NICOLAUS COPERNICUS UNIVERSITY IN TORUŃ

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Young Universities for the Future of Europe

Yerun

Young Science

KEY FINDINGS AND RECOMMENDATIONS

YOUNG SCIENCE IN POLAND 2025/2026

REPORT ON A NATIONWIDE STUDY OF THE NICOLAUS COPERNICUS UNIVERSITY IN TORUŃ OF THE SUPPORT SYSTEM FOR STUDENTS AND DOCTORAL STUDENTS

The full version is available at https://mlodanauka.umk.pl/

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SUMMARY

This report presents the first nationwide integrated assessment of the conditions for the development of early-career researchers in Poland, covering the perspectives of students and doctoral students as well as the institutional dimension of the support offered by research universities. The findings indicate that, although support for the research activities of young researchers is widespread within the higher education system, it does not yet constitute a coherent, predictable and universally accessible system for academic development.

Support mechanisms are widely available across the system, but they remain fragmented, unevenly accessible and insufficiently integrated at the institutional level. Consequently, opportunities to undertake and develop research activities vary considerably between universities and organisational units. Access to some forms of support continues to depend on the local academic environment, relationships with academic supervisors, and how effectively information on available instruments and resources is communicated.

The findings reveal what might be described as an 'archipelago of support'. Individual instruments and examples of good practices are available in many institutions and can create highly favourable conditions for academic development; however, they are not always interconnected or equally accessible. The system works most effectively where various elements of support – financial, competence-based, organisational and relational - complement one another. Where one or more of these elements are missing, opportunities to develop research activity are more limited.

The issue, therefore, lies neither in a lack of engagement among early-career researchers nor in the absence of support mechanisms, but rather in the lack of a coherent system that would enable research activity to develop regardless of where an individual studies or undertakes doctoral training, and irrespective of local institutional conditions.

The findings point to six key systemic tensions shaping the conditions in which undergraduates and doctoral students develop their research activity.

First, there is a clear gap between research education and research practice. Undergraduate degree programmes develop some basic methodological skills, but are much less likely to cover the full research project cycle – from research design and securing funding through project management to the dissemination or application of findings. For doctoral students, preparation for independently designing and conducting research, securing funding and managing a research project is of particular importance.

Second, entry into research is not always institutionalised or predictable. For undergraduates, student research societies, research teams and the individual engagement of academic staff play a significant role. Access to research experience may therefore depend heavily on local conditions and the relationships within a given institution.

Third, there is a clear tension between access to funding and the capacity to conduct research. Both undergraduates and doctoral students attach considerable importance to research funding, while also identifying barriers associated with application procedures for obtaining and accounting for such funds. Among doctoral students, more than 90 per cent of respondents considered the provision of research funding as one of the most important

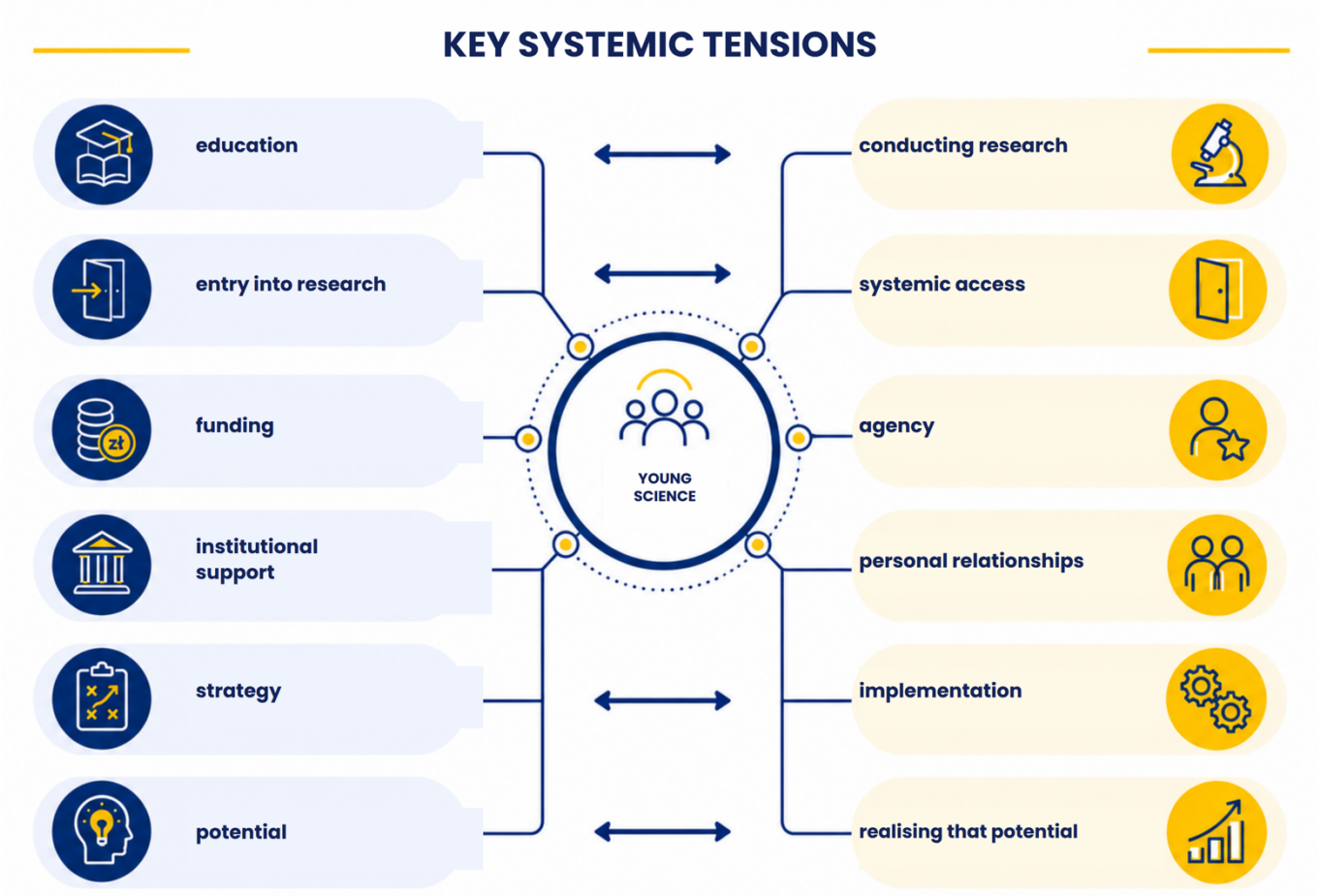
factors that could increase their research activity.

Fourth, a clear tension is evident between institutional support and reliance on personal relationships. Relationships with supervisors, academic mentors or research teams remain crucial to academic development; at the same time, some early-career researchers do not perceive university support systems as sufficiently visible, transparent or easily accessible.

Fifth, the analysis of research universities' development strategies reveals a gap between strategic commitments and their operationalisation. The academic development of early-career researchers is generally addressed in university strategies, but the extent to which these objectives are linked to specific actions, indicators, institutional accountability and monitoring arrangements varies.

Sixth, there is a tension between the potential of early-career researchers and the conditions required to realise it. The findings indicate that research activity may be constrained not only by skills or motivation, but also by financial, administrative, organisational and information-related barriers. More than 40 per cent of the doctoral students surveyed reported barriers that hindered their research activity.

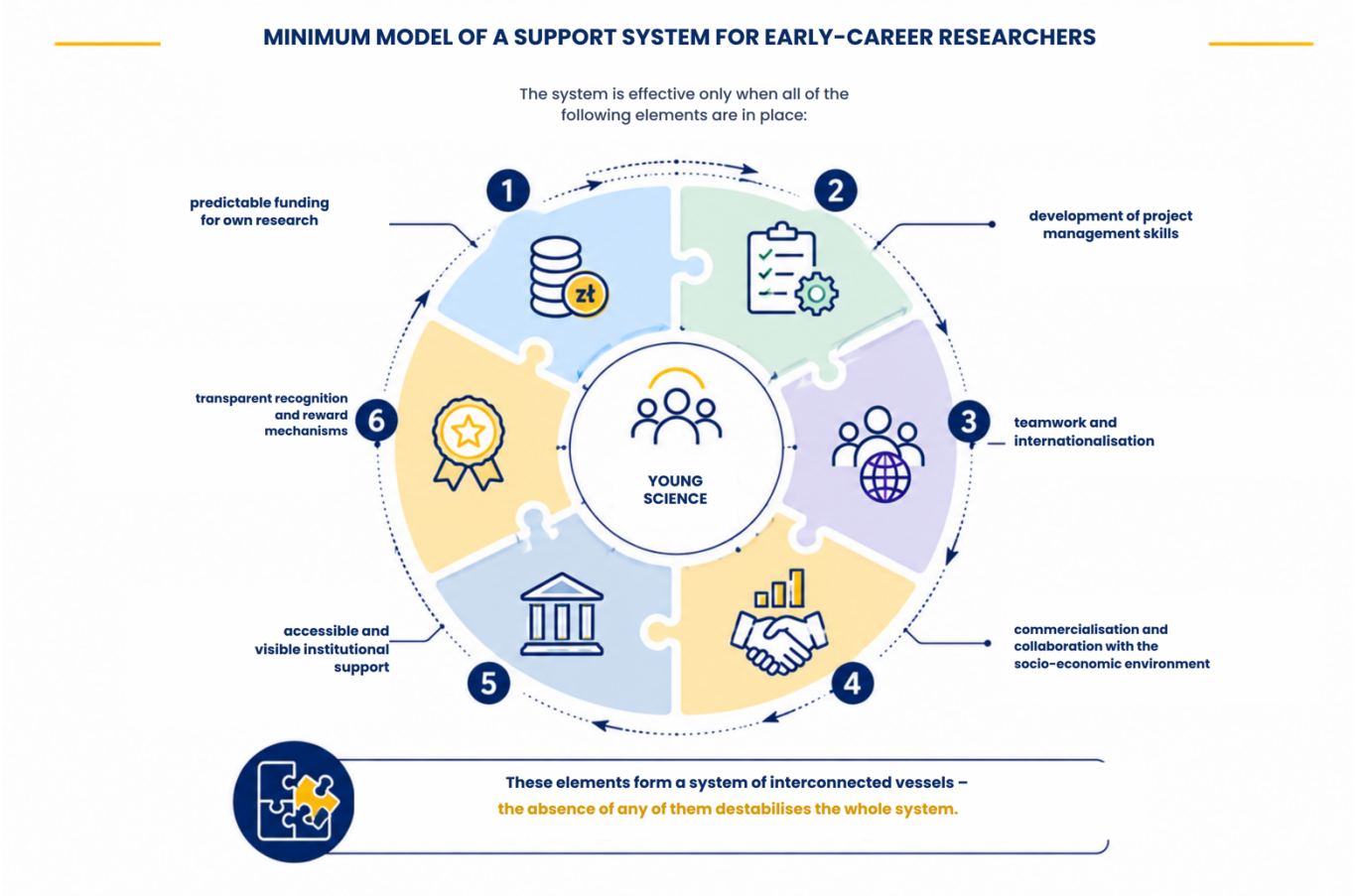
Fig. 1 Key systemic tensions



Source: the authors' own analysis based on the 'Research Activity of Students' study.

