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Editors

Personality, Organizational Environment, and the Use of Generative AI: A Conceptual Framework for Understanding Human-AI Interaction

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Abstract

As generative AI tools become increasingly embedded in education, work, and creative practice, understanding the psychological factors that shape their use is essential. This paper proposes a novel framework that integrates the Big Five personality traits (Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism) with three key organizational environment task-based motivations, (1) "It's important not to fail", (2) "The output can easily be seen to be correct", and (3) "New ideas are valued", which we use to explain how individuals interact with generative AI systems such as ChatGPT, DALL·E, and Grammarly. While prior research has explored demographic or task-type predictors of AI use, this paper proposes consideration of the individual user's personality and motivation as core variables. We argue that personality traits moderate the likelihood, style, and depth of AI engagement for different types of organizational environment motivation. For example, an individual high in Openness would be drawn to generative AI when novelty is valued by the organization, but less motivated by situations where risk-avoidance is valued. Conversely, an individual high in Neuroticism would engage heavily with AI when failure must be avoided, but is less comfortable with creative ambiguity. Using Weick's (1995) nascent theory approach we have developed a matrix of predicted AI use patterns across combinations of personality profiles and organizational environment motivations. This framework contributes to a more nuanced understanding of human-AI interaction by accounting for individual differences in personality, and has practical implications for the ethical, effective, and inclusive deployment of generative AI technologies.

Keywords: Generative AI, human-AI interaction, task type, personality traits, Big Five personality traits

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Personality, Organizational Environment, and the Use of Generative AI: A Conceptual Framework for Understanding Human-AI Interaction

David Firth, Simon Laub, Fang Chen and Elizabeth Kohl

1. INTRODUCTION

Generative AI tools such as ChatGPT, DALL·E, and Grammarly are becoming extensively used in educational, business, and personal contexts. Humans, as users of Generative AI, have varying personalities and traits, and these characteristics impact how individuals utilize new technologies (Joshi et al., 2023; Labti & Bourhim, 2022). In addition, organizations in which Generative AI is used, including businesses and education, vary with respect to their environment - goals, motivations, internal processes, culture, management approach, and how they engage with the world. Considering the system of human-AI interaction and organizational environment, the research question for this paper is: how do the different personalities and traits of people using Generative AI interact with the ways that organizations want to complete the tasks they are most focused on? This paper uses a grounded theory approach to provide a conceptual prediction framework for the interaction between an individual's personality as described by the Big Five personality traits (see Appendix B), and the task-based motivations of the organization they are in. We use exploratory data to show how the framework might work. The theory presented is at the individual level of analysis as each person has their own personality.

2. NASCENT THEORY DEVELOPMENT

A seminal article by Karl Weick (1995) in Administrative Science Quarterly introduced the idea of Nascent Theory to describe early-stage theoretical work that is exploratory, generative, and conceptually creative, has not yet been empirically validated, but is nonetheless valuable for shaping future research. Nascent Theory focuses on novel ideas rather than confirming existing ones. Nascent theory offers new constructs, mechanisms, or relationships that haven't been formally theorized before. The theory is usually supported by logical arguments, illustrative examples, or conceptual reasoning, not empirical testing (yet). The idea is to stimulate scholarly conversation or open a research agenda. Weick argues that the act of constructing ideas, "theorizing", is as important as testing hypotheses. Others, such as Gregor (2006) in MIS Quarterly, have referenced Weick's "What Theory is Not, Theorizing Is" as foundational to understanding theory as an evolving conceptual process, as we do here for this framework.

Existing research has shown that there are various ways that a business can organize, be managed, and operate that can shape how their employees' work. Although these various ways of being organized and managed are extensive, for this framework development, we use Peter Drucker's *The Theory of a Business* (1994) and propose using just three basic organizational emphases: 1) *It's important not to fail,* 2) *Output correctness*, and 3) *New ideas are valued*.

It is important to note that organizational environments are externalities to the user of Generative AI, features of the organization or situation, not of the person. As this paper will explain, this distinction is crucial for understanding how organizational environments interact with employee behavior, including the adoption and use of Generative AI tools.

Personality traits play a critical role in shaping how individuals behave, make decisions, and interact with their environment, including in organizational, technological, and learning contexts (e.g., Chau, 2024; Barczyk & Duncan, 2017; Hignite et al., 1999; Barnett et al., 2015, Liu & Chen, 2025; Reynolds et al., 2017; Woszczynski et al., 2005). Among the most widely accepted models in psychology is the Five-Factor Model (FFM), often referred to as the Big Five personality traits. This framework conceptualizes personality along five broad dimensions: openness to experience (openness), conscientiousness, extraversion, agreeableness, and neuroticism (Costa & McCrae, 1992; John et al., 2008). Each trait captures a spectrum of behavioral tendencies that are relatively stable across time and contexts, making the Big Five particularly useful for research into enduring psychological differences across populations. As a result, the model has been extensively applied in fields ranging from organizational behavior and education to technology adoption and consumer behavior (McCrae & Costa, 1999; Judge et al., 2002).

