Affordances Theory

Affordance Theory describes the possible actions an actor can perform based on the properties of objects in an environment. These properties, such as shape and size, combined with the actor's needs, goals, and abilities, shape how the object can be perceived and used.

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Theory Factsheet

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Introduction

The concept of affordances was originally found in the work of ecological psychologist James Gibson (1966), where he proposed that perceptions should be understood in a comprehensive perceptual system instead of channels of sensation. The theory of affordance was therefore first developed in Gibson (1977), and expanded in his later work (2014;1986). The theory of affordances refers to the action possibilities that objects and environments offer to an organism (1977;2014;1986). From the handle on a door to the button on a smartphone, affordances exist everywhere, and they guide how we interact with the world, often without us consciously realising it.

Gibson developed his view of affordances more comprehensively in his book "The Theory of Affordances" (1977), where he described affordances as the relationship between an agent and their environment. Gibson believed that studying an animal's perception in isolation from its environment would result in a false understanding. Thus, *"… the affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill*" (Gieseking et al., 2014:p127). He claimed that we perceive things based on the combination of mediums, surfaces, and substances offered to us, rather than at the level of particles and atoms.

Gibson's concept of affordances is broader than the organism-and-object relationship suggested by earlier theorists. Before Gibson's definition, the idea of affordances had arisen in different ways and forms. The Gestalt school first published a concept similar to affordance. Jakob von Uexküll used the

term "*functional colouring*" to describe how organisms might perceive the world in terms of its action possibilities (von Uexküll, 1920). Later work by Koffka (1935) also described perceived affordances in a similar fashion. Although Jakob and Koffka did not use the term of affordances, they argued that an object is not defined solely by its abstract properties, rather, it also carries functional meanings or action possibilities for the organism. For example, an apple is not just a round, red object, it is something edible. However, these initial ideas were limited because they tended to describe affordances as based on perception alone and were confined to dyadic relationships between an agent (or organism) and an object.

In contrast to the previous conceptualisations, Gibson believed that multiple parts of the environment might be important in enabling a possible action. From this perspective, affordances can be understood as action possibilities that exist in the environment that related to an actor's capabilities and goals and can be perceived directly. The theory provides a basis for examining ecological perception, which explains perception in an evolutionary and agent-based context. In this view, perception functions primarily to enable adaptive action, helping actors such as humans and animals perceive their environment in order to act effectively within it.

Affordance theory is not an abstract theory. It has practical implications and functional value. Perception is not merely for its own sake. It is for enabling beneficial actions, such as avoiding danger or finding necessities for life. Affordances are therefore useful and important, as they provide competitive advantages to those who have the ability to detect and act upon them. In other words, those who perceive affordances effectively and well are more likely to survive and thrive well.

Theory

An affordance refers to what is offered, provided, or furnished to someone or something by an object from an ecological psychologist's perspective (Bransford & Shaw, 1977;Gieseking et al., 2014;Gibson, 1986). According to Gibson (1986), rather than humans and animals directly receiving information associated with their needs from objects in their environment, they perceive what the objects could offer, rather than the properties of the objects. This is what is called "*affordances*." Affordances, hence, are defined as "*the acts or behaviours that are afforded or permitted by an object, place, or event*" (Michaels, 1981:p17). As an example, humans do not perceive chairs and pencils in terms of their material properties. Instead, they perceive them as opportunities to sit and write.

There are three foundations of an affordance: first, an affordance exists relative to a particular actor's action capabilities; second, an affordance exists independently of the actor's ability to perceive it; third, an affordance does not change despite changes in the actor's needs and goals (McGrenere & Ho, 2000;Gieseking et al., 2014;Gibson, 1986). Elaborating on the first foundation, an affordance that exists for one actor does not necessarily exist for other actors, even if the same object is given. It is worth noting that an affordance is not a property of the experience of an actor, but rather the action capabilities of the actor. For example, a chair affords support to one actor, but it may not afford support to others, which may be due to differences in weight or size. Further, the fact that the chair affords support exists independently, even if the actor does not need the support. This highlights the second and third foundations of affordance: that affordances exist independently and do not change despite changes in the actor's goals and needs.

