needs coming up from the research, references from the peer colleagues or job applicant's superiors

What are the needs of (incoming) researchers?
- > Provision of supporting environment
- > High tech instrumentation
- > Professional approach of the staff
- > Provision of help with settlement in the Czech Republic

What type of services and support do you provide to (incoming) researchers at your research institution?
- > Temporary accommodation
- > Administrative support (e.g. visa applications)
- > Supportive projects such have been FP7, implementation of HRS4R
- > To make them feel more comfortable so they can focus on the research

How and how frequently do you evaluate group performance at your research institution and why?
- > At least once a year – within the team, interview with the team leader and international Scientific and Advisory Board. Whenever they need, they can come and discuss with their superior, director and scientific secretary.

Case 16: Research institution with 2 incoming researchers

How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?
- > Participation in the excellent research projects
- > Financial support via Fond Mobility Program (intern institutional support program) and development projects
- > Relationships based on the individual contacts at the departments of the institution

How do you select the best researchers to become group leaders at your research institution?
- > Decision of the institutional rules and committee – CV, contacts and references, previous working experiences and scientific activities

What are the needs of (incoming) researchers?
- > Adequate salary
- > Accommodation support
- > Working conditions including research support – equipment, projects
- > Support for the visa application and working permission (if needed)
- > Long-term financing support of the research

What type of services and support do you provide to (incoming) researchers at your research institution?
- > Labs and equipment including administrative support for the project applications
- > Language support – providing language courses
- > Accommodation – own capacity
- > International office – cultural support, visa application etc.

How and how frequently do you evaluate group performance at your research institution and why?
- > Regularly every year, evaluation – based on the publication activities, number of the supervising students, number, type and budget of the own projects, intensity of the collaboration with industrial partners

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Case 17: Research institution with 1 incoming researcher

How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?
- > Friendly, innovative, open, supportive research environment
- > Lab space, starting money, administrative support
- > Adequate salary
- > Research facilities available

How do you select the best researchers to become group leaders at your research institution?
- > This is somehow self-evolving process, the best simple appears to be the leaders

What are the needs of (incoming) researchers?
- > I believe, that their needs somehow copy the motivation

What type of services and support do you provide to (incoming) researchers at your research institution?
- > Administrative – protect them from the frustration from the administrative overload they may experience in the CR
- > Start-up money and other financial support
- > Friendly, innovative, open, supportive research environment
- > Lab space
- > Adequate salary
- > Research facilities available

How and how frequently do you evaluate group performance at your research institution and why?
- > Annually

Case 18: Research institution with 1 incoming researcher

How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?
- > By involving into project proposals (excellent team, excel. Research) and having this able by extra budget
- > By personal invitations

How do you select the best researchers to become group leaders at your research institution?
- > By their productivity – No of papers, team management ability, according the formal procedure at university

What are the needs of (incoming) researchers?
- > Good research topic – novelty
- > Facility
- > Living conditions (accommodation) and salary

What type of services and support do you provide to (incoming) researchers at your research institution?
- > Help for adapting for our conditions by selected home persons

How and how frequently do you evaluate group performance at your research institution and why?
- > On 1 year base – quantification on faculty level, quality at dept level

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Case 19: Research institution with none incoming researcher (8 open positions)

How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?
- > We offer a long term research position, +40 % salary benefit and a perspective to build their own team

How do you select the best researchers to become group leaders at your research institution?
- > We have advertised at Earthworks-jobs.com a Nature Jobs; however, the advertisement was not targeting specific group leaders, but to place research positions.

What are the needs of (incoming) researchers?
- > Long-term position (they are tired / frustrated by infinite negotiations on short-term stays)
- > To keep the west-European salary standards

What type of services and support do you provide to (incoming) researchers at your research institution?
- > Help with accommodation (more flats, some closer to our location, would be welcome!)
- > Financial support with their move to Prague
- > Cover PC / lab equipment / traveling in the starting year(s) of their stay

How and how frequently do you evaluate group performance at your research institution and why?
- > Evaluation process ("atestace") of each researcher is obligatory every 5 years, based on standard criteria (research output, teaching, students, outreach). In the meantime, every department head is responsible for informal evaluation of ongoing work.

Case 20: Research institution with none incoming researcher

How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?
- > Reputation of the department
- > Equipment
- > Salary

How do you select the best researchers to become group leaders at your research institution?
- > According to their papers and citations. Senior scientists in V5 should have ≥ 500 citations, it is the rule of the director.

What are the needs of (incoming) researchers?
- > The best science
- > High level of laboratory experiences
- > They must be better than scientists from the CR

What type of services and support do you provide to (incoming) researchers at your research institution?
- > Internal financial support
- > We keen to offer a new lab, but it is a question of a new infrastructure
- > Not so bad salary on the CZ level

How and how frequently do you evaluate group performance at your research institution and why?
- > Every year, the director performs evaluation of all departments, including junior scientists

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Case 21: Research institution with none incoming researcher

How do you motivate excellent researchers to come from abroad to establish their own independent research group at your research institution?
- > Pleasant working environment
- > Location
- > Good infrastructure

How do you select the best researchers to become group leaders at your research institution?
- > Personal knowledge; contacts at conferences

What are the needs of (incoming) researchers?
- > Good working environment
- > Money

What type of services and support do you provide to (incoming) researchers at your research institution?
- > Laboratory space
- > Equipment stimulus
- > Administrative help

How and how frequently do you evaluate group performance at your research institution and why?
- > Continuously

Case 22: Research institution with x incoming researchers

How do you motivate excellent researchers to come from abroad to the Czech Republic to establish their own independent junior/senior research group at your research institution?

> On the level of the Czech Academy of Sciences (CAS), every year we open calls for young scientists regardless whether they are Czechs or from abroad. There are three distinct calls:

1) For very young postdocs (salary support for postdocs up to two years after defending Ph.D. theses, awarded for max. two years. Opening of junior research group is recommended).
2) Fellowship of J. E. Purkyně (for experienced junior scientists returning to the Czech Republic or coming from abroad. Support is for salary and at most for five years. Opening of junior research group is recommended).
3) "Lumina quaeruntur", the new call, will be open in 2018, applicable from 2019 (for young scientists, for five years, based on scientific project. For salaries of the PI and team as well as for other expenses. Opening of independent research group is obligatory, the host Institute must participate on support; application for ERC grant by PI is expected).
   The financial support is transferred to the Institute where the candidate works/will work.

How and how frequently do you evaluate junior/senior group performance at your research institution?

> For the calls, the panels established, based on members of the Academy Council of the CAS and the Scientific Council of the CAS, evaluate performance of scientists/groups every year based on annual report. Additionally, only for "Lumina quaeruntur", the performance of the team will be evaluated thoroughly after three years of duration, with possibility to close the team if not productive enough.

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