

Empathy Guidelines for Improving Practitioner Well-being & Software Engineering Practices

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Abstract—Empathy is a powerful yet often overlooked element in software engineering (SE), supporting better teamwork, smoother communication, and effective decision-making. This paper introduces 17 actionable empathy guidelines designed to support practitioners, teams, and organisations. We also explore how these guidelines can be implemented in practice by examining real-world applications, challenges, and strategies to overcome them shared by software practitioners. To support adoption, we present a visual prioritisation framework that categorises the guidelines based on perceived importance, ease of implementation, and willingness to adopt. The findings offer practical and flexible suggestions for integrating empathy into everyday SE work, helping teams move from principles to sustainable action.

■ **HUMAN ASPECTS** play a significant role in software engineering (SE), shaping the interactions among software practitioners [1], [2]. One such human aspect is empathy, defined as “the ability to experience the affective and cognitive states of another person while maintaining a distinct sense of self” [3]. Empathy has been shown to support both the well-being of practitioners and the effectiveness of software development practices [4], [5], [6]. While empathy has been widely studied in fields such as medicine [7], [8], engineering [9], [10], and education [11], [12], it remains an under-explored topic in the context of SE [13].

Through interviews with 22 software practitioners [4], we identified both the benefits of empathy and the consequences of its absence. Empathy was linked to

improved mental health, job satisfaction, collaboration, and technical outcomes such as code quality and project success. In contrast, its absence was associated with burnout, poor team cohesion, reduced productivity, higher turnover, declining code quality, and even potential business decline. In this same study, practitioners also shared strategies for fostering empathy and addressing empathy-related challenges. Based on these insights, we developed 17 actionable guidelines to help individuals, teams, and organisations embed empathy in practice (Table 1) using the following criteria:

- *Participant support*: We prioritised strategies that were frequently and consistently endorsed by participants, as these reflected strong practitioner backing.
- *Prevalence of causes of lack of empathy*: We assessed how frequently each cause of a lack of empathy was reported by participants. Causes cited by a larger number of participants were considered more important, and strategies addressing these

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were given higher priority.

- *Real-world applicability:* The strategies were analysed for their feasibility and practical implementation at different levels including practitioner, managerial, and organisational.

In this paper, we introduce these guidelines for the first time and empirically evaluate them through a large-scale practitioner survey [14]. We conducted a survey¹ with software practitioners to explore the practical implementation of empathy guidelines. Participants were recruited via Prolific,² which provided access to a diverse, globally distributed, and pre-screened pool, avoiding the sampling bias of personal or professional networks. We applied targeted screening criteria including, participants were required to work in IT sector, have at least three years of experience, and regularly collaborate in teams. We included attention checks to ensure response quality and excluded responses that failed them. All open-ended questions were mandatory to encourage thoughtful feedback. We collected a total of 125 survey responses. After removing responses that failed the attention-check criteria, 103 valid responses remained for analysis. Key demographic information is shown in Figure 1.

Practitioners were asked to evaluate the importance of each guideline in real-world industry settings, assess the practicality and ease of implementation of guidelines, and indicate their willingness to adopt these guidelines in everyday SE practices. In addition, we gathered qualitative insights on how practitioners would apply these guidelines in practice, the limitations they perceived, challenges they anticipated in adoption, and suggestions for improving the guidelines to enhance their applicability. Drawing on insights from this study, this article examines how the proposed empathy guidelines can be effectively implemented in practice. Recent work by Cerqueira et al. proposed a conceptual framework of empathy in SE based on a grey-literature analysis, offering a complementary perspective grounded in practitioners' experiences [6]. Their study identified workplace barriers such as toxic culture and an excessive technical focus, and integrated empathy practices with effects of empathy to present a holistic model. Our work differed in that we focused on empirically evaluating the practicality and adoption

of developed empathy guidelines through a large-scale practitioner survey, and on identifying challenges to their implementation along with strategies to address these challenges. The qualitative data were analysed using thematic analysis [15]. We conducted an inductive coding process to identify recurring themes related to how practitioners implemented the empathy guidelines in practice, the challenges they experienced, and the strategies they proposed to address these challenges.

Perceived Importance

Practitioners viewed empathy as fundamental to effective SE, enabling trust, psychological safety [16], and communication, particularly during agile practices and stakeholder engagement. It helped bridge gaps between technical and non-technical roles, aligning goals and improving outcomes, while its absence often led to misalignment and reduced quality. Empathy was also viewed as a motivator, connecting daily work to broader organisational goals, promoting user-centred thinking, and supporting well-being through empathetic leadership and flexible policies. Given that empathy may not come naturally to all, structured training was considered essential. While most supported the guidelines, some warned that over-empathising could lead to fatigue and distract from core responsibilities. Overall, embedding empathy into daily practice was seen to require strong leadership, supportive policies, and ongoing training.

