The AI Design Uprising: How Sensemaking is Rewiring Creativity

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ABSTRACT

Since its emergence years ago, AI has revolutionized management practices across industries, gaining widespread adoption and profoundly shaping social outcomes through diverse platforms and applications. We are now in an era where innovation-driven decision-making supersedes traditional human-centric models. This study presents a comprehensive framework for examining the interplay between human cognition and design in today's AI-dominated landscape. Although automation has assumed many routine tasks, human creativity, critical thinking, and intuition remain indispensable. By situating sensemaking at the heart of design innovation, we highlight the need for deeper understanding and strategic foresight when confronting automated solutions. This paradigm shift demands a fundamental rethinking of design principles at both organizational leadership and management levels. Through a practical case study, we demonstrate how AI can enhance productivity and transcend institutional constraints, automating certain design processes while relying on human sensemaking to uphold trust and reliability in user-centered innovations. Our theoretical analysis concludes with implications for both scholars and practitioners in design and innovation management.

Keywords: Sensemaking, Artificial Intelligence, Design innovation and management

INTRODUCTION

The accelerating impact of the use of AI across several fields, such as academia, holds the potential to transform our culture, everyday activities, and information access. As AI relies so largely on algorithms and data-driven processes, it is changing the conventional role of designers, especially in human-centered design. This shift is emphasized by Verganti, Vendramiinelli, and Lansiti (2020a, 2020b), who point out that machines (AI) are driving innovation more and more in place of human designers. Their findings emphasize the necessity of a thorough investigation into sense-making to comprehend the relevance and underlying motivations of design choices. It is expected that an extensive understanding of issue identification procedures will be critical to the advancement of innovation theories in the future.

To describe the complicated connection between issue identification and future innovation processes, it is necessary to draw on comprehensive frameworks from sense-making theories. Scharmer (2007) elaborates on sense-making (from Verganti, Vendramiinelli, and Lansiti, 2020a, 2020b) and predicts a change in design paradigms to be more closely in line with organizational theories. This change emphasizes the significance that leadership plays as a natural outcome of sense-making processes. According to their study, progressive companies incorporate innovative design strategies to add value. This realization points to a future in which organizational theories and design disciplines will be closely interconnected, emphasizing the significant relationship between design processes and the subtle dynamics of leadership. This perspective change suggests

a stronger connection between organizational studies and design, encouraging a mutually beneficial collaboration that strengthens the conceptual underpinnings of both disciplines.

The automation of learning and decision-making processes is the main mechanism of AI (Artificial Intelligence), which represents an important shift in the essential components of innovation. With AI overcoming conventional constraints including scope, depth, and human-centered design paradigms, the predicted influence on innovation performance is clear. Its capacity to improve performance metrics like customer centricity, creativity, and innovation direction demonstrates its revolutionary potential. The present condition of design practice in the era of AI today stands in opposition to the conventional human-intensive innovation techniques used by most modern organizations. This insight emphasizes how critical it is to adjust innovation frameworks to take into account the complex dynamics resulting from the broad integration of AI. According to Verganti, Vendramiinelli, and Lansiti et al., the goal of AI-powered innovation is to identify and frame important innovation issues as well as establish the necessary data systems, apps, and problem-solving loops to handle these difficulties rather than offering final solutio

To address this novel theoretical question, we might consider making use of insightful ideas that come from researchers who are seldom involved in innovation studies. The idea of sensemaking in organizational contexts has gained scholarly interest since Karl Weick's groundbreaking work in 1995, especially in the field of organizational psychology. Weick's significant contribution has influenced the conversation on how people in organizations use their shared experiences to guide their cognitive processes of interpretation and meaning-making. His research explores the complexities of sense-making and offers a theoretical framework for comprehending how groups create significant narratives and interpret their shared experiences. This academic direction has sparked more investigation into the fundamental aspects of sense-making in more general fields like organizational behavior.

Sensemaking In Initial Starts

The way essential abilities are prioritized has shifted in the last century as the landscape of leadership traits has changed. Although strong decision-making and problem-solving skills were once considered essential leadership attributes, current viewpoints indicate that the importance of problem-solving skills is declining. Technological developments have a significant impact on this shift, especially on the growing effectiveness of artificial intelligence (AI) in problem-solving fields, where it frequently outperforms human capability. The conventional understanding of leaders as problem solvers is being reexamined in light of this changing paradigm. The idea suggests that leaders will not be expected to solve problems directly in the future. Instead, a more sophisticated approach holds that decisions, although important, do not advance an organization on their own. Rather, the deeper significance attached to these choices is what essentially molds and directs companies toward their objectives. The present narrative about leadership centers on the idea of "sense-making." Making sense of previous events to respond to future ones is the general goal of sensemaking. It involves giving meaning to collective experiences. It includes looking into previous events and doing a debriefing and variability. Several properties at the organization required consideration in addition to the route to a solution. The primary phase of an organization is the creation of an identity through interactions with other members of the organization. The second is the Retrospective, which emphasizes that it only makes sense to reflect on the past or past experiences. Third, a continuous process that connects the past, present, and future to interpret an occurrence (among other aspects of cognition). Next is the enactment, in which members of the culture perform. Then, using extracted cues, highlight certain areas of the surroundings. Furthermore, social expectations are predicated on one's own or others' interactions with them, and last, plausibility is the collective body of knowledge that appears adaptive and reasonable.