The findings also show a clear relationship between the barriers identified and the measures that undergraduates and doctoral students believe could enhance their research activity. Access to research funding, reduced administrative burdens, better access to information and effective institutional support are particularly important. Opportunities to participate in research teams, mentoring and the development of national and international collaboration also play a significant role. These findings provide the basis for a minimum model of support for early-career researchers.

Fig. 2 Minimum model of a support system for early-career researchers

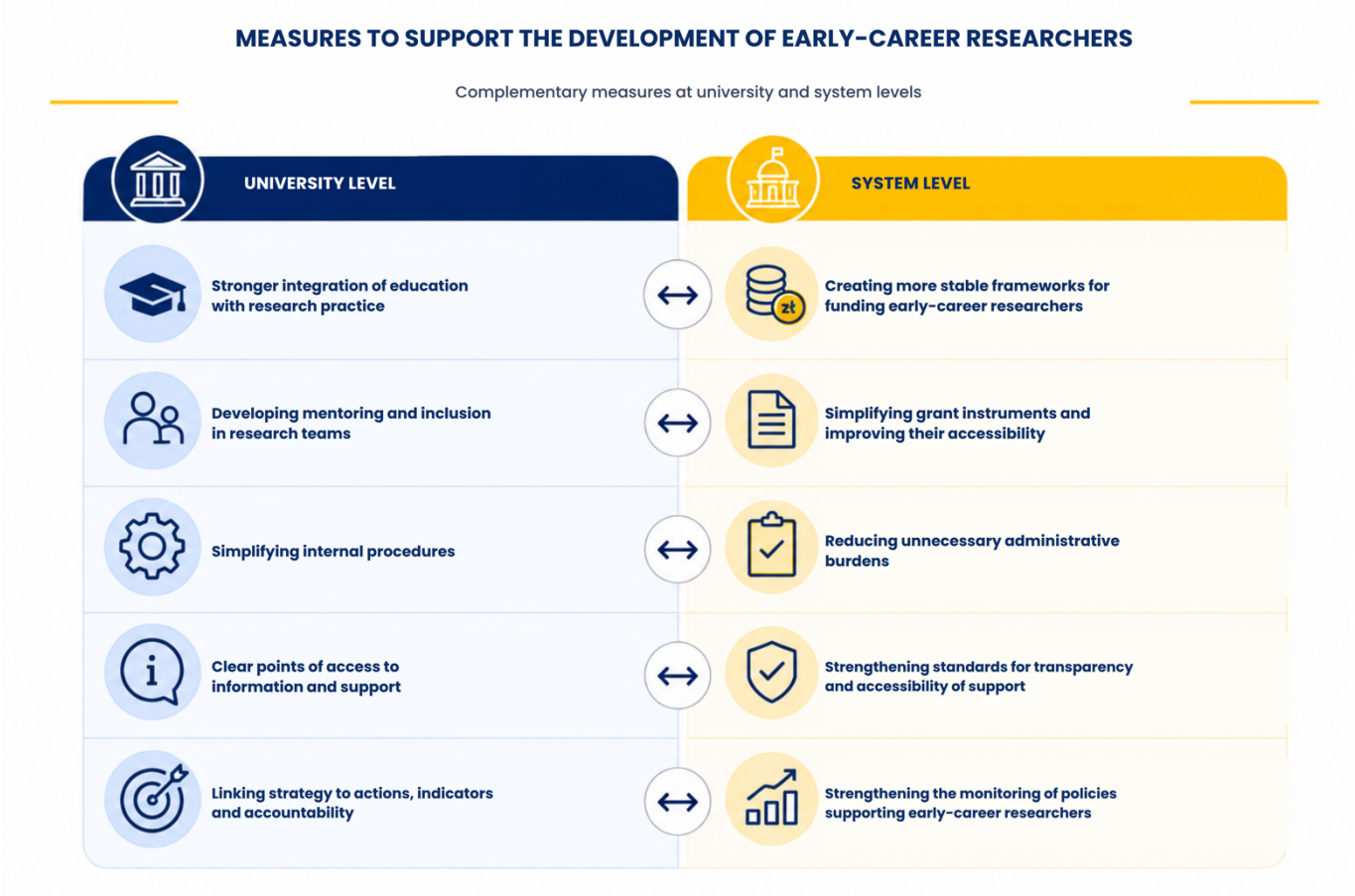


Source: the authors' own analysis based on the 'Research Activity of Students' study.

If any of these elements is missing, the support system becomes more fragmented, institutional inequalities are reinforced and the agency of early-career researchers is reduced.

In light of these findings, the priority is to integrate existing solutions more effectively, simplify them and make them more accessible, rather than simply create additional instruments. Measures are needed in parallel at both the university level and the systemic level.

Fig. 3 Measures to support the development of early-career researchers



Source: the authors' own analysis based on the 'Research Activity of Students' study.

The report therefore shows that the potential of early-career researchers depends on more than the engagement and motivation of students and doctoral students. Realising that potential requires an environment in which access to research, resources, information and support is stable, transparent and accessible, irrespective of local institutional conditions.

The key direction for change is a shift from a patchwork of individual instruments and examples of good practices towards an integrated system supporting early-career researchers.

1. INTRODUCTION

The academic development of early-career researchers is essential to the long-term sustainability and developmental capacity of the higher education and research system. It is during undergraduate studies and doctoral training that research competences are developed, research-oriented attitudes are formed, and the first decisions regarding future research activity and careers are made.

The 'Young Science' project conducted by the Nicolaus Copernicus University in Toruń provided a nationwide assessment of the conditions in which undergraduates and doctoral students undertake and carry out research. The study examined the experiences, needs and barriers of early-career researchers and considered institutional support through the solutions and development strategies adopted by universities.

The project resulted in a comprehensive report of more than 200 pages, presenting the methodology in detail, the findings of the quantitative and qualitative research, an analysis of research universities' development strategies, and extensive conclusions and recommendations. This publication is a condensed version of that report, focusing on the key findings, systemic issues and recommended courses of action. The full report is available at mlodanauka.umk.pl. Artificial intelligence tools were used in preparing this summary to support the editorial process, the organisation and synthesis of content, and the preparation of selected graphic elements.

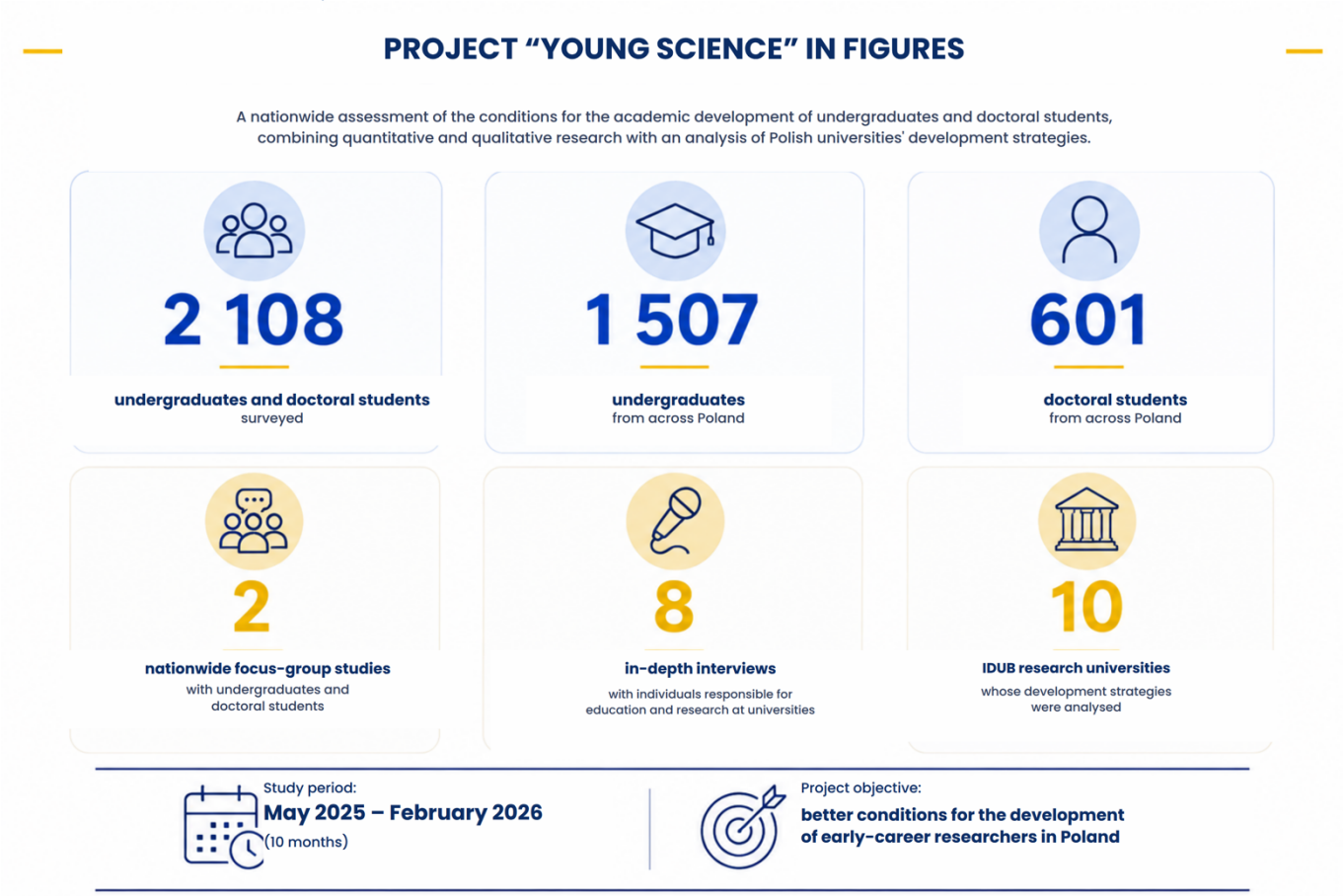
The analysis was conducted from three complementary perspectives. The first is the students' perspective, which captures the conditions under which they undertake their first research activities, develop research skills, make use of available forms of support, and enter into academic activity. The second is the perspective of doctoral students – individuals