Perceived Ease of Implementation

Practitioners noted that many empathy guidelines were relatively easy to adopt, as they aligned well with existing SE practices. Guidelines such as fostering open communication, maintaining backup plans, and applying empathy during agile ceremonies were seen as natural extensions of standard workflows. These practices typically required little cross-team coordination, making them manageable within individual teams. In smaller or more cohesive teams, integrating empathy into agile routines or offering flexible work arrangements was considered especially straightforward. Overall, ease of implementation was closely tied to how well the guidelines fit within existing team processes and organisational culture. However, some guidelines were perceived as more difficult to apply due to structural, cultural, and resource-related challenges. These included limited managerial support

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²<https://www.prolific.com/>

TABLE 1. Actionable empathy guidelines and their applicability at practitioner, managerial, and organisation levels

ID	Guidelines	Description	Applicability in		
			PL	ML	OL
G1	Fostering strong relationships	Strong relationships should be built among all stakeholders to promote empathy. Strong relationships foster trust, open communication, and mutual understanding, which are key to cultivating empathy thereby enhancing collaboration, reducing misunderstandings, and creating a shared sense of purpose.	✓	✓	✓
G2	Bridging technical (tech) and non-tech gap	Empathy between tech and non-tech stakeholders enhances collaboration, and improves alignment between tech and business needs, leading to better SE outcomes. This guideline encourages assisting non-tech stakeholders better understand developers' technical work, tailoring tech explanations to the audience's understanding, and integrating cross-functional team members who understand both tech and non-tech aspects.	✓	✓	
G3	Reducing friction among stakeholder groups	Interactions between different SE roles, such as developers and testers, can lead to friction due to their contrasting responsibilities.	✓	✓	✓
G4	Encouraging bi-directional communication	Clear and effective two-way communication is essential for fostering empathy and building strong, collaborative relationships. Two-way communication establishes trust, minimises misunderstandings, and fosters mutual understanding, which are key elements in cultivating empathy.	✓	✓	✓
G5	Ensuring transparency about business goals	Transparent business goals allow practitioners to better align their work with organisational goals.	✓	✓	
G6	Use an empathetic approach to improve RE	Developers noted that unclear requirements often result from stakeholders' lack of empathy. Empathy in RE process helps developers better understand user needs, improving product quality.	✓		
G7	Collaborative problem solving	Involving both technical & non-technical stakeholders in resolving technical issues, enhances solution quality by considering the perspectives of all parties, which is fundamental to building empathy.	✓	✓	
G8	Empathy during agile ceremonies	Empathy during sprint planning supports realistic work allocation, helps address challenges & provide support during stand-ups, & fosters a positive team culture in retrospectives and reviews.	✓	✓	
G9	Empathetic feedback process	Empathy during feedback helps developers feel appreciated.	✓	✓	
G10	Creating a safe space	Fostering a safe environment where team members can share concerns without fear of judgement promotes well-being and positive team dynamics, enhancing mutual understanding and support. Empathy plays a key role in creating and maintaining this safe space.	✓	✓	✓
G11	Backup plans to manage unexpected outcomes	Personal emergencies can impact performance, so empathetic support & backup plans are vital to minimise project disruption.	✓	✓	✓
G12	Flexibility in handling human issues	Participants shared experiences where a lack of empathy during crisis situations led to negative outcomes, including resignations. In contrast, empathetic support allowed team members to handle emergencies and return with renewed loyalty. Demonstrating empathy and flexibility in these situations fosters team loyalty and contributes to project success.	✓	✓	✓
G13	Emphasising real-world impact of developers' work	Developers disconnected from end-users may overlook their work's impact. Understanding this impact fosters empathy.	✓	✓	✓
G14	Building an empathetic team & company culture	Company culture and leadership strongly influence practitioners' ability to express empathy, with leaders modelling empathy encouraging others to do the same.	✓	✓	✓
G15	Empathy education & training	Integrating empathy into SE curricula & workplace training prepares professionals to apply empathy in daily practice.	✓	✓	✓
G16	DEI policies	Foster empathy through DEI policies that value diversity & promote a safe, respectful, and inclusive workplace.	✓	✓	✓
G17	Managing empathy fatigue	Excessive empathy can cause fatigue, so setting boundaries and prioritising self-care is essential.	✓	✓	✓

