



**INSTITUTE OF FUNDAMENTAL TECHNOLOGICAL RESEARCH
POLISH ACADEMY OF SCIENCES**

HUMAN RESOURCES STRATEGY FOR RESEARCHERS

Gap Analysis and Action Plan

Warsaw, May 2016 (amended: October 2016)



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1. INTRODUCTION

The Institute of Fundamental Technological Research of the Polish Academy of Sciences (in Polish: *Instytut Podstawowych Problemów Techniki Polskiej Akademii Nauk – IPPT PAN*) is the **largest engineering sciences institute of the Polish Academy of Sciences (PAS)**. It is a public institution with a record dated back to January 1953 when the decision to establish such science problem-oriented institute within the structure of the newly (1952) created Polish Academy of Sciences was taken.

The mission of the Institute is to conduct high quality frontier research in the areas which are the focus of the world's science and technology and it covers the following goals:

- To be the reference centre of scientific and technological excellence, radical innovation and implementation of technology achievements into Polish scientific and industrial environment.
- To start up and participate in activities related to multifunctional materials, polymers, smart materials and technologies, biomedical applications of ultrasound and microfluidic technologies, applied information science, and innovation technologies.
- To provide first-rate PhD education in contemporary technology, mechanics, acoustics, computing, and its advances related to biomedical applications, enhanced by internationalisation, links with industry, and the encouragement of a discovery spirit.
- To promote, support, drive and implement research and technology transfer initiatives and activities and links with industry and commerce to contribute to the sustainable development of society.

IPPT PAN focuses on unsolved yet scientific and societal challenges in various areas of science and technology. The most important fields of the Institute's expertise include theoretical and applied mechanics, theory of coupled mechanical and physical fields, theoretical and experimental mechanics of materials and structures, computational sciences (especially computational mechanics, computational materials sciences and computational intelligence), acoustoelectronics, ultrasonic medical diagnostics and modelling in biology and medicine. Extensive research is also conducted in several branches of fundamental science and technology, such as: physics and thermodynamics of continua, plasma physics, stochastic dynamics, fluid mechanics, laser beam interaction with metal surfaces, nanophotonics, applied mathematics, computer and information sciences, bio-informatics and systems biology.

The Institute has traditionally been active in operating its **own post-graduate school (doctoral studies)**. Since its establishment in 1968 over 700 PhD degrees have been granted to young Polish and foreign researchers in the fields of materials sciences and engineering, electronics, mechanics, computer science.

At present IPPT PAN employs 302 persons, including 95 researchers (21 professors, 28 researchers with postdoctoral degree – habilitation and 41 with doctoral degree) and 38 PhD students. 9 researchers come from abroad, including 1 head of scientific department, recently hired in the process of an open competition. Currently 5 PhD students come from other countries than Poland (e.g. India, USA).

The remaining 207 employees represent three other staff groups: research and technical, engineering and technical as well as administration. 45 persons in the administration group work for the National Contact Point for EU Research Programmes (NCP) which is an autonomous

department in the organisational structure of IPPT PAN who – due to its role - does not provide administrative support to IPPT PAN researchers on an every-day basis. More about NCP below in this section.

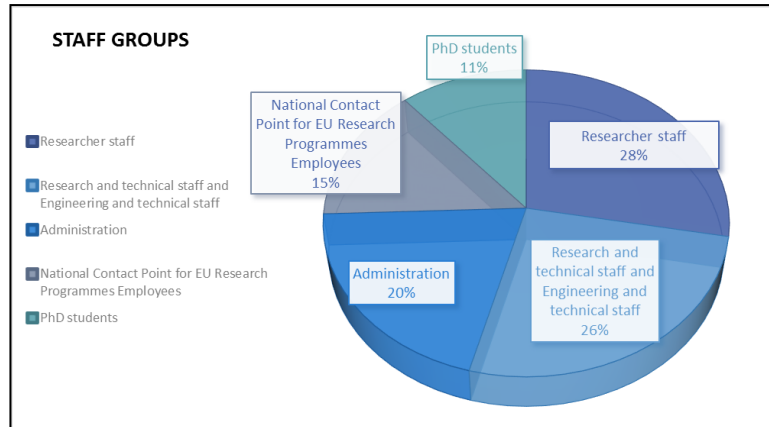


Fig. 1. Staff groups

The staff of the Institute represents a **close to exemplary mix of gender** (see: Fig. 2 below). However, the balance among the research staff is not so good due to the fact that the scientific areas represented by the Institute have been traditionally recognised as ‘male’ disciplines. The issue is of a constant concern of the management of IPPT PAN and measures have been considered to attract more high quality female researchers. However, the availability of female candidates with relevant qualifications is limited on the labour market, in particular among advanced researchers. Although the Institute cannot do much to significantly change the situation and attract advanced female researchers, the gender representation among younger researchers has been gradually improved. The results of measures undertaken have been already visible in the staff structure. The diagram below shows the tendency (see: Fig. 3 below).

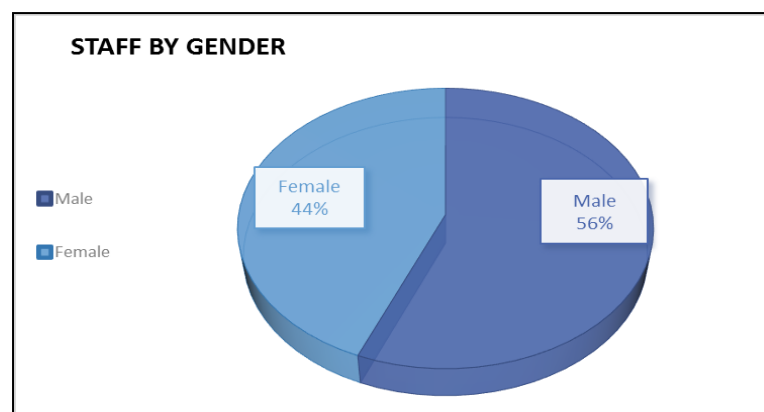


Fig. 2. Staff by gender

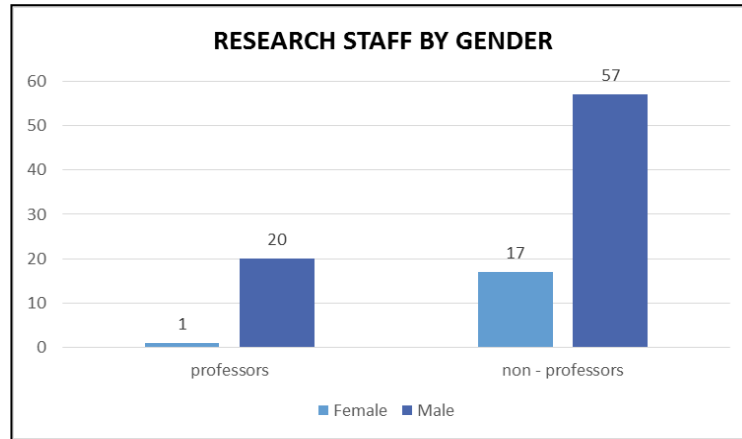


Fig. 3. Research staff by gender

Researchers of IPPT PAN work in 7 key scientific departments:

- Department of Mechanics and Physics of Fluids
- Department of Mechanics of Materials
- Department of Computational Science
- Department of Intelligent Technologies
- Department of Theory of Continuous Media
- Department of Ultrasound
- Department of Strength of Materials.

Apart from the scientific departments listed above the Institute houses:

- Joint Laboratory of Multifunctional Materials
- Laboratory for Modelling and Imaging in Biomechanics
- Centre of Biomedical Research
- Centre of Excellence and Innovation of Composite Materials
- Smart Technology Centre.

The latter three centres were established in 2012 with the aim to promote and consolidate forefront multidisciplinary research in biomedical and engineering areas.

The Scientific Council and the Board of Directors create scientific policy, supervise and stimulate performance of the Institute in order to **maintain its high quality and high standards**. One of the measures is an **annual internal evaluation of research activities** of individual researchers.

Researchers receive support in administrative, including financial, aspects of their work from dedicated administration units such as Project Management and Research Coordination Office, Centre for Commercialization of Research Results and Technology Transfer, Centre of Technology (facilitating contacts and collaboration between the Institute and industry), Accounting Office as well as National Contact Point for EU Research Programmes. The latter one is an autonomous department in the organisational structure of IPPT PAN with the mission to support participation of Polish entities in EU research programmes. IPPT PAN researchers also take advantage of their advice and support.



The Institute is active in implementing research projects (funded from both public and private sources) as well as in disseminating knowledge and promoting its activities among the society. For example 90 research and innovation projects were implemented in 2015. 80 projects were funded by national public and private institutions and companies, while the remaining 10 were financed by foreign and international bodies.

