

# What Does the Brazilian Industry Expect from Product Owners? An Analysis of Soft Skills in Job Postings

Israely Lima<sup>1</sup>, Carla Bezerra<sup>1</sup>

<sup>1</sup>Programa de Pós-graduação em Computação (PCOMP)

Universidade Federal do Ceará (UFC)

Caixa Postal 63900-000 – Quixadá – CE – Brasil

israelylima@alu.ufc.br, carlailane@ufc.br

**Abstract.** *The Product Owner (PO) plays a central role in agile software development by connecting stakeholders and development teams. This study identifies and analyzes the soft skills required of POs in the Brazilian software industry by analyzing 202 job postings published between July and October 2025 on LinkedIn, Gupy, and Glassdoor. The results indicate a predominance of skills related to communication, analytical abilities, collaboration, and negotiation. Notably, communication appears in 54% of the analyzed postings, making it the most frequently mentioned soft skill. The findings contribute to understanding the competencies valued by the industry and may support the development of professional resumes and academic curricula for PO training.*

## 1. Introduction

Agile software development has become one of the dominant approaches in the software industry due to its emphasis on collaboration, adaptability, and continuous value delivery [Matturro et al. 2018]. Within agile frameworks, the Product Owner (PO) is recognized as one of the key roles responsible for connecting business objectives, stakeholder needs, and development activities [Reis Lima and Amaral 2022]. The PO holds the product vision and business knowledge, working closely with stakeholders to define, prioritize, and validate product requirements. Thus, this role involves responsibilities considered critical to project success, such as backlog management, decision-making, communication with development teams, and validation of user stories [Figueiredo 2025].

As agile environments heavily rely on collaboration and interaction among team members, the effectiveness of the PO role extends beyond technical knowledge. In this context, organizations have increasingly valued non-technical competencies, commonly referred to as soft skills, due to their influence on both individual and collective performance in software development projects [Wazlawick et al. 2024]. Previous studies have highlighted several soft skills associated with POs, including communication, negotiation, teamwork, interpersonal relationships, customer orientation, planning, responsibility, and problem-solving abilities [Matturro et al. 2015, Dutra et al. 2023, Unger-Windeler et al. 2021].

Despite the growing interest in the PO role, the literature still presents limitations regarding the understanding of how this role is characterized in practice [Kadicic et al. 2023, Toikkanen et al. 2023]. Existing studies mainly discuss the responsibilities and expected competencies of POs from theoretical or organizational perspectives, but there is still limited evidence regarding how the software industry explicitly

values and demands soft skills for this role, particularly in the context of the Brazilian job market. Consequently, there is a lack of empirical research examining which interpersonal competencies are most frequently requested in real-world recruitment scenarios and how these demands align with the expectations of agile product management.

To address this gap, this study aims to identify and analyze the soft skills required for POs in the Brazilian software industry by analyzing job postings. Specifically, we investigate which soft skills are most frequently mentioned and how they relate to the responsibilities commonly associated with the PO role in agile environments. To achieve this, a qualitative and quantitative analysis of job advertisements collected from online recruitment platforms was conducted. The contributions of this study are to provide an updated overview of the soft skills currently required for POs in the Brazilian software industry and to contribute to the discussion on the alignment between academic perspectives regarding the PO role and the competencies effectively valued in professional practice, supporting researchers and practitioners interested in agile software development and professional education.

## 2. Background

Soft skills were formally recognized in the military context in the 1970s, particularly after the CONARC conference in 1972, which defined these abilities as social competencies essential for work but not directly related to machine operation. Military training identified that, in addition to technical abilities (hard skills), it was necessary to develop interpersonal competencies to ensure success in complex missions [Medvid et al. 2024]. Competencies can be divided into hard skills and soft skills, which differ mainly in the type of ability they represent. Hard skills are technical and practical competencies acquired through specific knowledge and training, essential for performing operational tasks. In contrast, soft skills involve interpersonal, cognitive, and emotional abilities, such as communication, leadership, teamwork, and adaptability, which facilitate the integration of hard skills in professional practice and interaction with others [Bodrick et al. 2025].