In recent years, the Big Five framework has gained renewed attention for its explanatory power in studies of individual engagement with new technologies, especially under conditions of uncertainty or innovation (e.g., Joshi et al., 2023; Prayoga & Abraham, 2016; Tripathi et al., 2022). For example, research has shown that individuals high in openness to experience (openness) are more inclined to explore novel tools and adapt to emerging technologies, while those high in conscientiousness may be more structured and deliberate in their technology use (Devaraj et al., 2008; Svendsen et al., 2013; Labti & Bourhim, 2022). Similarly, neuroticism has been associated with anxiety about new systems, while extraversion and agreeableness often influence collaborative and communicative behaviors in digital environments.

Next, we discuss the three types of organizations. Following that we discuss the Big Five personality traits in more detail.

3. ORGANIZATIONAL ENVIRONMENTS

As we build our basic framework, in order to be workable, we decided to limit the types of organizations in the framework to just three. We used Drucker's The Theory of Business (1994) to select three organization types that are largely mutually exclusive: "It is important not to fail", "New ideas are valued", and "Output correctness". We recognize that other choices could be made, and that this this is indeed a gross simplification of the myriad types of business, but it does provide a starting point.

The Theory of Business (Drucker, 1994) is built around three core assumptions that define how an organization operates: 1) Assumptions about the environment – what the organization believes about the world it operates in, 2) Assumptions about the mission – what the organization believes it is there to do, and 3) Assumptions about core competencies – what the organization believes it does well. The three types of organization that we use for our framework have largely different assumptions and so represent a broad range of business types, as shown by the examples below.

1. "It is important not to fail"

The "It is important not to fail" organization has a low risk-tolerance. This shows up in the three core assumptions as follows:
Environment Assumption: The external landscape is high-risk or strictly regulated. Here, failure carries severe legal, safety, or reputational consequences.

Mission Assumption: The organization's purpose is to deliver absolute reliability, consistency, and safety.

Core Competency Assumption: The organization's primary strength lies in rigorous risk management, compliance, and process control.

Examples: IT functions, aerospace, healthcare, nuclear energy, financial services, and auditing.

Our own experience and observation is that IT organizations are typically of the type that is "important not to fail." It is important that the IT function delivers sufficient processing power, reliability, and accessibility. Though that does not provide any strategic advantage, if it is done poorly it can have a significant negative effect, and hence the need to avoid failure (Carr, 2003).

2. "New ideas are valued"

The "New ideas are valued" organization typically adopts assumptions centered on growth, agility, and market creation rather than just preservation. It is innovation driven, and this shows up in the three core assumptions as follows:

Environment Assumption: The external world is dynamic, competitive, and rewards innovation.

Mission Assumption: The organization exists to create value through innovation and stay ahead of change.

Core Competency Assumption: The organization excels at creativity, experimentation, and rapid adaptation.

Examples: Tech startups, research and development labs, design firms.

3. "Output correctness is most important"

The "Output correctness is most important" organization focus shifts from the low risk tolerance (or the innovation driven) to the absolute accuracy and integrity of the final product. In these "output correctness" organizations, what is important is the verifiable quality of the output. The organization is accuracy driven, and this shows up in the three core assumptions as follows:

Drucker's Assumptions	Organization Type (Environment)		
	Important Not to Fail	**New Ideas Valued**	**Output Correctness**
Environment	Regulated & High-Risk	Dynamic & Emerging	Evidence-based & Exacting
Mission	Reliability & Safety	Growth & Discovery	Precision & Integrity
Core Competency	Compliance & Control	Agility & Creativity	Validation & Accuracy

Table 1: Three Organizational Types as aligned with Drucker's Three Core Assumptions Defining How an Organization Operates

Environment Assumption: The external world demands accuracy, precision, and technical excellence.

Mission Assumption: The organization exists to deliver correct, high-quality outputs that meet exacting standards.

Core Competency Assumption: The organization excels at technical expertise, quality assurance, and systematic execution.

Examples: Engineering firms, software quality assurance teams, scientific publishing.

Table 1 (above) summarizes our three types of organizational environments (externalities) along Drucker's (1994) three core assumptions that define how an organization operates. In order to be practical in our framework development, we have limited the number of organizational environments to the three listed here. We are aware that many other types of organizations exist, and save for future research expanding the types of organizations included in our framework.

These three organizational types function as environmental antecedents that shape how tasks are motivated and sustained. In "No Fail" organizations, the focus is on compliance and security. The task motivation is primarily preventative. The main motivational driver in environments where it is important not to fail is fear of negative consequences (legal action, loss of accreditation, or safety incidents). In "New Ideas" environments, such innovation-driven organizations, the culture focuses on growth and recognition. The main motivational driver in an environment where new ideas are valued is seeking rewards, such as career advancement, social recognition within the firm, or "first-mover" status. In "Correctness of Output" organizations the motivation is focused on competence and credibility. The culture is motivated towards precision. The main motivational driver in an output correctness environment is the need to be perceived as an expert or the "source of truth." This is often tied to professional standards or peer-reviewed accuracy. We summarize the primary drivers across each organization type in Table 2 below.

Organization Type	Primary Driver
Important Not to Fail	Avoidance of Failure
New Ideas Valued	Pursuit of Growth
Output Correctness	Pursuit of Precision

Table 2: Organizational Type and Primary Driver

4. THE BIG FIVE PERSONALITY TRAITS

The Big Five personality traits of Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism play a significant role in influencing how individuals interact with generative AI technologies. These traits can affect user engagement, preferences, and satisfaction with AI systems, as well as the design and functionality of AI applications. The integration of personality traits into AI systems can enhance personalization and improve user experience, as demonstrated in various studies.