The main sources of public funding of research and innovation projects conducted by IPPT PAN's staff come from the state budget (statutory funding, grants awarded by the Polish funding agencies: National Centre of Research and Development, National Science Centre, grants awarded by the Foundation of Polish Science) and European Union funds (both Structural Funds and EU Framework Programmes for Research and Innovation). **The Institute has been also active and successful in participating in other international (e.g. European Molecular Biology Organization, COST, European Space Agency and Vienna Science and Technology Fund) and bilateral (e.g. collaboration with USA, Japan and Hong Kong as well as EU countries, including Germany and Denmark) research and innovation programmes.** The list of projects is available on:

<http://www.ippt.pan.pl/en/projects/external-projects.html>.

For many years now IPPT PAN research groups have been collaborating with Polish industry. One of the examples is a long-term collaboration within the Centre of Advanced Technology "AERONET - Aviation Valley". The initiative was launched in 2004. The Institute is involved in cooperation with Polish and foreign aviation sector companies and other aviation sector key institutions gathered in Aviation Valley Association as well as other research institutes and universities. It is an excellent example of inter- and multi-disciplinary as well as multi-sectoral collaboration aiming at increasing innovation-based competitiveness of aerospace industry.

Recently Aviation Valley Association was awarded a National Key Cluster label which is unique in Poland. The label was awarded by the Ministry of Economic Development in a competition-based process with participation of many Polish key clusters with significant achievements over past years and a clear vision for future dynamic development.

Activity of IPPT PAN has resulted in approximately **300 publications per year**. 120 of them have been published in top international scientific journals. The average number of citations from last five years is around 20 000, while for the most cited scientist the number is around 2000.

The list of publications is available on the IPPT PAN website (<http://www.ippt.pan.pl/en/scientific-activity/publikacje181.html>).

The Institute owns 29 patents, including 20 granted since 2010, and also since 2010 the Institute submitted 35 patent applications. The list of patent applications - pending decisions of the Polish Patent Office - and patents is available on the IPPT PAN website (<http://www.ippt.pan.pl/en/scientific-activity/patenty.html>).

Since 2009 the Institute has been operating in a newly constructed building, located in a scientific campus where over 20 research institutes, university faculties and innovation companies operate. Modern, well equipped laboratories allow the Institute's scientific staff of all career stages to conduct high quality research.

IPPT PAN currently holds the highest scientific category (A+) in Poland conferred by the Minister of Science and Higher Education in 2013. The awarded category is the result of the



scientific evaluation (so called parametrisation) process conducted by the Committee for Evaluation of Scientific Units, an advisory body to the Minister of Science and Higher Education. According to the current legal regulations, every scientific institution is regularly (at least every 4 years) a subject to such evaluation.

More information about the Institute, its goals and achievements is available on its website: <http://www.ippt.pan.pl/en/> .

2. INTERNAL GAP ANALYSIS - APPROACH AND METHODOLOGY

The quality of the Institute in terms of research activities and overall performance is regularly evaluated by external bodies (such as the Polish Committee for Evaluation of Scientific Units and the Ministry of Science and Higher Education). The Institute conducts the already mentioned above annual assessment of its scientific performance in order to keep the highest quality and standards.

The process to review the level of compliance with the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers (C&C) principles with the above aim was initiated by the management of the Institute in early 2015. It was supported by the Scientific Council. During the most intensive works on HRS4R, which started in autumn 2015, the Scientific Council was regularly briefed on the state-of-play.

In February 2016 the Director of IPPT PAN established a **dedicated Working Group on Human Resources Strategy for Researchers** with the aim to coordinate and continue the works previously done with a view of preparing the Strategy. The group comprised 8 members, representative for the staff structure, including top management, and doctoral students.

The composition of the group was following:

1. Janusz Szczepański, Professor – Chair (deputy director and an advanced researcher)
2. Katarzyna Kowalczyk-Gajewska, PhD. Dr Habil. (an advanced researcher)
3. Jakub Lengiewicz, PhD (Post-doc)
4. Maciej Wasilewski, M.Sc. (PhD student)
5. Grażyna Omarska, M.Sc. –Vice-Chair (administration)
6. Piotr Matejek, M.Sc. Eng. (administration – a project management unit)
7. Agnieszka Milczarek, M.Sc. (administration – a human resources management unit)
8. Anna Wiśniewska, M.Sc. (administration – Horizon 2020 NCP)

During the kick-off meeting which was held on 9 February, 2016 the group decided on the methodology of conducting a Gap Analysis, in particular regarding the level of C&C principles implementation in the Institute.

The work was divided into two components:

- a desk research – aiming at identification of legal regulations and practices already in place as well as still remaining gaps and barriers,
- a survey involving the staff of IPPT PAN.

After the kick-off meeting the group has worked intensively both on-site and remotely. The work between the meetings was mainly carried out via exchange of e-mails with all documents available in a shared folder.



During the first stage of its activities **the group analysed existing legal framework applicable to IPPT PAN**. It comprised both national and institutional regulations as well as existing practices at the Institute. The group compared whether and to what extent the rules comply with C&C principles, and its members expressed their own opinions whether and to what extent they are implemented in practice.

The following key documents were subject to analysis:

- national legal regulations, in particular:
 - Labour Code,
 - Act on the Polish Academy of Sciences,
 - Law on Higher Education (to the extent to which it is applicable to IPPT PAN),
 - Act on the Principles of Financing Science,
 - Law on Academic Degrees and Title and Degrees and Title in the Arts,
 - Law on copyright and related rights,
- Polish Academy of Sciences regulations, in particular the Statutes of the Academy,
- IPPT PAN regulations, including:
 - Statutes,
 - Scientific Council resolutions such as 'Rules of employment of scientists', resolution on the terms of reference of calls for research positions procedure at IPPT PAN or the resolution on the regulation on IP management and rules of commercialisation of research results at IPPT PAN,
 - key regulations such as IPPT PAN labour regulation, staff remuneration regulation, regulation on periodic evaluation of scientific activity of IPPT PAN researchers as well as doctoral studies regulations,
 - ordinances of the Director of IPPT PAN, in particular on Director's awards for employees conducting research and on IPPT PAN Master award.

The general conclusion from the desk research was that strategic goals and on-going development plans of IPPT PAN were in line with C&C principles and the principles were to a large extent already implemented in the Polish legislation and the legal regulations, guidelines and procedures established at IPPT PAN.

On 5 April 2016 - after drawing the above conclusion on the general compliance with C&C principles - a letter of endorsement of C&C was sent to the European Commission.

The parallel activity to the desk research was to prepare **a questionnaire to be completed by the Institute's staff**. The questionnaire was based on 40 C&C principles.

Respondents were provided with the explanation note on the purpose and importance of the survey and asked to answer two questions regarding each C&C recommendation:

Q 1. To what extent do you agree with the C&C statement?

Q 2. In your opinion, what is the level of implementation of the above C&C recommendation in IPPT PAN?

The following pre-defined answer options were available:

Q 1:

0. No opinion/non-applicable

1. I strongly disagree

2. I disagree
3. neither agree, nor disagree
4. I agree
5. I strongly agree

Q 2:

0. No opinion/non-applicable
1. New to the Institute (unknown)
2. It is known but still out of formal regulation
3. Dead record but exists in formal regulations
4. Implemented but executed irregularly
5. Fully implemented and respected.

Respondents were also asked to give a rationale for their responses, in particular in case of negative answers.

3. SURVEY, INCLUDING RESPONDENTS STATISTICS

The **survey** was launched on 20 April 2016. It was **made available on-line to all IPPT PAN employees**, including all researchers, the management, administration (NCP inclusive – despite its specificity described in section 1 and the fact that the NCP team does not collaborate with IPPT PAN's research staff on a regular basis) and technical staff, as well as PhD students (340 persons in total).

It was **available in English and Polish** to ensure full coverage of the target group.

The questionnaire was **anonymous**. The following 'identification' questions were asked in order to allow in-depth multi-dimensional analysis of the responses, while fully respecting the principle of anonymity:

- What is your gender?
- What is your age group?
- Which staff group at IPPT PAN do you represent?
- Which research staff group at IPPT PAN do you represent?
- What type of employment contract do you have?
- How long have you been working for IPPT PAN?

The Institute's staff was requested to provide their feedback by 28 April. 190 persons started the survey. Due to the fact that some of them had not finished answering all 40 questions a reminder was sent on 29 April with a request to finish the tasks as soon as possible. The survey was finally closed on 4 May 2016.

30 respondents filled in only administrative part (providing data which gender, age group, group of employees, etc. they represent) – not providing any answer on C&C principles importance and implementation. This group of responses was not considered as providing substantial feedback – thus they are not included in the response statistics presented below.

160 respondents provided substantial feedback which was analysed in-depth with a particular attention given to negative answers (answers: 1 and 2) and comments.

On the basis of the Gap Analysis, including survey answers and earlier works, a draft strategy was prepared. It was a subject to an in-depth analysis and opinion of the Working Group. Based

on the Group's comments the final draft which reflects the outcome of the Gap Analysis was prepared. The Strategy was approved by the director of the Institute. The overall breakdown of respondents (excluding the group which failed to provide substantial feedback) is presented below.