In the Activity of examining the complexity, Weick (1995) compared sensemaking to the art of mapping. Sensemaking is the mapping of the unknown. These symbolic maps serve as guiding lights, providing assurance and optimism in the face of uncertainty, and facilitating the shift from fear to useful knowledge. In addition to this, eight basic habits, or "habits of sensemaking," have been described by Ancona. D. (2012). It has 1) a Variety of Data search to examine a range of data sources and kinds from several angles, 2)

Collaborative Understanding purposely to use contact with others to test and improve your mental model, 3) a Complex Viewpoint, whereas to get past predictions and explore the specifics of any individual circumstance, 4) Disintermediate by taking advice from those who are closest to the consumers and the front lines for closeness learning, 5) Adaptive Frameworks: unneeded new frameworks on top of old ones; instead, let the situation's context help people determine the best map, 6) Expressive tools are necessary to convey the core of a novel situation, use analogies, tales, and visuals, 7) When unsure of how a system operates, conduct little experiments to gain understanding. This is known as Experimentation learning and the final consideration is 8) Environmental Awareness, here, it is critical to recognize how leaders, who are essential to the system, influence the environment. A useful starting point is to look for a variety of information when faced with complexity. The sensemaking process is improved by direct insights from those closest to the activity, as compared to depending just on own mental models.

The ability of a leader to extract and convey meaning from choices made within the framework of the organization is embodied in sensemaking. It is important to know that sense-making in an unclear situation is the capacity or initiative. To be more precise, sensemaking is the process of developing situational awareness and comprehension to make judgments in highly complicated or ambiguous situations (Nardon, L., Hari, A., 2022).In contrast to the conventional focus on decisiveness and problem-solving skills, sensemaking emphasizes how crucial it is to place judgments within a larger framework and explain the meaning and reasoning behind them. From the perspective of academia, the conversation about current leadership emphasizes how important it is for leaders to go past the conventional position as problem solvers and adopt a more comprehensive strategy that incorporates sensemaking. This means establishing an organizational culture that values the interpretative frameworks that give decisions direction and consistency in addition to the decisions themselves. The unique contribution of human leadership in a time where technology enhances problem-solving capacities at companies is its capacity to give decisions a purpose and build a coherent and significant organizational story.

The perspective of leadership

Despite challenges addressed in a controlled academic context, real-world situations can entail a great degree of uncertainty. This uncertainty may show up as unclear client requirements or disorganized, incomplete data. It is difficult to formulate a properly defined problem in such circumstances, which makes it tough to come up with a workable solution. Furthermore, the degree of uncertainty in these real-world issues is difficult to gauge, and it is impossible to predict with any degree of reliability how successful they will be—unlike scenarios with quantitative risks. At this point, Sense-making, which is the capacity to make sense of complicated or unfamiliar situations, is an important foundational talent required for complex problem-solving and decision-making. This idea has a profound connection to the management of consequences, organizational dynamics, and leadership. As a powerful prelude to negotiating difficult decisions and coming up with answers, leaders must develop and hone their sense-making abilities in the domain of leadership, which entails leading ahead. Leaders should ideally try to make these complex issues easier for their people to understand. A dynamic approach to leadership was emphasized by Peter Bevelin (2006), who expressed a preference: "I don't want to be a great problem solver. I want to avoid problems—prevent them from happening and do it right from the beginning." According to this viewpoint, organizational management ought to take the initiative right away. There is a new paradigm emerging in leadership that emphasizes sensemaking above decision-making and problem-solving and requires leaders to give sensemaking preference. At another point, Sensemaking is the process of combining various viewpoints to create a real understanding of the complex world we live in, then testing that understanding to see if it can be improved, or, if otherwise, discarding it and starting over (see D.G. Ancona, 2011; D.G. Ancona, Williams, M., & Gerlach, G., 2020). Sharma (2006) states that sensemaking frequently entails the methodical gathering of data, the development of a conceptual framework around that data, and the utilization of that framework to carry out an activity. Sensemaking can occur, for instance, when a family is organizing their vacation schedule or when they are making an unexpected internet purchase. It's a process that happens when a team of researchers tries to understand a topic that's just getting started or when an organization is trying to figure out how to deal with the challenges of globalization. According to the MIT Sloan School of Management, "sensemaking" and "inventing" are the two most important markers of good

leadership. However, our study clearly shows that sensemaking is superior, mainly because it is a fundamental function that impacts and directs all other aspects of leadership. This is in line with MIT's viewpoint, which is expressed by Ancona, who highlights that sensemaking gives leaders a better comprehension of their surroundings, which improves a variety of leadership tasks including imagining, linking, and creating. Here, sensemaking is essential for influencing and establishing other elements that go into making a leader effective.