In the technology sector, where automation and artificial intelligence reduce repetitive tasks, soft skills have become key differentiators for innovation, teamwork, and leadership [Poláková et al. 2023, Börner et al. 2018]. The software development industry increasingly values these competencies to ensure flexibility, collaboration, and the ability to adapt in dynamic environments [Poláková et al. 2023]. Interpersonal abilities, or soft skills, are widely recognized as essential for success in Software Engineering (SE), complementing technical expertise and significantly impacting project outcomes. Among the main interpersonal skills identified in several studies are communication, teamwork, leadership, analytical thinking, organizational ability, resilience, and self-awareness [Matturro et al. 2015, Malinen et al. 2025]. Research highlights that these skills are often underestimated in formal education but are crucial for collaboration, problem solving, and adapting to dynamic work environments [González-Morales et al. 2011]. Agile methodologies further increase the importance of interpersonal abilities by emphasizing people-centered values such as collaboration and adaptability within teams [Marinho et al. 2021]. Training programs that integrate active learning and agile practices have shown effectiveness in simultaneously developing technical and interpersonal skills [Cavalcante et al. 2024]. Despite their importance, the systematic assessment of interpersonal skills remains a challenge in the industry, suggesting the need

for customized training and evaluation approaches to better prepare software engineers [Malinen et al. 2025, Galster et al. 2023].

### 3. Related Work

[Valle et al. 2025] investigates the importance of interpersonal abilities, known as soft skills, for the success of Requirements Engineering processes in software development. Through a literature review and the analysis of the CHAOS Report: Beyond Infinity, the authors consolidated a set of essential competencies organized into categories such as Communication and Adaptability, and Leadership and Ethics. A pilot study with professionals in the field indicated that skills such as emotional intelligence and process management are often considered more decisive for career success than purely technical knowledge. The study concludes that developing these behavioral competencies is fundamental to ensuring that systems effectively meet stakeholders' needs.

The study by [Coelho et al. 2024], conducted with 42 software development professionals, compared the perceptions of leaders and non-leaders regarding the importance of soft skills. The results show that both groups consider communication, commitment/responsibility, and teamwork to be fundamental skills. However, differences emerge in secondary priorities: while leaders emphasize motivation as a critical skill for team members, non-leaders place greater value on willingness to learn and organizational skills. These findings reinforce the sociotechnical nature of Software Engineering and provide insights for team formation and professional development.

[Kadenic et al. 2023] analyzes the complexity of the PO role in Scrum through a systematic literature review and a focus group with professionals. The results indicate that the PO role is essential for maximizing product value but varies depending on the organizational context, institutional culture, and internal dynamics. In large-scale projects, responsibilities may be distributed among PO teams to avoid overloading a single individual. The study also highlights that communication and networking are key individual competencies for effectively performing the role, showing that the professional's maturity and personal attributes strongly influence their impact in the development environment.

In contrast to these studies, which focus on professionals' perceptions or on the analysis of specific roles within the development process, this research investigates which soft skills are demanded by the Brazilian job market through the analysis of job postings from major recruitment platforms. The study considers the level of seniority associated with the behavioral competencies requested, allowing the identification of patterns of requirements throughout career progression. In this way, the research contributes to bridging the gap between real market demands and academic discussions on soft skills in the field of computing.

### 4. Methodology

This study adopts and extends the job posting extraction and analysis methodology previously described in [Lima and Bezerra 2026]. The extraction and analysis of job postings aimed to identify how the Brazilian market describes, demands, and structures the PO role in the industry. This stage enabled the characterization not only of the formal dimensions of job opportunities (such as seniority level, work arrangement, area of expertise,

and technical requirements) but also of the competencies, activities, expectations, and responsibilities attributed to this professional by Brazilian organizations.

#### 4.1. Extraction of Job Postings from LinkedIn, Gupy, and Glassdoor

To conduct the extraction of job opportunities in Brazil, three platforms widely used in the national market were selected: LinkedIn, Gupy, and Glassdoor. The dataset is available at the following address <https://zenodo.org/records/20262366>. The choice of these three sources was based on the validation of experienced researchers and product management professionals, who recommended the use of the most popular and representative platforms in the Brazilian market. These platforms concentrate a large volume of real job opportunities, a wide diversity of companies, and frequent updates of job postings, thus ensuring greater reliability and relevance for the proposed analysis.

The data collection was conducted with the support of the tools Apify<sup>1</sup> and Browse AI<sup>2</sup>, in which automated search routines were configured, along with a complementary automation to transfer the collected data directly to a Google Sheets spreadsheet. The collection process adopted a four-month filter, retrieving job postings published between July 2025 and October 2025. Some search terms were used to capture a broader sample, such as “Product Owner”, “PO”, and “Business Analyst”. The tools were used exclusively to automate the extraction and transfer of data available on the job posting pages. Furthermore, all collected pages were manually supervised and reviewed by the researchers to ensure the correct capture and consistency of the extracted data.

It is important to highlight a limitation: the platforms only index job postings that are still available in their search results. LinkedIn, Gupy, and Glassdoor automatically remove closed opportunities, making their links unavailable, which may result in missing information or the inability to retrieve the data once the job posting has been removed by the employer. Additionally, some job postings contain incomplete information, which also impacted the analysis.