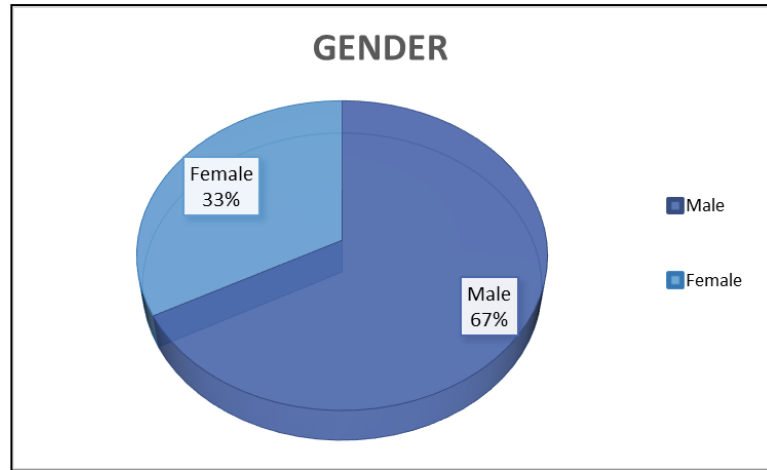


Fig. 4. Gender breakdown

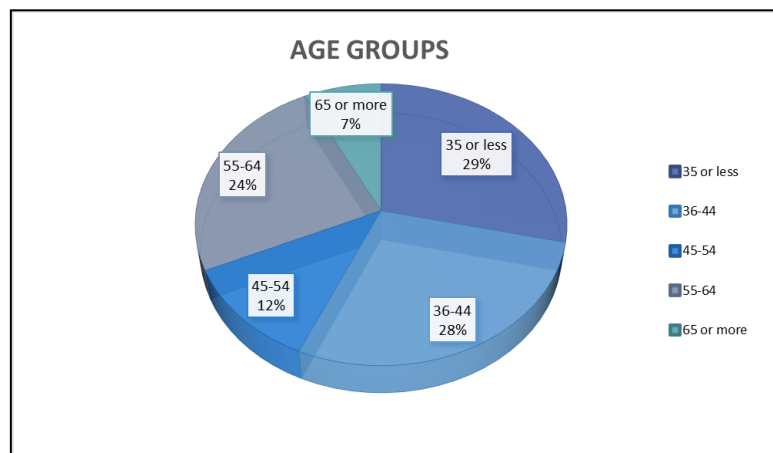


Fig. 5. Age groups breakdown

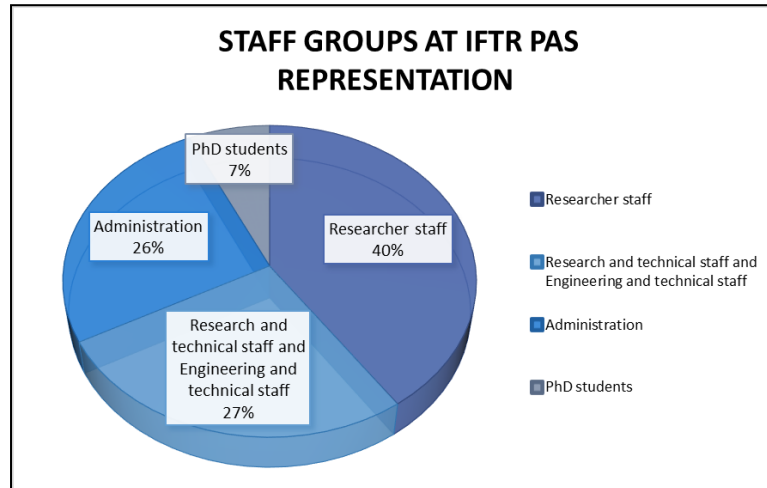


Fig. 6. Staff groups

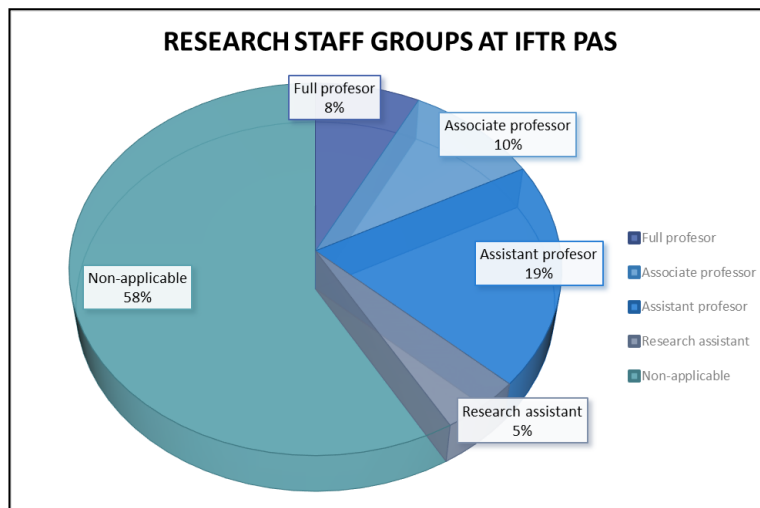


Fig. 7. Research staff groups

The general **breakdown of respondents largely reflects the overall staff structure**, in particular in terms of gender, research and technical as well as engineering and technical staff representation (see: Fig. 4 and 6 above). **A significant share of researchers (40%) among respondents** has to be noted.

4. INTERNAL GAP ANALYSIS - FINDINGS

This section presents the summary of the Gap Analysis results.

The detailed results of the Internal Gap Analysis are presented in a separate document (annexed to the HRS4R main document), using the European Commission template – as recommended by the assessors of the previous version of the HR Strategy for Researchers.

The Gap Analysis exercise was found very useful – also as a management support tool. It was very comprehensive and provided an invaluable, large-scale, feedback how various measures introduced to the IPPT PAN's framework had been perceived. It also helped to assess the

efficiency of different types of measures. The Analysis allowed to draw valuable conclusions regarding the functioning of the Institute. They have been and will be used not only for the purpose of the implementation of the Strategy, including the Action Plan, but also to further improve the quality of performance of the Institute.

The Gap Analysis showed that:

- **legislation – both national and institutional – regarding C&C principles is in place and it does not require complementing or major improvements;**
- **the level of recognition of IPPT PAN as an employee-friendly workplace, in particular a researcher-friendly place, by the participants of the survey is high.** For example:
 - (i) the general level of satisfaction with the working conditions is relatively high) - 59% of all survey participants positively assessed the implementation of the C&C principle regarding **working conditions** while 27% indicated no opinion/non-applicable answer; it means that **81%** of the respondents who had a clear substantial opinion on the implementation of the principle were of **positive opinion**;
 - (ii) the implementation of such a sensitive issue as funding and salaries was positively assessed by 58% of respondents (with 28% giving ‘no opinion/non-applicable’ answers) – thus excluding ‘no opinion/non-applicable’ answers the ratio of positive opinions was 80%).

Survey – assessment of importance of C&C principles

The detailed statistics of responses assessing the importance of C&C principles are presented in a separate document (see: Annex).

The C&C principles recognised in the survey as the most and least important are presented in the table below. They are matched with the level of the respondents’ satisfaction with the implementation of them.

The most important C&C principles (according to the survey):		
	Importance	Implementation
Funding and salaries	95% (with 1% of ‘no opinion/non-applicable’ answers)	58% (with 28% of ‘no opinion/non-applicable’ answers)
Judging merit	92% (with none ‘no opinion/non-applicable’)	51% (with 34% of ‘no opinion/non-applicable’ answers)
The least important C&C principles (according to the survey):		
	Importance	Implementation
Gender balance	56% (with 13% of ‘no opinion/non-applicable’ answers) <i>Although it has to be underlined</i>	43% (with 42% of ‘no opinion/non-applicable’ answers)

	<i>that the free text responses clearly showed misinterpretation of the principle – it was interpreted as some artificial preference for women. Also the percentage of responses on the importance of non-discrimination principle (87% with 8% of ‘no opinion/non-applicable’ answers) prove the misinterpretation.</i>	
Access to career advice	63% (with 18% of ‘no opinion/non-applicable’ answers).	23% (with 42% of ‘no opinion/non-applicable’ answers)

If excluding ‘no opinion/non-applicable’ responses for the above mentioned statistics, the respective figures are following:

The most important C&C principles (according to the survey):		
	Importance	Implementation
Funding and salaries	96%	80%
Judging merit	92%	77%
The least important C&C principles (according to the survey):		
	Importance	Implementation
Gender balance	64%	73%
Access to career advice	77%	40%

The funding and salaries as well as judging merit principles which were assessed as the two most important C&C principles were also highly assessed as far as their implementation is concerned (96% vs. 80% and 92% vs. 77%).

Although the gender balance principle was assessed as the least important (for the reasons summarised above), its implementation was evaluated relatively well.

The importance of the access to career advice principle was not generally recognised very well either, despite many very positive individual comments. The general relatively unfavourable opinion clearly affected the level of satisfaction with the implementation of the principle indicated in the survey.