at the next stage of academic development, for whom the conditions for conducting research and building independent research capabilities are of particular importance, including access to funding, substantive and institutional support, mobility and motivational mechanisms. The third perspective is the institutional level, analysed on the basis of the strategies of the 10 universities participating in the 'Excellence Initiative – Research University' (IDUB). This allows us to examine the development of young researchers from the perspective of the objectives, priorities and support mechanisms adopted by the universities.

The nationwide study combined quantitative and qualitative methods with an analysis of strategic documents. The triangulation of sources and methods made it possible to compare the reported experiences of undergraduates and doctoral students with a qualitative analysis of the factors affecting their research activity and with the institutional perspective of the universities.

Rather than reproducing all the findings of the full report, this publication presents the main trends, identifies systemic issues and proposes directions for action towards a more coherent, accessible and effective support system for early-career researchers in Poland.

Fig. 4 The 'Young Science' project in figures



Source: the authors' own analysis based on the 'Research Activity of Students' study.

2. ANALYSIS OF THE SYSTEM FOR SUPPORTING EARLY-CAREER RESEARCHERS IN POLAND

The findings present a complex yet consistent picture of the conditions for the development of research activity among undergraduates and doctoral students. Polish universities offer support to early-career researchers, but its scope, accessibility and organisational structure vary. Formal support mechanisms matter, but so do local practices, access to information, relationships with academic supervisors, and access to funding and research infrastructure.

2.1. Students – entering research

For students, the period of study is the first stage of structured engagement with academic research. The findings show, however, that the progression from acquiring basic methodological skills to independent participation in research is far from universal.

A significant proportion of students encounter elements of methodological training as part of their degree programme – for example, 59 per cent of respondents reported taking part in classes covering the formulation of research questions, while 45 per cent had experience with content related to research design. At the same time, one in five students surveyed had carried out their own research project.

Students therefore generally receive some exposure to research methodology, but the main challenge is the transition from learning about research to conducting it in practice. Degree programmes are also relatively unlikely to cover practical aspects of research work, such as securing funding, disseminating and commercialising research results, or collaborating with the socio-economic environment.

KEY FINDING: For students to engage in academic research, a clearer pathway needs to be established, leading from the acquisition of research skills to participation in actual research projects.

2.2. Doctoral students – conditions for developing research skills

For doctoral students, entry into research has already taken place; the central challenge is to create the conditions for increasing independence in designing, funding and conducting research.

The findings reveal significant gaps in practical project management skills. 50.3 per cent of

doctoral students report that their doctoral school curriculum prepares them only to a limited extent or not at all for drafting applications for internal funding, while 42.5 per cent of respondents hold the same view regarding external grant applications. The gap is even more pronounced for research project management, where 57.5 per cent of respondents report a low level of preparedness.

At the same time, over 40 per cent of doctoral students identified barriers hindering their research activities. The survey identified financial, administrative, organisational, structural and information-related barriers.

Funding is a particularly prominent issue: over 90 per cent of respondents considered stable funding for their own research to be the most important factor in increasing their research activity.

KEY FINDING: Research independence among doctoral students requires not only research expertise but also access to funding, project management skills and efficient administrative and institutional support.

2.3. Universities – institutional and strategic conditions for supporting early-career researchers

The third level of the analysis concerns universities as institutions responsible for creating an environment conducive to the development of early-career researchers. The analysis covered the strategies of 10 universities participating in the IDUB programme, taking into account strategic and operational objectives, specific actions and – where applicable – monitoring indicators.

The analysis shows that university strategies address the development of early-career researchers, but vary in the extent to which this support is translated into operational

measures. Of particular importance is the link between stated objectives and specific implementation programmes, institutional accountability and the mechanisms for monitoring outcomes.

This does not mean that universities are inactive. On the contrary, the report identifies measures including involvement in research, mentoring for doctoral students and project support. The problem lies in their uneven availability and the extent to which they are embedded in institutional practice. The report therefore calls for greater coherence between strategies and implementation documents, and for the development of early-career researchers to be treated as a distinct area in reporting on strategy implementation.

KEY FINDING: The quality of the support system depends primarily on the integration of individual instruments into a clear model, with defined objectives, accountability, implementation tools and monitoring mechanisms – the mere existence of these instruments is not enough.

2.4. Common needs of undergraduates and doctoral students

Although undergraduates and doctoral students are at different stages of academic development, the findings reveal a common set of needs related to conducting research.

Above all, both groups need conditions that enable them to move from an interest in research and the acquisition of skills to research activity in practice. This includes access to funding, practical research and project management skills, the opportunity to participate in research teams, mentoring, clear information and efficient institutional support. In the case of doctoral students, the need to reduce administrative barriers and increase opportunities for international collaboration is also particularly evident.

At the same time, the research highlights the importance of personal relationships. In the case of doctoral students, support from their supervisor is rated most highly, while support from the administration and the doctoral school's structures is perceived as weaker. The report also identifies examples of good practices in mentoring and project management, but these are local in nature rather than a universal standard.



JOINT CONCLUSION: Young researchers do not simply need more funding instruments. They need a clear career path in which skills, funding, mentoring, research collaboration, information and administrative support complement one another.

3. KEY SYSTEMIC TENSIONS

An analysis of the research findings identifies six fundamental tensions that shape the conditions for the development of young science in Poland. These are recurring discrepancies between the needs of early-career researchers and the way in which the system of education, funding and institutional support responds to those needs, rather than isolated, individual problems.

These tensions occur at various stages of academic development, but are manifested in different forms as researchers progress from undergraduate studies to doctoral training and independent research. From an institutional perspective, however, they show that the effectiveness of support is determined primarily by the consistency, accessibility and predictability of individual instruments, and to a lesser extent by the mere fact of their existence. The concluding summary of the full report highlights specifically the non-systemic nature of the support and the significant importance of local institutional practices.

3.1. Education and research

The first tension concerns the relationship between formal education and research practice.

The system is relatively effective in providing knowledge about research, yet it is less successful in creating a continuous pathway for learning through research practice.

At the undergraduate level, the key challenge is the progression from acquiring basic methodological skills to actually participating in the research process. Degree programmes may prepare students to formulate research questions, design studies or analyse data, but they do not always provide the conditions for students to go through the full research project cycle.

In the case of doctoral students, the issue is more advanced: as the main focus is on developing independent project management skills – the ability to plan research, secure funding, manage a project, work in a team and account for results – rather than simply entering into research practice. The full report indicates that project management skills are one of the most important areas that need to be strengthened.

This issue is ongoing, but its form changes as the researcher progresses through successive stages of academic development. Undergraduates need the opportunity to learn by actually conducting research, while doctoral students require the conditions to achieve greater research autonomy.

3.2. Entry into research and systemic access

The second tension concerns how early-career researchers gain access to research in practice.

Opportunities to engage in research exist, but they do not always form part of a transparent institutional career path available on comparable terms.

For undergraduates, entry into academia often takes place through research societies, projects led by the academic staff, individual contacts or personal initiatives. Therefore, initial research experience does not always stem from a clearly defined, universally accessible institutional pathway.

In the case of doctoral students, formal entry into the academic system has already taken place; however, opportunities for genuine development may still depend on access to research teams, projects, infrastructure and the quality of relationships within a given academic environment. The full report also highlights examples of good practice involving the inclusion of students and early-career researchers in project teams, and demonstrates that such mechanisms are possible but do not constitute a uniform standard.

At the institutional level, the challenge is therefore to shift from a model based on chance and individual relationships to one in which entry into research is more transparent, open and predictable.

3.3. Funding and research agency

The third tension concerns the relationship between access to funding and the ability to conduct independent research.

Research agency depends not only on skills and motivation, but also on reliable access to resources.

Funding is a prerequisite for genuine research agency as it is more than just one of several additional support mechanisms. Without access to funding, a young researcher may have

the relevant skills and competences, a research idea and may be highly motivated, but their ability to carry out a project remains limited.

The problem is not, however, limited solely to the amount of funding available. The conditions under which it is obtained, the stability of funding, the availability of internal calls for proposals, and the complexity of procedures are also significant. The full report highlights considerable variation in local funding arrangements, including support programmes in operation at individual universities.

Institutional diversity is of particular importance: qualitative research has highlighted the role of quality-enhancement programmes and initiatives such as IDUB, which, at some universities, increase the funding opportunities for young researchers' activities. However, these solutions are not available to the same extent across the entire system.

3.4. Institutional support and personal relationships

The fourth tension concerns the balance between institutional support and support derived from personal relationships within the academic community.

Personal relationships enhance academic development, but should not replace an accessible and reliable support system.

Relationships with a supervisor, academic mentor or a more experienced researcher are of fundamental importance for academic development. However, a problem arises when these become the main or the only effective means of obtaining information, project support or access to resources.

The survey of doctoral students shows that direct support from the supervisor is rated most highly, while support from the administration or the doctoral school's structures is

perceived as less direct and more varied.

At the same time, some institutions have high-quality institutional arrangements in place, such as mentoring or professional support in preparing project proposals. The report emphasises, however, that these are still often examples of good local practice rather than a uniform structural standard.