Initially, 46 job postings were collected from LinkedIn, 71 from Gupy, and 858 from Glassdoor. Some exclusion criteria were applied, including: (i) removal of duplicate postings, identified by the same posting date or identical description; (ii) postings originating from external job aggregators (distributors), which merely replicate content from other platforms; and finally, (iii) talent pools, as they do not represent real and active job openings. After this refinement, the final dataset (Table 1) analyzed consisted of 38 job postings from LinkedIn, 66 from Gupy, and 98 from Glassdoor, totaling 202 job postings.

#### 4.2. Job Posting Analysis

The job posting analysis stage aimed to identify the soft skills mentioned in Product Owner job descriptions required by the Brazilian software industry. For this stage, Google Sheets was used as a supporting tool. The behavioral skills mentioned in the job postings were identified, as well as their frequency within the dataset and their association with different seniority levels (Table 1). Unlike technical competencies, which are usually listed explicitly, interpersonal and behavioral skills are often not directly stated by

---

<sup>1</sup>[www.apify.com](http://www.apify.com)

<sup>2</sup>[www.browse.ai](http://www.browse.ai)

employers. Instead, these competencies appear implicitly in sections such as responsibilities, requirements, and qualifications through action verbs (e.g., “facilitate meetings”, “align with stakeholders”, “communicate decisions”, “negotiate priorities”, and “collaborate with multidisciplinary teams”) or through activities that inherently imply certain non-technical abilities. Therefore, identifying these competencies required an analytical and interpretative reading conducted by two researchers, following principles of content analysis, in order to recognize and categorize skills that, although not explicitly named, are embedded in the actions expected from a PO. During this process, the validation and interpretation of the identified competencies were collaboratively discussed by the researchers and aligned with concepts and definitions found in the literature. This procedure was essential to capture a more accurate and realistic view of the skills demanded by the industry.

## 5. Results

It is observed that a significant portion of job postings does not explicitly define the seniority level, representing 40.1% of the total opportunities analyzed (81 out of 202 postings). Among the positions that specify this information, senior roles are predominant, corresponding to 26.7% (54 postings), followed by mid-level positions, with 21.8% (44 postings). Intermediate or hybrid levels, such as mid-level/senior and junior/mid-level, appear less frequently, representing 1.5% and 1.0%, respectively. Junior positions account for 5.9% of the postings, while internship opportunities are rare, representing only 0.5% of the total. These results suggest that the Brazilian software industry tends to demand more experienced professionals for the PO role, possibly due to the strategic nature of the position, which involves decision-making, priority management, and continuous interaction with different stakeholders. Table 1 presents the distribution of opportunities, while Table 2 presents the soft skills identified in the analysis, as well as their definitions.

**Table 1. Job Platform and Seniority**

Platform	Not defined	Specialist	Senior	Mid-level/Senior	Mid-level	Junior/Mid-level	Junior	Internship	Total
Glassdoor	38	2	24	1	29	1	3	0	98
LinkedIn	14	1	10	1	3	1	7	1	38
Gupy	29	2	20	1	12	0	2	0	66
Total	81	5	54	3	44	2	12	1	202
%	40.1%	2.5%	26.7%	1.5%	21.8%	1.0%	5.9%	0.5%	100%

Soft skills are widely mentioned in job descriptions (with only 25.2% of the postings not associated with any skill), although their distribution across different competencies is uneven. A strong concentration is observed in a limited set of competencies, while others appear only sporadically or are not explicitly mentioned. The most recurrent interpersonal skill is Communication, present in 109 job postings, corresponding to 54.0% of the total analyzed. This is followed by Analytical skills, mentioned in 60 postings (29.7%), and the category Not associated, identified in 51 postings (25.2%), indicating descriptions that refer to behavioral aspects without explicit association with a specific soft skill. These findings suggest that, beyond communication, the industry strongly values the ability to analyze and interpret information and support decision-making.

