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DESIGN(ING)
The multiscalar project

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ABSTRACT
The term 'design(ing)' moves on a play on words in which the noun 'design' becomes a verb, synthesizing in one word two terms, defining a multiscalar and transdisciplinary conceptual dynamism. Designing as a transversal disciplinary bridge, but with a wider cultural meaning, wanting to emphasize that often in the art of composing there are no fences, belonging as the Italian language does with design: a cultural and methodological synthesis between being and doing. The term design, therefore, takes on an important cultural value because it goes beyond the disciplinary fences by combining art, architecture and design in a single concept, capable of designing vertically in the different scales of definition and horizontally from discipline to discipline. In the history of design and architecture many virtuous examples testify to this cultural attitude.

KEYWORDS
design, design scale, design culture, material, rules

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It is important in a historical period like the present one, aimed at sharing paths of innovation in the vast field of the creative world, to look for increasingly multidisciplinary research paths, to be able to respond to the demands of a crisis, which is not only climate or lack of content but also the absence of global social and political expectations. The text is therefore intended to offer an opportunity to reflect on a new way to tune the 'culture of the project' with these expectations, trying to make room for all disciplines open to creative involvement without placing defined and self-celebrating disciplinary margins. Perhaps the critical moment of sharing resilient paths is based on this very absence of sharing by following paths, established in the not too distant past, which were based on disciplinary certainties that today no longer find the safe and defined margins of research and creative 'doing'. This search for creative sharing therefore moves horizontally, opening up to all scientific disciplines without cultural or belonging fences and vertically according to a scalar axis of materialization of thought.

In the so-called 'culture of design' there is no partial scale of reference, study and application, but rather its world of rules and relations between the parties refer to ideological paths that over time, albeit with contemporary variables, are always the same regardless of the scale of intervention: from design to architecture and vice versa. Ernesto Nathan Rogers amplifies the concept of design and therefore of the project, through the well-known definition of the operative field of a creative aimed at overcoming specialist knowledge: 'from the spoon to the city' (Rogers, 1946). A broad definition of the work of the contemporary designer that becomes at the same time an exhortation to expand, not only the disciplinary knowledge but the fields of the application themselves, ranging from the object to the city and vice versa.

In reality, Rogers' definition implies that the compositional rules over time are always the same and vary only for the application scale. In the Italian language the word 'design' is closely linked to the sphere of interior design. It is a noun inextricably linked, in Italian culture, to industrial design, which in turn is a precise and defined design and professional discipline. In the English language, and therefore in the parts of the globe where this language is adopted, the word 'design' means project, to devise the action of connecting thought, idea, concept to the project, which is conveyed through design and realized with matter and technology. In this sense the English language, therefore, makes no difference in scale because design, or the ability to compose, can go from 1:1 to 1:1000 and vice versa.

The term design(ing) moves on a play on words in which the noun 'design' becomes a verb synthesizing in one word two terms and defining a multiscalar and transdisciplinary conceptual dynamism. Designing therefore becomes a disciplinary bridge tending towards English linguistic interpretation, but with a more defined and broad cultural meaning, wanting to emphasize that often in the art of composing there are no disciplines, distinctive features, affiliations, but above all different places or scales of intervention to be defined individually, as the Italian language does with design: a cul-

tural and methodological synthesis extended between being and doing. The term design, therefore, takes on an important cultural value because it goes beyond the disciplinary and cultural fences of belonging, combining art, architecture and craftsmanship in a single concept, capable, separately and individually, of designing a strong belonging and compositional richness in a 'multiscale' sense.