It has to be underlined that the survey results showed the **significant level of recognition of the importance of C&C principles**, in particular the importance of:

- ethical and professional aspects (within the range of 95-81% of positive substantial responses),
- recruitment (95-83% of positive substantial responses, except for the C&C selection principle with 74% of positive substantial opinions),
- training (the range of 96-94% of positive substantial opinions).

Also the importance of the group of C&C principles regarding working conditions and social security was highly assessed, except for the two principles, listed above, which were below the range of 97-82% of positive substantial opinions.

The share of responses expressing lack of opinion ('no opinion/non applicable') varying from 0 to 18% requires actions, as described in the Action Plan section below.

Survey – assessment of the level of implementation of C&C principles

The opinion of the survey participants on the level of implementation of C&C principles ranged from 70% of positive responses to 23% (with a range of 'no opinion/non-applicable' responses varying from 25 to 48%). If excluding 'no opinion/non-applicable' responses, the range of positive substantial opinions was within the range of 93% to 40% which gives a clear signal which C&C principles implementation aspects need to be improved.

The details are presented in a separate document (see: Annex).

The figures below present the summary of the responses on the implementation of C&C principles.

Ethical and professional aspects – implementation:

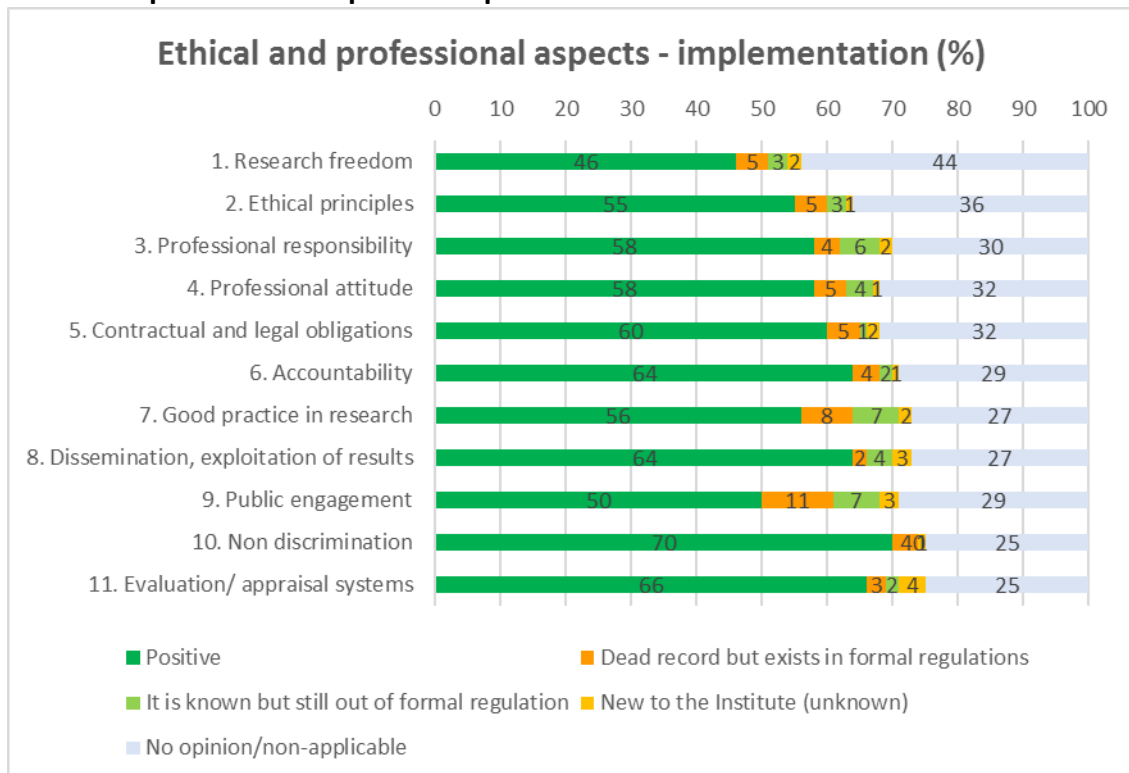


Fig. 8.a. Ethical and professional aspects – implementation (including 'no opinion/non-applicable' answers)

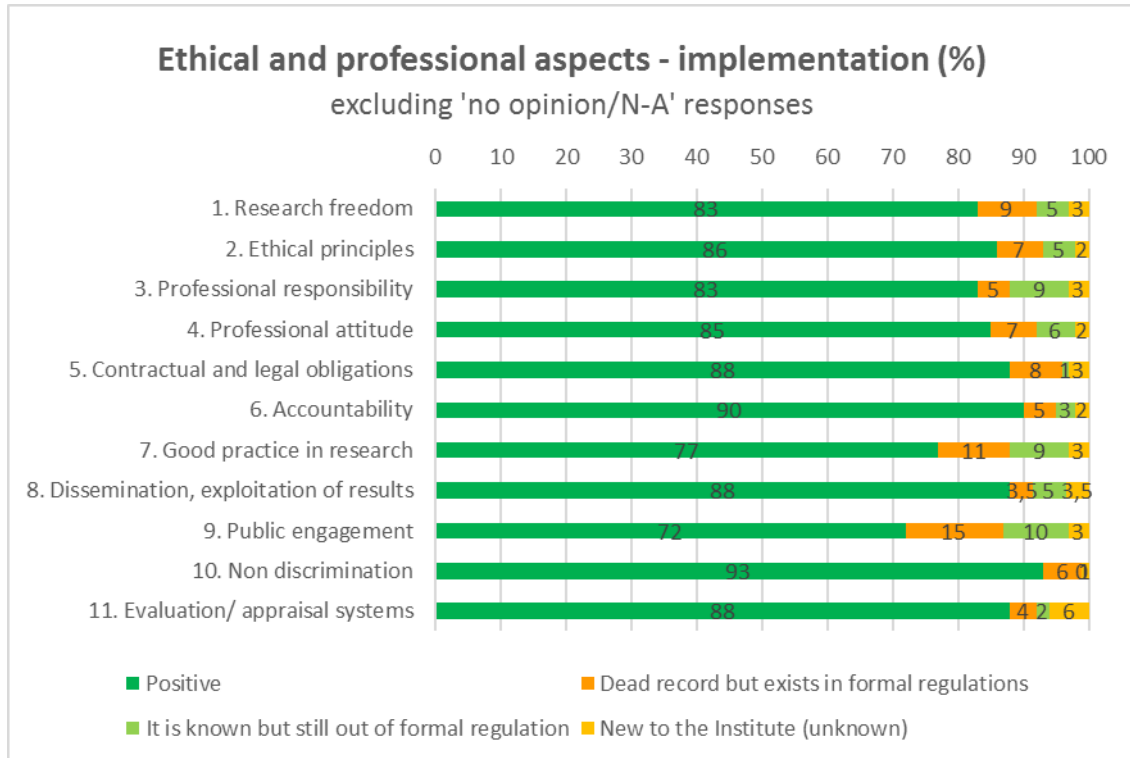


Fig. 8.b. Ethical and professional aspects – implementation (excluding ‘no opinion/non-applicable’ answers)

Recruitment – implementation:

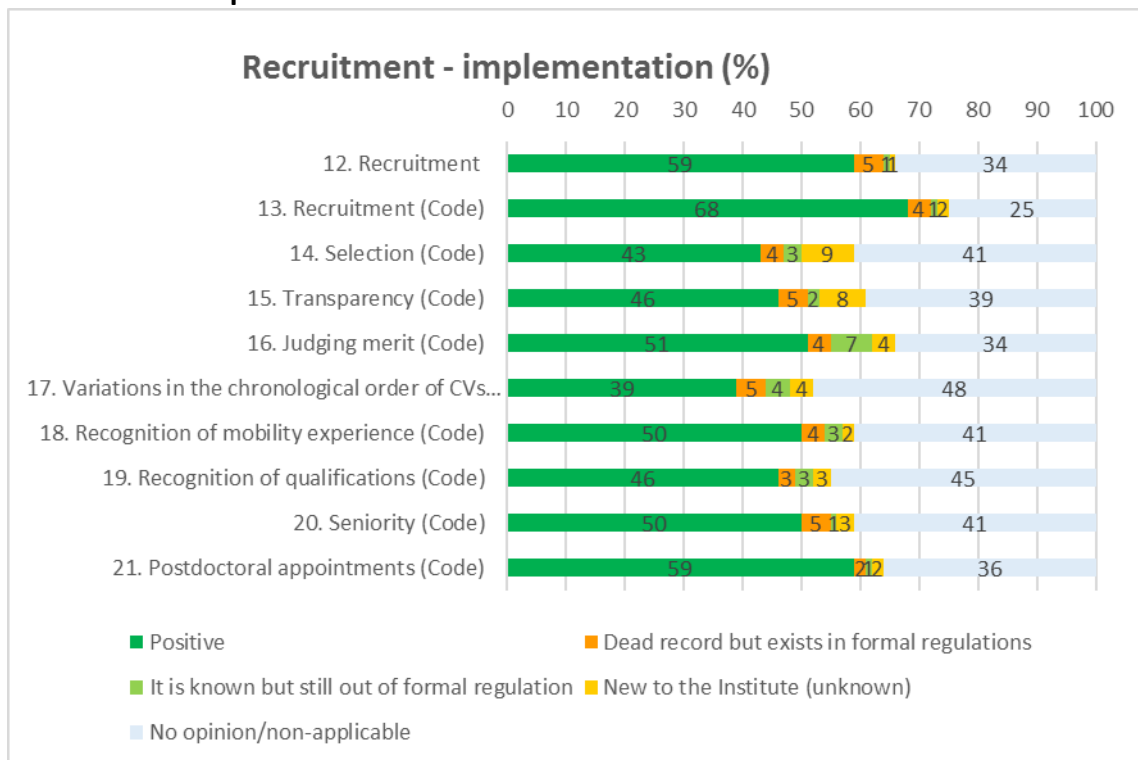


Fig. 9.a. Recruitment – implementation (including ‘no opinion/non-applicable’ answers)