PL: Practitioner Level, ML: Managerial Level, OL: Organisational Level, RE: Requirement Engineering, DEI: Diversity, Equity, and Inclusion

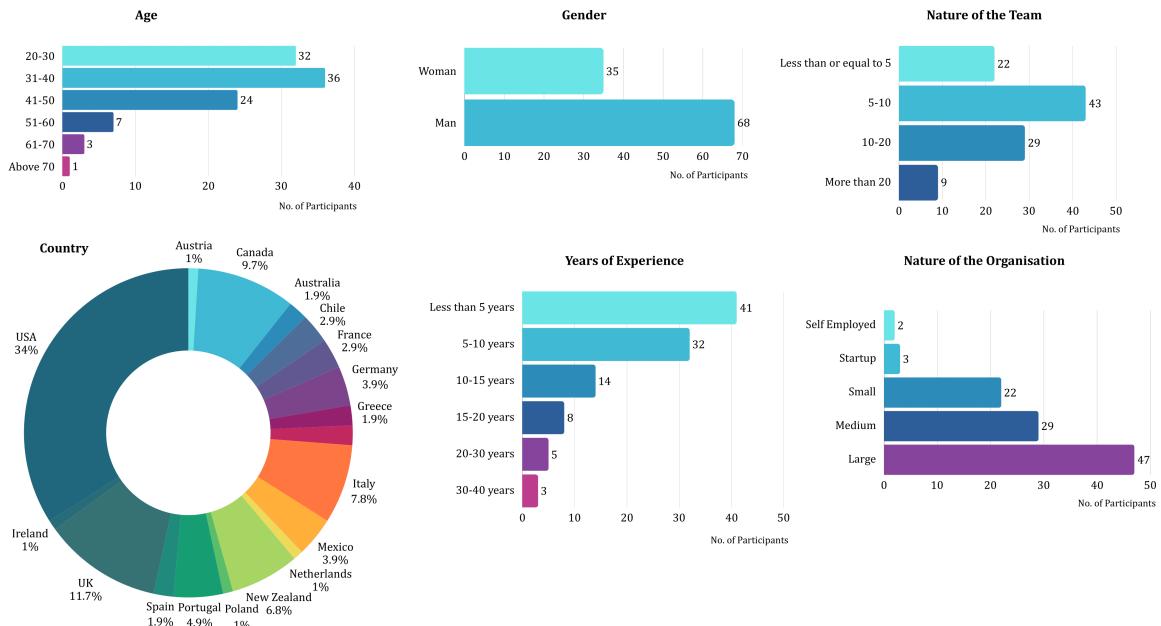


FIGURE 1. Overview of Demographic Information of Large-Scale Survey Participants

for formal training, siloed communication in large organisations, and difficulty linking technical tasks to real-world impact. Tight schedules, cultural resistance, and a strong focus on deliverables over emotional engagement also hindered adoption. Sustained implementation was seen to require strong leadership and long-term commitment which were not always feasible amidst competing business demands.

Adoption Willingness

Practitioners expressed strong interest in adopting the proposed guidelines to enhance empathy in their SE practice, citing a range of compelling reasons. Many noted that the guidelines support the creation of a safe, inclusive, and collaborative work environment, which they saw as fundamental to effective teamwork and cohesion. They emphasised that empathy enables developers to better understand and respond to others' needs resulting in more inclusive solutions. They noted that fostering open communication, trust, and strong team bonds not only enhances productivity but also contributes to a healthier work culture. Several practitioners also highlighted empathy's role in reducing stress, promoting well-being, and aligning team goals, which they viewed as important for long-term performance and satisfaction. The guidelines were also recognised as consistent with growing industry attention to psychological safety and emotional intelligence,

with many participants reporting that they already applied similar principles in their work.

Integrated Analysis of Importance, Ease, and Adoption Willingness

To synthesise these views of practitioners on the proposed empathy guidelines, we created a quadrant-based bubble chart that plots importance (x-axis) against ease of implementation (y-axis), with bubble size indicating practitioner willingness to adopt each guideline. Notably, some guidelines rated as less important or harder to implement still show large bubble sizes, indicating they may gain traction if supported under the right conditions. This visualisation enables categorisation of the guidelines into four strategic zones based on practical value and implementation feasibility, supporting prioritisation for real-world implementation.