Furthermore, looking back at past events is another practical aspect of sensemaking. In the context of continuous sensemaking, the goal goes beyond simply categorizing the results as true or false. Rather, the emphasis is on picking up on minute details buried in the past to develop and refine cognitive abilities in the recognition and analysis of complex patterns. This purposeful examination of past events is an activity intended to develop a training ground for the improvement of cognitive abilities, particularly those associated with pattern recognition and interpretation. This thorough study of the past serves more purposes than only theoretical ones. It attempts to provide a planned and regulated practice environment that supports the development of cognitive skills necessary for sensemaking. Individuals can enhance their ability to identify relevant information and strategically use it in the context of future decision-making processes by drawing insightful lessons from previous situations. Essentially, making sense of the past is a preemptive mechanism that provides people with a more sophisticated and broad viewpoint that allows them to skillfully negotiate the complexity of future circumstances. Sensemaking is also a little-known ability that may support leaders in making wise decisions in challenging circumstances. It might be challenging as one of the reasons. We are a certainty-seeking people. We wish to leave unclear and unfamiliar circumstances as soon as possible. Leaders must own their ignorance to make sense. Hence, ought to hesitate to act and make judgments until you have more understanding of the current circumstance. Ancona, (2011; 2020) stated a time of threat or pressure may strengthen our mental models and maps, make us more dependent on outdated knowledge, and prevent us from taking action. Danger and anxiety are linked to inflexibility, a need for guidance, and unpredictable conduct, all of which impede the process of making sense of things. Furthermore, it may go against the principles of many conventional organizations. Leaders who delay making judgments may come out as unsure of themselves. Here, decisive leaders advance in their positions.

The perspective of the organization

Organizational culture emerges through the shared integration of experiences made possible by the sensemaking process rather than just by a consensus on common meanings. Individual interpretations, perspectives, and interactions within the corporate setting interact in a complex and subtle way to form organizational culture. In contrast to the idea of a uniform agreement, sensemaking is a critical activity that helps individuals of an organization share experiences. Individuals within the collective continuously analyze and reinterpret organizational events and occurrences within the context of the cognitive and social process known as sensemaking. The creation of a common reality that is influenced by the many viewpoints, convictions, and interpretations of organizational members is made possible by this continuous sensemaking process. While it may be difficult to come to a general agreement, the ongoing process of sensemaking creates a shared understanding based on the experiences of the corporate community. Organizational culture is essentially a dynamic tapestry that is weaved through the members' continuous sensemaking interactions, where the diversity and depth of individual experiences contribute to the organization's usual story and collective identity.

In this perspective, Sensemaking is "how organizational members come to understand and move forward when faced with unexpected or unanticipated information" (Dougherty, 2020). More to add, Nardon, L., and Hari, A. (2022) describe it as the process of debriefing to comprehend what occurred and extract lessons from it. The debriefing procedure is an essential instrument for information gathering and sharing inside an organizational structure, according to the perspective of organizational learning. Through introspective and analytical evaluation, debriefing participants build a common knowledge of the incident as a group. In addition to strengthening individual cognitive frameworks, this cooperative sensemaking project also develops collective organizational intelligence. Here, its seven guiding principles are as follows: 1) Identity construction-based, 2) Retrospective, 3) Active in sensible situations, 4) Social, 5) Continuous, 6) Centered around and 7) Dependent

on extracted signs, and motivated by reasonableness as compared with correctness. People may create a convincing explanation for their circumstances through the sensemaking process, and they can then utilize this knowledge to encourage action.

The theorist highlighted as a pioneer referral to this sensemaking study, Weick (1995) said Members of the organization use a process of 1) Action, 2) Selecting, and 3) interpretation to make sense of unforeseen events. He made a substantial contribution to the topic of organizational sensemaking with his book "Sensemaking in Organizations." He explores how people and organizations deal with and make sense of the uncertainties and complexity they face in their positions. Hence, He highlights that sensemaking is a continuous and dynamic process rather than an event that occurs once. It involves ongoing actions and adaptations when people or organizations engage with their environment. In the process, it described 1) Action which refers to the reactions and measures that people or organizations take while navigating their surroundings. It might involve making decisions, solving problems, or engaging in any other activity that aims to take advantage of a possibility or challenge that is seen. 2) Selection suggests that specific data or environmental cues have been purposefully chosen. During the sensemaking process, people or organizations react to certain parts of their environment, focusing on and sorting out the information they find important. Then, at 3) Interpretation is making meaning of the chosen data. It is the cognitive method by which an individual or organization offer the data they have selected while focusing on context. Interpretation is a subjective process that is shaped by the background, environment, and prior knowledge of the individual or organization. In addition, Sensemaking has significance for companies because it helps workers grasp exceedingly complex situations for which the company cannot prove that any established rules or regulations apply. Additionally, sensemaking gives the organization permission to deal with an uncertain and unpredictable future and adapt as necessary.

Sensemaking in the operation

As a proficient reference to sensemaking application to prove of its essentiality in the context of design, IDEO a non-profit design studio, shows the contribution of sensemaking to the literature of design thinking in three parts (See Table 1). First, IDEOs demonstrate that sensemaking, in contrast to conventional problem-solving, forms the basis of the logic that underpins the practice of design, emphasizing the critical functions of improvisation and imagination as essential activities. Second, the clarification on what it means when they discuss designers' sensibility, describing it as a combination of a disposition and a talent developed through studio culture and everyday life. Thirdly, by developing a practical framework of practice, they clarify the critical role that sensibility and sensemaking play in design thinking, which adds to a more complex understanding of how practice and innovation interact in the field of design. Furthermore, although initially concentrated on product creation, IDEO's goals evolved to include the design of services, strategies, and even educational and other social institutions. This is following the expansion of design thinking as a whole. (Liedtka, 2015, p. 926). In reaching it, Although there are many different categories for the particular features, attributes, and regulations governing design thinking, there is broad acceptance (though labelling may change) of its three primary foundations, which are understood to be empathy, abduction, and experimentation (e.g., Dell'Era et al., 2020; Liedtka, 2015; Micheli et al., 2019; Mount et al., 2020; Seidel & Fixson, 2013; Verganti et al., 2020).