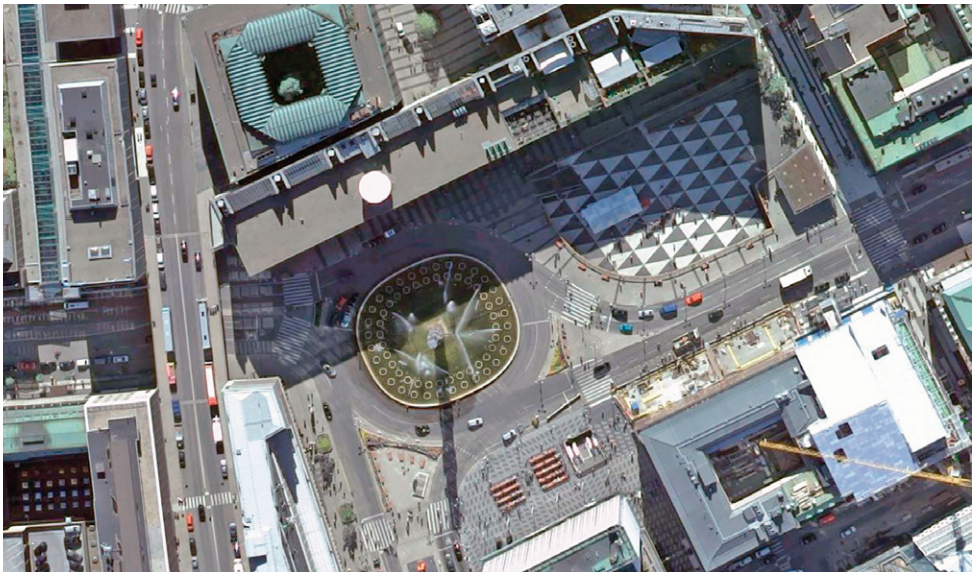
The design between rules and reference scales | It is appropriate to give a fitting example of the wide scope of design(ing) through Bruno Mathsson's Superellisse (1964) table. In 1959 the city of Stockholm commissioned Piet Hein, a Danish philosopher, poet and mathematician, to design a physical system to streamline car traffic in Segel Square (Fig. 1). Hein tried a roundabout, of course, but noticed that the solution for the urban layout of the square did not succeed in the intention for which it had been designed. He naturally brought the circle to lengthen until it became what he then called 'ellipsoid', succeeding as a mathematician to give a numerical definition through the formula $(x/a)\, n + (y/b)\, n = 1$. The new geometric shape, derived from the formula whose value 'n' was equal to 2.5, became the famous 'ellipsoid', or elongated circle or square blunt on two faces.

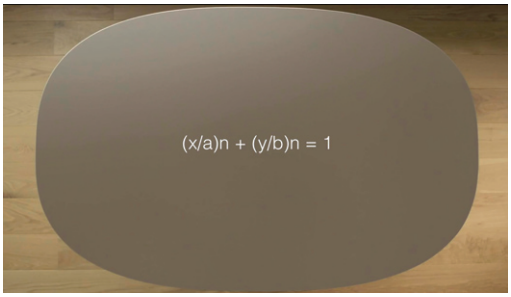
Bruno Mathsson, an ultra-modern designer and expert Swedish craftsman, saw this new shape, even though it was made on urban space, and thought of transporting it into the field of design, intuiting its revolutionary potential and value. From this transposition, or estrangement, derived the famous Superellisse table (Fig. 2), composed of slender and easily removable legs, a metaphor for the shape of the roundabout in Piazza Segel. The table was an enormous success until it was chosen as the table for the 1965 Peace Conference in Paris to resolve the Vietnam crisis. This example is emblematic of design because it demonstrates many things: that intuition has no scale of intervention; that number as a measure, rather than a formula, regulates the balance and grace of an object both on a scale of 1:1 and 1:1000. But above all, it shows that the scale is irrelevant if there is as a creative starting point thought and research capable of spanning even distant disciplines: mathematics and design.

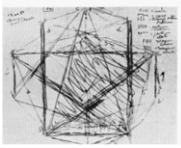
The transhumance of rules and concepts also takes place horizontally between different disciplines as well as vertically between different scales of representation and application to demonstrate that beyond the single disciplinary definitions (design, architecture, painting, sculpture, music, poetry, etc.) there is a 'project culture' that covers every conception: design.