Described in this way, affordances blur the line between being subjective and objective. An affordance is objective, meaning that its existence does not depend on value, meaning, or interpretation. Yet, it is subjective because it requires an actor's frame of reference (McGrenere & Ho, 2000). By blurring the line between the objective and subjective, Gibson proposed the idea that

an affordance is an actor-environment mutuality, where the actor and the environment form the fundamental and inseparable pair that generates an affordance (Kaptelinin & Nardi, 2012). This concept also evolved in Gibson's own thinking as he developed the theory of affordances (Wells, 2002). In his initial work, Gibson framed affordances largely within the theory of "information pickup" (Wells, 2002:p144), describing them as part of the information available in the environment, "*what things furnish, for good or ill*" (Gibson, 1966:p285). In his 1977 work (Bransford & Shaw, 1977), Gibson began to address the role of the animal in the theory of affordances, although he did not yet discuss animal properties in detail. In his later work (2014;1986), he strengthened the idea of mutuality between environment and animal and introduced the term complementarity to describe their relationship. Gibson also explicitly rejected dualism, arguing that the relation between the environment and the observer (i.e., the animal or actor) "*is wholly inconsistent with dualism in any form, either mind–matter dualism or mind–body dualism. The awareness of the world and of one's complementary relations to the world are not separable*" (Gieseking et al., 2014;Gibson, 1986:p 141).

Gibson further noted that an affordance can be directly perceived and does not require mediation or internal processing by an actor (Gieseking et al., 2014;McGrenere & Ho, 2000). Direct perception occurs when an affordance exists independently, and there is information embedded in the environment that uniquely specifies that affordance. For instance, one can perceive another person walking forward when one sees a solid surface underneath their feet. The affordance in this instance is walkability, which is perceived through information from the environment that specifies a solid surface of a certain size (McGrenere & Ho, 2000). Direct perception relies on the actor's ability to collect information in a particular environment that specifies the affordance, which may be relevant to the actor's experiences and culture (McGrenere & Ho, 2000). However, while the affordance exists independently of someone's experience and culture, their ability to perceive the affordance may depend on these factors, such as their experiences and cultural background. Therefore, one needs to learn to separate the information in order to perceive directly. Learning in this way can be viewed as a process of recognising patterns in the world, rather than supplementing sensory information with past experiences (McGrenere & Ho, 2000).

However, there are cases that indicate that affordances exist independently even when there is no information to specify them, further demonstrating that affordances exist independently of one's direct and visual perception (McGrenere & Ho, 2000). For instance, a hidden door in a room with panelled walls still offers the affordance of passage. The door can be opened and walked through by everyone, but only if someone knows where the door is. There is no clear information indicating the presence of the door, such as a door handle or gap. Therefore, while the affordance exists, namely the door offers the possibility to pass through it, there is no immediate and clear information indicating its existence to help individuals recognise it. In such a case, direct visual perception is impossible because there are no visual cues to help recognise the hidden door. Yet, the door still exists and offers the action possibility of passing through it (McGrenere & Ho, 2000).

Scholars (McGrenere & Ho, 2000). argue that there are two properties of affordances that Gibson implied, but never clearly stated. The first is that an affordance either offers the possibility for an action or it does not. For example, a staircase is either climbable by an actor or not. Gibson defines this as binary with no middle ground. However, he does not specifically address actions that are technically possible but difficult to achieve. For instance, a staircase that is climbable only with great effort due to it being achievable only with great difficulty, such as being steep, slippery, or blocked. Such ‘in-between' cases highlight a grey area that remained unexplored by Gibson.