A second group of soft skills presents intermediate frequency, including Teamwork (31 postings; 15.3%), Leadership (28 postings; 13.9%), Organization (27 postings; 13.4%), Negotiation (27 postings; 13.4%), Proactivity (26 postings; 12.9%), and Business vision (26 postings; 12.9%). These skills are associated with contexts that require

**Table 2. Soft Skills and Definitions**

Soft Skill	Definition
Communication	Ability to convey information in a manner that is well received and understood, either orally or in writing [Silva Farias et al. 2025].
Teamwork	Ability to work effectively in a team environment, collaborating with others to achieve a common goal [Diniz et al. 2025].
Leadership	Ability to inspire and motivate others, guide a team toward the best direction, and foster a high-performance environment [Silva Farias et al. 2025].
Adaptability	Ability to adjust and adapt to changes in the work environment without showing resistance [Diniz et al. 2025].
Proactivity	Ability to identify work that needs to be done and take initiative to start it [Silva Farias et al. 2025].
Problem Solving	Ability to understand and solve complex problems, making sound decisions [Diniz et al. 2025].
Organization	Ability to efficiently manage multiple tasks [Silva Farias et al. 2025].
Creativity	Ability to approach problems from different angles and propose innovative solutions [Ayas et al. 2024].
Responsibility	Ability to be reliable and deliver valid, well-founded results [Silva Farias et al. 2025].
Willingness to Learn	Ability to learn new concepts, methodologies, and technologies quickly [Diniz et al. 2025].
Knowledge Management	Ability to capture, share, and utilize knowledge to improve performance [Silva Farias et al. 2025].
Business Vision	Ability to understand needs and priorities to represent them effectively [Diniz et al. 2025].
Empathy	Ability to understand others' perspectives and feelings [Diniz et al. 2025].
Critical Thinking	Ability to objectively analyze information to form judgments [Diniz et al. 2025].
Negotiation	Ability to reach agreements through discussion and compromise [Diniz et al. 2025].
Active Listening	Ability to make others feel comfortable expressing opinions and feedback [Diniz et al. 2025].
Ethics	Demonstrates integrity, honesty, and ethical behavior [Diniz et al. 2025].
Conflict Management	Ability to handle conflicts constructively [Diniz et al. 2025].
Goal Setting	Ability to define clear and achievable goals [Diniz et al. 2025].
Quality orientation	Focus on high standards and continuous improvement [Diniz et al. 2025, Silva Farias et al. 2025].
Self-management	Ability to manage time and tasks independently [Silva Farias et al. 2025].
Emotional intelligence	Ability to understand and manage emotions [Silva Farias et al. 2025].
Innovation	Ability to create and apply new ideas [Silva Farias et al. 2025].
Analytical skills	Ability to analyze data and support decisions [Silva Farias et al. 2025].
Ability to work under pressure	Ability to perform well in stressful situations [Ayas et al. 2024].
Curiosity	Desire to learn and explore new knowledge [Ayas et al. 2024].
Productivity	Ability to deliver results efficiently [Ayas et al. 2024].

collaboration, coordination of efforts, prioritization, and alignment between technical and strategic objectives. Other soft skills appear less frequently, such as Adaptability (23 postings; 11.4%), Problem-solving (11 postings; 5.4%), Responsibility (9 postings; 4.5%), Empathy (9 postings; 4.5%), and Quality orientation (8 postings; 4.0%). Although less recurrent, these competencies reinforce the expectation of professionals capable of dealing with change, assuming commitments, and maintaining quality standards in delivery.

Soft skills such as Self-management (7 postings; 3.5%), Knowledge management (6 postings; 3.0%), Critical thinking (6 postings; 3.0%), Willingness to learn (5 postings; 2.5%), and Innovation (5 postings; 2.5%) appear sporadically, indicating that they are treated as differentiators in specific contexts rather than as central requirements in job descriptions.

Finally, some skills present minimal occurrence, such as Creativity, Goal setting, and Productivity (each with 3 postings; 1.5%), Active listening, Emotional intelligence, and Ability to work under pressure (each with 2 postings; 1.0%), as well as Motivation and Time management, each mentioned in only 1 posting (0.5%). Figure 1 shows a recurring concentration of competencies by seniority level, mainly related to communication, collaboration, analysis, and decision-making, although with variations in the distribution and diversity of skills mentioned throughout professional progression.

In job postings where seniority is not explicitly defined, the most prominent soft

skills are Communication (43 mentions), Analytical skills (25 mentions), and Not associated (18 mentions), followed by Business vision (14) and Teamwork (13). In proportional terms, communication and analytical skills concentrate the highest percentages of mentions, indicating that, in the absence of a clearly specified seniority level, the industry prioritizes transversal competencies that can be applied across different contexts.

For the Specialist profile, a small number of postings was observed (only 5 postings were identified), highlighting Communication (2), Analytical skills (1), Organization (1), Proactivity (1), and Self-management (1). Although the absolute volume is low, these soft skills represent a significant portion of the mentions within this profile, suggesting that specialized roles tend to emphasize autonomy, analytical ability, and clarity in communication rather than a broad set of behavioral skills.