Le Corbusier is perhaps the artist who, more than any other, has codified some 'regulatory tracks' to determine the secret code that exists behind every work of art, as it exists in chemistry for the elements and their relationships: vertically from one scale to another and horizontally from one discipline to another. A research that is independent of the artistic zones to which it belongs, so one can acquire the rules from historicized painting to design the door of a contemporary church like Notre-Dame du Haut in Ronchamp (1950-1954). In this sense, a fitting example is a con-

nection of 'distance' which considers iconographic and temporal aspects as simple vectors of a research tending towards balance and therefore objective beauty. It is therefore not important what is iconographically represented or in what era it was created, but that hidden drawing, sometimes totally invisible and sometimes only perceptible in filigree, which puts the parts about each other and with the whole: different works in terms of images or historical period they belong to are actually and magically the same thing. Le Corbusier's work has always sought geometrical, numerical, relationship and rhythm references linked, however, by emotion, on the subjective side, which conveys the work towards objectivity: «[…] Stone, wood, cement are used; houses, buildings are made of them: this is building. Ingenuity







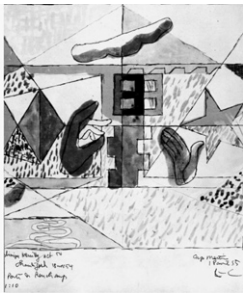


Fig. 1 | Piet Hein, Sergel Square, Stockholm (credit: Map data – Google, Maxar Technologies).

Fig. 2 | Bruno Mathsson, 'Superellisse' table, 1964 (credit: P. Di Nardo, 2019).

Fig. 3 | Le Corbusier, 'The Same Beauty' (source: www.fondationlecorbusier.fr).

works. But suddenly, my heart is moved, I am happy, I say: it is beautiful. That's architecture. Art is here» (Le Corbusier, 2003, p. 178).

In the words of Le Corbusier there has always been the search for certainties, for rules through the regulatory tracks and emotion as the final result: «Architecture is par excellence the art that reaches a state of platonic greatness, mathematical order, speculation, perception of harmony, through relationships that solicit emotion. This is the goal of architecture» (Le Corbusier, 2003, p. 87). Ronchamp's front door is perhaps the manifesto of this attitude of Le Corbusier to enter, through the analysis of traces and relationships, within an already existing composition, which his sensitivity as a painter and therefore as a designer, judges to be the bearer of beauty and balance. In this research of the fresco's compositional rules, the painter/architect synthesizes his multi-scalar qualities as an artist, succeeding in defining a plot of lines and geometries based on the importance of the subjects, their interpersonal relationships, their symbolic value in the communication of faith (Fig. 3). After extrapolating the weft, as in a carpet, Le Corbusier carries out a real process of compositional and chromatic mutation to define the final design of Rochamp's door: two completely different images, but so empathically identical thanks to that hidden design that goes beyond time, the four hundred years of temporal difference: the distance from the image and the period has therefore magically created a story based on scalar transpositions, the designing.

In the Ronchamp Chapel, it is the 'what we don't see' more than the 'what we see'

Fig. 4 | Pier Giacomo and Achille Castiglioni, lamp 'Arco', 1962 (source: www.outletarredamento.it).

that acts as a trace, as a narrative, of the entire building, both in the individual parts, as in the entrance door, and the understanding of the whole as space: from the scale of design to that of architecture. This interdisciplinary, multi-scale journey is based, rather than on a compositional technique, on a cultural approach that takes nothing for granted, but that captures the essence of the works of art, as well as their hidden design to replicate new realities in continuity with the ancient and recent past. A continuity that is expressed through geometry, as in Le Corbusier or through the metaphor applied around the work, whether it is an object or an architecture: a real genetic mutation.

Mutation in design | If we search for the meaning of 'mutation', the word is immediately linked to the term 'genetic mutation', defined by Wikipedia: «Mutations are the basic elements by which evolutionary processes can take place. Mutations determine the so-called genetic variability, i.e. the condition in which organisms differ from each other in one or more traits. Natural selection operates on this variability through genetic recombination, which promotes favourable mutations at the expense of unfavourable or even lethal ones» (Wikipedia.org).

It is interesting how the term mutation is linked to 'evolutionary processes' (Fig. 4) characterized by a 'variability' that can give 'character' and therefore difference among organisms. In the field of medicine these characters become basic elements to be able to implement a 'natural selection' that can establish which mutations are 'favourable' or 'unfavourable'. Therefore, 'mutation' or 'copy' (Fig. 5), in the sense of

Fig. 5 | Franco Zavarise, 'Arc' floor lamp, 1962 (source: www.archiexpo.it).

considering a new work starting from another one, can only determine evolution in any field, provided that what derives from it is a new diversity, a synthesis of the previous ones. Only the spoken language cannot specify the 'favorable' meaning of the 'copy', limiting it to the 'exact reproduction of an original'. To 'copy' actually means to understand, to investigate, to know the hidden design of a natural element, of a painting, of architecture, of an object, of any creative act determining a 'favourable' action. The first commitment for a scholar, and therefore all the more so for a designer, is to know how to investigate and re-knit all those creative invariants present in the tradition of discipline to produce and add a new chapter of creativity. For a 'designer' the field of action does not vary as the scale changes from object to city and vice versa.