According to Brown (2009), empathy is the attempt to understand the world from the viewpoints of others, grasp it by their experiences, and feel it via their feelings. An essential part of design thinking, abduction is a unique kind of creative reasoning that is sometimes described as "the logic of what might be" as opposed to "what is" and "what must be" in deduction and induction (Martin, 2009, p. 27). Prototyping and visualization are used in experimentation, which is associated with curiosity and a learning-by-doing methodology. This process turns ideas into concrete forms for testing, promoting iterative cycles and revealing new opportunities (Carlgren et al., 2016b; Dell'Era et al., 2020; Magistretti et al., Forthcoming). This pragmatic paradigm gives a theory of practice that specifically considers the quality of experience in embodied social interactions. As a result, it serves as a useful lens through which to examine sensibility and explain designers' situated embodied creative work.

Table I The Implications Of The Two Paradigms For Interpreting And Theorizing Design Thinking; Theoretical Framework Of Sensemaking Perspective On Design Thinking. (Rylander Eklund, A., Navarro Aguiar, U., & Amacker, A., 2022).

Perspectives on design thinking		
Design thinking as problem solving	**Paradigm**	**Design thinking as sensemaking**
Design thinking as methodology for solving complex problems Reflecting management culture	Framing	Design thinking as open-ended exploration to imagine and express new futures Reflecting studio culture
Valuing concepts (design thinking nomenclature) Focus on *methods*; cognition, artifacts, hypothesis	Disposition	Valuing qualities (design thinking vernacular) Focus on *sensibility*; improvisation, senses, imagination
Outside-in *impression* Text-driven approach focusing on problem-solving	Locus of learning	Inside-out *expression* Experiential learning focusing on expression of ideas and skills
Reactive: *Tame* chaos through structure Psychological safety through trust in formal structures and methods	Relationship to uncertainty	Generative: *Embrace* chaos by making in the present Psychological safety through trust in *making* and social ties
Focus on *Methods*	**Design thinking pillars**	**Focus on *Sensibility***
Focus on user experience	Empathy	Focus on embodied experience of the design thinker
Abduction as a form of reasoning for constructing a hypothesis Imagination as cognitive (disembodied)	Abduction	Abduction as a collective aesthetic experience for imagining new futures Imagination as embodied and improvisational
Problem solving as a cognitive act; methods essential Focus on visualization and representation	Experimentation	Sensemaking inherently improvisational and imaginative; sensibility essential Focus on expression and interpretation

Analyzing design thinking from the perspective of sensemaking emphasizes the value of creativity and spontaneity and shows a unique approach to improving experience quality. A designer's creative process is centred on developing sensitivity and stressing individuality. It is important to remember that design thinking is not comparable to traditional design methods. Sensitivity, according to design theorists, is understanding that creativity and improvisation are typical individual qualities that people use daily to get through unfamiliar or unexpected circumstances (Cunha & Clegg, 2018; Mannucci et al., 2021; Weick, 1998). Making sense of design thinking moves the emphasis from user experience to the empathy-driven experience of the design thinker. It highlights how natural and embodied imagination is when examining options. The existing literature emphasizes the significance of imagination, which is frequently equated with abduction, as design thinkers strategically refine imagination into an effective tool and imaginatively "imagine solutions" (Brown, 2008; Glen et al., 2014; Brown, 2009). Kolko (2015) argues that although design may not be able to fix every issue, it is very good at illustrating the future and that it could be more suitable to refer to it as such. An alternate viewpoint for understanding practice and sensibility is presented by design thinking as sensemaking. It describes sensemaking's function within design thinking, emphasizing the importance of bodily experience and its creative, improvisational character. Although sensemaking is acknowledged in the literature on design thinking, it is frequently discussed in terms of particular tools or as a cognitive meaning-making activity that gives priority to symbolic dimensions (Cooper et al., 2009; Elsbach & Stigliani, 2018; Liedtka, 2015, 2020; Micheli et al., 2019; Verganti, 2009; Verganti et al., 2020; Wrigley et al., 2020).