• Quick Wins: Top Right Quadrant (High Importance, High Ease)

This quadrant includes the most promising guidelines, those that are both critical and easy to implement. Practitioners shared the practical ways of implementing our empathy guidelines in practice, as illustrated in Figure 3. Examples include G4 (Encouraging bi-directional communication), G5 (Ensuring transparency about business goals), G7 (Collaborative problem solving), and G10 (Creating

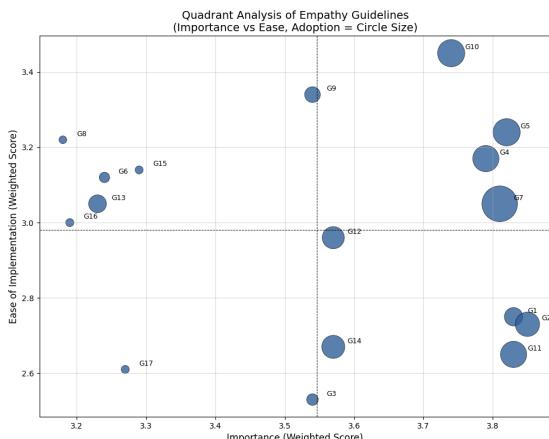


FIGURE 2. A three-dimensional view of empathy guidelines' readiness: importance (x-axis), ease of implementation (y-axis), and adoption willingness (bubble size) based on practitioner ratings. Higher values on the x- and y-axes indicate higher perceived importance and greater ease of implementation, respectively. Larger bubbles indicate stronger willingness to adopt each guideline. This visualisation follows the scoring scheme used in the survey, where higher numerical values correspond to more favourable practitioner ratings, indicating greater ease rather than difficulty. All underlying numerical values used to construct the framework are available in our online Appendix (“Detailed Guidelines Analysis – Quant” sheet)[14].

a safe space). These guidelines not only received high importance ratings but were also perceived as relatively easy to adopt, with large bubble sizes reflecting strong practitioner willingness to implement them. In particular, G7 stands out with the highest adoption willingness in this group. These should be prioritised for immediate adoption in software teams.

- **Nice to have: Top Left Quadrant (Low Importance, High Ease)**

Guidelines in this area, such as G8 (Empathy during agile ceremonies), were considered relatively easy to implement but were rated as less critical. These can be seen as “low-hanging fruit”, simple enhancements that may still provide value when time and resources allow. These are low-risk, high-visibility actions that can still add value and support a more empathetic team culture. As illustrated in Figure 4, practitioners shared the practical ways of implementing these empathy guidelines in practice.

- **Strategic investments: Bottom Right Quadrant (High Importance, Low Ease)**

This quadrant includes guidelines perceived as very important but difficult to implement, such as G2 (Bridging the technical and non-technical gap) and G14 (Empathetic team and company culture). These are strategic investments, which require more effort, planning, or structural support but are essential for long-term cultural change. Practitioners may need organisational buy-in or policy-level support to effectively implement these recommendations. Practitioners shared the practical ways of implementing these empathy guidelines in practice, as illustrated in Figure 5.

- **Lowest priority: Bottom Left Quadrant (Low Importance, Low Ease)**

Guidelines here, such as G17 (Managing empathy fatigue) and G3 (Reducing friction), were rated both low in importance and difficult to implement. These are likely to be adopted more selectively or only in specific contexts where they align with team goals or organisational mandates. As illustrated in Figure 3, practitioners shared the practical ways of implementing these empathy guidelines in practice.

To support practical use, the prioritisation framework can guide teams in sequencing their adoption efforts. For example, a team experiencing communication breakdowns may begin with “quick wins” guidelines such as G4 (Encouraging bi-directional communication) or G7 (Collaborative problem solving), which offer immediate impact with minimal resource investment. Once these foundations are in place, the team may progress to “strategic investment” guidelines such as G2 (Bridging the technical and non-technical gap), which require broader organisational support. This phased approach enables teams to tailor adoption to their readiness and context while gradually building a more empathetic SE environment.