The aim should therefore be to complement personal relationships with clear and widely accessible institutional support, rather than to diminish their importance.

3.5. Strategy and implementation

The fifth tension is manifested at the institutional level and concerns the relationship between declared strategic objectives and their translation into concrete actions.

The inclusion of early-career researchers in the strategy does not in itself guarantee the creation of an integrated and operational support system.

An analysis of research universities' development strategies demonstrates that the development of undergraduates and doctoral students is addressed in strategic documents, yet the level of detail and operationalisation of these objectives varies. In some universities, the objectives are elaborated through actions, instruments and indicators, while in other documents support for early-career researchers is addressed in more general terms.

Therefore, there is no uniform model for universities participating in the IDUB programme. Rather, the analysis reveals varying levels of strategic maturity. In some cases, there is a clear translation of strategic objectives into actions and metrics; in others, support for early-career researchers remains more difficult to identify and monitor.

The report's final conclusions indicate that, in many cases, the issue remaining is the lack of clearly defined metrics, institutional accountability and mechanisms for monitoring the implementation of actions.

3.6. Potential and its utilisation

This final theme cuts across and integrates the preceding areas.

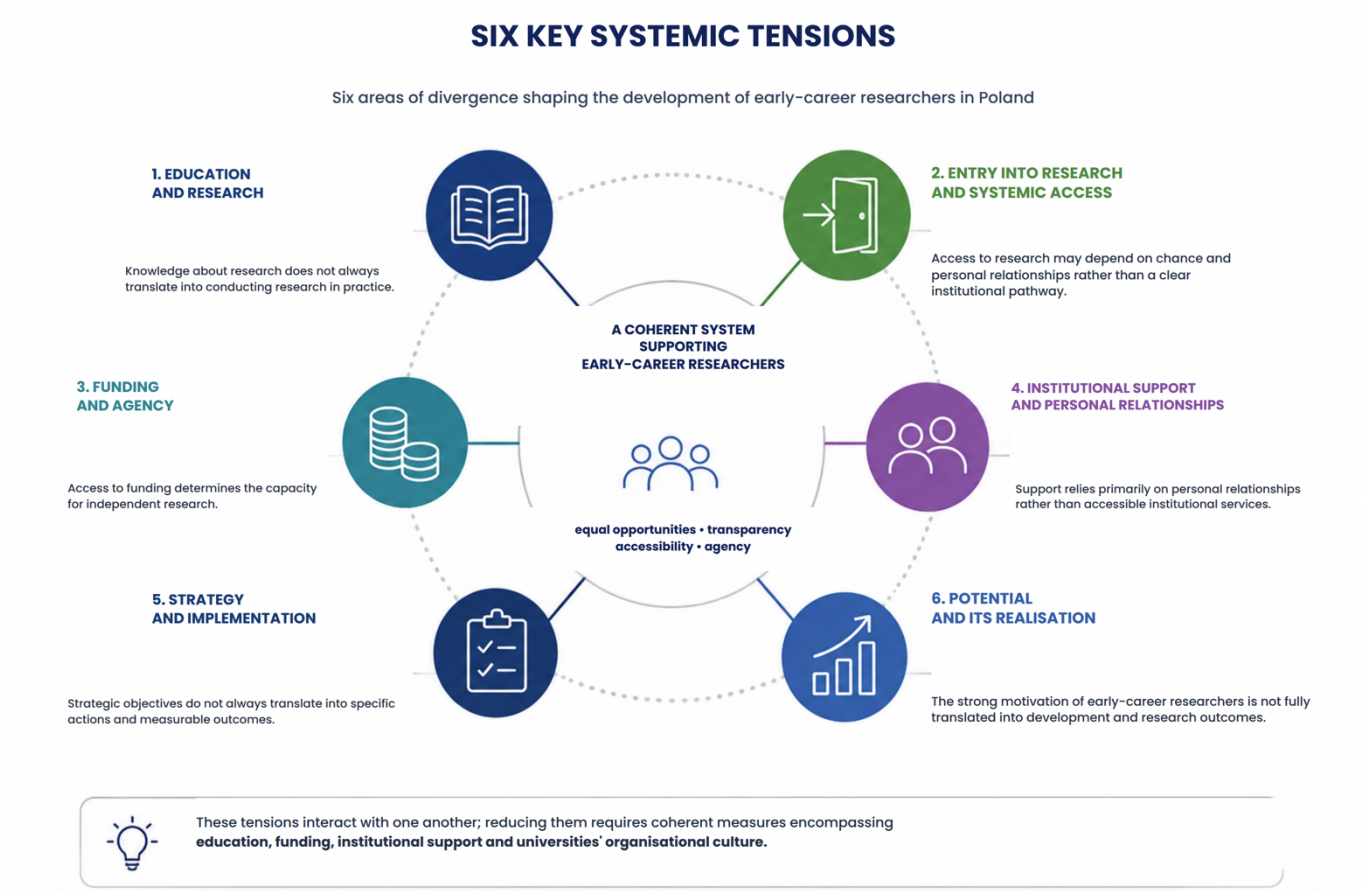
The potential of early-career researchers can only be realised within an institutional environment that enables them to develop and use it.

The study findings indicate that the academic development of early-career researchers is primarily constrained by the conditions enabling the translation of potential and motivation into research activity, rather than, less frequently, a lack of interest in research itself.

At undergraduate level, the key priority is to create opportunities for genuine participation in research. At doctoral level, the priority is to create conditions that enable researchers to achieve independence in project management and grant applications. At institutional level, it is about organising support in such a way that the academic development of early-career researchers is not left to chance, individual initiative or local resources.

The final summary of the full report shows that where funding, skills development, efficient procedures and transparent information are combined, the activities of early-career researchers can be developed more effectively and translated into concrete results.

Fig. 5: Six key systemic tensions



Source: the authors' own analysis based on the 'Research Activity of Students' study.

4. MODEL OF A SUPPORT SYSTEM FOR EARLY-CAREER RESEARCHERS

The tensions identified in the previous chapter show that the barriers to the development of early-career research are interlinked and rarely occur in isolation. Funding-related issues affect research capacity; access to research teams and projects determines the opportunity to acquire practical skills, and the quality of institutional support can either enhance or limit the effectiveness of the available instruments.

These interdependencies indicate the need for an integrated environment supporting early-career researchers, rather than additional stand-alone forms of support. The findings make it possible to identify the core functions such a system should provide, irrespective

of the specific organisational arrangements adopted by individual universities.

The proposed model is intended to organise the key elements of the system and to illustrate how they interact, rather than to provide a catalogue of individual instruments. It starts from the need to move beyond scattered initiatives towards a system in which successive forms of support create a continuous and predictable development pathway for undergraduates and doctoral students.

4.1. From scattered instruments to a coherent system

The analysis carried out indicates that the effectiveness of support for early-career researchers is determined primarily by the interconnection, accessibility and continuity of individual instruments, rather than solely by their number. Grant schemes, training, mentoring, administrative support and reward mechanisms can produce significant outcomes; however, their impact is greater when they form part of a single, clear pathway for the development of young researchers.

The study findings show that the Polish system features many valuable initiatives, but these are often local in nature, scattered or dependent on a specific university, unit or team. The final analysis of the full report indicates that where research funding, skills development, efficient procedures and transparent information coexist, an environment is created that fosters genuine activity and agency among young researchers.

This implies the need to move from a collection of individual instruments to a system in which the various forms of support complement one another and are available at successive stages of academic development.

4.2. A minimum model of a support system for early-career researchers

Based on the research findings, six fundamental elements can be identified that constitute

a minimum support model for early-career researchers:

1. Predictable funding for independent research – encompassing both small grants and microgrants enabling students to commence research activities, as well as mechanisms supporting the research autonomy of doctoral students.

2. Development of project management skills – understood as the ability to carry out the entire cycle of a research project – from its design, through securing funding and implementation, to management, finalisation and dissemination of results.

3. Teamwork and internationalisation – encompassing the inclusion of students and doctoral students in research teams, the development of inter-institutional cooperation, and the creation of conditions for participation in the international research community.

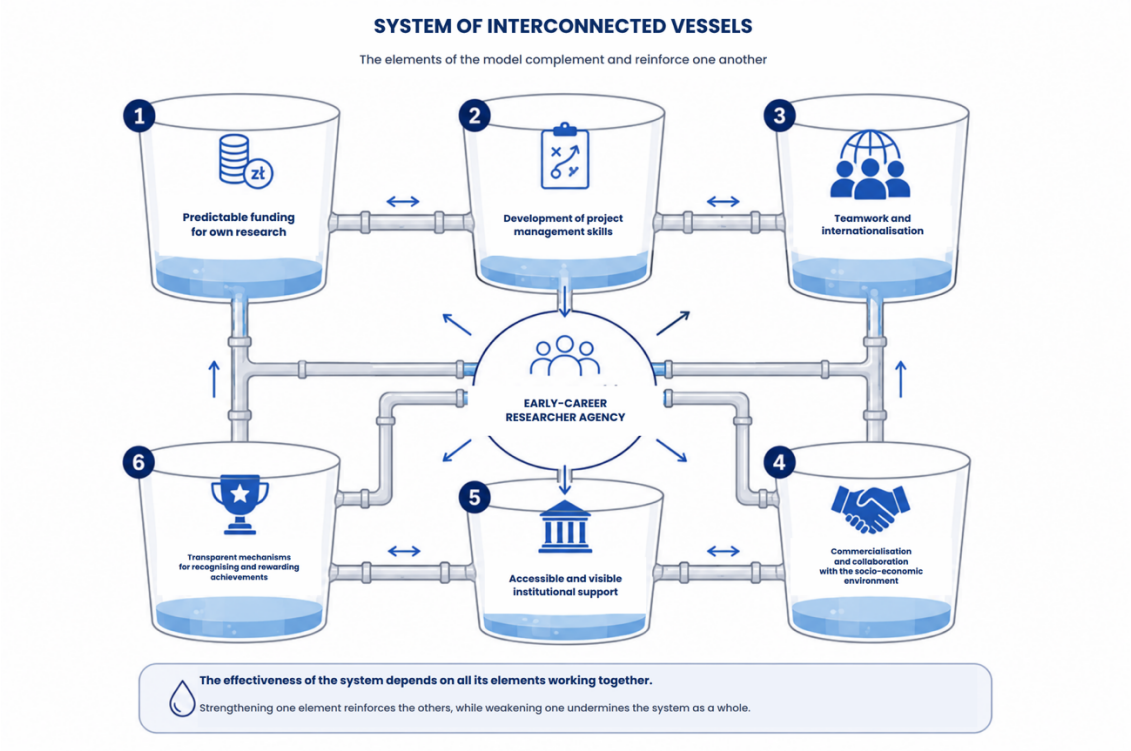
4. Commercialisation and collaboration with the socio-economic environment – providing early-career researchers with a clear pathway from research findings to their potential application, together with support regarding intellectual property, technology transfer and collaboration with external partners.