The second property is that Gibson implies affordances can be nested (McGrenere & Ho, 2000). This means that one action possibility can be made up of multiple smaller action possibilities. For instance, an apple provides the affordance of eating. Eating the apple itself involves multiple smaller actions: one needs to bite, chew, and swallow. These individual actions, such as biting, chewing, and

swallowing, are smaller affordances offered by the apple. In other words, the apple affords eating, but eating itself is composed of several smaller actions, all of which are also affordances provided by the apple. This concept of nesting means that affordances can be part of a larger set of affordances. Affordances, therefore, are not always simple, single, or isolated. They can be part of a hierarchy, where one action is made up of several smaller actions, and each of those smaller actions also provides its own affordances.

Theory Extensions

Norman's affordances

Norman's (1989) concept of affordances was first introduced in his book The Psychology of Everyday Things. He refers to affordances as *"…the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used. A chair affords ('is for') support and, therefore, affords sitting. A chair can also be carried*" (Norman, 1989:p 9). In Norman's view, there is a difference between actual properties and perceived properties. He argues that perceived properties may not align with actual properties, but they are still considered affordances. This contradicts Gibson's view of affordances as direct and objective, as Gibson believed that an object inherently suggests certain actions to any actor, and affordances exist independently of how they are perceived by actors. However, Norman believed that there is a distinction between perceived and actual properties. Specifically, perceived properties refer to how an actor interprets or perceives an object. For example, a button may appear pressable to an actor because of its shape and size, even if the button itself cannot be functionally pressed. Actual properties, on the other hand, refer to the real, inherent qualities of an object. For instance, the button is functional when pressed. Norman believed that an affordance exists regardless of whether the perceived property matches the actual property. So, if an actor perceives an object as having an affordance, even if it is not actually functional in reality, like a button appearing pressable, it is still considered an affordance. Norman emphasised the point that affordances are tied to an object's fundamental properties, such as its shape, size, texture, and function, which suggest possible actions. In addition, in Norman's view, understanding an affordance does not necessarily involve an actor. In his framework, affordances are primarily defined by the object itself and its properties, and the focus is on how actors perceive those properties. Gibson, on the other hand, places the actor at the centre of understanding affordances. In Gibson's view, affordances are action possibilities that are directly perceived by an actor within the context of their environment, and he emphasises that the relationship between the actor and the object is key to understanding what affordances exist.

Gaver's affordance

Gaver's (1991) theory of affordances builds on Gibson's ecological view but adapts and extends it for the context of human computer interaction. Like Gibson, Gaver emphasises the point that affordances are action possibilities enabled by the environment, and that these affordances exist independently of whether an actor notices them. For instance, a scroll bar can be dragged even if a novice user does not realise it can move. However, Gaver advances Gibson's concept by showing that affordances can take a variety of forms, such as perceptible, hidden, and false. Gaver strengthens Gibson's relational view while providing a more systematic and design-relevant account than Norman's perception-centred interpretation. Because Gaver's contributions are grounded in technological contexts, he argues that effective interfaces should support learning through exploration, not through instructions or metaphors. His work demonstrates how usability issues arise when perception does not match actual action possibilities. For example, a trash-bin icon that clearly resembles a physical bin invites users to drag files into it to delete them (a perceptible

affordance). A photo that can be zoomed by pinching on a trackpad provides a hidden affordance when there is no visual cue to signal that zooming is possible. A word or image underlined in blue that looks like a hyperlink but does nothing when clicked illustrates a false affordance. This view also differs from Norman's notion of perceived affordances, in which affordances are defined by the user's interpretation. Unlike Norman's emphasis on mental models shaped by background, experience, and culture, Gaver highlights the direct link between perception and action, arguing that interfaces should reveal their affordances through visual, tactile, or auditory information. For instance, a camera app that briefly flashes on the screen and plays a shutter sound signals that a photo has been taken, even if the user does not immediately see the image.