In the inaugural Lecture given at the Collège de France in 1977, Roland Barthes, through the metaphor of the child and the mother, establishes the limit of that area of interpretation of the city for a contemporary project: « [...] I would therefore like the words and the listening that will be intertwined here to resemble the coming and going of a child who plays around his mother, who moves away from her, then comes back to her to bring her a stone, a thread of wool, tracing in this way around a safe centre an entire play area, within which the stone, the wool, after all, imports less than the gift that is made with them» (Barthes, 1978, p. 9). If in Barthes' metaphor the mother is the city or the history of design, then the child is the figure of the creative person who finds in the cultural habitat all those objects of knowledge to be able to add a new chapter, but always in continuity, even episodic, with the identity matrix physically

represented, in this case, in the city. Roland Barthes' inaugural lecture wanted to clarify his approach to creativity in a broad sense, warning students that nothing comes from nothing, but that everything comes from something else already thought and conceived before.

The interdisciplinary nature of references often effectively resolves the design of an object through a process of transformation and alienation capable of exalting those aspects that in the original reference was either relegated to a secondary role or not exalted. In its design transfer the character of an object regains a new life often for completely different uses. George Nelson's 1960 Sling sofa (Figg. 6, 7), produced by Herman Miller, is a fitting example of how references from different interpretations can become creative ingredients for producing a completely different object. Nelson was attracted and fascinated by the design of the seats in his Citroën 2CV (Fig. 8) and this interest led to the design of the Sling sofa seat.

But at the same time his interest in Marcel Breuer's work led him to use the 1925 curved metal tube as the structure of his new sofa, triggering an assembly of two citations: one taken from the automotive industry, the other from the innovation of a father of modern design. The result of this combination is a furnishing element that is an excellent example of advanced technique and detachment from the two previous designs, made of tubular metal and padded respectively. If analysis means 'starting to design', then a compositional technique for mutation as a design practice is certainly that of 'tracing plots'. A transversal technique in the field of design because it is the

Figg. 6, 7 | George Nelson, sofa 'Sling', 1960 (source: www.sbandiu.com).

Fig. 8 | Citroen 2 Cv, 1948 (source: commons.wikimedia.org).

narrative tool, whether we are talking about literature or architecture and design.

Gianni Rodari (1992), in Grammatica della Fantasia, effectively introduced, for those who want to learn how to tell or write 'stories', the technique of 'tracing' with which one obtains from an old fairy tale 'a new fairy tale in various degrees of recognizability, or with total transfer to a foreign land'. The procedure has illustrious precedents, among which is the illustrious Joyan tracing of the Odyssey. Reduced to a game, the procedure loses nothing of its nobility and its capacity for excitement. A well-known fairy tale is reduced to the pure plot of her story and her internal relations: «Cinderella lives with her stepmother and sisters [...]». The second operation consists in further reducing the plot to a purely abstract expression: «A lives in B's house in a different relationship from C and D who also live together [...]». Let us now give the abstract expression a new interpretation and we can obtain, for example, this scheme: «Delfina is the poor relative of Mrs Notabilis […]» (Rodari, 1992, pp. 66, 67).

In this example, the second operation, the abstraction of the formula of the given fairy tale, seems almost superfluous, so much so that the new fairy tale follows the first one, introducing simple variations. If we try, once we have obtained the formula, to forget as much as possible the original fable, we can arrive at this suggestion: «[...] the boy Charles is the groom of the Count» (Rodari, 1992, p. 67). And with this we are far enough away from the original Cinderella who enters the new story in-depth, like a secret fabric, to live in her innards and inspire unthought-of things from there. The essential moment of the Ricalco is the analysis of the given fairy tale. An operation that is both analytical and synthetic and goes from the concrete to the abstract and from there back to the concrete. The possibility of such an operation arises from the very nature of the fairy tale. From its structure strongly characterized by the presence, the return, the repetition of certain compositional elements that we can also call themes. This compositional technique, precisely because of its ultimate goal, knowing how to tell stories, can be applied to many artistic disciplines or belonging to the creative world.