At the Senior level, the most recurrent soft skills are Communication (26 mentions), Analytical skills (14), Negotiation (7), Leadership (6), and Business vision (5). In percentage terms, communication and analytical skills account for the majority of mentions, reflecting the expectation that senior professionals act as technical and strategic references, with strong articulation, critical analysis, and influence over decisions and stakeholders. For the Mid-level/Senior profile, a smaller diversity of non-technical skills is observed, with occasional mentions of Communication, Leadership, Negotiation, Quality orientation, and Business vision (1 mention each). Despite the low absolute volume, these skills represent a significant proportion of the mentions within this profile, indicating a transition phase in which coordination competencies, systemic vision, and decision-making begin to gain importance. At the Mid-level, the most frequently mentioned soft skills are Communication (26 mentions), Analytical skills (12), Organization (7), Teamwork (8), and Business vision (4). Proportionally, communication and analytical skills concentrate the highest percentages, indicating that the industry expects mid-level professionals to combine qualified execution, information analysis, and continuous interaction with different areas.

For the Junior/Mid-level profile, the most prominent soft skills are Communication (2), Negotiation (2), Analytical skills (2), and Organization (1). Although the total number of mentions is small, these skills represent relevant proportions within the profile, suggesting that even at early transitional levels some capacity for articulation, analysis, and work structuring is already expected. At the Junior level, the most recurrent soft skills are Communication (9 mentions), Analytical skills (5), Empathy (3), Teamwork (5), and Proactivity (3). In proportional terms, communication plays a central role, indicating that for professionals at the beginning of their careers the industry strongly values interaction, learning capacity, and collaboration rather than advanced strategic skills.

For Internship positions, the mentions are concentrated in Teamwork, Leadership, Proactivity, Creativity, Innovation, and Productivity, each with one mention. Although the volume is small, these skills represent high proportions within the profile, reflecting expectations related to engagement, learning, initiative, and adaptability rather than technical or strategic mastery. The analysis also reveals that several soft skills were not mentioned at any seniority level, namely: Socialization, Trust, Ethics, Ability to give and receive feedback, and Patience. The absence of these skills in the analyzed dataset suggests that, although recognized in the literature, they are not explicitly demanded in the job descriptions considered.