Gaver (1991) also introduces concepts such as sequential affordances, in which one action reveals another over time. For example, a user may first perceive that a handle affords grasping; once grasped, tactile feedback reveals that it affords turning, and once turned, it affords pulling. This sequence shows how one action can provide new information that reveals additional affordances. He also introduces nested affordances, which are smaller affordances that combine to support a larger action. A handle may afford pulling and a door may afford manipulation, but only together do they afford opening the door.

Needs-affordances-features

Combing the concepts of affordances, technology and psychology, Karahanna et al. (2018) proposed a framework of needs-affordances-features (NAF) to understand how different digital features, rather than technology as a whole, generate salient affordances that meet the various psychological needs of users. Karahanna et al. (2018) believed that individuals use specific features primarily to fulfil situational motivations, such as accomplishing a task or performing well at work, and there are underlying needs driving the use of these specific features. Therefore, a needs-based affordance theory provides a powerful lens to explain why individuals use a particular digital feature, especially in contexts where people use it personally and voluntarily, without mandates or work-related goals. Therefore, they define needs-affordances-features (NAF) in the following terms: "*…individuals' psychological needs motivate their use of social media applications to the extent to which these applications provide affordances that satisfy these needs*" (Karahanna et al., 2018:p738).

To apply NAF in the social media context, for example, using digital features such as adding, deleting, and editing content on Wikipedia generates the affordance of collaboration. This allows users to collaborate with each other to create content in a social media setting, satisfying needs such as competence and self-discovery. Competence is an individual psychological need to be effective in dealing with the environment, where the person feels they can have an impact on themselves, others, and the environment, as well as achieve valuable outcomes. Another example is using digital features like creating avatars in Second Life, which generates the affordance of self-presentation. This refers to users revealing and sharing information about themselves online to portray who they are, what they like, and the experiences, values, and beliefs they hold. These affordances further satisfy users' needs for autonomy (i.e., the need to be the causal agent of one's own life and act in harmony with one's integrated self), having a place (i.e., the need to possess a certain territory or space to have a home where they dwell), maintaining continuity of self-identity (i.e., the need to maintain an emotional connection between their current self-identity and their past), expressing self-identity, and relatedness (i.e., the need to communicate or express themselves to others).

NAF is useful and has various implications. For instance, using NAF can help identify the different psychological needs motivating the use of specific social media applications, such as Facebook and Wikipedia. By doing so, NAF allows for the model testing of user behaviours in specific technological applications within the social media context. Further,

NAF can inspire the design science of social media. Through NAF, systems can be designed with specific social media features that meet users' needs and foster greater engagement in social media settings.

NAF can also be applied beyond technology. The current formulation of NAF (Karahanna et al., 2018) is built on universal psychological needs, such as autonomy, competence, relatedness, self-identity, and having a place derived from well-established theories (e.g., psychological ownership). These needs exist across many human activities, not just digital contexts. Similarly, the role of affordances is generalisable beyond technology and can be applied to any environment. For instance, NAF can be used in urban design by examining which psychological needs a public space should satisfy (e.g., the need for relatedness to connect with others), identifying the affordances the space should provide (e.g., affording social interaction), and then specifying the features that instantiate those affordances (e.g., open seating areas, playgrounds, and walking paths). This demonstrates that NAF can be meaningfully applied across diverse non-technological contexts. Table 1 summarises different views of affordances.

Table 1: Affordances and Theory Extensions

Gibson's affordances	action possibilities that are offered in the environment in relation to an actor's needs and capabilities. they exist independently and are not related to an actor's experiences, knowledge, culture, or even their ability to perceive. existence is binary: an affordance either exists or does not exist completely.
Norman's affordances	affordances exist based on perceptions of an object's properties. perceived affordances may not actually exist. perceptions can depend on an actor's experiences, knowledge, or culture. they can make an action difficult or easy to perform.
Gaver's affordance	There are three types of affordance: perceptible affordance, hidden affordance and false affordance Affordances link perception and action directly Affordances are relational, sequential and nested that generated from the process of actors interacting with an object.
Needs-affordance-features	Individuals' psychological needs drive user behaviour to use digital features Affordances connect needs to an action. NAF explains why individuals use a system or digital feature NAF can go beyond technology

Applications

The Theory of Affordances and its extensions have been applied in a wider range of fields, giving it a crucial role in influences on everything from user experiences of everyday objects to mitigating social challenges. In this section, we will discuss how the theory of affordances and its extensions have been applied to the fields of psychology, design, decision making and information systems Management.