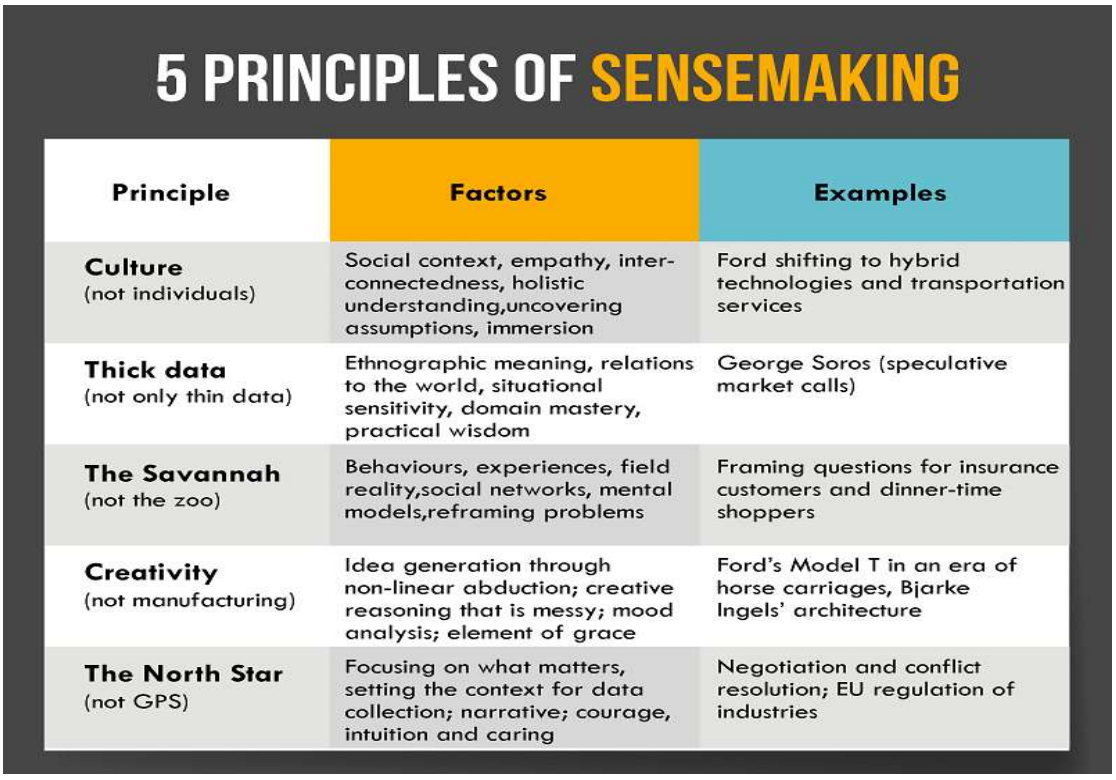
Even though sensemaking may appear difficult at first, it is a talent that can be learned. The core activities of sensemaking involve finding a variety of facts, stories, and information about a system, using this knowledge to create a thorough situation map, and conducting experiments to track the system's development. An example from the well-known product design firm IDEO emphasizes how sensemaking may have a profoundly positive impact. A team undertaking a redesign project for a hospital emergency department saw an important change in perspective when they decided to mount a camera on a patient's head for 10 hours. After ten hours of staring at the wall, the previously undetected patient experience was discovered. This led to a drastic makeover that included features intended to increase patient awareness. This example shows how sensemaking, which collects information and creates a situational map, was necessary to ensure that the final design was as successful as it was. In the end, sensemaking has shown to be an effective tool for enabling creativity and innovative design approaches in addition to assisting in understanding complicated systems.

Sensemaking is imperative in deisgn crossing the AI revolution

Technologies that rely on machine learning have become integrated as essential elements of our digital lives. Applications based on language processing, image processing, suggestion systems, and other forms of what is often referred to as restricted artificial intelligence (AI) are frequently used by modern users or have an impact on them. Design practice is becoming increasingly important in the continuous process of AI commercialization. However, this increased significance presents new methodological issues that have not yet been resolved or firmly established in the field of design practice.

Regarding focused context, Madsbjerg, C. (2018) considers sensemaking as the process by which individuals in everyday life interact with one another to make sense of reality. He added Sensemaking is similar to common sense, which derives from human knowledge and experience. In contrast to algorithmic thinking, which is excellent at quickly processing large amounts of data, sensemaking stands out by examining the minute intricacies of actual circumstances. Because sensemaking considers the specifics and contextual details that may escape the more superficial but wide powers of algorithmic thinking, it can offer a deeper and more thorough understanding. The power of sensemaking rests in its capacity to grasp the complexity of interpersonal relationships and the tangible reality of various situations. Thus, he described the importance of human intelligence in the AI revolution era in 5 principles (figure 2) in considering sensemaking before decision.

Figure 2 Adapted From Sensemaking: What Makes Human Intelligence Essential In The Age Of The Algorithm By Christian Madjsbjerg (2018)



According to Figure 2. It shows the list of principles at various informative data segregation with factors definition and examples in circumstances understanding. First, about culture, it describes how an Organization must learn about the regional traditions of where they are moving. For instance, Ford has shifted its business strategy in nations such as China and India by putting more of its focus on the needs of drivers than merely technological features. Secondly, thin data and thick data from research are the two categories of data. Despite its magnitude, big data doesn't necessarily provide the best insights. Comprehending objects requires a variety of knowledge categories. Big data reveals relationships, but to get the whole picture, we also need to know people's histories and emotions. Making sense of the world involves four types of knowledge: subjective (personal opinions), objective (facts), shared (context-specific), and sensory (intuition). Big Data shows