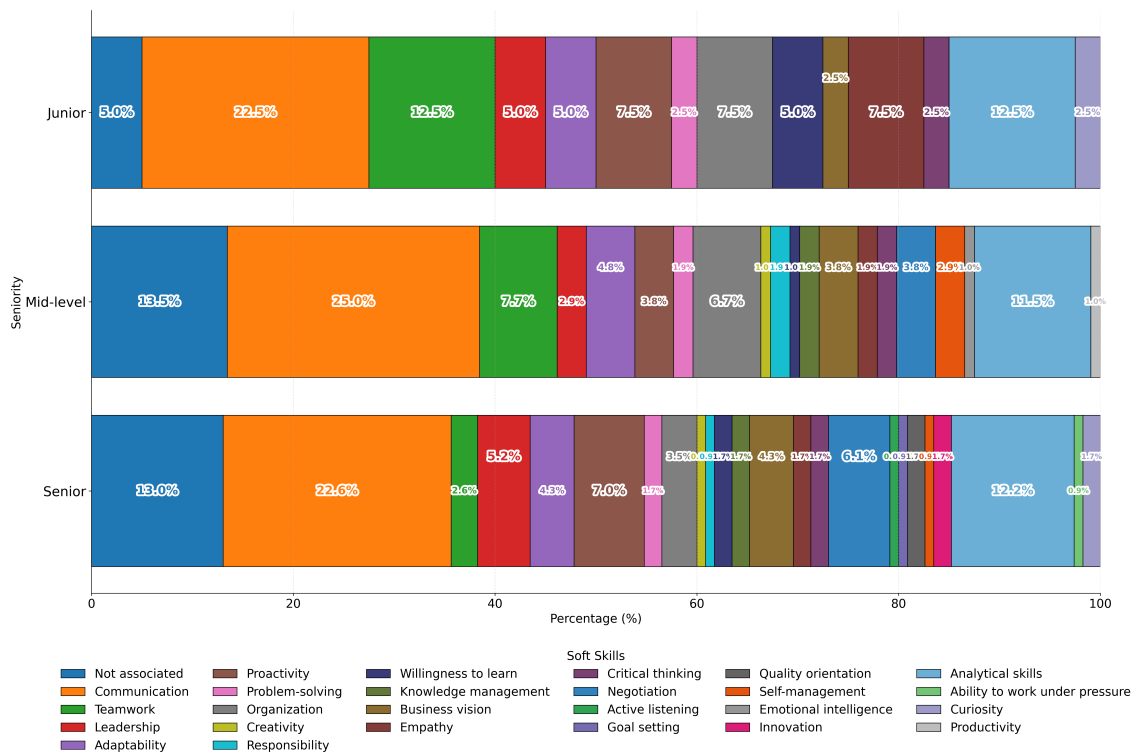


Figure 1. Soft Skills by Seniority

## 6. Discussion

The analysis of soft skills associated with different seniority levels in PO job postings reveals relevant patterns regarding the expectations of the Brazilian software industry concerning the behavioral competencies required for this role. Communication and analytical skills appear consistently across almost all seniority levels, indicating that these competencies are fundamental for the effective performance of the role.

At the senior level, which accounts for 54 analyzed job postings, a greater diversity of skills is mentioned, particularly communication, analytical skills, proactivity, negotiation, and leadership. This set of competencies suggests that more experienced professionals are expected not only to conduct product analysis and definition activities but also to act strategically by mediating between stakeholders, negotiating priorities, and leading product-related initiatives.

In the mid-level profile, identified in 44 job postings, communication and analytical skills remain prominent, accompanied by competencies such as teamwork, organization, adaptability, and proactivity. This pattern indicates that professionals at this level are expected to possess a consolidated set of interpersonal skills that support collaboration with multidisciplinary teams and activities related to backlog management and stakeholder alignment. Emotional intelligence appears with low frequency (1%), being the only seniority level in which this skill was explicitly mentioned.

Profiles with fewer job postings (such as mid-level/senior, junior/mid-level, junior, and specialist) present a smaller diversity of skills due to the limited number of observations. For example, the mid-level/senior profile includes only three job postings,

mentioning communication, leadership, business vision, negotiation, and quality orientation. Similarly, the junior/mid-level profile includes two job postings, highlighting analytical skills, communication, and negotiation. In the junior profile, empathy, willingness to learn, and adaptability appear more frequently compared to other levels. Only one internship position was identified, which prevents generalizing results for this profile. Nevertheless, the skills mentioned include productivity, innovation, creativity, proactivity, leadership, and teamwork, suggesting that even entry-level positions may require behavioral competencies related to collaboration and initiative.

A significant portion of job postings (81 announcements) does not specify the seniority level. In these cases, the most recurrent soft skills are communication and analytical skills, followed by leadership, business vision, negotiation, and teamwork. Less frequent skills, such as conflict management, goal setting, active listening, and the ability to work under pressure, also appear, suggesting that job descriptions without explicit seniority definitions may combine varied expectations for the desired professional profile.

Figure 1 illustrates how the distribution of soft skills varies across seniority levels. At the junior level, competencies are concentrated in fundamental interpersonal abilities such as communication, teamwork, and analytical skills, reflecting expectations related to collaboration and learning within agile environments. At the mid-level, a broader set of competencies becomes visible, including organization, proactivity, and business vision, indicating a transition toward greater responsibility in structuring activities, managing information, and supporting product decisions. At the senior level, the distribution of competencies becomes more diverse, with stronger emphasis on negotiation, leadership, and business vision. These skills reflect the strategic dimension of the PO role, where professionals are expected to mediate interests, prioritize product decisions, and influence organizational outcomes.

Overall, the combined analysis of Table 1 and Figure 1 suggests a progressive expansion of behavioral expectations as seniority increases. While early-career roles emphasize collaboration and learning, more experienced positions require additional competencies related to leadership, strategic thinking, and stakeholder management. This pattern reinforces the multifaceted nature of the PO role and highlights the importance of developing both technical understanding and interpersonal competencies throughout a professional career in product management.

## **7. Research Limitations**

This study presents some threats to validity that should be considered when interpreting the results [Wohlin et al. 2012]. Regarding construct validity, the identification of soft skills involved an interpretative process, since many competencies were not explicitly mentioned in the job postings and had to be inferred from the activities, responsibilities, and action verbs described in the announcements. Although systematic content analysis criteria were adopted, interpreting implicit competencies may introduce subjectivity and researcher bias. To mitigate this threat, the inclusion, interpretation, and categorization of competencies were collaboratively discussed and validated by two researchers based on concepts and definitions established in the literature. Another limitation related to construct validity concerns the variability in how companies describe the PO role. Different organizations may use distinct terminologies, varying levels of detail, or overlapping