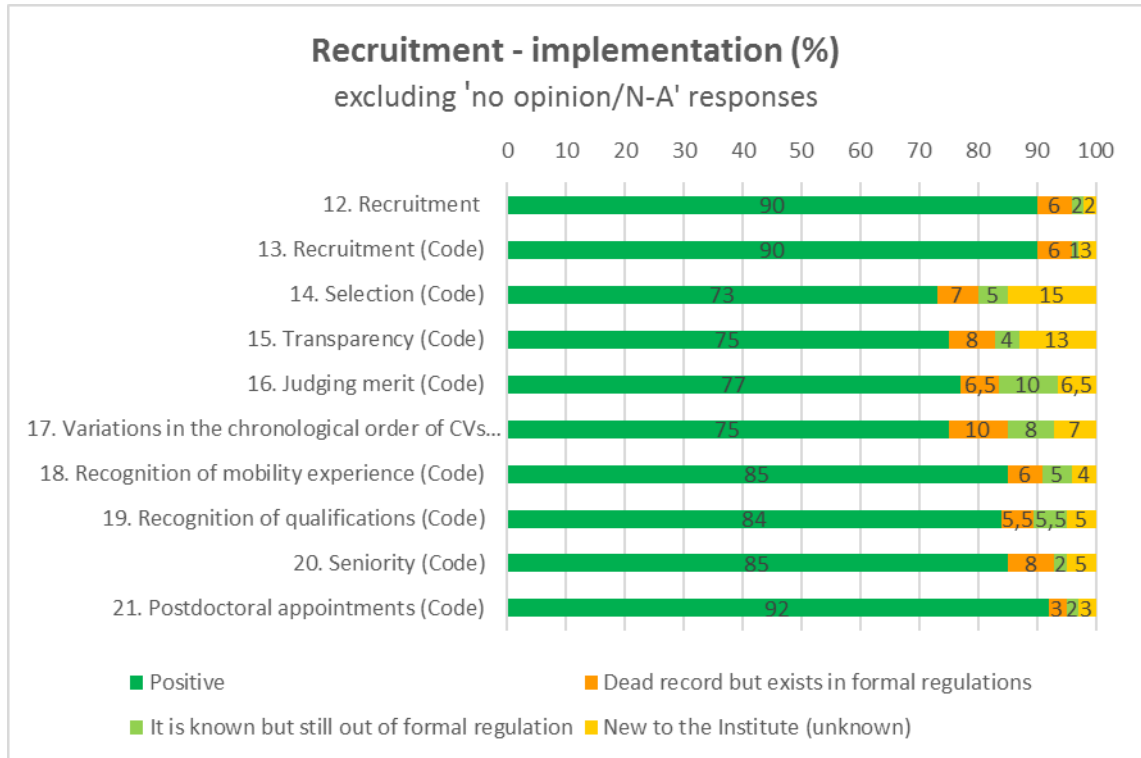


Fig. 9.b. Recruitment – implementation (excluding ‘no opinion/non-applicable’ answers)

Working conditions and social security – implementation:

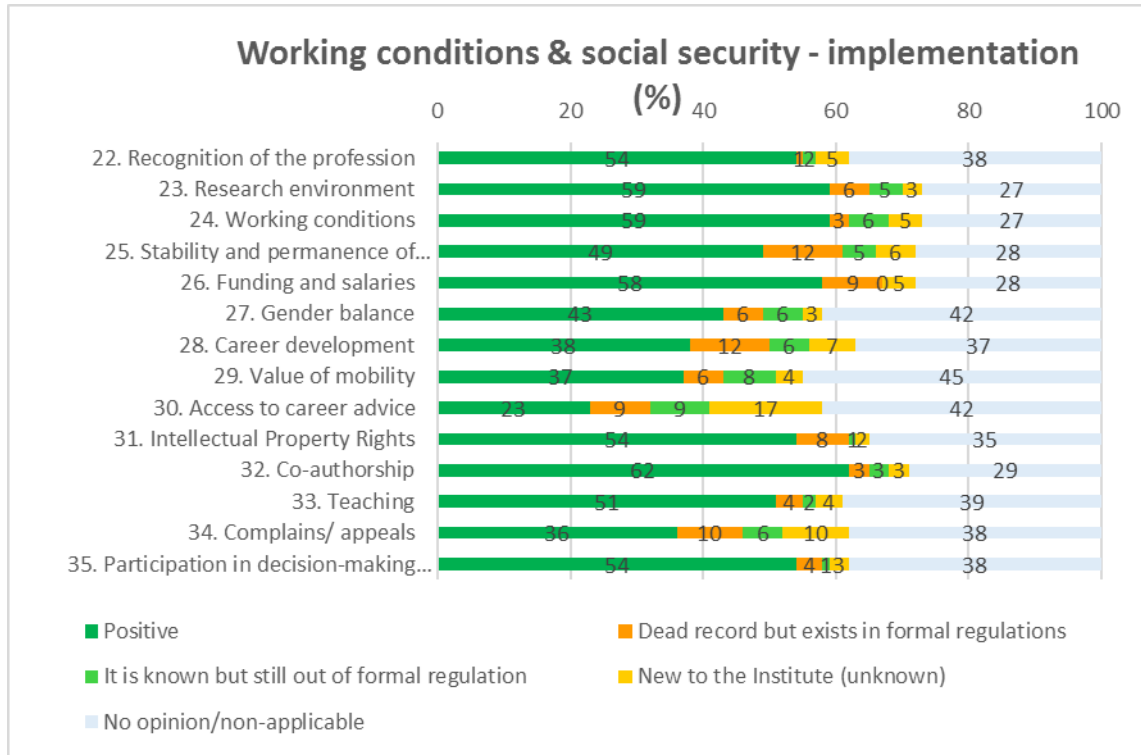


Fig. 10.a. Working conditions and social security – implementation (including ‘no opinion/non-applicable’ answers)

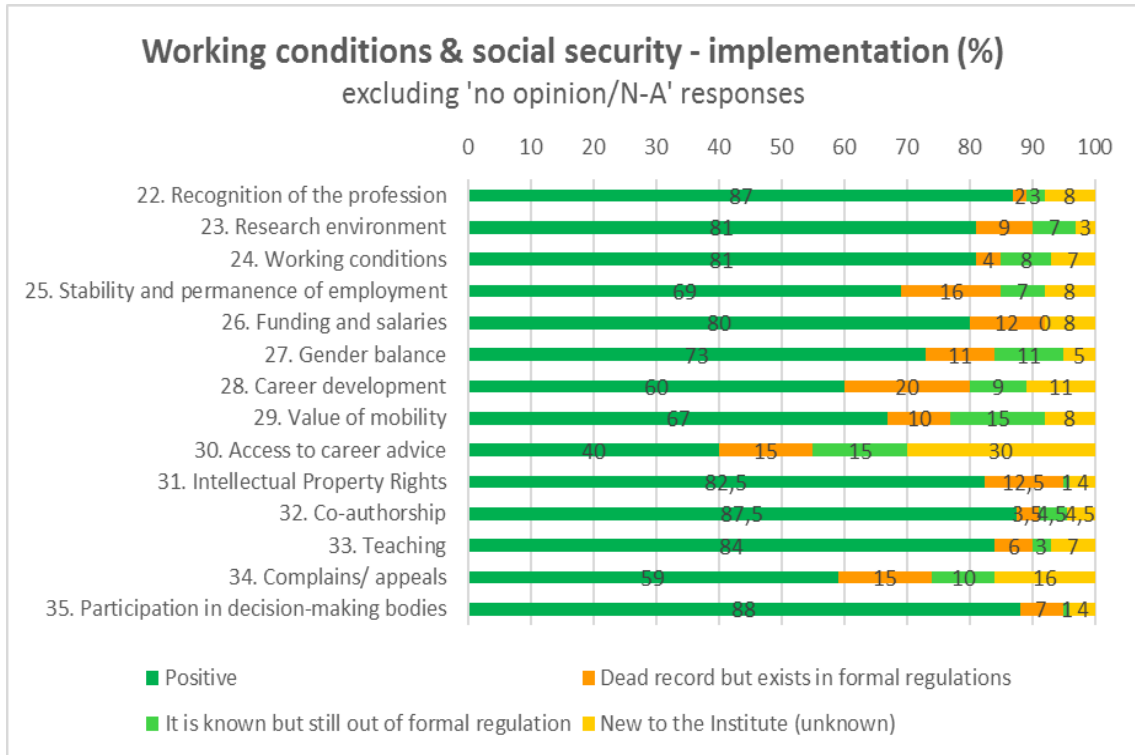


Fig. 10.b. Working conditions and social security – implementation (excluding ‘no opinion/non-applicable’ answers)