Affordances in Psychology

Affordances have been one of the most controversial notions in psychology and cognitive science, given the various competing views about their ontological status and explanatory value. The study "The Emotional Affordances of Forest Settings" (Roe & Aspinall, 2011) also explores how natural environments not only afford what people do but also influence how people feel. The study (Roe & Aspinall, 2011) argues that the traditional view of affordances from Gibson, which focused only on physical interactions with the environment, can be extended to emotional and psychological experiences. In Gibson's view, affordances refer to what an environment can offer to an actor in terms of possibilities for action, such as a chair affords sitting, or stairs afford climbing. Roe and Aspinall (2011) state that affordances go beyond the purely functional or physical and can also afford emotional experiences such as trust, comfort, curiosity, and social bonding from a psychological perspective. In their study, they found that weekly forest school sessions led to increased joy, calm, trust, social interaction, and explorative behaviour among boys aged 10-12 with severe behavioural difficulties.

Other work, such as that of Vainio et al. (2025) explored how relationships between people and trees afford diverse action possibilities that shape human well-being and emotions. Through an affordance perspective, they identified distinct perceived affordances, such as remembering, reflecting, and appreciating beauty, which strengthen human nature connectedness and promote mental well-being. Ballo et al. (2025) found that residents of permeant supportive housing perceive the value of private outdoor spaces like balconies and patios as providing affordances of feeling emotional security, reflection, or a sense of refuge even when they are not physically using these outdoor spaces.

The impact of these work (Vainio et al., 2025;Bollo & Rollings, 2025) addressing affordances on psychology is significant because it shifts attention toward the affective dimension of environments, that is, the environment not only affords what actors do but also how they feel. Emotional affordances are significant as they contribute to developmental psychology, trauma recovery, and mental health. These work suggest that nature and the environment can have restorative effects, not only helping to reduce stress or fatigue but also fostering emotional development, curiosity, social interaction, and cohesion. Emotional affordances, therefore, can have therapeutic functions.

Affordances in Design

Another practical implication of affordance theory is its application in the intentional design of environments, such as schools or therapeutic spaces, that afford positive emotional experiences, particularly for vulnerable groups. For example, school playgrounds often fail to provide affordances that meet the needs of neurodivergent children, thereby limiting inclusion, skill development, and peer relationships. Kelly et al. (2025) found that to create more inclusive environments, playgrounds should be designed to afford physical, social, and emotional inclusion, sustaining engagement and supporting positive outcomes for all children.

Similarly, Hyde and Upton (2025) explored how constructed educational spaces afford different possibilities as perceived by early childhood teachers. Their study noted that environments should be designed with affordances such as emotional, embodied, physical, relational, and theological affordances, which shape children's pedagogical and spiritual experiences. In urban design, Cao and Kang (2024) found that complex, pleasant, and human-sound-dominated soundscapes can better afford sociability among diverse demographic groups. In contrast, Krautz et al. (2024) showed that most apartment kitchens are designed in ways that constrain, rather than enhance, their capacity to afford healthy food preparation and family dining. Finally, in toy design, Myung et al. (2025) demonstrated that an interactive toy mimicking a companion species afforded urban children expanded possibilities for engaging with nature, fostering more reciprocal relationships.

The impact of these works illustrates the importance of leveraging affordance theory in the design field. Specifically, affordances provide a powerful lens for understanding the relationship between users (actors) and their environments by identifying what actions a design enables. This per`pective helps designers move beyond surface level features to consider how users perceive, interpret, and interact with a space or system. Ultimately, affordances guide designers toward creating environments that foster meaningful user experiences across both physical and digital contexts.