5. Accessible and visible institutional support – encompassing transparent procedures, easy access to information, efficient project management, and clearly defined units and individuals responsible for supporting research activities.

6. Transparent mechanisms for recognising and rewarding achievements – enabling the research activity, project successes, publications, implementation and organisational achievements of early-career researchers to be recognised in a clear and reliable manner.

The effectiveness of the system depends both on the presence of individual instruments and on their interconnection and accessibility.

Fig. 6 The system of interconnected vessels



Source: the authors' own compilation based on the 'Research Activity of Students' study.

4.3. Elements of the system and their interdependence

The elements of the model form an interconnected system: rather than operating independently, they can reinforce or weaken one another.

Access to funding enhances research capacity only if a young researcher possesses the skills to design and carry out a project. Project management skills, however, are of limited value if they are not accompanied by the ability to secure funding, administrative support or access to a research team. Similarly, internationalisation and collaboration with the wider research community require both the appropriate skills and clear procedures, as well as institutional support.

The interdependence of these elements explains the 'fragmented' nature of support observed in the study. In some institutions, local ecosystems operate in which a young researcher gains simultaneous access to funding, mentoring, a research team, infrastructure and administrative support. In others, only individual instruments are available, which do not constitute a complete development pathway. The report also indicates that good mentoring practices or support from project offices exist locally, but do not yet constitute a widespread standard.

Therefore, shortcomings in individual elements do not necessarily mean that the entire system is ineffective, but they can significantly limit its coherence and the effectiveness of early-career researchers. The most important task, therefore, is to integrate these instruments in such a way that they create a development pathway that is as continuous and predictable as possible, rather than simply developing more of them.

The target model does not require every university to adopt an identical set of solutions. It does, however, require that every early-career researcher have access to the core functions of the support system, irrespective of local organisational arrangements.

5. SYSTEM-WIDE RECOMMENDATIONS

The assessment carried out indicates that the further development of early-career research requires not so much a proliferation of individual support instruments, but rather their better integration into a cohesive, accessible and predictable system. The study findings show that where funding, skills development, efficient procedures and access to information coexist, early-career researchers have greater opportunities to develop their

research activities and achieve research autonomy.

The recommendations should therefore be treated as an interlinked package of measures, relating both to solutions implemented by universities and doctoral schools and – where appropriate – to the broader framework within which the higher education and research system operates.

5.1. Training and entry into research

The educational process should lead not only to the acquisition of knowledge about research methodology, but also to the gradual acquisition of experience in actually carrying out research projects. For undergraduates, this means creating opportunities to engage in research at an earlier stage, while for doctoral students it regards developing more thoroughly the skills necessary to independently design, conduct and report on research. The full report recommends both involving undergraduates in projects at an earlier stage and linking doctoral students' training to real-world research projects.

It is recommended that:

- greater use be made of teaching methods based on research and project work, including research-based learning and academic tutoring;
- transparent and accessible pathways be created for involving students – including those in earlier years of study – in research projects and teams;
- doctoral students' practical project management skills be strengthened, covering project preparation, securing funding, managing project implementation and reporting results.

The aim is to create a continuous pathway of development – from a student's first research experience to a doctoral student's ability to conduct independent research.

Research training should progress from the knowledge of research to the actual ability to conduct it independently.

5.2. Funding and conditions for conducting research

Access to funding is one of the fundamental prerequisites for the agency of early-career researchers. The full report also highlights a wide variety of approaches, ranging from lump-sum funding for doctoral students to competitions and internal grants, indicating both the potential of higher education institutions and the lack of a uniform model.

It is recommended that:

- available funding instruments be developed for students' first projects, including micro-grants and internal research competitions;
- doctoral students have stable and predictable access to funding for their own research, alongside instruments that support their independence in securing grants;
- financial instruments be combined with support for the preparation of applications, project management and financial reporting.

The aim is to increase the effective capacity of students and doctoral students to initiate and independently carry out research projects.

Funding should be viewed primarily as a means of building research capacity, rather than merely as a form of assistance.

5.3. Institutional support and streamlining of procedures

An effective support system should be visible, easily accessible and usable without having to rely primarily on informal relationships. The study findings show that administrative and information barriers are among the factors constraining doctoral students' research activity,

while for undergraduates, the visibility of available forms of support still remains an issue.

It is recommended that:

- clear points of access to information and support be created for students and doctoral students, bringing together information on funding, projects, training and opportunities for collaboration;
- procedures be simplified relating to the preparation, implementation and settlement of projects, and reducing unnecessary administrative burdens;
- professional project support and mentoring be developed, including grant consultancy and administrative assistance.

The aim is to create a system in which obtaining assistance does not depend primarily on knowledge of informal channels or personal contacts.

Relationships with the project supervisor and mentor should reinforce the support system, rather than replace its institutional mechanisms.

5.4. Internationalisation, cooperation and mobility

Mobility and international cooperation should form an integral part of research development, rather than merely being activities that operate alongside the educational process. In the case of students, the report highlights, above all, the need to integrate mobility more effectively into the study programme, to ensure fuller recognition of learning outcomes, and to develop short-term and project-based mobility opportunities with clearly defined objectives. In the case of doctoral students, however, adequate funding for mobility and clear rules of its organisation and links to the educational process are of particular importance.

It is recommended that:

- short-term, project-based and research-based forms of mobility be developed, and appropriate organisational and financial support be provided;
- mobility be more effectively integrated with studies and doctoral education, including facilitating the recognition of learning outcomes;
- opportunities for young researchers be enhanced in national and international teams, projects and collaborative networks.

The aim is to create conditions in which mobility and collaboration become an integral part of skills and competence development and research careers, rather than an additional organisational burden.

Internationalisation should be a research experience available at successive stages of the research development of early-career researchers.

5.5. Commercialisation, communication and collaboration with the wider community

The development of early-career researchers should also include the ability to utilise, implement and communicate research results outside the academic environment. The full report highlights the need for clearer pathways to commercialisation, support in collaboration with external partners, and the development of communication skills.

It is recommended that:

- clear 'one-stop-shop' points of contact and 'step-by-step' pathways be created regarding commercialisation, intellectual property and the implementation of results;

- basic procedures for collaboration with external partners be standardised and mechanisms to facilitate the establishment of such collaboration be developed;
- science communication and public engagement skills be developed, and institutional channels for presenting research results be provided.

The aim is to enhance early-career researchers' ability to move from obtaining a research result to communicating it, collaborating with the wider community and – where appropriate – implementing it.

The path from a research result to its application should be as clear to a young researcher as the path leading to the implementation of the project itself.

5.6. System for recognising and motivating early-career researchers

Research activity requires resources and expertise, but also a sense that the effort involved is recognised, valued and appreciated. The full report identifies a discrepancy between the formal existence of recognition and reward mechanisms, and recommends the development of more transparent and predictable solutions.

It is recommended that:

- transparent systems of awards, honours and other forms of recognition be developed for the research activities of undergraduates and doctoral students;
- explicit and clearly communicated criteria be applied for granting awards and considering diverse forms of research activity;
- the visibility of young researchers' achievements be increased in the university's communication and within the academic community.

The aim is to foster an institutional culture in which the research activity of young researchers is visible, recognised and supported.

Recognition of achievements should be a predictable aspect of the development system, rather than merely an occasional form of recognition.

5.7. Strategic management of the development of early-career researchers

The final recommendation is cross-cutting in nature. An analysis of IDUB universities strategy indicates that support for young researchers is reflected in strategic documents; however, the extent to which these commitments are translated into practice varies. The report highlights, in particular, the need to strengthen the links between objectives and actions, metrics, accountability mechanisms and the reporting system.

It is recommended that:

- a clear link be established between strategic objectives concerning the development of students and doctoral candidates, and operational activities, supported by metrics;
- the responsibilities of units and individuals for the implementation of individual elements of the support system be clearly defined;
- the development of early-career researchers be treated as a distinct area for monitoring and reporting on the implementation of the university's strategy.

The aim is to move from merely declaring the importance of early-career research to the systematic management of its development, based on objectives, accountability mechanisms and the monitoring of results.

A strategy to support early-career researchers only becomes an effective management tool when it is possible to identify who is responsible for its implementation, how it is

being implemented and what outcomes it produces.

6. SUMMARY - FROM ISLANDS OF SUPPORT TO THE SYSTEM

The report shows that within the Polish higher education and research system, many valuable instruments exist that support the development of undergraduates and doctoral students; however, their availability, quality and degree of integration remain inconsistent. As a result, early-career researchers often operate in an environment based on local arrangements, individual relationships and scattered sources of support, rather than within a single and clear development pathway.

The most significant challenge, therefore, is the system's lack of coherence, and not the absence of activity or individual support mechanisms. Funding, skills development, access to research teams, mentoring, administrative support, internationalisation, commercialisation and recognition mechanisms yield the greatest results when they function as interlinked elements of a single support environment. The full report indicates that it is precisely where a relatively complete ecosystem is established – encompassing funding, skills, efficient procedures and transparent information – that early-career researchers have greater opportunities to develop genuine research agency.

Therefore, the key direction for change should be a shift from 'islands of support' to a coherent system in which an early-career researcher can progress through successive stages of development: from their first exposure to research activity, through the acquisition of skills and securing funding, to independently conducting projects, engaging in international collaboration and utilising research outcomes.