descriptions for similar competencies, which may affect the consistency of competency identification across the analyzed job postings. Regarding *external validity*, the study was conducted exclusively within the Brazilian software industry, which may limit the generalizability of the findings to other countries, cultures, or organizational contexts where the PO role may entail different responsibilities and expectations. Furthermore, the data collection period was restricted to four months (July to October 2025), which may not capture seasonal variations or long-term changes in market demands. An additional threat to external validity concerns the composition of the dataset. Data collection was conducted using only three recruitment platforms (LinkedIn, Gupy, and Glassdoor). Although these platforms represent a significant portion of the Brazilian market, they may not include vacancies advertised through internal company channels, specialized recruitment agencies, or smaller regional platforms. Additionally, the initial dataset had a higher concentration of job postings from Glassdoor, which may introduce platform bias, as each platform may differ in job structure, level of detail, and recruitment practices. Finally, the limited number of job postings at certain seniority levels, such as internships and hybrid roles, limits the generalizability of the findings for these profiles. Additionally, some job postings contained incomplete or poorly detailed descriptions, which may have limited the accurate identification of certain soft skills.

## 8. Conclusion

This study analyzed the interpersonal skills required for the Product Owner (PO) role in the Brazilian software industry by examining 202 job postings published on LinkedIn, Gupy, and Glassdoor between July and October 2025. The results show that communication, analytical skills, collaboration, and negotiation are valued across all seniority levels, with communication being the most frequently mentioned skill. It was also observed that, as seniority increases, the diversity of expected interpersonal skills expands, particularly those related to leadership, business vision, and decision-making.

Additionally, many behavioral competencies appear implicitly in job descriptions and can be inferred from the activities and responsibilities described. Overall, the findings indicate that the PO role requires a broad set of interpersonal competencies, essential for communication, information analysis, priority negotiation, and collaboration with different stakeholders. As a contribution, this study provides support for educational institutions in designing curricula more aligned with industry demands, with greater emphasis on the development of interpersonal and analytical competencies. For professionals and aspiring POs, the results offer guidance on which soft skills are most valued and how they evolve throughout the career. For organizations, the study highlights the importance of clearly articulating behavioral expectations in job descriptions, contributing to more effective recruitment processes. As future work, we suggest extending the analysis to other geographical contexts and investigating the relationship between the skills required by the market and those developed in academic education.

## Acknowledgments

The authors acknowledge the use of ChatGPT, GPT-5.5 version, as support for the translation of this manuscript. However, all activities related to the conception of the study, data collection, analysis, interpretation of results, writing, validation, and final review of the manuscript are entirely the responsibility of the authors.

## References

- Ayas, H. M., Hebig, R., and Leitner, P. (2024). The Roles, Responsibilities, and Skills of Engineers in the Era of Microservices-Based Architectures. In *Proceedings of the 2024 IEEE/ACM 17th International Conference on Cooperative and Human Aspects of Software Engineering*, pages 13–23, Lisbon Portugal. ACM.
- Bodrick, M. M., Almutairi, M. B., Aljuffali, L. A., Obaid, A. A., Albisher, A. K., Al-suhaim, M. I., Alhabib, I. M., and Alqarni, H. M. (2025). Amplifying learning development in human capability advancement through soft and hard skills. *Journal of Learning and Development Studies*.
- Börner, K., Scrivner, O., Gallant, M., na Ma, S., Liu, X., Chewing, K., Wu, L., and Evans, J. A. (2018). Skill discrepancies between research, education, and jobs reveal the critical need to supply soft skills for the data economy. *Proceedings of the National Academy of Sciences*, 115:12630 – 12637.
- Cavalcante, V., Costa, C., and Soares, D. (2024). Beyond code: the development of soft skills through training in software engineering. In *Anais do XXXVIII Simpósio Brasileiro de Engenharia de Software*, pages 521–531, Porto Alegre, RS, Brasil. SBC.
- Coelho, M., Araújo, A., Freire, S., and Paixao, M. (2024). Um estudo comparativo entre a visão de líderes e liderados sobre a importância de soft skills em desenvolvimento de software. In *Anais do IX Workshop sobre Aspectos Sociais, Humanos e Econômicos de Software*, pages 130–140, Porto Alegre, RS, Brasil. SBC.
- Diniz, W., Gadelha, B., Steinmacher, I., and França, C. (2025). Habilidades colaborativas no mercado de ti: Uma investigação sobre requisitos de soft skills. In *Anais do XX Simpósio Brasileiro de Sistemas Colaborativos*, pages 139–150, Porto Alegre, RS, Brasil. SBC.
- Dutra, E., Cerdeiral, C., Lima, P., Escalfoni, R., Diirr, B., and Santos, G. (2023). Using an instrument to assess trust, knowledge, learning, and motivation of agile teams. *iSys-Brazilian Journal of Information Systems*, 16(1):7–1.
- Figueiredo, J. G. (2025). Metodologias ágeis no desenvolvimento de software para universidade digital. *RICA-KIANDA: REVISTA DE INOVAÇÃO E INVESTIGAÇÃO CIENTÍFICA DA UNIVERSIDADE DE LUANDA*, 1(01):228–242.
- Galster, M., Mitrovic, A., Malinen, S., Holland, J., and Peiris, P. (2023). Soft skills required from software professionals in new zealand. *Inf. Softw. Technol.*, 160:107232.
- González-Morales, D., de Antonio, L. M. M., and García, J. L. R. (2011). Teaching “soft” skills in software engineering. *2011 IEEE Global Engineering Education Conference (EDUCON)*, pages 630–637.
- Kadenic, M. D., de Jesus Pacheco, D. A., Koumaditis, K., Tjørnehøj, G., and Tambo, T. (2023). Investigating the role of product owner in scrum teams: Differentiation between organisational and individual impacts and opportunities. *Journal of Systems and Software*, 206:111841.
- Lima, I. and Bezerra, C. (2026). Soft skills in agile culture: An analysis of literature, job vacancies, and survey evidence on the product owner in the information systems industry. *Simpósio Brasileiro de Sistemas de Informação (SBSI)*, pages 204–211.