- Openness: Individuals high in openness are more likely to engage with new technologies, including generative AI, due to their curiosity and willingness to explore novel experiences. This trait can lead to increased engagement and satisfaction with AI systems that offer creative and innovative solutions (Kovbasiuk et al., 2025; Arıbaş & Dağlarlı, 2024).

- Conscientiousness: This trait is associated with a preference for structured and reliable systems. AI applications that provide clear, consistent, and dependable interactions are likely to appeal to conscientious users, enhancing their engagement and satisfaction

(Priyanka et al., 2024; Cabrera-Paniagua & Rubilar-Torrealba, 2022).

- Extraversion: Extraverted individuals may prefer AI systems that facilitate social interaction or provide dynamic and engaging experiences. Personalized travel recommendation systems, for example, have shown higher performance rates for extraverted users (Arıbaş & Dağlarlı, 2024).

- Agreeableness: Users with high agreeableness may favor AI systems that are perceived as friendly and supportive. This trait can influence positive attitudes towards AI, as agreeable individuals are more likely to appreciate AI's assistance and collaboration (Babiker et al., 2024).

- Neuroticism: Individuals with high neuroticism may have mixed reactions to AI, potentially experiencing anxiety or skepticism. However, AI systems that offer reassurance and support can mitigate these concerns and improve user satisfaction (Babiker et al., 2024).

This paper proceeds by theorizing (Weick, 1995) about the interaction between the Big Five Personality Traits of the person using or potentially using Generative AI (Gen AI), and the three externalities, features of the organization or situation, that will be the users of the output of the person's use of Gen AI.

We do not discuss the impact of the Big 5 Personalities when the organizational focus is on the correctness of the output from Gen AI. If it is clear that the output of Gen AI is correct, then it makes sense for a person to use Gen AI whatever their Big 5 personality, since the user is able to know whether or not the output is correct, or not.

Openness to Experience (Big 5 Personality #1)
Includes: imagination, curiosity, aesthetic sensitivity, preference for novelty, and intellectual engagement.

"It's important not to fail"
- Interaction: People high in openness may not prioritize this construct highly — they are more comfortable with ambiguity, experimentation, and taking intellectual risks.
- Use of Gen AI: They might still use Gen AI for accuracy or completeness (e.g., fact-checking), but they're less motivated by the need to avoid failure, and more by exploration.
- Risk tolerance: High. They might be willing to "fail" as part of the creative process.

"New ideas are valued"
- Interaction: This is strongly aligned with Openness. These individuals are likely to actively seek out Gen AI as a tool for inspiration, brainstorming, divergent thinking, and pushing boundaries.
- Use of Gen AI: High engagement in tasks where novelty, creativity, or idea generation is needed. They may use Gen AI to explore possibilities, generate unique outputs, or synthesize unexpected connections.

Conscientiousness (Big 5 Personality #2)
Includes: self-discipline, organization, goal orientation, reliability, and a preference for planning over spontaneity.

"It's important not to fail"
- Interaction: Highly motivating. People high in conscientiousness place strong value on precision, correctness, and goal completion. Avoiding failure is central.
- Use of Gen AI: These users may turn to Gen AI for proofreading, planning, summarizing, or fact-checking — tasks that improve reliability and reduce the chance of error.
- Risk tolerance: Low. They'll use Gen AI cautiously, likely double-checking outputs.

"New ideas are valued"
- Interaction: Secondary. While not opposed to new ideas, people high in conscientiousness want structured, applicable innovations—ideas that can be implemented effectively.
- Use of Gen AI: They might use AI for process improvement or efficiency ideas but less likely for wild brainstorming.

Extraversion (Big 5 Personality #3)
Includes: sociability, assertiveness, high energy, and a tendency toward excitement, and reward-seeking behavior.

"It's important not to fail"
- Interaction: Less dominant. Extroverts are often comfortable with risk if there's potential for reward or recognition.
- Use of Gen AI: Might use Gen AI for communicative tasks like crafting persuasive emails, social media posts, or preparing for presentations — where public performance matters.

"New ideas are valued"

- Interaction: Appealing, especially if it leads to new social opportunities, excitement, or status.
- Use of Gen AI: Likely to use AI for idea generation in outward-facing tasks (e.g., event planning, team brainstorming). Might value Gen AI as a conversational partner or co-creator.

Agreeableness (Big 5 Personality #4)
Includes: compassion, cooperation, trust, and a desire to maintain social harmony.

"It's important not to fail"
- Interaction: Relevant if failure impacts others or causes conflict. Less about personal perfectionism, more about being helpful or not letting others down.
- Use of Gen AI: May use it to support or smooth social tasks — like improving clarity in writing, resolving misunderstandings, or being tactful in responses.

"New ideas are valued"
- Interaction: Mildly appealing, especially if the new ideas benefit relationships or group wellbeing.
- Use of Gen AI: Might use AI to craft thoughtful messages, generate ideas for teamwork or cooperation, or understand diverse perspectives.

Neuroticism, a.k.a. Emotional Stability, inversely (Big 5 Personality #5)
Includes: emotional sensitivity, tendency to experience anxiety, moodiness, or vulnerability to stress.

"It's important not to fail"
- Interaction: Extremely motivating. High-neuroticism individuals may fear failure intensely, often due to fear of judgment or consequences.
- Use of Gen AI: Heavy use for reassurance, checking work, validating decisions. May lean on AI as a way to reduce anxiety or feel more confident.