The aim is not for every university to adopt identical solutions. The aim is for every

undergraduate and doctoral student to have access to the core functions of the support system in a transparent and predictable manner that is as independent as possible of local conditions.

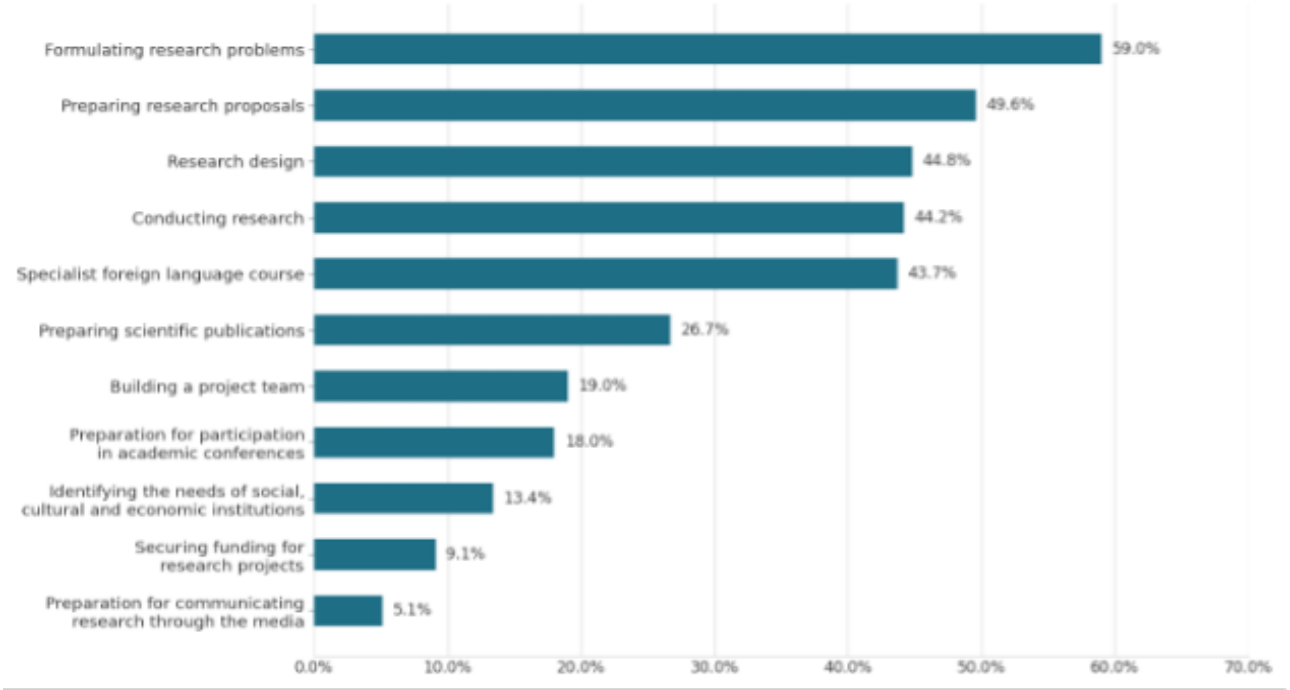
The future development of early-career researchers depends, above all, on the quality of a system that connects their potential with the practical conditions required to realise it, rather than on the sheer number of individual programmes.

APPENDIX: SELECTED DATA

The full study findings, detailed data tables and a description of the methodology are available in the full version of the report: https://mlodanauka.umk.pl

A.1. Key data on students

Fig. 7 Elements of degree programmes declared by respondents



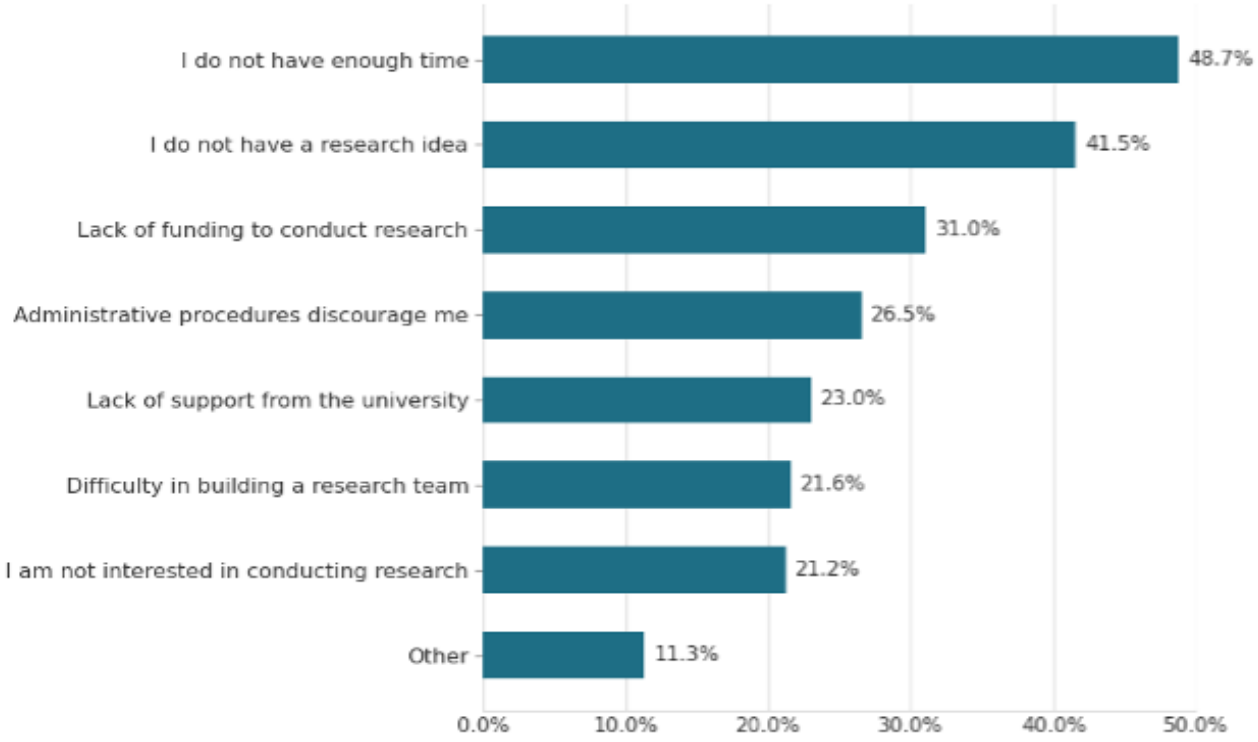
Source: the 'Research Activity of Students' study.

Table 1 Percentage of students participating in study abroad programmes, internships and work placements by type and year of study

Type of study	Year of study					Total
	1	2	3	4	5 and 6	
First-cycle degree programmes	1.4%	5.9%	**14.4%**	2.3%	-	7.6%
Second-cycle studies	16.6%	**24.6%**	-	-	-	20.7%
Long-cycle studies	4.9%	3.4%	7.9%	12.1%	**13.2%**	8.7%

Source: the 'Research Activity of Students' study.

Fig. 8 Reasons why students do not engage in research activities



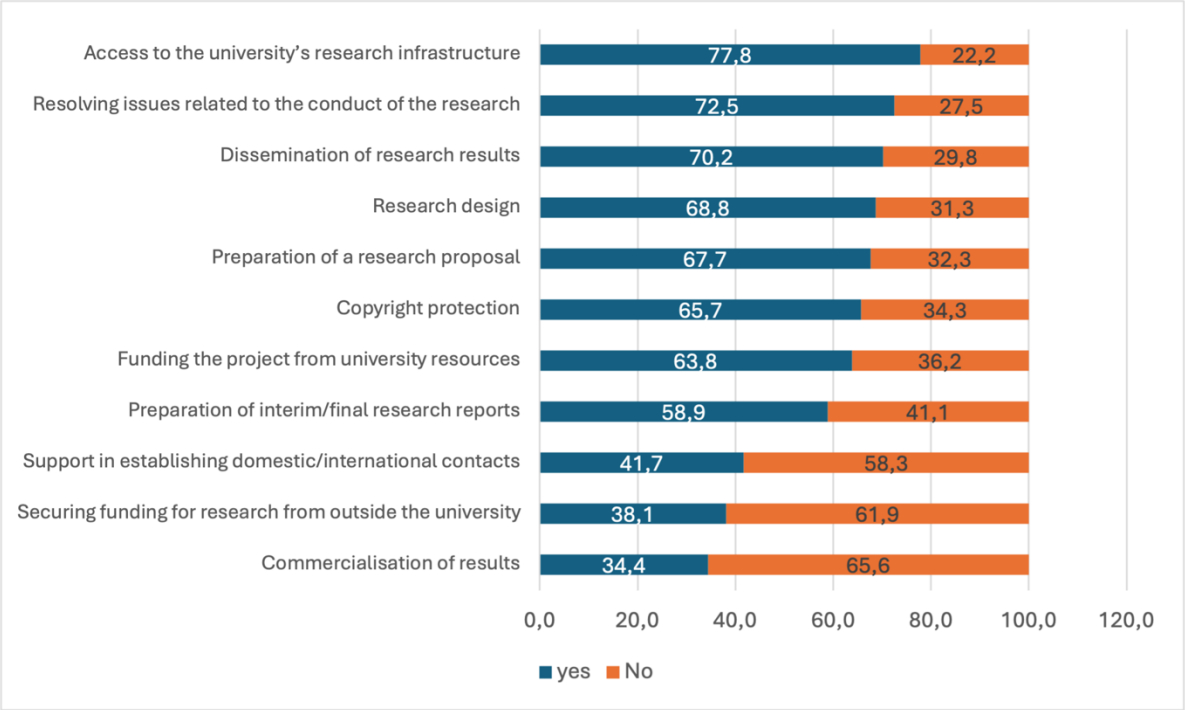
Source: the 'Research Activity of Students' Study.