relationships, but establishing them essentially requires a closer look at empathy and context. Beyond more rapid methods like design thinking, demographic profiles might not be the only way to identify behavioral differences. Third, Understanding your clients' lives and cultures entails getting to know them. Approaches such as phenomenology bring links to light. By grasping the various stages of their clients' lives, insurance firms may establish stronger connections with them. By seeing every consumer as an individual, retailers can provide better service. Fourth, Several types of thinking are used in problem-solving, including bottom-up, top-down, and creative thinking. When things change, creative thinking requires being receptive to fresh perspectives. Christian pushes designers to step outside of their comfort zones. Better designs result from a thorough comprehension of the client's reality. Finally fifth, in the era of huge quantities of information, leadership entails selecting and thoroughly comprehending the appropriate information. Technology and human insights are equally necessary for making sense of data. It's important to understand how individuals interact at work. What gets spoken and what stays unsaid in a company shapes its culture. Understanding issues is aided by likeability and engagement, especially under challenging circumstances.

The use of technology to enhance human decision-making is a key paradigm that highlights the mutually beneficial link between human and technical progress. It emphasizes the idea that long-term success requires compassion to be infused into decision-making processes rather than just depending on algorithms. In healthcare, the need goes beyond efficiency and emphasizes the critical function of empathy. Instead of defining sensemaking as engaging in real-world interactions with other people, Christian argues that people are here to care for others and create meaning. This is a position that becomes more important as AI's impact grows and raises questions about what it means to be human. From this perspective, the humanities become a competitive advantage rather than a luxury, adding a subtle and essential dimension to the intricate interactions between technology and human activity.

DISCUSSION

Sense-Making In Design Practice At The Ai Revolution

According to Verganti (2020), using AI requires a shift in perspective that embraces "Problem Finding" as an alternative to traditional problem-solving. He emphasizes the value of sensemaking exercises and points out that, in contrast to AI, people might refuse to solve an issue for ethical, sympathetic, or internal reasons. Csikszentmihalyi and Simon's (1988b) discussion illustrates how humans might resist coming up with meaningless answers. This emphasizes how crucial it is to approach design practice in a balanced way, combining AI support with human sensemaking. Whereas, Human intuition and critical thinking are based on experience and surroundings, artificial intelligence (AI) is based on data, facts, and algorithms. Unlike AI, which takes a data-centric approach, sensemaking considers conditions, problems, and restrictions when assessing how effective a solution is. It represents points of an idea at the phase where sensemaking is properly implemented followed by the principles and procedure before the decision from the initial to the next phase is decided (see Verganti, Vendramiinelli, and Lansiti, 2020a, 2020b). This is accomplished by adapting the design practice framework to the context of AI factories. According to the framework, the only processes that are involved are the "problem-solving loops" that follow the designing process. In these loops, particular solutions that a user interacts with are discussed and determined by an AI engine using insights from user interactions or the entire ecosystem.

It explains how AI is integrated into the product, from prediction to conclusion-making based on data collection and continuous learning of improved solutions. Thus, the potential for loops will eventually lead technology to take the position of people in the creation of a particular solution. They can offer a range of solutions without requiring a significant increase in R&D expenditure, and they are simple to scale without redesign. As a result, this process flow may improve sensemaking by including humans (in this particular instance, leaders and designers) in less repetitive and looping activities as the user would be the one who addresses the situation.

It is important to realize that sensemaking is considered to work best at the initial stages of the process when everything is just getting started. The phase before "design" is shown here to emphasize the point at which the first problem is genuinely encountered, sorted, and identified. At this point, it is "manually" managed by

humans. Compared to the actual framework, the "research and discovery" and "ideation and conceptualization" phases were introduced before the "design" phase, as the image illustrates. Sensemaking focuses on generating possibilities and predictions that could assist the organization solve its challenges. Additionally, it is representative to apply in the loops of problem-solving when it operates at the "Use" and "Data" phases when input is gathered and information is evaluated sensibly before moving on to the following phase.