Affordances in Decision Making

The theory of affordances has also been applied in decision-making contexts. For instance, (2024) found that Filipino rice farmers evaluate crop diversification through perceived affordances shaped by the Rice Tariffication Law, such as welfare potential, contextual fit, irrigation limits, and financial risk. Their study shows that the farmers' decisions to adopt or reject diversification depend on which affordances they perceive as viable, though external constraints and intuitive judgment often limit uptake. Similarly, Yuan et al. (2024) examined mega infrastructure projects as environments that afford different possibilities for stakeholder action, influencing both stakeholder management and long-term project outcomes. They found that stakeholder decision-making and project outcomes are shaped by how these affordances are perceived and aligned with stakeholder needs, highlighting a pathway to more effective governance and sustainability. Therefore, the nature of affordances, which links perception to action, allows decision makers to quickly judge whether an option will work out for them, and helps them to focus on actionable possibilities and on what matters to them.

In this manner affordance theory is closely linked to the theory of computational rationality. Affordance and computational rationality share the way in which both theories focus on efficient decision making and environmental and cognitive constraints (Liao & Holz, 2025). Affordances make action possibilities perceptible and intuitive. Computational rationality theory helps explain this by addressing how individuals make good enough decisions that balance rewards with the effort required by picking the affordances that seem most useful and easiest to act on (Liao & Holz, 2025).

Affordances in Technology and Information System Management (ISM)

Given the increasing use of technology in today's world, affordance theory has also been widely applied in the field of information systems management (ISM). In ISM, scholars use the concept of affordances to consider the functional and relational aspects between technologies and actors (Hutchby, 2001). In the ISM field, the concept of affordances is often employed to define the relationship between an IT artifact and a specific user or user group (Markus & Silver, 2008). Volkoff & Strong (2013:p823) describe affordances as "*the potential for behaviour associated with achieving an immediate concrete outcome and arising from the relation between an object (e.g., an IT artifact) and a goal-oriented actor or actors*." This definition highlights four key aspects worth emphasising: a) affordances represent the potential for action rather than the action itself; b) they are inherently relational, existing between a technology and an actor or actors; c) they are connected to achieving an immediate, concrete outcome; and d) they emerge from goal-directed behaviours and may apply across multiple levels of analysis.

In simpler terms, affordances describe the relationship between a technology and an actor (or actors), revealing what users can achieve through the use of a digital artifact, depending on their capabilities and goals (Markus & Silver, 2008). For example, a group decision-support system might afford a team the ability to efficiently reach consensus by integrating diverse ideas rapidly. However, the same system may offer no affordance to an autocratic leader who disregards dissenting views or to a leader lacking the skills to facilitate group discussions (Markus & Silver, 2008). Thus, affordance is a relational construct, dependent on the alignment between a digital artifact and the goals and

capabilities of individuals, groups, or organisations. Importantly, affordances represent possibilities for goal-oriented action, not guarantees. Scholars have argued that affordances must not only exist (Markus & Silver, 2008), but also be perceived (Volkoff & Strong, 2013) and actualised through use (Strong et al., 2014).

Affordances can be both enabling and constraining. By either enabling certain desirable actions or limiting an actor's ability to perform specific actions (Pozzi et al., 2018), affordances can lead to both positive or negative consequences, often unintended (Trocin et al., 2025). A few ISM studies have examined the dual nature of affordances as enablers and constraints. For instance, Volkoff and Strong (2013) explored the implementation of an enterprise system (ES) in a manufacturing company (ARCO). The study found that the ES enabled employees to leverage global data and monitor organisational operations across boundaries, thereby enhancing productivity. At the same time, the ES imposed constraints by increasing visibility across the organisation, enabling others to exercise process and outcome control over users. This phenomenon, described as "panoptic empowerment" by Elmes et al. (2005), illustrates how affordances can simultaneously empower and constrain actors. Moreover, actors often have conflicting goals, meaning that an IT artifact may generate affordances perceived as enabling by some actors in one context and constraining by other actors in another. Affordances are also interdependent – the outcomes generated by the realisation of an affordance by some actors may provide the conditions for the realisation of an affordance by other actors in a different context (Burton-Jones & Volkoff, 2017). Such duality and interdependency underscore the complexity of affordances and of their implications for digital technology use in organisational settings and the resultant organisational and institutional outcomes (Bernardi, Sarker & Sahay, 2019;Zheng & Yu, 2016).