"New ideas are valued"
- Interaction: Could provoke anxiety unless clearly safe or structured. Might avoid novelty use unless the use is framed as low-risk or personally beneficial.
- Use of Gen AI: Lower likelihood of using Gen AI for open-ended creativity. Might prefer tasks where the AI helps them feel in control.

Personality and the organizational task focus interact in a way that impacts the use of generative AI by a person in a particular organization or situation. For instance, the "Openness" trait is tolerant of failure, and strongly aligned with ideation and brainstorming. In an organization where it is "important not to fail", being tolerant of failure means a person with a strong personality trait of openness might possibly use Gen AI even though it might hallucinate or have bias in training or output that leads to an incorrect output for the situation or organization.

We summarize the Big 5 Personalities and their interactions with the organization's task motivations leading to likely Gen AI use in Table 3 below.

Big 5 Personalities	Organizational Environment		Likely Generative AI Use
	"Important Not to Fail"	"New Ideas Are Valued"	
Openness	Tolerant of failure	Strongly aligned	Brainstorming, ideation, synthesis
Conscientiousness	Strongly avoids failure	Moderately interested if applicable	Accuracy, planning, structured innovation
Extraversion	Risk-tolerant if reward is likely	Drawn to exciting or social ideas	Communication, persuasion, collaboration
Agreeableness	Avoids failure if it harms others	Interested if it improves harmony	Diplomacy, perspective-taking, social writing
Neuroticism	Strongly avoids failure (high anxiety)	Cautious or avoids novelty	Confidence-building, checking, reassurance

Table 3: Summary of the Big 5 Personalities and how they interact with the Organizational Environments of "Important Not to Fail" and "New Ideas are Valued" leading to likely Gen AI use

Big 5 Personalities	Big 5 Level	Organizational Environment		
		Important Not to Fail	Output Correctness	New Ideas Are Valued
Openness	High	1		2
	Low	3		4
Conscientiousness	High	5		6
	Low	7		8
Extraversion	High	9		10
	Low	11		12
Agreeableness	High	13		14
	Low	15		16
Neuroticism	High	17		18
	Low	19		20

Table 4: The High/Low of the Big 5 Personalities mapped to the three contexts of "Important Not to Fail", "Output Correctness", and "New Ideas Are Valued"

In order to present the interaction of personality and task motivation, we use a heat map methodology. Heat maps are useful when highlighting areas of significance in data. By using color to represent varying levels of importance, heat maps allow for the quick visual identification of areas of significance within the data. When producing a heat map, how the presenter assigns a heat color is subjective. We have used just three colors: red, yellow, and green. Red means that Gen AI is not used (or should not be), yellow means Gen AI might be used, and green means that Gen AI is (or should be) used.

In the table above (Table 4), we break each of the five personality traits into high and low. High means that a person's score on that trait after completing a personality trait assessment is in the top 30%, and low means a person's score after completing a personality trait assessment is in the bottom 30%. This approach is consistent with the use of extreme group designs in behavioral research, which enhance interpretability and theoretical contrast when examining interaction effects (Cohen, 1983; Preacher et al., 2005). Such percentile-based categorizations are commonly used in personality research to distinguish meaningful differences in trait expression while maintaining alignment with underlying continuous constructs (John & Srivastava, 1999). Breaking the five personality traits into high and low is represented in the 10 rows of Table 1 (openness has a high and a low row, and so on for each personality trait). The table has three columns to represent each of the organizational environment task motivations. A combination of 10 rows and three columns for organizational environments offers 30 possible outcomes.

However, the column for "Output Correctness" is colored entirely green. We believe that the use of Gen AI by someone when the output can easily be seen to be correct or incorrect is not going to be moderated, or impacted, by a Big 5 Personality trait. For instance, even someone who is highly neurotic and strongly avoids failure can and should use Gen AI if they can easily see if the output is correct or incorrect. This entire column, for each of the 10 rows, is labelled green, meaning that a person should use Gen AI in this situation.

The remaining two columns, "Important not to fail" and "New ideas are valued" are covered by the following 20 heat map colors. The number here corresponds to the particular cell in the table:

1. Yellow. High openness encourages experimentation and engagement with novel technologies (McCrae & Costa, 1997; Devaraj et al., 2008), but risk-averse, failure-avoidant environments

suppress such behavior due to the prioritization of reliability over exploration (March, 1991; Sitkin & Pablo, 1992). As a result, generative AI use remains possible but constrained, leading to conditional adoption.

2. Green. High openness to experience is associated with curiosity, experimentation, and a willingness to engage with novel technologies, which aligns strongly with innovation-oriented organizational contexts that encourage new ideas, resulting in active use of generative AI systems (McCrae & Costa, 1997; Devaraj et al., 2008; Agarwal & Prasad, 1998).

3. Red. Low openness to experience (closed to experience) reflects a preference for routine and resistance to change, leading individuals to avoid novel technologies (McCrae & Costa, 1997; McElroy et al., 2007). In failure-avoidant organizational contexts that emphasize risk minimization and discourage experimentation (Sitkin & Pablo, 1992), this alignment reinforces avoidance of generative AI use.