Training – implementation:

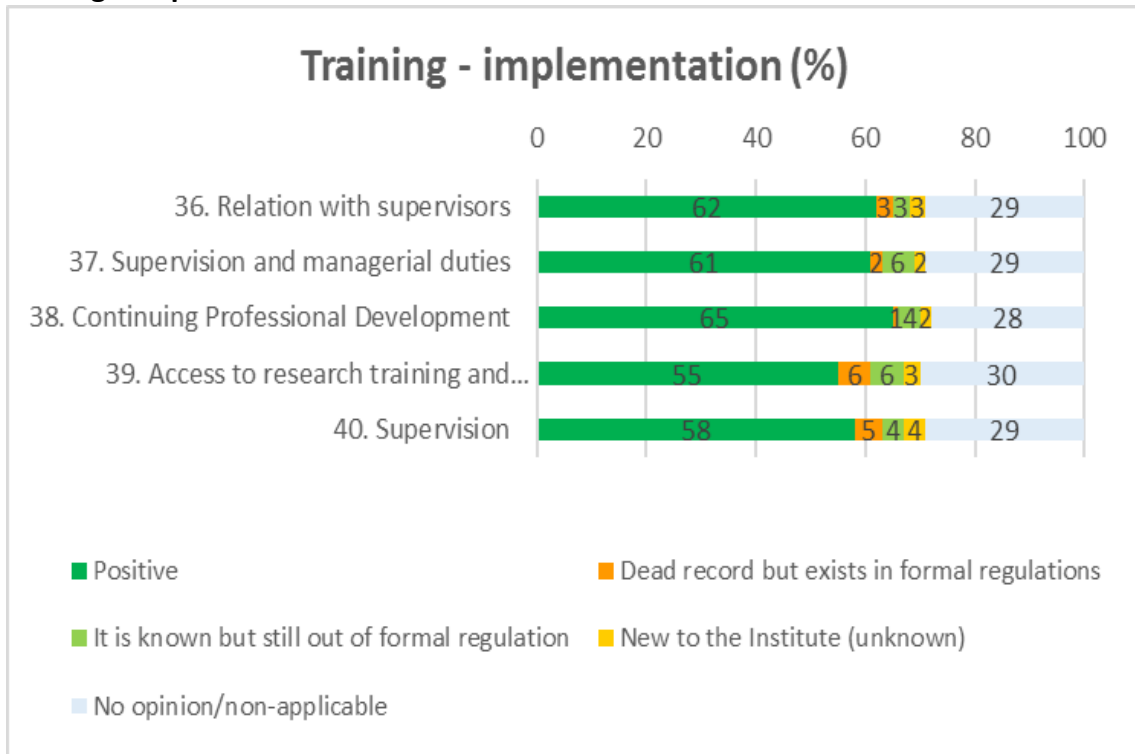


Fig. 11.a. Training – implementation (including ‘no opinion/non-applicable’ answers)

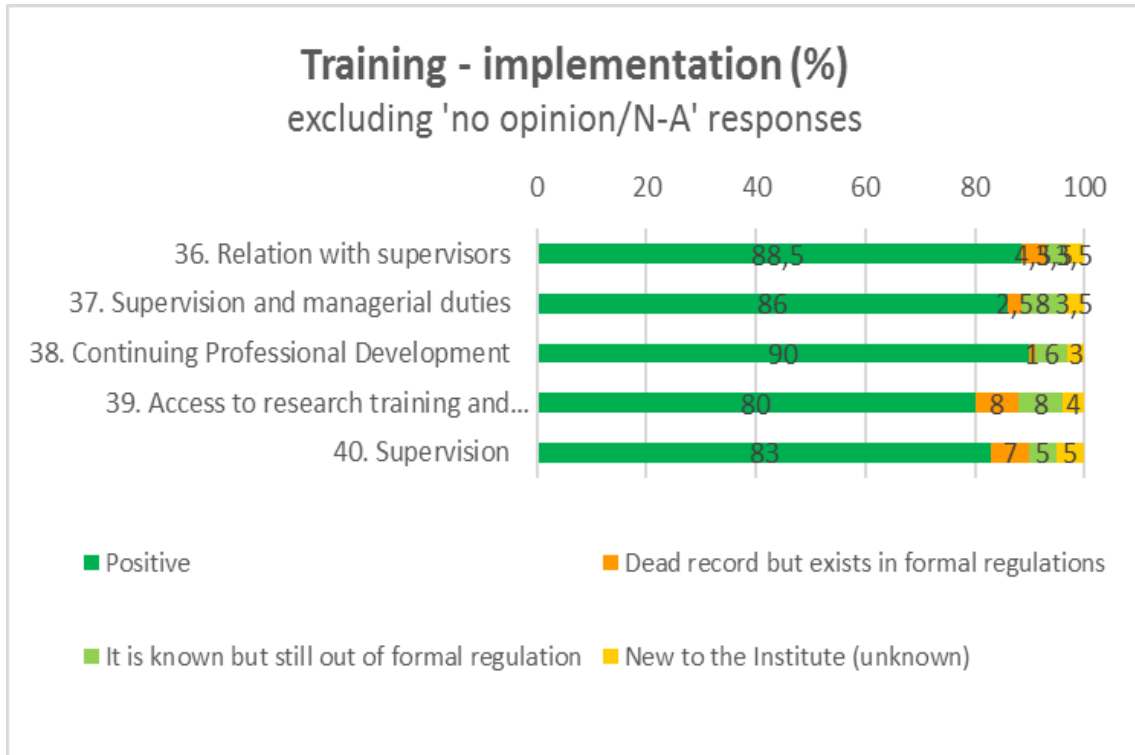


Fig. 11.b. Training – implementation (excluding ‘no opinion/non-applicable’ answers)

The C&C principles recognised as the most and least successfully implemented are presented in the table below. They are matched with the respondents’ opinions on the importance of them.

The most successfully implemented C&C principles (according to the survey):		
	Implementation	Importance
Non-discrimination	70% (with 25% of ‘no opinion/non-applicable’ answers)	87% (with 8% of ‘no opinion/non-applicable’ answers)
Evaluation/appraisal systems	66% (with 25% of ‘no opinion/non-applicable’ answers)	75% (with 7% of ‘no opinion/non-applicable’ answers)
The least successfully implemented C&C principles (according to the survey):		
	Implementation	Importance
Access to career advice	23% (with 42% of ‘no opinion/non-applicable’ answers) <i>For more details on survey results regarding the principle: see description</i>	63% (with 18% of ‘no opinion/non-applicable’ answers)

	<i>above – p. 13)</i>	
Complains/appeals	36% (with 38% of ‘no opinion/non-applicable’ answers)	76% (with 17% of ‘no opinion/non-applicable’ answers)

If excluding ‘no opinion/non-applicable’ responses for the above mentioned statistics, the following levels were indicated:

The most successfully implemented C&C principles (according to the survey):		
	Implementation	Importance
Non-discrimination	93%	95%
Evaluation/appraisal systems	88%	81%
The least successfully implemented C&C principles (according to the survey):		
	Implementation	Importance
Access to career advice	40%	77%
Complains/appeals	59%	91.5%

The above listed figures which present the opinions of survey participants on the level of implementation of the C&C principles regarding non-discrimination (93%) and evaluation/appraisal systems (88%) show clearly the high level of satisfaction among the staff. In case of implementation of access to career advice (40%) and complains/appeals (59%) principles relevant actions to improve the situation are needed and have been planned. The full list of actions planned to mitigate the challenges identified within the Gap Analysis is presented in the ‘Action Plan’ section below.

It has to be underlined that the **majority of respondents was aware of the existing rules and practices**. At the same time a moderate level of general awareness of some aspects of the functioning of the Institute among others was noted, in particular of details regarding recruitment and employment of researchers. It is not an unusual situation, especially among research organisations of at least similar size and structure as IPPT PAN is, that employees are mainly interested in what is directly linked with their professional areas. Hence it is understandable that for example a member of administrative staff who is not involved in supporting researchers is not aware of details regarding the procedure of research staff recruitment. On the other hand, a certain level of awareness of legal and practical framework of functioning of each institution should be a standard among all employees. Thus relevant actions to mitigate the ‘lack of awareness’ challenge have been planned.