Affordances in Digital Marketing

IT-enabled affordances have also been used in the context of digital marketing in various ways. In this field, studies have examined what technology enables organisations to do and helps them to achieve business excellence. For example, affordances have been employed to influence SMEs' relationships with their customers and achieve customer acquisition (Sedalo, Boateng & Kosiba, 2022). Specifically, studies have found that social media generates affordances such as building brand visibility (i.e., advertising and promoting products and services using rich, dynamic, and interactive media at minimal cost), sharing information (i.e., facilitating two-way information sharing and communication between SMEs and their customers), and creating and sustaining cooperative relationships (i.e., providing easier and cheaper ways to engage with customers and build trust). Together, these affordances enable SMEs to reach a large group of customers within a short period of time (Sedalo, Boateng & Kosiba, 2022).

Studies have also found that companies use big data technologies to achieve marketing excellence (De Luca et al., 2021). Big data technologies offer affordances such as customer behaviour pattern spotting (i.e., spotting and predicting patterns of customer behaviours that would not be easily detectable otherwise), real-time market responsiveness (i.e., anticipating or reacting to customers' needs, either overtly or covertly, or to environmental changes), and data-driven market ambidexterity (i.e., identifying synergies and connections between current and future customer needs and strategic opportunities that would not be easily offered otherwise). Together, these affordances generated by using big data technologies allow companies to drive service innovation and gain competitive advantages in online marketing.

Table 2: Applications of affordance in different fields

Fields	Definition	Example Articles
Psychology	Affordances explain how environments offer or constrain possibilities for action and experience, which shape actors' feelings, emotions and behaviours.	(McGrenere & Ho, 2000;Roe & Aspinall, 2011;Vainio et al., 2025;Bollo & Rollings, 2025)
Design	Affordances are used to intentionally design spaces and environments, objects that enable or constrain desired actions and experiences.	(Kelly et al., 2025;Hyde & Upton, 2025;Cao & Kang, 2024;Myung, Hwang & Baek, 2025).
Decision Making	Affordances explain how actors perceive opportunities and constraints, guiding decision choices in uncertain or complex contexts.	(Leon & IV, 2024;Yuan, Ma & Xia, 2024)
Information systems	Affordances explain how digital features create possibilities for user action by shaping what users perceive and actualise through using technologies and/or digital features. This perspective helps to understand how technologies and/or digital features afford practices in contexts such as marketing, education, and organisational activities, as well as the institutional and organisational consequences of digital technologies.	(Volkoff & Strong, 2013;Sedalo, Boateng & Kosiba, 2022;Karahanna et al., 2018;Bernardi, Sarker & Sahay, 2019;Trocin et al., 2025)

Limitations

There are several debates surrounding the theory of affordances (Michaels, 2003). The first debate centres on how affordances are understood and how the term is used across different scientific communities. For example, Gibson viewed affordances as existing independently of actors' perceptions, considering them real features of the world that offer action possibilities. In contrast, some cognitive scientists (Tucker & Ellis, 1988) view affordances as being based on actors' perceptions. Also, while Gibson believed that actors can directly perceive affordances from the environment without the need for mental interpretation, others like Heft (2010), Stoffregen (2003), and Norman (1989) argue that affordances depend on the perception of certain properties of objects, such as the strength of a surface. For instance, actors perceive affordances based on how they interpret an object's properties, such as perceiving a flat surface as affording sitting.