Architecture, like design, cannot therefore be exempt from its application in the composition of the project, assuming in-depth knowledge of ancient as well as contemporary architectural culture. In continuity with the metaphorical reference to Rodari's 'tracing plots' (1992), the first operation consists in transforming a building, or rather an architectural work to the 'pure plot of its history and its internal relations'. In architecture, a fitting example of 'tracing plots' is the comparison between the 'Malcontenta' by Palladio (Villa Foscari in Gambarare, Mira, Italy) and Villa Stein by Le Corbusier in Garches.

In his essay The Mathematics of the Ideal Villa and Other Essays, Colin Rowe (1977) geometrically demonstrated the exact architectural correspondence between these works, which are so distant from each other, both in terms of stylistic language and, above all, in terms of the period they belonged to. Perhaps the epoch in which these two works were conceived is the most discriminating magical demonstration that there exists in the composition a road that leads to the narrative beyond the image and peculiarities of the time, always marginal and culturally static due to an inherent necessity in man to always set cultural and social rules. In this case we are witnessing a real process of 'mutation' at the macro scale, referring to the experience of the search for the hidden and invisible plot of the Boulbon panel and the entrance door to Rochamp: the multiscale project from micro to macro scale. It might seem heresy to compare these two architectural works so distant from each other in terms of age, style and technology, but knowing Le Corbusier's

Fig. 9 | Michele De Lucchi, 'Tolomeo', 1987 (source: www.artemide.com).

search for ‘rules’, the suspicion that it may be a ‘tracing plot’ may be legitimate.

Rowe applies an accurate scientific research by identifying, through the relationships between the parts and among them and the whole, an identical musical score without worrying about the instruments, such as the constructive technology or the eighteenth-century organizational setting of symmetry, against the search for asymmetry of the early twentieth century: both attitudes are aimed at the definition of Beauty, but in ages and styles distant from each other. It is a scientific analysis of a surgical nature made by Le Corbusier on Palladio’s Malcontenta to identify those compositional plots that secretly structure this important chapter of architectural culture.

The parallel comparison is impressive both for the organization of the plants and for the definition of volumes and elevations. In the plans, even in the presence of completely different structural technologies, a sequence of steps and identical spaces emerges through the alternating rhythm A-B-A-B-A and consequently also the distribution of spaces, up to the position of the staircase, underline embarrassing equality. Asymmetrical planimetry is identified with another asymmetrical planimetry hiding within them a completely identical rule and rhythm. Even the size of the external staircase is part of this path of identity more as a role of passage, as a filter between the outside and the inside, than as a planimetric position that becomes superfluous, but perhaps the aspect in which this historical and stylistic distance is most evident are the elevations: the image. In this case it is like being in the presence of the writing of the first ‘fable’ and the one derived through the

Fig. 10 | Jac Jacobsen, ‘Naska Loris’, 1937 (credit: FontanaArte Spa).

game of ‘tracing plots’: a known fairy tale is reduced to the pure plot of its story and its internal relations. The relationship between solids and voids follows the same ‘plot’ both vertically and horizontally while maintaining each one its particular expressive singularity linked to history and to the architect who conceived them, but this does not alter the fact that in both the architectural DNA is the same: A : B = B (A+B).

For ‘mutation’, as an interdisciplinary and therefore multiscale process, the greatest danger is formalism and aesthetic complacency, the ambition of the final product regardless of the scale of realization. Design requires an ethical approach based on research for the clarity of the final message in which self-referential invention cannot find room for manoeuvre as Giovanni Michelucci recalls (cit. in Barocchi, 1990): «[…] stylistic perfection, invention or structural purity have never had any interest for me. On the contrary, what convinced and convinced me most in a work are the ‘ruptures’, the signs of thought suddenly coming to a halt as new possibilities, new paths to take». The search for ‘new possibilities’ or creative and compositional paths is the intrinsic aim of the multiscalar ‘mutation’. In this sense there are two designers Michele De Lucchi and Martino Gamper, so different for the type of research and final product, but equally equal in the process of knowledge of what has already been done before, following the cultural path of Bruno Munari (1998, p. 132): «[...] When someone says this I can do it too, it means that I can do it again, otherwise I would have done it before».