- Malinen, S., Galster, M., Mitrovic, A., Iyer, S., Peiris, P., and Clarke, A. (2025). Soft skills in software engineering: Insights from the trenches. *2025 IEEE/ACM 47th International Conference on Software Engineering: Software Engineering in Practice (ICSE-SEIP)*, pages 296–306.
- Marinho, M., Bastos, T. A., and Sampaio, S. (2021). Soft skills for newborn software engineers in agile teams. *International Journal of Agile Systems and Management*, 14:27.
- Matturro, G., Cordovés, F., and Solari, M. (2018). Role of product owner from the practitioner’s perspective. an exploratory study. In *Proceedings of the International Conference on Software Engineering Research and Practice (SERP)*, pages 113–118. The Steering Committee of The World Congress in Computer Science, Computer . . .
- Matturro, G., Fontán, C., and Raschetti, F. (2015). Soft skills in scrum teams. a survey of the most valued to have by product owners and scrum masters. In *SEKE*, pages 42–45.
- Medvid, M., Medvid, Y. I., Mudra, S., Storoška, M., and Havryshchuk, M. (2024). Pedagogical conditions for soft skills development in future officers: evidence from the national guard of ukraine during wartime. *Educational Dimension*.
- Poláková, M., Suleimanová, J. H., Madzík, P., Copuš, L., Molnárová, I., and Polednová, J. (2023). Soft skills and their importance in the labour market under the conditions of industry 5.0. *Heliyon*, 9.
- Reis Lima, A. P. d. and Amaral, D. C. (2022). O que fazer quando não há product owner? um estudo sobre a ausência desse papel. *Revista de Gestão e Projetos*, 13(2):38–65.
- Silva Farias, R., Ahmed, I., and De Almeida, E. S. (2025). What Makes a Great Software Quality Assurance Engineer? *IEEE Transactions on Software Engineering*, 51(4):1153–1172. Publisher: Institute of Electrical and Electronics Engineers (IEEE).
- Toikkanen, T., Hyrynsalmi, S., and Paasivaara, M. (2023). How does the role of a product owner relate to the role of a software product manager? In *ICSPM 2023: International Conference on Software Product Management. Lecture Notes in Informatics. Gesellschaft für Informatik eV*.
- Unger-Windeler, C., Klünder, J. A.-C., Reuscher, T., and Schneider, K. (2021). Are product owners communicators? a multi-method research approach to provide a more comprehensive picture of product owners in practice. *Journal of Software: Evolution and Process*, 33(1):e2311.
- Valle, R. A., Souza, A. C. C., and Valle, P. H. D. (2025). Aligning soft skills in requirements engineering between academia and industry: A pilot study. In *Workshop sobre Aspectos Sociais, Humanos e Econômicos de Software (WASHES)*, pages 166–177. SBC.
- Wazlawick, P., Wazlawick, R. S., and Cassol, L. A. (2024). Competências humanas em ontologia para o futuro:: O desenvolvimento de uma revisão sistemática de literatura em tecnologia da informação. In *VI Congresso Internacional de Ontopsicologia e Desenvolvimento Humano*, pages 6–22.
- Wohlin, C., Runeson, P., Höst, M., Ohlsson, M. C., Regnell, B., Wesslén, A., et al. (2012). *Experimentation in software engineering*, volume 236. Springer.