Overcoming Adoption Challenges

Based on practitioners’ insights, we identified key challenges in adopting the proposed empathy guidelines, along with practical strategies to overcome them, as shown in Figure 6. Practitioners highlighted several limitations that may hinder adoption, including time constraints, limited managerial support, and the cultural differences. In addition to these limitations, practitioners proposed a range of improvements to support successful adoption. These included integrat-

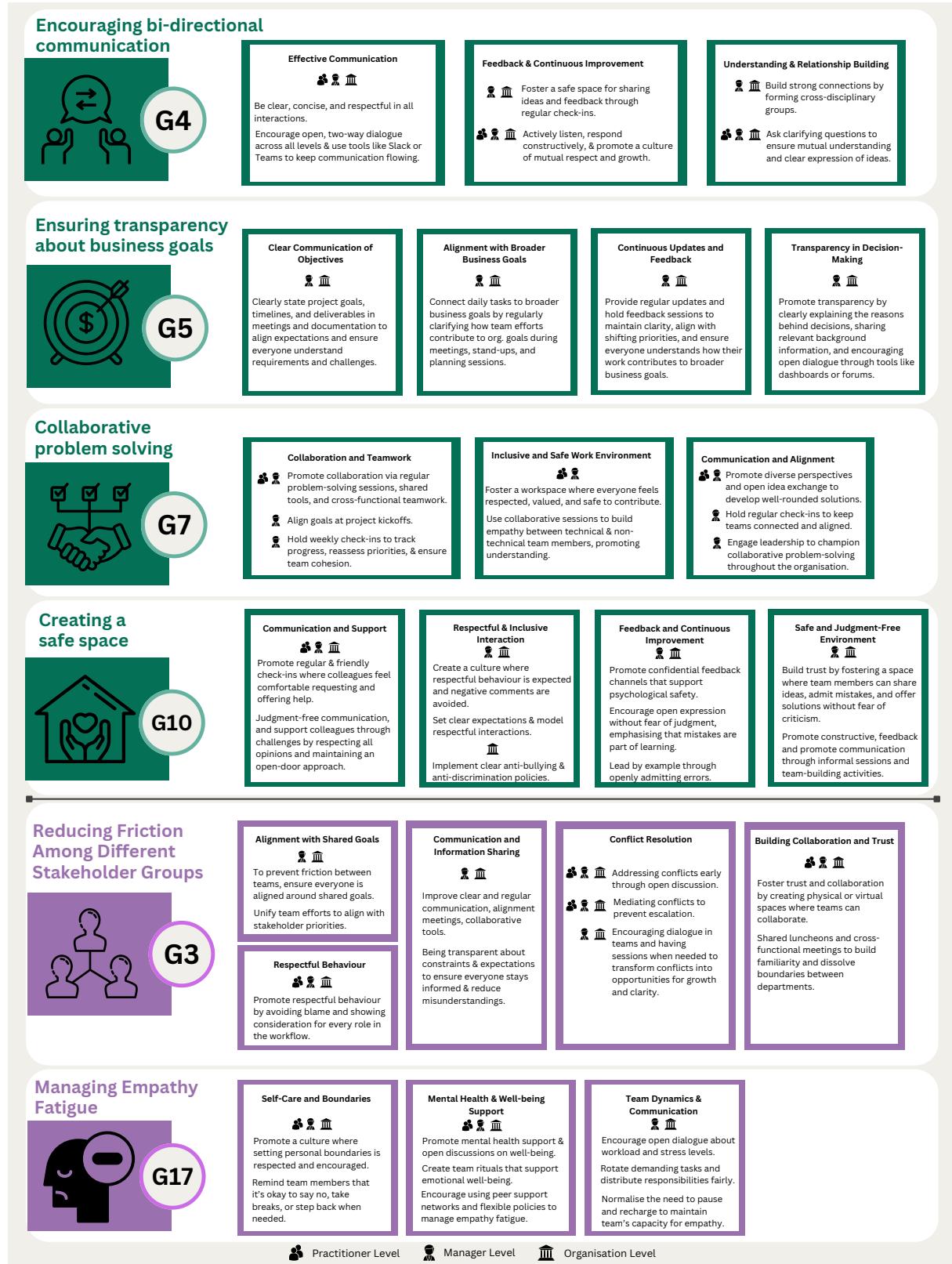


FIGURE 3. Practical approaches for implementing “Quick Wins” empathy guidelines in green colour (high importance, high ease) and “Lowest priority” empathy guidelines in purple colour (low importance, low ease) at the practitioner, managerial, and organisational levels.