5. CONCLUSIONS

In the light of the findings of the Gap Analysis, including desk research and survey, it has been concluded that current practices at the Institute of Fundamental Technological Research of the Polish Academy of Sciences are generally in line with the C&C principles. However, there are still some aspects where improvements are needed. These are listed in the Action Plan below.

On the basis of the Gap Analysis the following conclusions have been drawn:

- i. the strategic goals and on-going development plans of IPPT PAN are in line with C&C principles;
- ii. the C&C principles are to a large extent already implemented in the Polish legislation as well as in the legal regulations and procedures which have been established and consequently developed at IPPT PAN;
- iii. the measures which have been continuously undertaken by the Institute have been recognised and appreciated by a large group of survey participants;
- iv. IPPT PAN is recognised as an employee-friendly place, providing good working conditions.

A. Strengths, including good practices

Based on the works conducted at IPPT PAN the following strengths have been identified:

1. a significant level of general awareness, respect and implementation of the general principles of conducting research, in particular ethics, professional responsibility and evaluation systems (C&C principles 1-11);
2. a good understanding and respect to research freedom in the areas of the Institute's research policy, developed by the Scientific Council (C&C principle 1);
3. commonly shared non-discrimination approach and practice (C&C principle 10);
4. well developed and established quality evaluation procedures (C&C principle 11);
5. compliance with C&C recruitment principles, in particular a merit-based open competition for research positions (C&C principles 12-21);
6. favourable working conditions, including transparent remuneration and award systems, which create a good environment for conducting research (C&C principles 22-35).

B. Challenges and areas requiring further improvements

Areas which were identified within the Gap Analysis as a subject to further improvements are listed in the Action Plan section below. They include:

1. a better society-oriented visibility of the Institute (part of C&C principle 9);
2. a higher level of gender balance of research staff - despite the specificity of the scientific areas represented by the Institute, described above (C&C principles 14 and 27);
3. a wider awareness of the existence and implementation of the policy as well as of importance of IT safety and data protection aspects (part of C&C principle 7);
4. a more structured approach to career advice (C&C principles 28 and 30);



5. a higher level of recognition of mobility experience (C&C principles 18 and 29);
6. a more systemic institutional approach to the desired level of support of researchers across the Institute, while fully respecting and preserving the good practice which functions well on the level of individual research departments (C&C principles 36 and 37);
7. a more tailor-made solution for solving individual complains, which will fully respect the aspect of sensitivity of the issue and will ensure the highest level of impartially (C&C principle 34).

The general feedback as well as individual responses in the survey have provided a valuable data and suggestions not only for strategic actions but for every-day minor improvements as well which can make IPPT PAN a still better work place.

6. ACTION PLAN, INCLUDING DELIVERABLES AND MILESTONES

The summary of the required actions is presented in the table below.

Action	C&C principle addressed	Who	When/Deadline	Deliverable
A.1.(C&C.7). To review and amend the existing institutional IT and data security policy	7. Good practices in research	Computing Services Unit	June 2017	D.1.(C&C.7). Amended institutional IT and data security policy
A.2.(C&C.7). To increase the level of awareness of the existence and implementation of the policy as well as of importance of IT safety and data protection aspects, by posting and disseminating clear and concise information in the internal network			October 2017	D.2.(C&C.7). Concise information package on IT safety and data protection disseminated and made available in the internal network
A.3.(C&C.7). To undertake measures based on amended IT and data security policy which will lead to coordinated management of IT equipment and IT network			October 2017	D.3.(C&C.7). Regulation on management of IT equipment and IT network
A.4.(C&C.9).To create a dedicated society-friendly website on research conducted at the Institute	9. Public engagement	Director's Assistant for promotion	October 2017	D.4.(C&C.9). A society-friendly website on research works and results available
A.5.(C&C.9). To develop a framework plan of 'science-for-society' events, including Institute's open days			September 2017	D.5.(C&C.9). Framework plan of 'science-for-society' events



A.6.(C&C.14;27). To undertake measures regarding the general awareness-raising of importance of gender balance principle by disseminating information on the issue and organising a seminar on gender aspects	14. Selection (Code) and 27. Gender balance	Director's plenipotentiary for research funds	June 2017: <i>dissemination of information</i> June 2017: <i>seminar</i>	D. 6.a.(C&C.14;27). Information package on the importance of gender aspects, distributed to the staff D. 6.b.(C&C.14;27). Seminar agenda, attendance list, seminar presentations
A.7.(C&C.17). To review the existing rules and practices at IPPT PAN in the context of the principle and adjust them accordingly	17. Variations in the chronological order of CVs (Code)	HR Office	March 2018	D.7.(C&C.17). Modified 'Rules on employment of scientists'
A.8.(C&C.18;29). To modify the Scientific Council Resolution 'Rules of employment of scientists' by quantifying the mobility criterion in order to amplify its value	18. Recognition of mobility experience (Code)	HR Office/Board of Directors	March 2018	D.8.(C&C.18;29). Modified S.C.R. 'Rules of employment of scientists'
A.9.(C&C.18;29). To continue the practice of regular dissemination of information on mobility offers	and	Director's plenipotentiary for research funds	Regular (monthly) actions	D.9.(C&C.18;29). Information package with mobility offers distributed to the staff
A.10.(C&C.18;29). To continue the practice of organising information seminars on mobility programmes and their advantages	29. Value of mobility	NCP/Director's plenipotentiary for research funds	Regular (quarterly) actions (correlated with call schedules)	D.10.(C&C.18;29). Seminar agenda, attendance list, seminar presentations

<p>A.11.(C&C.25). To carry out another information action with the view to further increase the awareness of the regulations ensuring stability and permanence of employment; the action will be repeated in the future whenever significant changes to the national regulations will be made</p>	<p>25. Stability and permanence of employment</p>	<p>HR Office</p>	<p>February 2017 <i>Information action</i></p>	<p>D.11.(C&C.25). Information package on employment rules, including stability and permanence aspects, distributed to the staff</p>
<p>A.12.(C&C.25). To regularly monitor the general implementation of the principle</p>			<p>Regular (annual) actions</p>	<p>D.12.(C&C.25). Annual reports to the Board of Directors and the Scientific Council on the implementation of the C&C principle</p>
<p>A.13.(C&C.27). The Scientific Council alongside with the Board of Directors will discuss the survey outcome regarding the gender balance principle and consider potential improvements</p>	<p>27. Gender balance</p>	<p>Board of Directors</p>	<p>June 2016 - done</p>	<p>D.13.(C&C.27). Report to the Scientific Council, conclusions from the discussion recorded in the Scientific Council meeting protocol</p>
<p>A.14.(C&C.27). To regularly monitor the gender balance in employment, provided that the principle of the highest quality of employees is a priority</p>		<p>HR Office</p>	<p>Regular (annual) actions</p>	<p>D.14.(C&C.27). Annual reports to the Board of Directors and the Scientific Council on gender statistics in employment</p>
<p>A.15.(C&C.27). To improve the visibility of information on favourable working conditions on the website of the Institute with the aim of increasing the attractiveness of IPPT PAN as a 'research-friendly' institution</p>		<p>Director's Assistant for promotion</p>	<p>March 2017</p>	<p>D.15.(C&C.27). Information package on working conditions, available on the website.</p>

A.16.(C&C.28;30). The Scientific Council alongside with the Board of Directors will discuss the survey outcome regarding the career development and access to career advice principles and consider potential improvements	28. Career development and 30. Access to career advice	Board of Directors	June 2016 - done	D.16.(C&C.28;30). Report to the Scientific Council, conclusions from the discussion recorded in the Scientific Council meeting protocol
A.17.(C&C.28;30). To undertake an initiative of creating a career advice centre within the structure of the Polish Academy of Sciences; the centre would serve researchers of all PAS institutes, whenever needed		Board of Directors	March 2017	D.17.(C&C.28;30). Letter to the President of PAS initiating the establishment of the PAS career advice centre
A.18.(C&C.28;30). To modify the IPPT PAN's website in order to increase the visibility of information on career development		HR Office/Computer Services Unit	June 2017	D.18.(C&C.28;30). Information package on career development, available on the website
A.19.(C&C.31). To make the information on IPR, including internal rules, more user-friendly by improving the structure and information content available in the IPPT PAN's internal network	31. Intellectual Property Rights	Centre for Commercialization of Research Results and Technology Transfer	April 2017	D.19.(C&C.31). User-friendly Information package on IPR, available in the IPPT PAN's internal network
A.20.(C&C.34). To elect (bottom-up approach) and appoint an ombudsman	34. Complains/appals	Board of Directors/HR Office	December 2017	D. 20.a.(C&C.34). Documentation of the election process D. 20.b.(C&C.34). Election of ombudsman
A.21.(C&C.35). To organise a pre-election campaign promoting the importance of active representation in decision-making bodies such as the Scientific Council	35. Participation in decision-making bodies	Board of Directors/ Director's Assistant for promotion	II-III quarter 2018	D.21.(C&C.35). Documentation of the campaign