4. Yellow. Low openness to experience reflects resistance to change and low personal innovativeness in information technology (McCrae & Costa, 1997; Agarwal & Prasad, 1998; McElroy et al., 2007). In innovation-oriented organizational contexts, however, social influence and normative expectations can partially override this resistance (Venkatesh et al., 2003), leading to limited or conditional adoption of generative AI.

5. Red. High conscientiousness is associated with reliability, structure, and adherence to rules and standards (Barrick & Mount, 1991), which can reduce engagement with uncertain or probabilistic technologies (Devaraj et al., 2008). In failure-avoidant organizational contexts that emphasize risk minimization and error avoidance (Sitkin & Pablo, 1992), this alignment leads individuals to avoid generative AI due to concerns regarding accuracy, accountability, and compliance.

6. Yellow. High conscientiousness is associated with goal orientation, reliability, and a focus on task performance (Barrick & Mount, 1991), which promotes the use of generative AI when it is perceived as useful for improving outcomes (Davis, 1989; Devaraj et al., 2008). However, the preference for structure and control tempers this adoption in innovation-oriented environments, leading to selective and constrained use when AI introduces uncertainty.

7. Yellow. Low conscientiousness (flexible and spontaneous) is associated with lower adherence to rules, reduced structure, and greater tolerance for ambiguity (Barrick & Mount, 1991; McElroy et al., 2007), which may increase willingness to experiment with generative AI. However, in failure-avoidant organizational contexts that emphasize risk minimization and control (Sitkin & Pablo, 1992), this creates a misalignment that leads to inconsistent or situational use rather than consistent adoption.

8. Green. Low conscientiousness is associated with reduced adherence to rules and greater tolerance for ambiguity (Barrick & Mount, 1991; McElroy et al., 2007), which can increase willingness to experiment with new technologies and reflect higher behavioral flexibility (Agarwal & Prasad, 1998). In innovation-oriented organizational contexts that encourage new ideas, this alignment promotes active and exploratory use of generative AI.

9. Yellow. High extraversion, characterized by sociability and assertiveness, is positively associated with engagement in interactive technologies (Amichai-Hamburger & Vinitzky, 2010; Devaraj et al., 2008). Extraverted individuals are also more responsive to social influence (Venkatesh et al., 2003), which may encourage generative AI use; however, in failure-avoidant organizational contexts that emphasize risk minimization (Sitkin & Pablo, 1992), this behavior is constrained, resulting in conditional or situational adoption.

10. Green. High extraversion, characterized by sociability and assertiveness, is positively associated with the use of interactive and communication-oriented technologies (Amichai-Hamburger & Vinitzky, 2010; Devaraj et al., 2008). In

innovation-oriented organizational contexts that encourage collaboration and new ideas, this alignment increases the likelihood that extraverted individuals will adopt generative AI as an interactive and augmentative tool (Venkatesh et al., 2003; Dennis et al., 2008).

11. Green. Low extraversion (introversion) is associated with a preference for solitary work and selective engagement with technology (McElroy et al., 2007). Because introverted individuals are less responsive to social influence (Venkatesh et al., 2003), generative AI adoption in failure-avoidant organizational contexts is limited; however, when the technology supports individual task efficiency, it may still be used selectively for private productivity gains (Goodhue & Thompson, 1995).

12. Yellow. Low extraversion (introversion) is associated with reduced social engagement and lower responsiveness to social influence (McElroy et al., 2007; Venkatesh et al., 2003). Although innovation-oriented organizational contexts encourage experimentation, this reduced responsiveness dampens adoption; however, when generative AI supports individual task efficiency, it may still be used selectively, resulting in conditional use (Goodhue & Thompson, 1995).

13. Red. High agreeableness (accommodating personality) is associated with cooperation, trust, and strong adherence to social norms (Graziano & Eisenberg, 1997), making technology use highly contingent on perceived organizational approval and peer behavior (Venkatesh et al., 2003). In failure-avoidant organizational contexts that emphasize risk minimization and discourage deviation (Sitkin & Pablo, 1992), this alignment leads to avoidance of generative AI use.

14. Green. High agreeableness is associated with cooperation and adherence to social norms (Graziano & Eisenberg, 1997), making technology use highly contingent on perceived organizational approval and peer behavior (Venkatesh et al., 2003). In innovation-oriented organizational contexts where norms favor experimentation and new ideas (Schein, 2010), this alignment promotes the adoption of generative AI.

15. Yellow. Low agreeableness (antagonistic personality) is associated with competitiveness, skepticism, and a reduced tendency to conform to social norms (Graziano & Eisenberg, 1997; Devaraj et al., 2008). In failure-avoidant organizational contexts that discourage risk-taking and deviation (Sitkin & Pablo, 1992), this disposition may lead to selective or covert use of generative AI, as individuals are more willing to challenge or bypass established norms when pursuing perceived performance advantages.

16. Yellow. Low agreeableness is associated with competitiveness, independence, and a reduced tendency to conform to social norms (Graziano & Eisenberg, 1997), which can increase willingness to adopt technologies in pursuit of individual performance advantages (Devaraj et al., 2008). In innovation-oriented organizational contexts that encourage experimentation and new ideas (Schein, 2010), this alignment promotes the active and opportunistic use of generative AI.

17. Red. High neuroticism is characterized by anxiety and heightened sensitivity to risk, which increases perceptions of uncertainty and potential negative outcomes in technology use (Thatcher & Perrewé, 2002; McElroy et al., 2007). In failure-avoidant organizational contexts that emphasize error avoidance and risk minimization (Sitkin & Pablo, 1992), this alignment leads to avoidance of generative AI adoption.