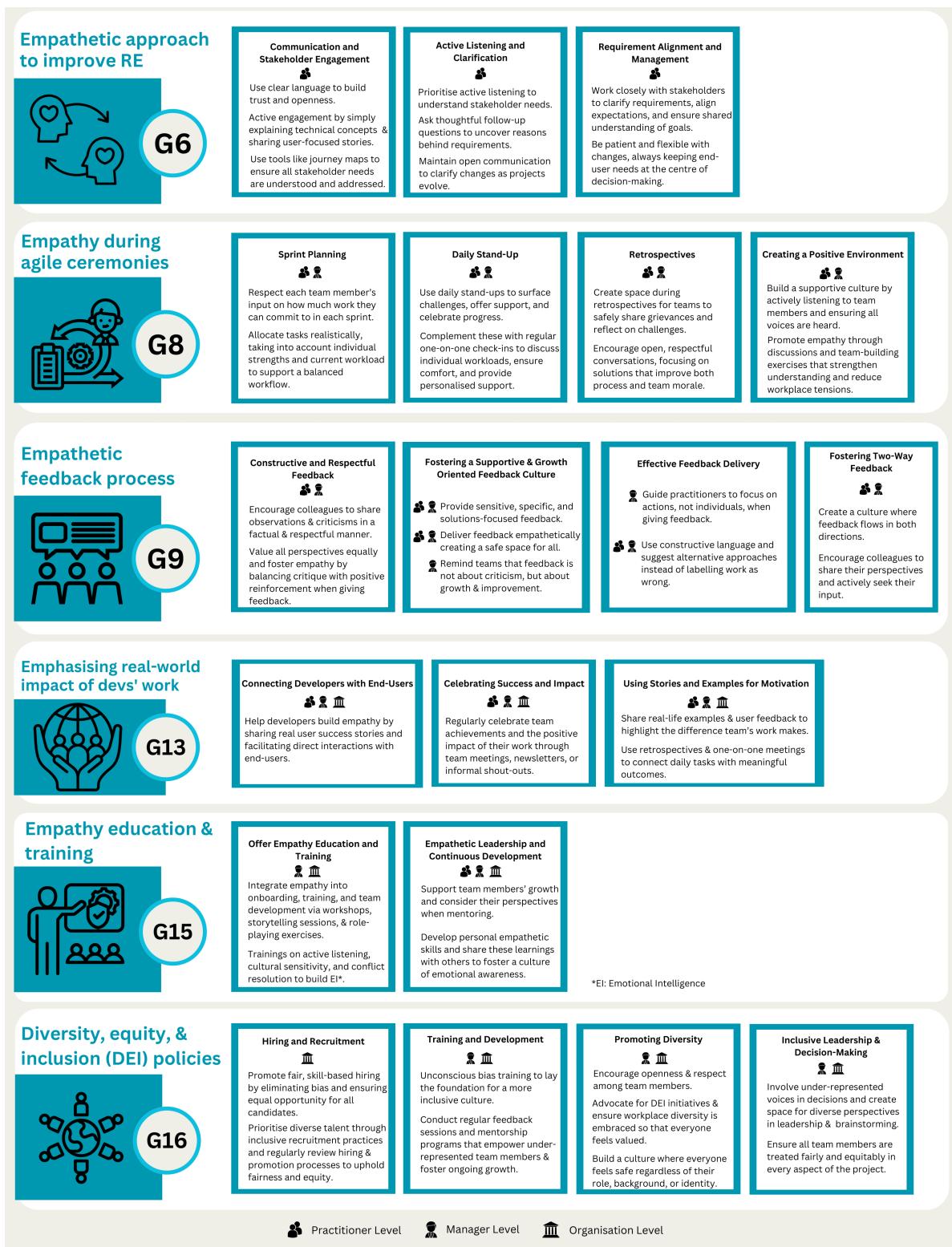


FIGURE 4. Practical approaches for implementing “Nice to have” empathy guidelines (low importance, high ease) at the practitioner, managerial, and organisational levels.