A.22.(C&C.36;37). To organise series of soft skills trainings, workshops in smaller groups (research departments)	36. Relation with supervisors and 37. Supervision and managerial duties	HR Office/Board of Directors	October 2017 – February 2018	D.22.(C&C.36;37). Training documentation: agenda, attendance list, training materials
Complementary ‘Awareness-raising’ actions planned as a result of the Gap Analysis				
A.23.(C&C.1-40). To publish the C&C rules on IPPT PAN's website	1. – 40.	HR Office/Computing Services Unit	May 2016 - done	D.23.(C&C.1-40). C&C rules, available on the IPPT PAN's website
A.24.(C&C.1-40). To prepare a ‘HR-dedicated space’ in IPPT PAN's internal network with staff-useful information package, including Labour law regulations and employees' rights and obligations		HR Office	September 2017	D.24.(C&C.1-40). HR-related information package, available in ‘HR-dedicated space’ in IPPT PAN's internal network
A.25.(C&C.1-40). To undertake regular information actions, including: a) preparation and distribution of a newsletter on C&C, Labour law rights and obligations b) organising C&C information seminar		a) HR Office/Director’s plenipotentiary for research funds b) HR Office/Director’s plenipotentiary for research funds	Biannually: March and October June 2018 and June 2020	D.25.a.(C&C.1-40). Newsletter on C&C and Labour law rights and obligations, distributed to the staff D.25.b.(C&C.1-40). Seminar agenda, attendance list, seminar presentations



The actions conducted within the Internal Gap Analysis as well as those which are planned in the coming months and years have allowed and will allow to set the **milestones** as listed below.

Milestone number	Milestone	Milestone deadline	Means of verification	Comments
MS.0	Legal framework compliance with C&C rules	February 2016	MS-V.0. Results of the ‘desk research’ as a part of the Gap Analysis	Already reached
MS.1	Launching of a dedicated society-friendly website on research conducted at the Institute	October 2017	MS-V.1. Availability of a dedicated society-friendly website MS-V.1.b. Assessment of the quality of the website content by the Working Group, based on the number of ‘clicks’, impression and comments from web-users	
MS.2	Significantly improved quality and accessibility of HR-related information for IPPT PAN’s staff	October 2017	MS-V.2.a. Availability of high quality information on HR aspects for IPPT PAN’s staff MS-V.2.b. Assessment of the quality of modified information package by the Working Group	
MS.3	Self-assessment	December 2018	MS-V.3. Verification by the Working Group supported by other representatives of IPPT PAN’s staff based on i.a. a staff survey conducted in 2018	

The complete Action Plan together with deliverables and milestones is illustrated below on the Gantt chart.

7. POST-GAP ANALYSIS STEPS, INCLUDING MONITORING

The 'Human Resources Strategy for Researchers: Gap Analysis and Action Plan', prepared on the basis of the Gap Analysis conducted at the IPPT PAN, was submitted to the European Commission in May 2016. The IPPT PAN's application was accepted, 'pending minor alterations'. The recommendations from the assessors were following:

1. to present the Gap Analysis as a separate document using the template of the European Commission;
2. to include links to the various policies and procedures in the Gap Analysis 'for the ease of current and new researchers to find and familiarise themselves with';
3. to demonstrate the stronger linkage between the Gap Analysis, actions identified and the survey results presented ('Particular attention should be given to the survey results where it was reflected by the participants that there was 'no knowledge/no option' as a high percentage of the respondents but yet no action was put in place to reflect how this might be rectified');
4. to present actions with clear milestones and deliverables ('this will allow IPPT PAN to get verification to evaluate in 24 months or so how they are doing and what has been achieved');
5. to provide access to the Gap Analysis and Strategy/Action plan as separate links on the webpage, once the recommendation to provide a separate Gap Analysis on the Commission template is executed.

The assessors also commented that they did not view the IPPT PAN acknowledgement of the C&C on either the IPPT PAN webpage or the Euraxess webpage, although the endorsement letter had been sent to the European Commission more than a month before the submission of the HR Strategy to the Commission (the letter was sent on April 5, 2016; the receipt of it was confirmed on April 11, 2016). After IPPT PAN's intervention on June 14, 2016 the Commission published the letter on the EURAXESS portal.

In response to the assessors' comments the link to the C&C endorsement letter of April 2016 has been also published on IPPT PAN's website.

Following the above assessors' recommendations the listed below measures have been introduced:

Ad. 1. The Gap Analysis has been presented as a separate document using the template of the European Commission (it is now annexed to the HRS4R main document). As a consequence, the previous version of the HRS4R has been modified accordingly – to avoid duplication of both documents;

Ad. 2. The links to the relevant legal framework, policies and procedures have been included in the modified version of the Gap Analysis, as recommended by the assessors - although the relevant documents and information have always been available to current and new researchers and researchers have been informed and reminded about them (which was described in the previous version of the strategy on page 18, currently page 13 in Annex: 'Institutional regulations are made available to the staff of the Institute immediately after their adoption and relevant units are in charge of monitoring and ensuring that they are applied' and page 19, currently page 14 in Annex:



'All internal regulations are available on the IPPT PAN's website. Changes in internal and other legislation acts are posted via internal network'.);

Ad. 3. As recommended by the assessors:

- supplementary actions have been added to the previous version of the Action Plan – also in order to continue to increase the level of awareness of relevant aspects of the legal framework and practice binding to the Institute (thus addressing the share of 'no opinion/non applicable' survey answers). They have been planned apart from the measures which have already been in place and have been practised;

- the Action Plan has been presented on the Gantt chart;

Ad. 4. Milestones and deliverables have been included in the document and linked with the Action Plan;

Ad. 5. Separate links to Gap Analysis and Strategy respectively have been provided on the IPPT PAN's webpage. Also – as mentioned above – the C&C endorsement letter has been published on the Institute's website.

All the assessors' comments and recommendations have been thoroughly taken into account and followed in the amended version of the strategy. The modified documents have been prepared by the Working Group on Human Resources Strategy for Researchers and approved by the director of the Institute.

The implementation of the Action Plan will be monitored by the mentioned above Working Group on Human Resources Strategy for Researchers, established in February 2016. The Group will be in charge of the regular assessment of progress in implementation of the Action Plan as well as of the regular analysis of potential bottlenecks and possible further improvements which would facilitate employees' work and increase their level of satisfaction with the work they do.

In order to execute its tasks the Group will hold quarterly meetings. Once a year, in early autumn, the meeting will be dedicated to a comprehensive analysis of the achievements and challenges of the implementation during the last 12 months period. The analysis will allow to assess the efficiency and impact of the actions on the overall functioning of the Institute and to consider potential additional or corrective measures, if needed.

The conclusions of the annual analyses will be reported to the Board of Directors and the Scientific Council of the Institute.

The first analysis will be conducted in autumn 2017.

The 2018 analysis will be followed by the self-assessment required by the HR Excellence in Research rules. The reports on the annual analyses conducted in 2017 and 2018 together with the feedback from the Institute's staff survey carried out in 2018 will form the basis for the self-assessment which will be performed by the end of 2018. The self-assessment will be conducted by the Working Group supported by other representatives of the Institute's staff, appointed by the director of IPPT PAN for the task.

The Working Group on Human Resources Strategy for Researchers will continue its monitoring works in the following years – thus safeguarding the proper implementation of the Action Plan as well as ensuring that IPPT PAN will maintain its place among the most excellent institutions which respect the highest standards in research.



8. FINAL REMARKS

Since its establishment over sixty years ago IPPT PAN has striven for excellence. The ambition and mission of the Institute has remained unchanged: to conduct the high quality research in the areas of the focus of the world's science and technology.

Over the years IPPT PAN has undertaken regular systemic actions to continuously improve its performance and to continue to create more favourable conditions for scientists conducting research. This includes available infrastructure: relatively new premises with modern and well-equipped research laboratories.

The Institute has not only invested in the infrastructure but primarily in the human capital.

Over the decades IPPT PAN has managed to attract and keep both promising and advanced researchers. Also, its own doctoral studies have been an excellent source of the high quality, inspiring human research minds.

The research staff appreciates a constructive and stimulating approach represented by the management of the Institute and a significant administrative support provided. The latter covers full support in managing projects and necessary advice in preparing a grant proposal.

Over the years IPPT PAN has also become a nest for new research centres which play a significant role in the world of science and innovation.

The achievements of the Institute have been widely recognised and awarded. The highest scientific category (A+) in Poland, conferred by the Polish Minister of Science and Higher Education, is one of the examples.

The works on preparation of the HR Strategy for Researchers as well as its successful implementation according to the above Action Plan are and will be the right steps on the path towards achieving our goals.

The ambition of the Institute is not only to maintain the current high quality of research and overall performance but to strongly move forward and to increase the international recognition of our potential and activities.

Obtaining the Human Resource Excellence in Research logo will become a milestone in the history of IPPT PAN and it will help to achieve the above goal. It will be a sign of international acknowledgment of our constant efforts towards excellence as well as a strong obligation for the future.

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