18. Yellow. High neuroticism is characterized by anxiety and heightened sensitivity to risk, which increases perceptions of uncertainty and potential negative outcomes in technology use (Thatcher & Perrewé, 2002; McElroy et al., 2007). In innovation-oriented organizational contexts that encourage experimentation, social influence and supportive norms can partially offset these concerns (Venkatesh et al., 2003), leading to hesitant or conditional use of generative AI rather than complete avoidance.

19. Red. Low neuroticism (emotionally stable personality) is associated with confidence, low anxiety, and tolerance for ambiguity, which increases willingness to engage with uncertain technologies such as generative AI (Thatcher & Perrewé, 2002; Devaraj et al., 2008). This confidence is consistent with higher perceived self-efficacy in technology use (Compeau & Higgins, 1995). However, in failure-avoidant organizational contexts that emphasize risk minimization (Sitkin & Pablo, 1992), this willingness is constrained, resulting in conditional or situational adoption.

20. Green. Low neuroticism (emotional stability) is associated with confidence, low anxiety, and a high tolerance for ambiguity, which increases willingness to engage with uncertain technologies such as generative AI (Thatcher & Perrewé, 2002; Devaraj et al., 2008). In innovation-oriented organizational contexts that encourage experimentation and new ideas, this alignment facilitates active and sustained use of generative AI (Venkatesh et al., 2003; March, 1991).

An important thing to consider here is that this is a framework development paper. There has been no research that has examined the interaction between personality types and organizational tasks in Gen AI environment. The heatmap here is essentially a list of hypotheses, with our color-coding representing what we think will be the outcome of actual testing.

5. PUTTING IT ALL INTO PRACTICE

The framework we have presented here operates at the individual level. Each person has a particular set of scores for the Big Five Personalities, and it is a person's individual personality that interacts with the with the organizational environment and its task motivations, and determines their personal type of generative AI use.

Putting this framework to work to understand human-AI interaction is a three-step process.

Step 1 is for the individual to take the Big Five Personality test, and to record the scores from that. A useful Big Five Personality test is available here:
https://www.123test.com/personality-test/

One of the authors of this paper took the test and the scores are as follows:
1. Openness to experience: 46 = This is too close to mid-range to be a strong personality, so we ignore this trait
2. Conscientiousness: 71 = "high"
3. Extraversion: 93 = "high"
4. Agreeableness: 2 = "low"
5. Neuroticism: 6 = "low"

The five personality traits of openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism each now align with a particular row in the assessment chart.

Step 2 of the process is to use these scores and their high/mid/low level range and apply the level to each organizational environment per Table 4. We summarize the author's results in Table 5.

Big 5 Personalities	Big 5 Level	Organizational Environment		
		Important Not to Fail	Output Correctness	New Ideas Are Valued
Openness	Mid-range	Not scored	Not scored	Not scored
Conscientiousness	High			
Extraversion	High			
Agreeableness	Low			
Neuroticism	Low			

Table 5: results of one of the author's Big 5 Personality test

Step 3 is to interpret the results for each of the organizational environment task motivation columns. If you are at a particular type of organization, as described above, then you may only need to see the results for that particular column.

As seen in Table 5, if the organization or situation is *"Important not to fail":* two reds and two yellows means that this person should not, and probably does not, use Gen AI here. Red for "conscientiousness" is because this personality trait strongly avoids failure. High extraversion is yellow as a person with this personality trait is risk-tolerant if reward is likely. That is, Gen AI use may be tolerated by the person even in a situation where it is important not to fail provided that the reward of success is high enough. The low Agreeableness (antagonistic personality trait) is assertive, skeptical, critical, independent, and non-conformist. Whereas the "Important Not to Fail" environment (externality) is rules-focused, risk-averse, error-intolerant, outcome-precise. As such, this is a person-environment mismatch, and the low agreeable (antagonistic) individual may experience tension or constraint in how they use Gen AI. Low neuroticism (emotionally stable) means that you use Gen AI if it's interesting, but it is more "cool curiosity" than passionate exploration, and with the organizational environment focused on avoidance of failure, Gen AI use is shown as red from Table 4. In sum, in an organization where it is important not to fail, this author would likely not use Gen AI except if the rewards for using it were high enough.

As seen in Table 5, if the organization or situation is such that *"New ideas are valued":* three yellows and one green suggest that this person could easily be using Gen AI in this situation, but it is not a given. High "conscientiousness" means that accuracy and planning are important, so Gen AI use is limited to structured tasks that focus on this. High extraversion means that Gen AI use is likely for idea generation in outward-facing tasks (e.g., event planning, team brainstorming), and it's also likely that Gen AI might be valued as a co-creator. Low agreeableness, (antagonistic personality) can be an asset in idea-valuing environments, especially when independent thinking is rewarded and constructive dissent is welcome, but can become a liability when collaboration or group cohesion are essential. Agreeableness is a yellow as this person probably uses Gen AI to test assumptions or debunk norms, uses Gen AI as a solo ideation partner, not as a consensus tool, but is less likely to use Gen AI for team brainstorming, shared documents, or communication polishing. Low neuroticism (emotionally stable) in this context means that the person is unafraid to experiment with new or risky prompts, and can bounce back easily from failure or poor outputs. The innovation-oriented environment encourages ideation, and hence this is shown as green for Gen AI use.