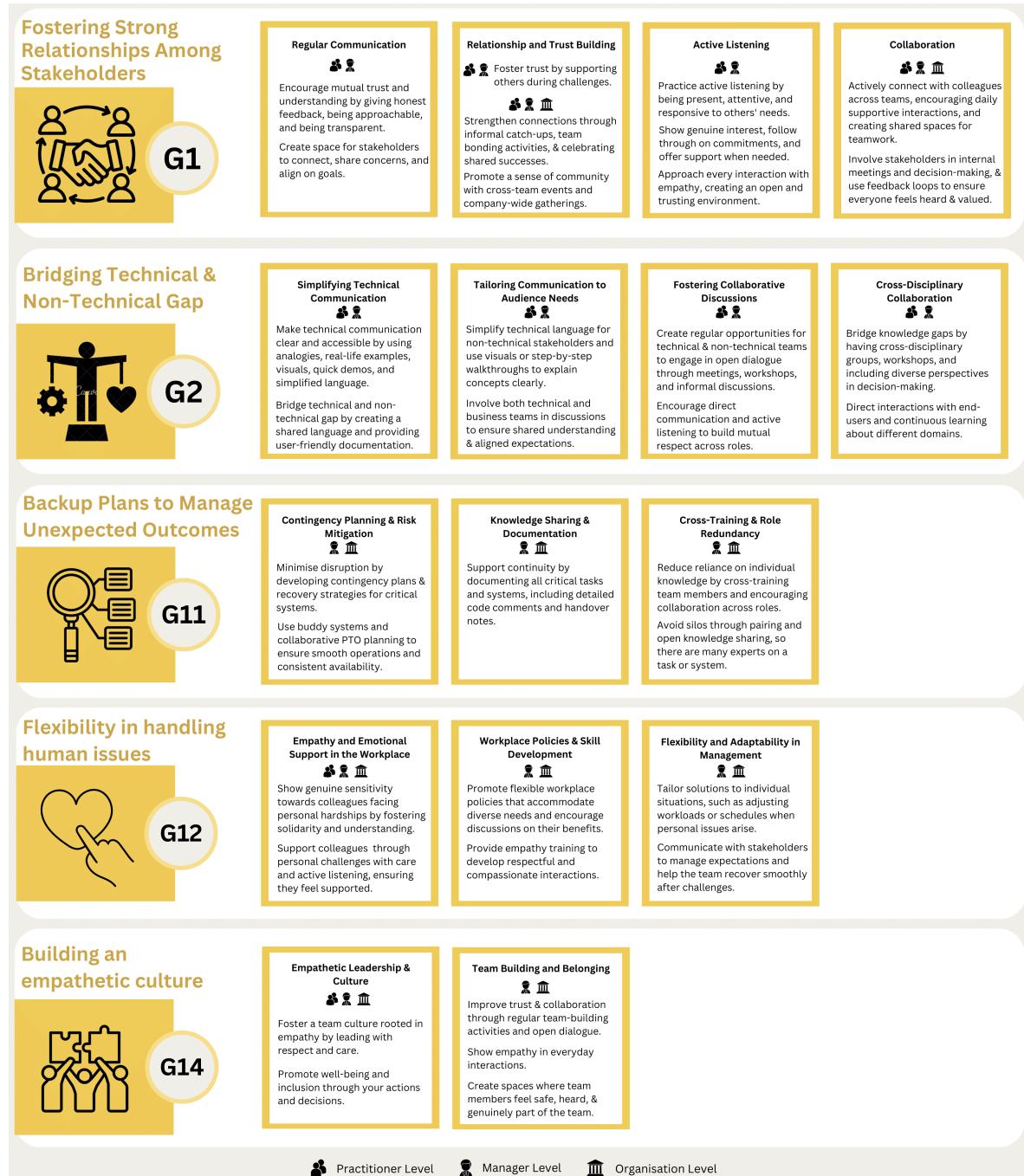


FIGURE 5. Practical approaches for implementing “Strategic Investments” empathy guidelines (high importance, low ease) at the practitioner, managerial, and organisational levels.