Fig. 11 | Richard Sapper, ‘Tizio’, 1972 (source: www.artemide.com).

Figg. 12, 13 | Martino Gamper, '100 chairs in 100 days', 2009 (source: joyofdesign.cargo.site).

The evolution of the project | Michele De Lucchi, in contrast to the egocentricity of the designer who waits for the critic and the researcher who knows how to find and tie the mesh of a design hidden from the present, honestly already declares the genesis of his Ptolemy: «[...] I did the Ptolemy because I had always had a Naska Loris in front of me and I thought 'I want to do a Naska Loris too'. Richard Sapper had become famous for having designed the Tizio and I said to myself: 'I want to make a Tizio too'. I tried to make a lamp that was a Tizio and a Naska Loris together, I evolved two ex-

isting projects» (Di Nardo and De Lucchi, 2010, p. 45; Figg. 9-11). De Lucchi makes Ptolemy a true manifesto of mutation at all scales, micro and macro, taking an interest in what will happen after the appearance of his lamp through the work of young designers who continue the story with new and ever-changing chapters: «[...] Making something influential means much more than making something that works well, all young people should not worry about copying, but that of being copied» (Di Nardo and De Lucchi, 2010, p. 47).

In Gamper every idea comes from a previous story in which the copy becomes a ploy to understand, know and then create. With the assembly of chairs (Figg. 12, 13), Gamper implements a real cultural revolution in the approach to design, overcoming the limits of recycling to trigger a metaphorical process of mutation of what already exists and which does not lose its meaning through one of the most fascinating techniques, alienation (Annichiarico, 2009). This creative process in which plastic backrests, velvet seats, metal legs, wooden armrests, leather seats, iron feet, etc. are mixed, takes on an important social and aesthetic value. One does not stop individually at pure form or a specific function, but, through a different process of assembly, the common aesthetic hierarchies are subverted, so much to create a short circuit in the public, not only concerning the normal perception of the object, but, more importantly, its symbolic meaning.

His chairs specifically seem to want to communicate their aesthetic value to us at the very moment when they have exhausted their original potential for use. The world in which Gamper rediscovers forgotten forms, interrupted creative desires, functions extinguished by time are the London garbage bins or antique markets in the street. In a different way from De Lucchi, who is more fascinated by the technology and composition of the lamps, Gamper extrapolates from what exists the essence of things by working on the individual parts to be assembled and which have lost their initial value to give a new life to the story: in both the path is one of mutation of the present beyond the final product without worrying about the scale of intervention, but implementing a cultural path of design.

A student, in 1992, during a lecture at the University of Venice, asked Bruno Munari the following question: «[...] since thousands of chairs have been designed [...] does it still make sense to continue designing these things?» Munari answered him provocatively, but pointing out a new way on which to look for different forms of stories: «[...] I made a chair for Zanotta created for very short visits with a very inclined seat. It had no function because this is not a chair but an art object in the shape of a chair». Therefore, the design is not concerned with the scale of intervention but with oxygenating and regenerating the design culture in every age. The contemporary challenge of the contemporary designer is that current modernity does not have long times but seconds of application and verification. Design finds in the ‘mutation’ (Figg. 14-17) the vector of the narrative that manifests itself through the different compositional experiences and that in this reflection ‘from macro to micro’ is expressed through

Figg. 14-17 | Gianluca Gimini, 'Sneakered graphic project', 2017 (source: www.gianlucagimini.it/).

techniques such as ‘tracing plots’; the ‘regulatory paths’, the ‘metaphor’ and the ‘estrangement’ always without worrying about the scale of the conception, but deepening and vitalizing the contemporary ‘design culture’.

As the examples cited demonstrate, the search for a new way of conceiving the contemporary creative and scientific act does not start, as in the past, from the demolition of what has already been defined and experimented, but wants to base precisely on such research an ideological path that can graft contemporary elements to a knowledge that is already structured. For example, it is not a question of choosing technology alone as the solution to renewal, but all those contemporary instances, including the sustainable aspect and response to the climate crisis, that can update a multiscale and multidisciplinary knowledge.

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