6. DISCUSSION

As expressed earlier, this is a theory development paper. We have provided instructions on how to use the theory in the preceding "Putting it all together" section. In addition, in Appendix A we provide three further examples of colleagues who have put the theory to the test. We acknowledge that this sample size is too small to determine the validity of our theory. As a theory development paper, we aim at establishing a conceptual framework for understanding the intersection of personality, organizational environment, and generative AI usage. While the heat maps and preliminary data provided here offer valuable initial insights into these relationships, the current sample size is intended for exploratory "proof of concept" purposes rather than definitive empirical validation. Consistent with the iterative nature of Information Systems research, this study focuses on the formulation of the theoretical model. Subsequent research will involve a large-scale, longitudinal study designed to statistically validate the framework and its generalizability across more diverse organizational contexts.

7. CONCLUSION

The idea of developing a framework that shows the interaction of the Big 5 Personalities with different types of organizational environment task motivation is useful in at least three meaningful ways:

1. This framework helps predict how people actually use Gen AI in real-world contexts. Most studies on AI use focus on features or outcomes, but this paper focuses on the psychology of the user. This matters because, a) people don't use AI the same way even when doing the same task, and b) the framework connects personality, task motivation, and tool behavior, which explains why users act differently. This finding could lead to better personalized AI training, guidance, and adoption strategies in schools, workplaces, and creative industries. A potential use case here is that a company training employees on Gen AI could tailor onboarding differently for low-Openness staff (who want clarity and structure) than for

high-Openness staff (who want creative play).

2. This framework offers a model for predicting and shaping Gen AI adoption. The framework can be used to predict who will use AI (and for what tasks), explain why some people avoid it, and suggest how to design interfaces, prompts, or education differently based on user traits. A potential use case is that a university could better support Gen AI in writing centers if they understood that low-Conscientiousness students might not use AI unless it's embedded into the workflow.

3. This framework opens the door to interventions that make AI use more equitable and effective. Right now, AI use is often haphazard. Some students overuse it, some avoid it, some misuse it. This framework helps design behavioral nudges ("Try this for brainstorming!"), custom prompts based on personality, and support tools for those less likely to engage creatively or confidently. For instance, an adaptive learning tool could adjust its prompts based on the user's Big Five profile — helping low-Neuroticism users take more creative risks, or giving low-Openness users clearer scaffolding.

In short, this paper is not just saying "People use Gen AI differently." Instead, we propose a framework to answer the question of who uses Gen AI, how, and why they are using it based on who they are and what the organization or situation is looking to achieve. Thus, our findings have academic, practical, and design value. What is needed next is to test the framework and the "hypotheses" that the heatmap contains.

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APPENDIX A

Limited Testing of the Framework

Three colleagues took the Big 5 Personality test referenced in our study. Below, we provide a quantitative list of their results, a heat map of their results across organizational environments, and a discussion of how their responses fit with the framework described in our study. These examples underscore the practical use of our *Personality-Organizational Environment* framework.

Colleague 1

With a Big 5 Personality result of:
1. Openness to experience: 39 = This is too close to mid-range to be a strong personality
2. Conscientiousness: 83 = "High"
3. Extraversion: 83 = "High"
4. Agreeableness: 81 = "High"
5. Neuroticism: 44 = This is too close to mid-range to be a strong personality so ignore

Big 5 Personalities	Big 5 Level	Organizational Environment		
		Important Not to Fail	Output Correctness	New Ideas Are Valued
Openness	Mid-range	39 out of 100	39 out of 100	39 out of 100
Conscientiousness	High			
Extraversion	High			
Agreeableness	High			
Neuroticism	Mid-range	44 out of 100		44 out of 100

Table 1: results of Colleague 1's Big 5 Personality test summarized

For Colleague 1, we note that if their organizational environment is "Important not to fail" then their results indicate two reds and one yellow in the heat map. This colleague likely won't use Gen AI much at all in an important not to fail environment. If their organizational environment is "new ideas are valued" then their heat map would reflect one yellow and two greens. In a "New ideas are valued" scenario, Colleague 1 is likely leaning into using Gen AI as much as possible, as the organizational environment is supportive of new ideas and is innovation-oriented. High conscientiousness is associated with goal orientation, reliability, and a focus on task performance (Barrick & Mount, 1991), which promotes the use of generative AI when it is perceived as useful for improving outcomes (Davis, 1989; Devaraj et al., 2008). However, the preference for structure and control tempers this adoption in innovation-oriented environments, leading to selective and constrained use when AI introduces uncertainty.

