

# IPAC'25 PRE SESSION-REPORT: FOSTERING A PRODUCTIVE RESEARCH ENVIRONMENT IN THE ACCELERATOR COMMUNITY

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## Abstract

The Productive Research Environment (PRE) session at IPAC'25 examined key practices and challenges in fostering sustainable and motivating research environments within the accelerator community. A preliminary survey of 51 managers and leaders indicated generally high levels of satisfaction and motivation during their own early career stages. However, the results also revealed systematic structural concerns, particularly related to staffing limitations, administrative burden, and uncertain career prospects for early-career researchers. The session combined personal perspectives, institutional studies, and survey-based insights. The subsequent panel discussion highlighted critical issues including human resource development, diversity, leadership training, mentorship practices, and inter-generational collaboration. The findings emphasize that productive research environments require clear goals, adequate resources, inclusive and collaborative cultures, and structured leadership and mentoring frameworks. At the same time, the results point to a tension between strong intrinsic motivation and structural constraints. Continued dialogue and expanded surveys are essential to strengthen human resource capacity and sustain the accelerator community.

## INTRODUCTION

The PRE session at IPAC'25 was designed as an interactive forum to exchange perspectives on building sustainable, inclusive, and effective research environments in the accelerator community. The session aimed to promote dialogue across career stages, regions, and institutional contexts, fostering engagement between senior leaders and early-career researchers. To support open discussion, the session was held in an informal setting, encouraging active participation and exchange of experiences. PRE was established as a complementary initiative, building on ongoing efforts such as the Women in Science and Engineering (WISE) and Equal Opportunity (EqO) sessions at previous IPAC conferences, including the EqO session at IPAC'23 [1] and the WISE session at IPAC'24 [2], with a more direct focus on the practical conditions and organizational practices that shape research productivity across diverse cultural and institutional settings. A preliminary survey

was conducted in advance among members of the IPAC Organizing Committee (OC), Scientific Program Committee (SPC), and Scientific Advisory Board (SAB) from IPAC'22 through IPAC'25. The survey results provided a common framework for the session and enabled speakers to align their contributions with shared themes.

## PRE-SURVEY AND ITS RESULTS

The survey was designed to capture both early-career experiences and current working conditions within the accelerator community. The questionnaire included the following key questions:

- Q1: To what extent were you satisfied with your working environment?
- Q2: Have you ever wondered whether you should continue with your job?
- Q3: To what extent were you motivated to take on a managerial role?
- Q4: To what extent are you satisfied with the adequacy of staffing levels in your group?
- Q5: What is the level of interest among early-career researchers in building their careers in your group?

Responses were recorded on a five-point scale, with question-specific interpretations. Questions Q1–Q3 refer to early-career experience, while Q4–Q5 address the current situation.

Fig. 1 summarizes the survey responses, separated by gender to highlight differences between male and female researchers. Both groups report high satisfaction with early-career working environments (Q1) and strong career commitment (Q2). In contrast, responses to staffing levels (Q4) and the perceived interest of early-career researchers (Q5) are more widely distributed, with some variation between male and female respondents, indicating differing perceptions of current working conditions and career attractiveness. While no statistical comparison is performed, these differences suggest that perceptions of the research environment may vary across respondent groups, highlighting the importance of inclusive policies.

Fig. 2 presents the distribution of respondents by gender and geographic region. It should be noted that the survey targeted members of the IPAC OC, SPC and SAB. As such, the sample may not fully reflect the gender or regional distribution of the broader accelerator community.