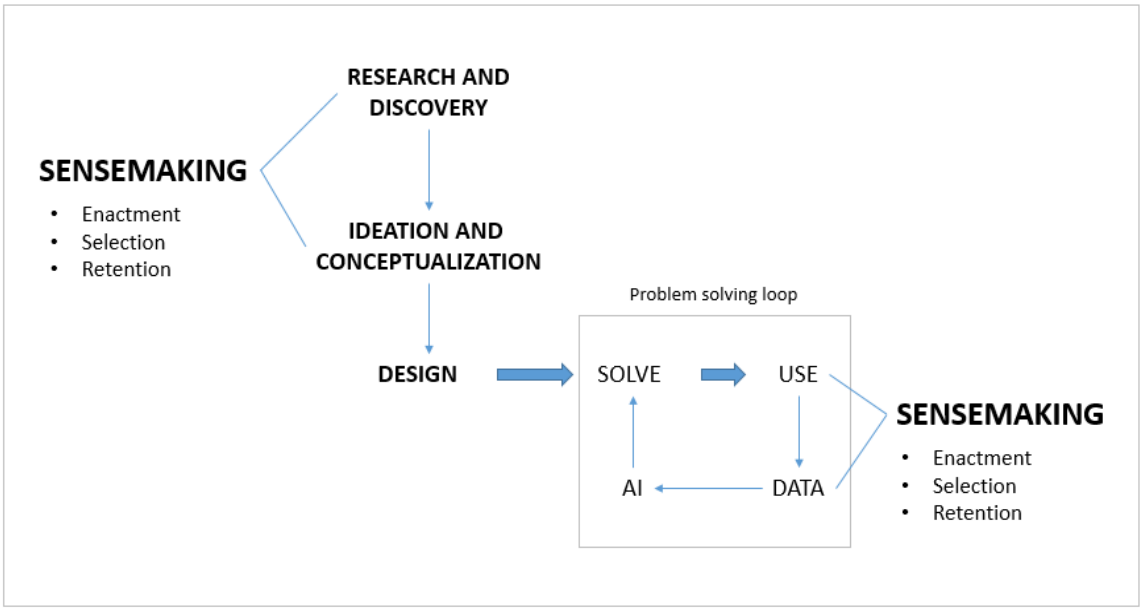
Sensemaking in this context of AI organization is illustrated in the study of Karl Weick, a well-known expert in organizational dynamics, who emphasizes how sensemaking processes contribute to understanding and addressing challenges within organizations, those involved in the early stages of design practice can undoubtedly gain a deeper understanding of sensemaking in the early phases of design practice and leadership roles. It has three main components and is frequently connected to his sensemaking idea. The research and discovery phase was the starting point, followed by ideation and conceptualization, as the image illustrates. The following piece explains the application of Weick's basic theory of sensemaking—which includes enactment, selection, and retention—through design practice concerning context.

As defined in the first point 1) Enactment, is the process of continuously forming and reshaping organizational reality by both individual and group activities. It explains Organizations are always being built by the activities of their members; they are not prior things. Enactment illustrates the continuing development of organizational structures and procedures as a result of people's activities and interpretations of those actions. For example, the members of an organization have to adapt to an unexpected shift in the project's requirements. Rather than waiting for official directives, team members proactively get together to talk about and clarify their responsibilities, acting quickly to adjust to the changing circumstances. The process of enactment is most effectively demonstrated by the act of coming together and redefining their roles on the spot. In this perspective of design practice, Enactment plays its role in 'taking actions' involvement and structuring the organizational environment. To apply, Design teams use iterative design methods, collaborative sessions, and prototype workshops to implement. Teams that actively participate in the design process can test assumptions, actualize concepts, and react in immediate response to new findings.

On the second from Weick's, the Selection is defined as organizing and identifying information process, which enables people and organizations to make sense of their surroundings. Deeper, People and organizations selectively analyze information to construct an integrated knowledge of their environment when faced with ambiguity and uncertainty. Selecting relevant signals and determining which data are necessary for sensemaking are steps in the selection process. For example, in competitive situations, an organization runs against a challenging problem. Leadership is the process of making sense of an issue by concentrating on certain parts of it. Depending on what they think is relevant, they could decide to give competition strategy, economic data, or consumer feedback priority. The process of deciding which facts to emphasize influences how the organization perceives the issue. Selection, in the design practice context, is making sense of the design problem that requires organizing and evaluating data. Significantly, Teams of organizations carefully consider input from consumers, relevant market trends, and results from user research while designing. To ensure that the design solution is in line with the most important practical aspects, designers improve their grasp of the problem by selecting necessary insights.

On third of Weick's basic theory of sensemaking, 3) Retention, its work on the process of conducting certain information to memory to lay the groundwork for upcoming sensemaking. During the sensemaking process, information that is judged significant and chosen is stored and added to the memory of a person or organization. This body of information informs decisions and acts in the future, continuing the cycle of sensemaking. As an example, upon a crisis that is well managed, a company evaluates what went wrong and records the most important insights. This knowledge is retained and added to the database. The organization uses the information it has maintained to help with problem-solving and decision-making when a comparable difficulty presents itself in the future, emphasizing the significance of retention in the sensemaking process. In design practice, Selective knowledge is retained when it is stored in memory for subsequent use. Future design choices are informed by this collected knowledge, which is incorporated into the organizational memory. Successful design patterns, user preferences, and lessons learned. Design teams contribute to the continuous development and enhancement of design processes by using the information they get via user testing, design iterations, and project retrospectives.

Figure 3 Sensemaking Approach At Design Practice In The Context Of Ai-Based Organization System Adapted From The Design Practice In The Context Of Ai Factories (Verganti, Vendramiinelli, And Lansiti (2020a, 2020b)



Regarding Figure 3, The "Research and Discovery" phase of the framework in Figure 1 starts by establishing the sensemaking application, whereby the designer gathers and analyzes data to make sense of the project environment, user demands, and market dynamics. They analyze data to find trends and revelations that guide the design process. Additionally, sensemaking aids in the conceptualization and ideation process by assisting designers in making sense of the variety of ideas produced throughout the brainstorming stage. Concepts are ranked according to their effectiveness in ensuring they meet the demands of the user and the project's objectives. The "Design" part of the process will then be the focus of the following stage. This is when the results of the earlier study phase are used to define the basis for informative progress. This supports the contention of "I want to avoid problems—prevent them from happening and doing it right from the beginning" rather than becoming an expert issue solver (Bevelin, P., 2011; Dickson, J., 2023). Prevention is preferable to curative care. It involves early detection, evaluation, and making sense of the condition from the outset by referencing prior events and circumstances. Although it uses some algorithmic assistance, the goal of this is to make the following stages of design practice easier to complete in less time and at a lower cost.