Table 2 Percentage of students undertaking their own projects by type and year of study

Type of degree programme	Year of study					Total
	1	2	3	4	5 and 6	
First-cycle studies	8.2%	10.9%	19.3%	**25.6%**	–	14.0%
Second-cycle studies	27.3%	**34.2%**	–	–	–	30.9%
Long-cycle studies	4.9%	5.1%	19.0%	15.8%	**41.2%**	18.8%

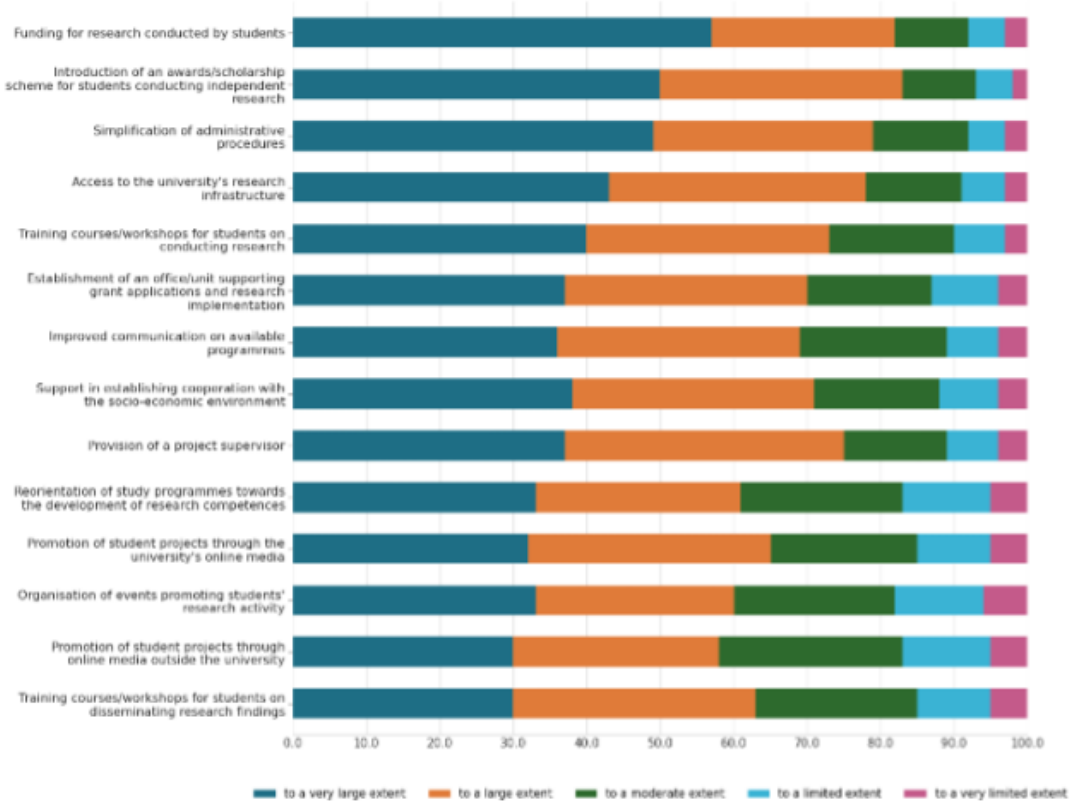
Source: the 'Research Activity of Students' study.

Fig. 9 Forms of support provided by universities for student projects



Source: the 'Research Activity of Students' study.

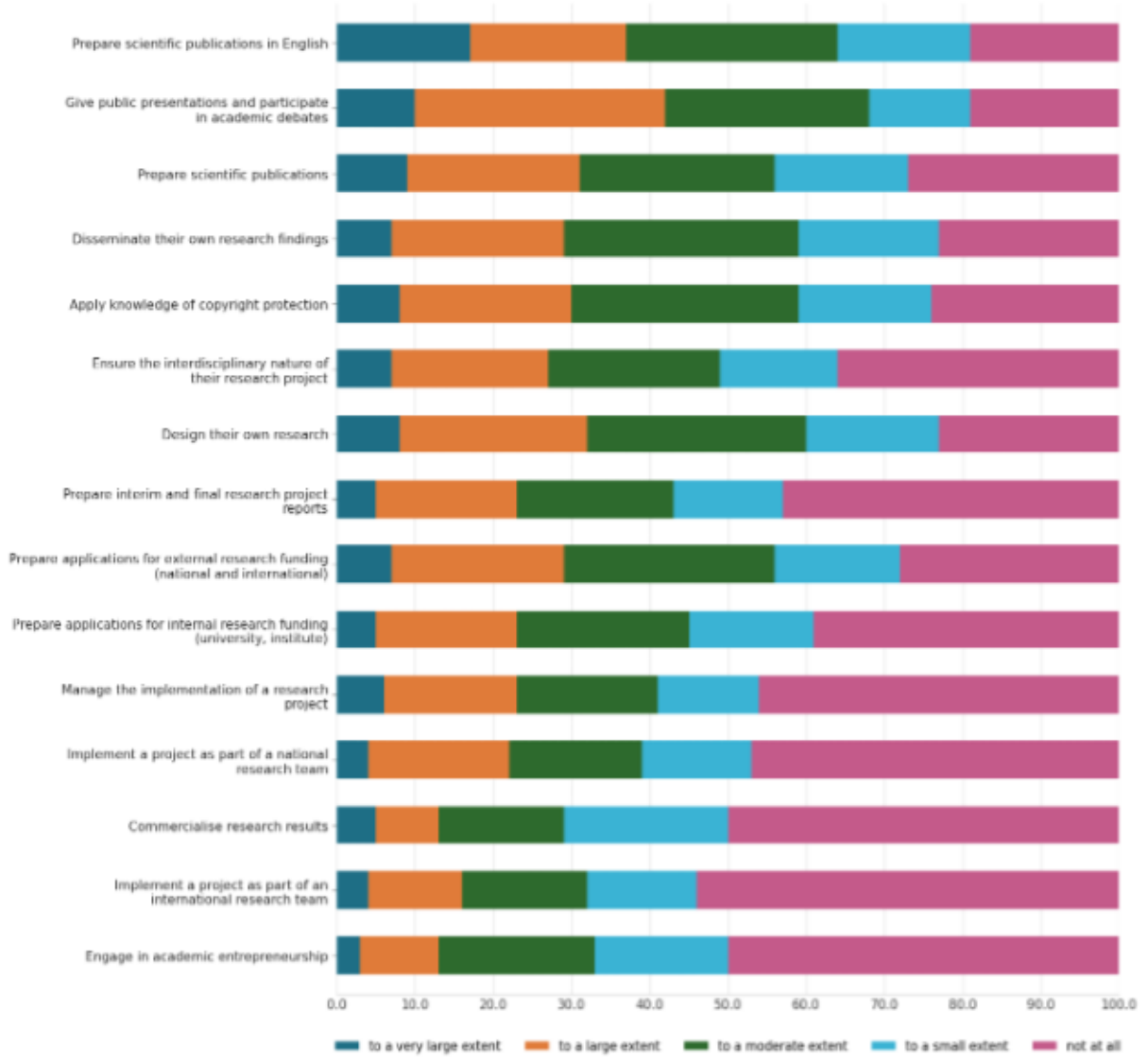
Fig. 10 Proposals for measures that could potentially contribute to increasing students' scientific and research activity



Source: the 'Research Activity of Students' study

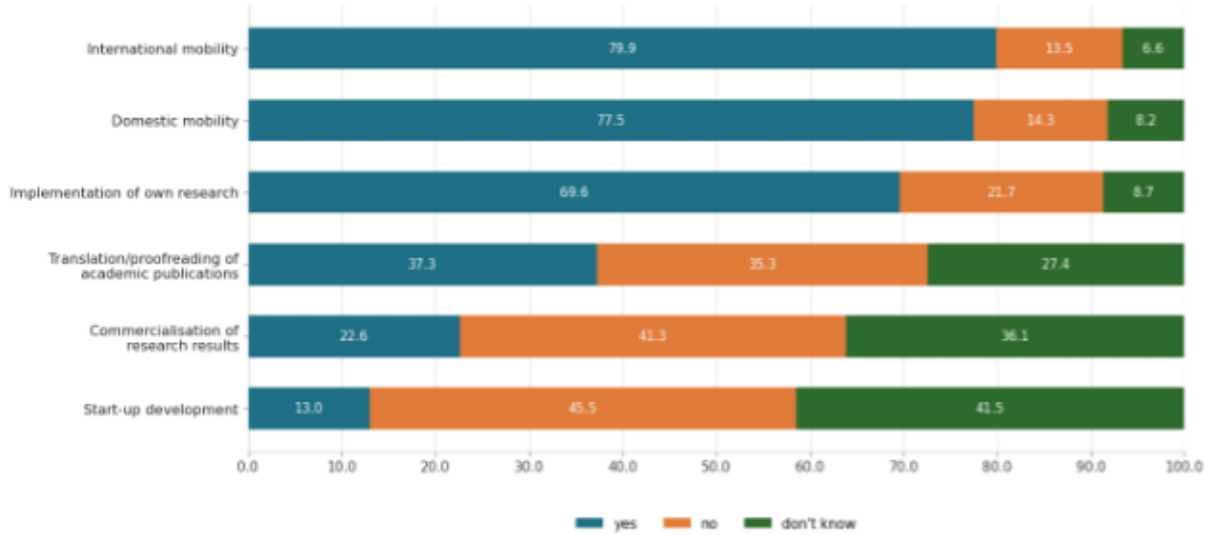
A.2. Key data on doctoral students

Fig. 11 To what extent does the doctoral programme prepare students for:



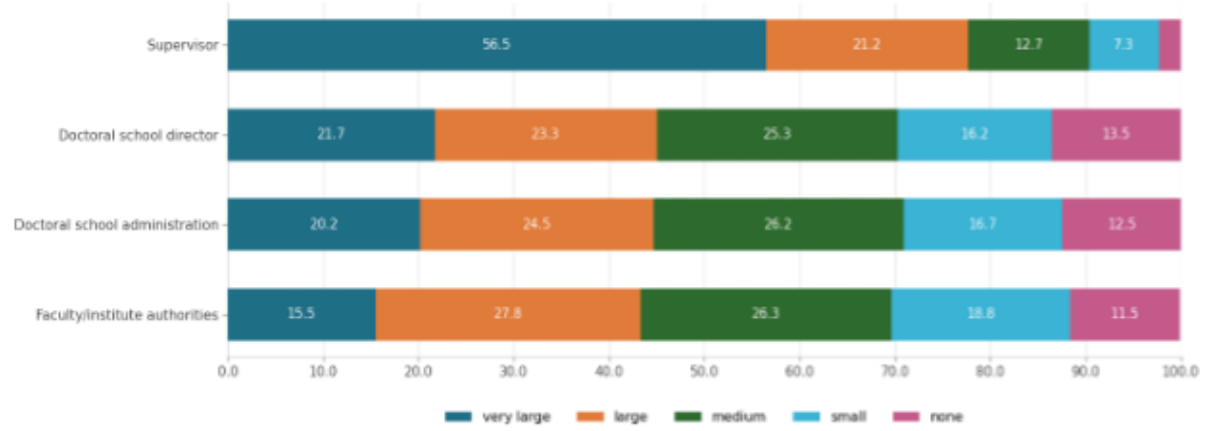
Source: the 'Research Activity of Doctoral Students' study

Fig. 12 Availability of university/institute funds for doctoral students' expenses



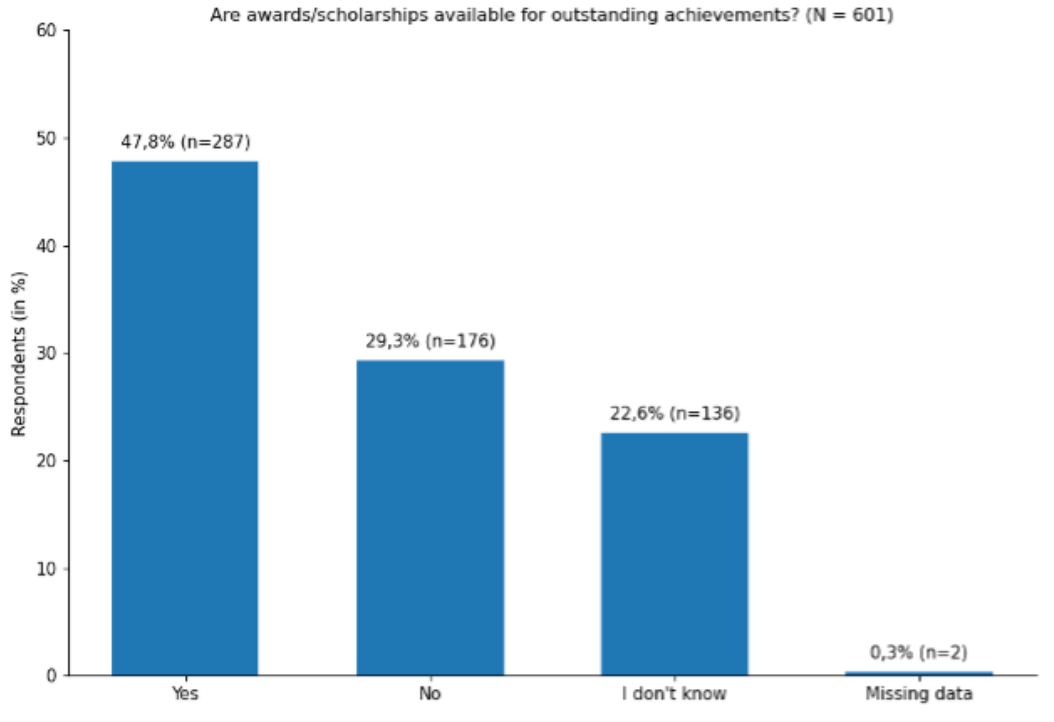
Source: the 'Research Activity of Doctoral Students' study.

Fig. 13 Support for doctoral students from:



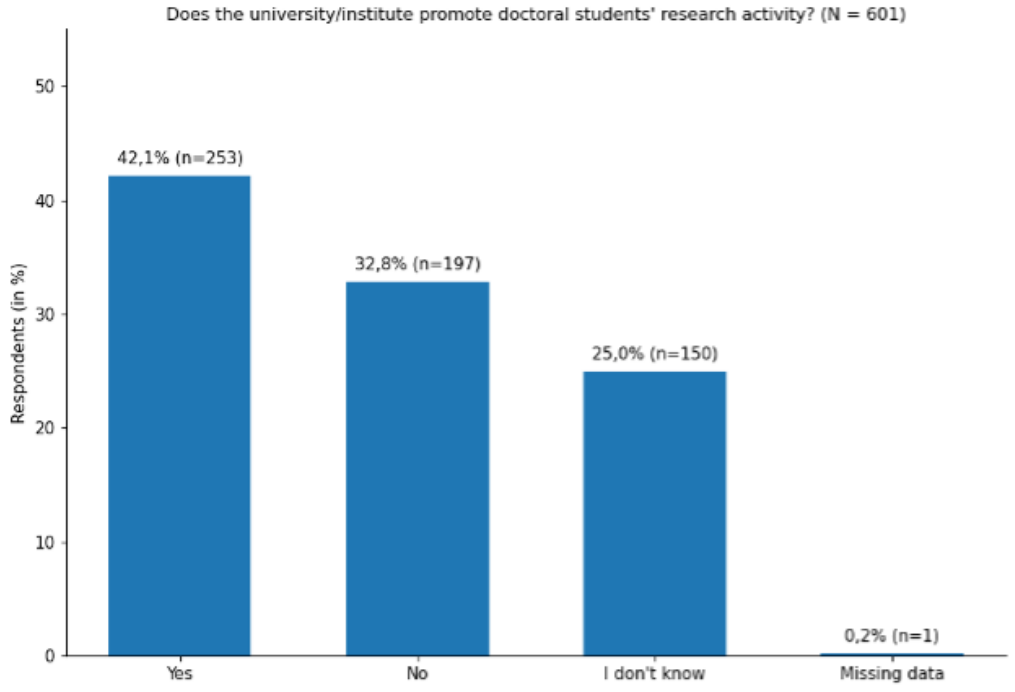
Source: the 'Research Activity of Doctoral Students' study.

Fig. 14 Availability of awards/scholarships for doctoral students for their achievements



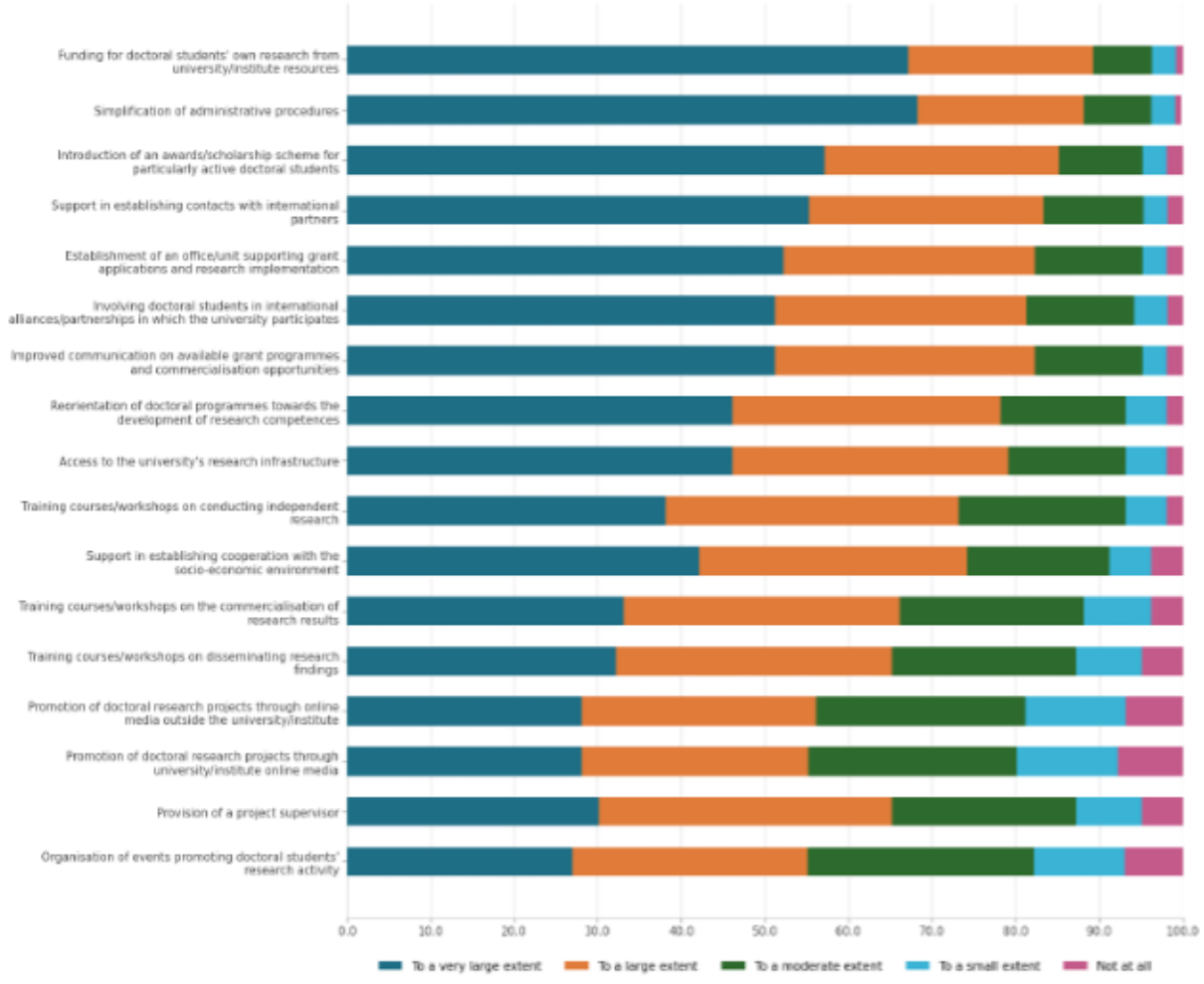
Source: the 'Research Activity of Doctoral Students' study

Fig. 15 Promotion of doctoral students' activity



Source: the 'Research Activity of Doctoral Students' study

Fig. 16 Measures potentially increasing doctoral students' research activity



Source: the 'Research Activity of Doctoral Students' study

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