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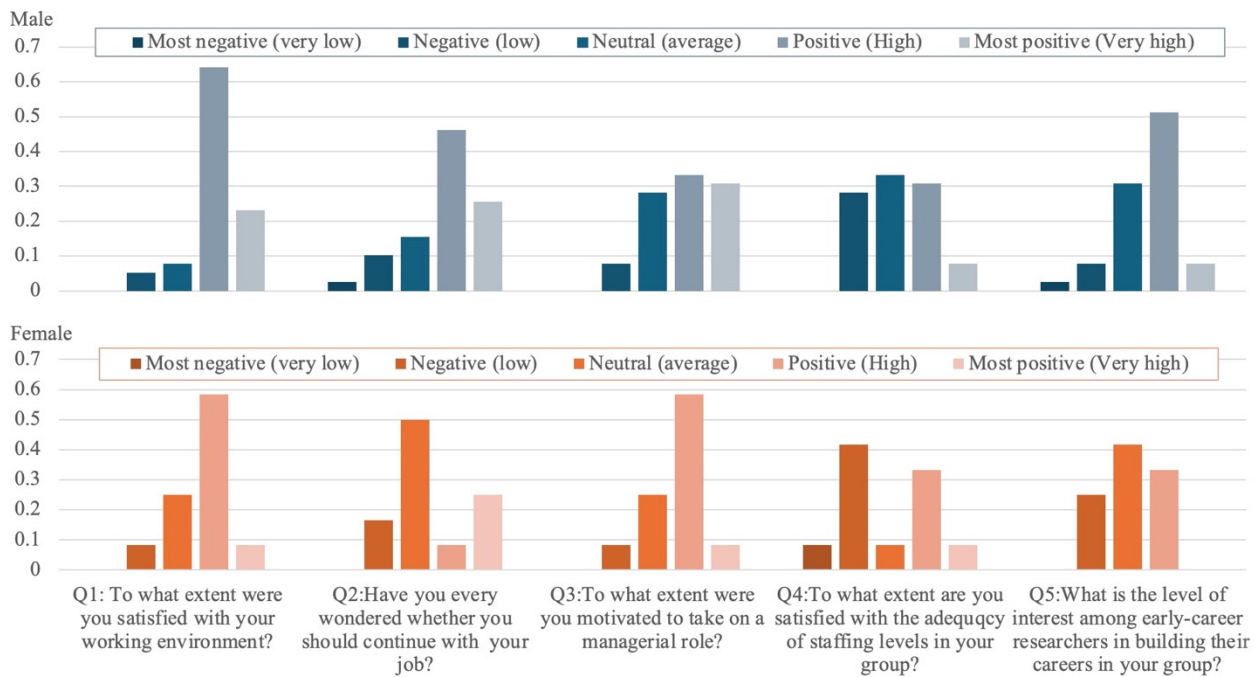


Figure 1: Distribution of responses to the PRE survey (N = 51 managers and leaders), shown separately for male and female respondents across five questions (Q1–Q5). Responses are recorded on a five-point scale (1–5), with question-specific interpretations indicated in the figure. The stacked bars represent the fraction of respondents selecting each option. Both groups show high satisfaction with working environments (Q1) and strong career commitment (Q2), while responses to staffing levels (Q4) and interest of early-career researchers (Q5) are more widely distributed. Differences between male and female respondents are visible in the spread and balance of responses, particularly for questions related to current working conditions (Q4–Q5). Questions Q1–Q3 refer to early-career experience, whereas Q4–Q5 address the current situation.

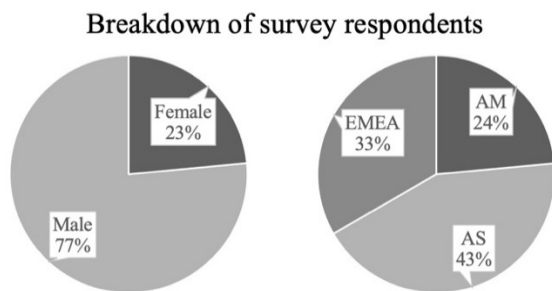


Figure 2: Breakdown of PRE survey respondents (N = 51) by gender and geographic region. The sample is predominantly male (77%) and spans AS (Asia and Oceania, 43%), EMEA (Europe, the Middle East, and Africa, 33%), and AM (Americas, 24%).

To further explore potential regional differences, Fig. 3 presents the distribution of responses to Q4 (satisfaction with staffing levels) across geographic regions. While the sample size is limited, variation is observed across regions. Respondents from AM show a higher proportion of negative responses than those from AS and EMEA, suggesting staffing levels may be a greater concern in this region, while AS and EMEA responses are more distributed toward neutral and positive evaluations.