The second debate revolves around whether affordances should be strictly relevant to actions or whether they can include broader meanings and perceptions (Michaels, 2003). From a strict perspective, affordances should only refer to action possibilities, such as chairs affording sitting and doors affording passage. In a broader view, however, some objects can also be perceived in non-action-related ways, such as a cliff affording danger. While this perception is not directly related to a physical action, it still describes how the environment provides information that enables actors to interpret meaning. Therefore, the debate considers whether affordances should be strictly associated with physical action possibilities or whether they can also explain an actor's interpretation of meaning in their environment, including how action possibilities are perceived for others.

The third debate concerns whether affordances exist independently as potentials in the environment or only become real when actors possess the abilities or tools to make an action possible (Michaels, 2003). The latter perspective is often referred to as effectivities, which describe the abilities of an actor to act (Kadar & Shaw, 2000). For example, a high seat may afford sitting, but only if an actor is tall enough or has a step to reach it. This raises questions such as: how do we experimentally determine what is sittable if tools might change the affordance? Does an affordance even exist, if it depends on a tool that has yet to be built? Should affordances include future possibilities, such as inventions or tools that could enable actions, or should they only consider what is possible in the present moment? The central debate here revolves around whether effectivities should be seen as potentials or as actualisers of affordances.

The final debate focuses on the level of specificity with which we should understand and define affordances (Michaels, 2003). For example, consider a field as an environment that offers the opportunity for actors to play football or other sports. The affordances are the overall activities that could potentially occur in this environment (i.e., the field). However, more specific actions can also occur within this environment, such as an actor kicking a football. In this case, the football itself affords the opportunity to kick it. This statement zooms in on a specific action that is part of the larger activity of playing football. The affordance, therefore, is not about the entire field, but rather about a specific interaction (e.g., an actor kicking the ball). This leads to the final debate: should affordances be defined based on broad opportunities for actions, or should they focus on more specific actions that are part of a broader environment? Whether affordances should be studied at a molecular level remains a topic of debate today.

Beyond the wider debates there are also disciplinary ones, given the fact that the concept of affordances has been widely applied across various contexts, particularly in the domain of information systems in recent years. Some scholars (Scarlett & Zeilinger, 2019) have also criticised the theory within this domain. For instance, they challenged the traditional view of affordances, arguing that it falls short in explaining how affordances function in digital and computational contexts. Since the traditional perspective is rooted in perceptual and physical interaction, it fails to address the layered, hidden, or imperceptible dimensions introduced by digital systems. In addition, the traditional view, especially from Norman's perspective, asserts that affordances are based on human perception. This stance does not account for the possibility that affordances can be generated and responded to automatically by systems without human intervention. In this view, humans are always placed at the centre as the perceivers of affordances (Gabrys, 2016;, 2014;Massumi, 2015). Yet in the modern world, technologies are increasingly capable of perceiving and responding to affordances independently (Scarlett & Zeilinger, 2019). Lastly, digital affordances often operate invisibly. For example, algorithmic filtering on social media can subtly shape user behaviour, even though many users may not fully understand how these mechanisms work. For instance, algorithmic filtering on social media affords personalised content and can ultimately shape

users' purchase intentions (e.g., impulsive buying) or online browsing habits (e.g., continuously scrolling through the feed). However, many users are unaware of the underlying mechanism because there is no visible "button" or cue that indicates how the algorithm operates. One might assume that this resembles Gaver's (1991) notion of hidden affordances. Although they share some similarities, they are fundamentally distinct. For Gaver, hidden affordances refer to action possibilities that a user could discover through exploration. The affordance is hidden simply because there is no obvious perceptual cue, yet the action remains directly tied to the user's capabilities. Algorithmic filtering, by contrast, does not hide an action possibility. Instead, it shapes what users see without any deliberate action on their part, operating invisibly in the background as a system driven process rather than a user driven affordance.

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