Colleague 2

With a Big 5 Personality result of:
1. Openness to experience: 12 = "low"
2. Conscientiousness: 17 = "low"
3. Extraversion: 38 = This is too close to mid-range to be a strong personality so ignore
4. Agreeableness: 32 = This is too close to mid-range to be a strong personality so ignore
5. Neuroticism: 42 = This is too close to mid-range to be a strong personality so ignore

Big 5 Personalities	Big 5 Level	Organizational Environment		
		Important Not to Fail	Output Correctness	New Ideas Are Valued
Openness	Low			
Conscientiousness	Low			
Extraversion	Mid-range	38 out of 100		38 out of 100
Agreeableness	Mid-range	32 out of 100		32 out of 100
Neuroticism	Mid-range	42 out of 100		42 out of 100

Table 2: results of Colleague 2's Big 5 Personality test summarized

For Colleague 2, we note that if their organizational environment is "Important not to fail" then their results indicate two yellows. In this environment, Colleague 2 likely won't use Gen AI much at all. If their organizational environment is "new ideas are valued" then Colleague 2's results are two greens. High openness to experience is associated with curiosity, experimentation, and a willingness to engage with novel technologies, which aligns strongly with innovation-oriented organizational contexts that encourage new ideas, resulting in active use of generative AI systems (McCrae & Costa, 1997; Devaraj et al., 2008; Agarwal & Prasad, 1998). Low conscientiousness is associated with reduced adherence to rules and greater tolerance for ambiguity (Barrick & Mount, 1991; McElroy et al., 2007), which can increase willingness to experiment with new technologies and reflect higher behavioral flexibility (Agarwal & Prasad, 1998). In innovation-oriented organizational contexts that encourage new ideas, this alignment promotes active and exploratory use of generative AI.

Colleague 3

With a Big 5 Personality result of:
1. Openness to experience: 87 = "high"
2. Conscientiousness: 81 = "high"
3. Extraversion: 95 = "high"
4. Agreeableness: 46 = This is too close to mid-range to be a strong personality so ignore
5. Neuroticism: 14 = "low"

Big 5 Personalities	Big 5 Level	Organizational Environment		
		Important Not to Fail	Output Correctness	New Ideas Are Valued
Openness	High			
Conscientiousness	High			
Extraversion	High			
Agreeableness	Mid-range	46 out of 100		46 out of 100
Neuroticism	Low			

Appendix Table 3: results of Colleague 3's Big 5 Personality test summarized

For Colleague 3, we note that if their organizational environment is "Important not to fail" then their results indicate two reds and two yellows. This colleague appears tolerant of failure (yellow for "high openness to experience"), strongly avoids failure (red for "high conscientiousness"), risk-tolerant if reward is likely (yellow for "high extraversion"), and strongly avoids failure (red for "low neuroticism", emotionally stable). With two reds and two yellows, the "reward is likely" would have to be very strong to overcome the two personality traits of "strongly avoids failure".

If Colleague 3's organizational environment is "new ideas are valued", then their high "openness to experience" means that they will likely use Gen AI for brainstorming and ideation. Colleague 3's high "conscientiousness" means that accuracy and planning are important, so their Gen AI use is limited to structured tasks that focus on this. With a high "extraversion", Colleague 3 will likely use Gen AI for communication, persuasion, and collaboration. This colleague's low "neuroticism" (emotionally stable personality) means that they likely use Gen AI if it's interesting, but with the organization being innovation-oriented and rewarding such, this pushes Colleague 3 to green for Gen AI use.

APPENDIX B

Description of the Big 5 Personality Traits

The following chart offers a detailed description of high- and low-level Big 5 personality traits:

Big 5 Personality	Description of the Personality Trait	
	High Level	**Low Level**
Openness (to Experience)	Characterized by curiosity, creativity, and a preference for novelty and variety. Individuals high in openness are more likely to seek out new experiences, embrace innovation, and engage with abstract or complex ideas (Costa & McCrae, 1992; John et al., 2008).	Reflects a preference for routine, familiarity, and practical approaches. Individuals low in openness tend to be more conservative, resistant to change, and less inclined to experiment with new ideas or approaches (Costa & McCrae, 1992; McElroy et al., 2007).
Conscientiousness	Associated with organization, reliability, discipline, and goal-oriented behavior. Individuals high in conscientiousness are structured, detail-oriented, and motivated to achieve high standards of performance (Barrick & Mount, 1991; John et al., 2008).	Characterized by lower levels of organization and discipline. Individuals low in conscientiousness may be more flexible and spontaneous but can also be less reliable, less structured, and more prone to inconsistency in task completion (Barrick & Mount, 1991; McElroy et al., 2007).
Extraversion	Defined by sociability, assertiveness, and a preference for interaction with others. Individuals high in extraversion are energized by social engagement and are often enthusiastic, talkative, and outwardly expressive (Costa & McCrae, 1992; Amichai-Hamburger & Vinitzky, 2010).	Reflects introversion, with a preference for solitary activities and lower levels of social interaction. Individuals low in extraversion tend to be more reserved, reflective, and focused on independent work (John et al., 2008; McElroy et al., 2007).
Agreeableness	Characterized by cooperation, trust, empathy, and a tendency to prioritize social harmony. Individuals high in agreeableness are supportive, collaborative, and inclined to follow social norms (Graziano & Eisenberg, 1997; John et al., 2008).	Associated with competitiveness, skepticism, and a lower tendency to conform to social expectations. Individuals low in agreeableness may be more independent, critical, and willing to challenge others or established norms (Graziano & Eisenberg, 1997; Devaraj et al., 2008).
Neuroticism (Emotional Stability)	High neuroticism reflects emotional sensitivity, anxiety, and a tendency to experience negative emotions such as stress or worry. Individuals high in neuroticism may be more risk-averse and reactive to uncertainty (Costa & McCrae, 1992; Thatcher & Perrewé, 2002).	Low neuroticism (high emotional stability) is characterized by calmness, resilience, and confidence. Individuals low in neuroticism are more likely to remain composed under pressure and tolerate ambiguity or uncertainty (John et al., 2008; Devaraj et al., 2008).