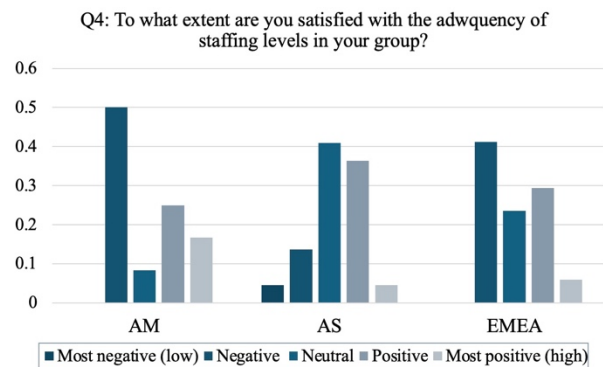


Figure 3: Distribution of responses to Q4 (satisfaction with staffing levels) by geographic region (AM, AS, EMEA). Responses are shown on a five-point scale from “most negative” to “most positive.” Differences in the distribution of responses suggest variation in perceived staffing adequacy across regions.

These observations suggest regional differences in perceived resource constraints. While not designed for detailed comparative analysis, these distributions offer useful context for interpreting the results, with more varied views on current conditions. These findings provide context for the perspectives presented in the invited talks, particularly

regarding structural challenges and evolving expectations across career stages.

## PRESENTATIONS

The session featured three invited presentations on productive research environments.

The first presentation reflected on a career spanning multiple institutional and cultural contexts, emphasizing the importance of diversity, fairness, and inclusive practices. The speaker highlighted that productivity depends not only on resources, but also on organizational culture, transparent communication, and clear evaluation frameworks. At the same time, limitations in staffing, funding, and administrative burden were identified as key constraints, underscoring the need for balanced and sustainable structures.

The second presentation introduced a sustainable ecosystem model developed within the presenter's institute. The model emphasized technology ownership through in-house development, long-term investment in human capital, and capacity building through training and empowerment. Collaboration with academic institutions and industry partners was presented as a key mechanism for extending impact and strengthening workforce sustainability.

The final presentation provided a comparative perspective across career stages, based on a survey of similar scale to the PRE survey. The results indicated that PhD students prioritize guidance, communication, and collaborative environments, while early-career researchers emphasize stability, recognition, and independence. Senior researchers, in contrast, focus more on leadership, resource allocation, and strategic vision. These differences highlight how priorities evolve across career stages and underline the importance of tailored support mechanisms.

## PANEL DISCUSSION

The panel discussion, involving senior leaders from research institutes and industry, addressed several themes related to productive and sustainable research environments. Human resources and diversity were identified as important factors, with panelists emphasizing outreach, internships, training programs, and the importance of attracting talent from diverse backgrounds and disciplines. Demographic imbalances and competition with industry were also recognized as ongoing challenges for recruitment and retention.

The discussion also highlighted the importance of leadership development, as researchers are often promoted to managerial roles with limited formal preparation. Participants emphasized the value of leadership training and continuous professional development in supporting effective team management, communication, and decision-making. Mentorship and supervision were similarly recognized as essential for career development and retention, particularly through clear expectations, regular feedback, and supportive mentoring structures.

Intergenerational diversity was another important topic, particularly the need to balance the perspectives,

expectations, and flexibility of early-career researchers with the experience and institutional knowledge of senior staff. Participants noted that maintaining this balance is important both for continuity and for fostering innovation. The discussion also emphasized the importance of transparent career paths, realistic expectations, inclusive leadership practices, and research environments that support both scientific excellence and personal well-being.

## CONCLUSION

The PRE session at IPAC'25 highlighted both the strengths and challenges of research environments within the accelerator community. While strong motivation and commitment remain important assets, significant structural challenges persist, including career sustainability, staffing limitations, and gaps in leadership development and mentorship. Key elements for fostering productive research environments include:

- Attracting and retaining talent across all career stages
- Providing structured leadership development and mentorship
- Ensuring adequate resources and staffing levels
- Promoting inclusive, collaborative, and transparent organizational cultures

Addressing these challenges will be essential not only to sustain motivation, but also to ensure the long-term viability and attractiveness of research careers in the accelerator community. The session also highlighted diverse approaches to PRE across institutional and cultural contexts, including environments where generational and gender differences are explicitly recognized and addressed, as well as approaches that seek to reduce the impact of such differences through inclusive organizational practices. Continued PRE surveys and dialogue will play an important role in supporting the long-term development and sustainability of the global accelerator community.

## ACKNOWLEDGEMENTS

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## REFERENCES

- [1] Equal Opportunity session – ipac23.org, <https://www.ipac23.org/equal-opportunity-session/>
- [2] WISE and PRAB Editor's Reception – IPAC'24, <https://ipac24.org/wise-and-prab-editors-reception/>