CHALLENGES	STRATEGIES
Distant relationships and limited interaction between co-workers can make empathy hard to practise. In remote settings, conversations often stay strictly technical, leaving little room for human connection. Without a meaningful engagement, it becomes difficult to show empathy in return.	<ul style="list-style-type: none"> • Create more opportunities for connection. Simple steps like: <ul style="list-style-type: none"> ◦ weekly catch-ups to get to know each other, ◦ offering support when teammates face technical challenges, ◦ setting up shared spaces or social activities.
Cultural differences can hinder empathy in the workplace, as diverse teams may express and interpret empathy in varied ways. Communication styles, priorities, openness to behavioural change also differ, and efforts to promote DEI or safe dialogue may face resistance or be misunderstood.	<ul style="list-style-type: none"> • Improve communication through cross-cultural training, inclusive language, and shared understanding of empathy. • Create open platforms where all voices are valued equally. • Tailor guideline implementation to organisations using phased rollouts.
Personality differences make empathy challenging, especially in fast-paced or individualistic environments. While some team members are naturally empathetic, others may struggle due to traits, egos, or past beliefs. Empathy may be interpreted differently, and can be seen as a weakness.	<ul style="list-style-type: none"> • Recognise and reward empathetic behaviours, and tailor training to different roles and learning styles. • Include empathy in onboarding and offer flexible approaches so individuals can engage in ways that suit them.
Time constraints make it difficult to prioritise empathy. Tight deadlines, heavy workloads, and limited staff can push empathy-building activities aside. In fast-paced or distributed teams, building strong connections and balancing empathy with performance pressures may seem unrealistic.	<ul style="list-style-type: none"> • Embed empathy into workflows by incorporating short exercises into stand-ups & retros, and using asynchronous tools to keep connected. • Start with pilot initiatives & gradually scale to make empathy a daily practice.
Difficulty seeing the real-world impact of empathy can limit adoption. Empathy is harder to quantify than technical results, & without clear metrics or short-term wins, teams may view it as optional. Long-term efforts like DEI can seem slow to show results, leading to question empathy's value.	<ul style="list-style-type: none"> • To make the impact of empathy practices more visible, use clear metrics like team satisfaction, user feedback, and retention rates. • Tracking progress through surveys or KPIs to demonstrate value. • Using a SE oriented empathy scale to support data-driven assessments.
Resistance to change can hinder empathy-focused practices, especially in environments that prioritise speed, efficiency, and technical skills. Some may see empathy as unnecessary, and long-standing habits or leadership attitudes can stall adoption.	<ul style="list-style-type: none"> • Using empathy maps, workshops, agile rituals to make it feel manageable. • Reinforce value through goals, metrics, and leadership modelling. • Introduce empathy gradually via small pilots and highlight its benefits like improved collaboration and morale to help shift mindsets.
Task & result-oriented nature of practitioners makes prioritising empathy difficult. In fast-paced, deadline-driven environments, activities like team bonding or emotional check-ins may seen as distractions. In tech-heavy roles, empathy can be undervalued or dismissed as irrelevant. Companies focused on rapid growth or revenue may resist investing time in empathy.	<ul style="list-style-type: none"> • Embed empathy practices into existing workflows like stand-ups and retrospectives, making them part of the routine rather than extra tasks. • Leadership and HR play key roles in modelling empathy and ensuring it remains a priority despite delivery pressures.
Lack of managerial support can block empathy adoption. When leaders prioritise speed over team well-being and don't model empathy, it signals these practices are optional. Without visible leadership backing, empathy efforts lose momentum, resulting in inconsistent use and limited impact.	<ul style="list-style-type: none"> • Provide strong leadership support by modelling empathetic behaviour, championing empathy initiatives, and demonstrating their value. • Set clear, measurable empathy goals to raise awareness and signal that empathy is a visible priority.
Skill gaps challenge effective empathy practice. Many practitioners lack training to clearly explain technical concepts to non-technical stakeholders, hindering collaboration. Without empathy training, engineers may struggle to recognise when and how to apply empathy.	<ul style="list-style-type: none"> • Role-specific empathy training to close skill gaps. • Communication training for working with non-technical stakeholders. • Tools like empathy-focused design templates to bridge technical gaps. • Mentorship programs to offer practical guidance from senior engineers.
Empathy fatigue arises when practitioners face constant emotional demands, especially in high-pressure settings. Without clear boundaries, continuously meeting others' needs can lead to exhaustion and burnout.	<ul style="list-style-type: none"> • Offer empathy training on setting boundaries and self-care. • Provide mental health resources and encourage regular well-being check-ins, work-life balance, and breaks to sustain emotional resilience.

FIGURE 6. Challenges in Applying Empathy Guidelines and Strategies to Overcome Them

ing empathy-related practices into existing workflows, providing organisational backing through training and leadership endorsement, and promoting a culture that values open communication and psychological safety. Several participants emphasised that small, incremental changes such as regular check-ins, clearer expectations, and more intentional team interactions could make the guidelines easier to implement without imposing additional workload. Together, these challenges and strategies offer a clearer understanding of the conditions under which the guidelines are most feasible and the types of organisational and individual adjustments that could facilitate their uptake.

Limitations

Although Prolific offered global access, our sample still predominantly comprised participants from the Global North, which may have constrained the generalisability of our findings. In addition, cultural norms and organisational structures in different regions may influence how empathy guidelines are interpreted and applied. Future work should therefore recruit more participants from the Global South and examine these guidelines across varied cultural and organisational settings to strengthen representation and applicability.

Summary

Empathy plays a powerful role in making software teams more connected, effective, and user-focused. In

this study, practitioners shared how empathy helps improve communication, build stronger relationships with stakeholders, and create healthier team environments. Many found the proposed guidelines easy to adopt, especially when they aligned with existing values or everyday practices. To support real-world adoption, we also introduced an implementation prioritisation framework that helps teams decide which guidelines to focus on first. The key takeaway is that empathy is not merely a desirable addition, but a fundamental component of effective teamwork and high quality software development.

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