Verganti, Vendramiinelli, and Lansiti (2020a, 2020b) demonstrate how the AI-automated problem-solving loop in design practice represents the "Use" phase, which is concerned with user input and collective data gathered during the Data phase. It includes human intellect and, as mentioned, sensemaking application also plays a part in this. The "Use" phase, which is driven by sensemaking, is often regarded as a crucial component in comprehending user responses, actions, and feedback throughout testing. This data is analyzed by designers to pinpoint areas of strength, weakness, and improvement, which helps to guide the iterative design process. To ensure that the design works well across many platforms or media, designers must make sense of technological considerations throughout the process. Next, in the 'Data' phase, sensemaking applies regulations when designers evaluate their work, take lessons from its performance, and integrate information for the next endeavors. At all steps of design practice, sensemaking in the context of design is a complex process that involves an organized evaluation of many sources of information, a profound comprehension of user viewpoints, and an intelligent application of knowledge to make rational decisions. This complex interaction takes place inside the collaborative, iterative framework of the design process, emphasizing the ongoing improvement and development of design ideas.

Karl Weick's sensemaking model is centered on these three elements: enactment, selection, and retention. Taken together, they offer a framework for comprehending how people and organizations interpret their experiences and create their organizational environments. Therefore, the examples show how selection

comprises concentrating on certain information, retention consists of storing chosen information in organizational memory for later use, and enactment comprises acting immediately. When combined, these elements support the continuing organizational sensemaking process. Organizations may make sure that their design processes are constantly responsive, and insightful by including these sensemaking components into their design approach. Enactment enables practical investigation; Selection gives attention to relevant data; and Retention enables organizational learning, ongoing enhancement of design results, and dismantling of organization at any development cost.

CONCLUSIONS

People encounter discontinuities in a variety of circumstances they interact with, and they ultimately lead to the creation of strategic solutions. Making sense of the world is a natural and continuous process that people engage in as they navigate their environment, make sense of stimuli, and create meaning from events. No matter what kind of organization they are, having a conceptual grasp of the complexities of sense-making may be quite beneficial. In addition, the application of specially designed tools makes it easier to discover and illuminate sense-making processes, providing organizations with valuable insights, emphasizing areas for development, and improving overall decision-making competency. Here, Linderman, A.,(2007; 2015) describes his principle of sensemaking as people actively participate in a dynamic process of profoundly recalling their sensemaking activities, deep insights are most likely to be generated. Either interactive use of advanced technology or meaningful conversations with people assist this transforming cognitive experience. Thus, through these kinds of interactions, people can efficiently incorporate the previously unconscious aspects of their experiences into their conscious cognitive awareness. The complex interaction between the conscious and unconscious domains enhances and develops the sensemaking process, leading to a more sophisticated comprehension of the complexities present in the interpreted experiences. Hence, enabling people to obtain this kind of assistance is essential to bring out profound insights and enable those to have a thorough comprehension of the complexities of their experiences. When carefully extracted, these insights act as a boost to enhance understanding, proficiency, and implicit interpretation of important decisions and significant events. This approach, which is marked by an increased degree of participation, guarantees a scholarly and reflective analysis of one's route and encourages an ongoing connection with the fundamental complexity present in individual experiences.

To sum up, the recurring concept that emerges from different sense-making study results emphasizes the essential part that sensemaking plays in encouraging new understandings for people, organizations, and other entities. Even if they are not constitute always put into effect, these insights might provide the basis for creative arrangements and support systems for improved practices. Nevertheless, sensemaking in design has remained relatively new and focuses mostly on the cognitive foundations of creativity. A comprehensive review is necessary, examining past events and the experiences of those who are leaders in organizations or designers. To optimize decision-making processes, this study requires careful evaluation of ethical practices. We recommend placing increased emphasis on the ethical aspect of sensemaking, emotional intelligence, and problem searching—especially in the age of AI-assisted innovations. Integrating ethical concerns into sensemaking in design practice is critical for developing responsible, inclusive, and sustainable solutions that are consistent with society's values and benefit users and the larger community. Emotional intelligence is a fundamental principle in design practice, impacting everything from user engagement and collaborative work to creativity and ethical issues. Designers with strong emotional intelligence are more likely to produce meaningful, user-centered, and impactful designs. Thus Problem searching is the initial phase in the design process, ensuring that AI technologies are used meaningfully, ethically, and in ways that meet the demands and difficulties of users and society. It provides important context for the whole design process in the age of AI. Therefore, the discussion emphasizes how important human values are and how important creative pursuits are to the fundamental interpretation of meaning. It highlights the academic recognition of the inherent worth of human values and offers extensive insight into their significant influence on the processes of interpretation. Furthermore, it explores the essential characteristics of creative activities, clarifying their crucial function in structuring and defining the complex aspects of meaning in many settings. This scholarly investigation illustrates the complex relationship that exists between human values and creative pursuits, which advances our understanding of how both have an impact on interpretation.

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The heading of the Acknowledgment section and the References section must not be numbered.

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