



Emerging Mobility Paradigms towards the Resilient Metropolis

edited by
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UNIVERSITÀ

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Table of Contents | Indice

- p. 8 *Foreword*
9 *Prefazione*
Fabrizio Tucci

The Research Project: Concepts, Aims, Methodology, Potentials
Il progetto di ricerca: concetti, obiettivi, metodologia, potenzialità
Part 1 | Parte 1

- 14 *Chasing the Nexus Between Resilience and Mobility in Contemporary Metropolitan Cities. Conceptual Framework and Interpretive Keys*
15 *Alla ricerca del legame tra resilienza e mobilità nelle città metropolitane contemporanee. Quadro concettuale e chiavi interpretative*
Bruno Monardo
- 26 *Mobility Paradigms and operational tools for the resilience of metropolitan cities. Methodology and Research Path*
27 *Paradigmi della mobilità e strumenti operativi per la resilienza delle città metropolitane. Metodologia e percorso di ricerca*
Chiara Ravagnan

Emerging Paradigms toward Urban Resilience. The Mobility Approach in the Metropolitanisation Season
Paradigmi emergenti verso la resilienza urbana. L'approccio alla mobilità nella fase della metropolizzazione
Part 2 | Parte 2

- 42 *Passenger Mobility Policies and Metropolitan Challenges to Reinforce Resilience in European Metropolitan Peripheries*
43 *Politiche di mobilità dei passeggeri e sfide metropolitane per rafforzare la resilienza nelle periferie metropolitane europee*
José M. de Ureña, José M. Coronado
- 66 *Urban Form and Sustainable Mobility. Strategies for Resilience and Anti-fragile Cities*
67 *Forma urbana e mobilità sostenibile. Strategie di resilienza e città anti-fragili*
Mario Cerasoli

- p. 88 *Sustainable Mobility Contentious Politics. An Operational and Critical Research Agenda*
 89 *Politiche conflittuali di mobilità sostenibile. Un'agenda di ricerca critica e operativa*
 Nacima Baron, Enza Lissandrello
- Rethinking Strategies and Tools between Urban Planning and Mobility. Infrastructures as a Regeneration Grid**
 Ripensare strategie e strumenti tra pianificazione e mobilità. Le infrastrutture come griglia di rigenerazione
 Part 3 | Parte 3
- 112 *A Belgian Case Study in Infrastructure as Tool for Resilience. The Linear Pedestrian Development of the New Louvain University Town*
 113 *Un caso studio belga sull'infrastruttura come strumento di resilienza. Lo sviluppo lineare pedonale della città universitaria di Louvain-la-Neuve*
 Pierre Laconte
- 126 *Innovative Mobility Planning between "Polis", "Civitas" and "Urbs". The Bologna Model*
 127 *Bologna: un modello di mobilità innovativa tra "Polis", "Civitas" e "Urbs"*
 Bruno Monardo
- 138 *Integrated Mobility Networks as Frameworks for Urban Regeneration in Milan*
 139 *Reti integrate di mobilità come quadro di riferimento per la rigenerazione urbana a Milano*
 Marika Fior, Paolo Galuzzi
- 158 *Multiscale Inclusive Strategies for Sustainable Mobility in Barcelona Metropolitan Area*
 159 *Strategie inclusive multiscalarari per la mobilità sostenibile nell'Area metropolitana di Barcellona*
 Chiara Amato, Chiara Ravagnan
- 166 *Cycling Mobility as a Means of Improving Access to Education. The Case of the Naples Metropolitan Area*
 167 *Mobilità ciclabile come strumento per migliorare l'accessibilità all'educazione. Il caso dell'area Metropolitana di Napoli*
 Marco Seccaroni, Bruna Vendemmia, Domenico D'Uva
- 182 *Mobility Infrastructures Facing Climate Change Impact. The Case of Genoa*
 183 *Infrastrutture per la mobilità che affrontano l'impatto del cambiamento climatico. Il caso di Genova*
 Andrea Iacomoni
- 196 *Sustainable Mobility & the Commuter Rail. An analysis of SUMP's in the Madrid Urban Region*
 197 *Mobilità sostenibile e rete ferroviaria suburbana. Un'analisi dei PUMS nella regione urbana di Madrid*
 Eloy Solís, Borja Ruiz-Apilánez, Violeta Calvo

-
- p. 218 *Infrastructure Corridors for Territorial Projects. The Contrat d'Axe in France and the Experimentation in Italy*
219 *Corridoi infrastrutturali per progetti territoriali. Il contrat d'axe in Francia e la sperimentazione in Italia*
Chiara Amato
- 238 *Advanced Air Mobility. A New Type of Mobility in Inner Areas for the Creation of Sustainable Landscapes*
239 *Advanced Air Mobility. Un nuovo tipo di mobilità nelle aree interne per la costruzione di paesaggi sostenibili*
Carlo Valorani, Maria Elisabetta Cattaruzza
- 260 *Soft and Hard Law in Mobility Regulation*
261 *Strumenti di regolazione della mobilità tra "soft law" e "hard law"*
Cristiana Lauri
- Research and Experimentation for Resilient Metropolises. The Open Lab "Resilient Paths"**
Ricerca e sperimentazione per metropoli resilienti. Il laboratorio aperto "Percorsi di resilienza"
Part 4 | Parte 4
- 276 *Mobility Infrastructures and Environmental Issues between Research, Didactic Activities and Practices*
277 *Infrastrutture della mobilità e questioni ambientali tra ricerca, didattica e pratiche*
Chiara Ravagnan
- 284 *Rethinking Mobility Networks for a Resilient Waterfront in the Metropolitan Area of Barcelona*
285 *Ripensare le reti di mobilità per un waterfront resiliente nell'area metropolitana di Barcellona*
Ludovica Dangelo
- Results and Open Issues**
Risultati e questioni aperte
Part 5 | Parte 5
- 298 *Redefining Strategies for a Mobility Based Resilience in Metropolitan Cities*
299 *Ridefinire le strategie per una resilienza basata sulla mobilità nelle città metropolitane*
Bruno Monardo, Chiara Ravagnan
- 311 Editors
313 Contributors

Foreword

The centrality of the relationship between resilience and mobility for a sustainable future of contemporary metropolitan cities

The most original feature of this interesting and significant book edited by Bruno Monardo and Chiara Ravagnan is probably embedded in the recognition of the triangled interpretative keys (resilience, mobility, metropolitan cities) and their mutual relationships “exploring the intricate conceptual framework that reflects the complexity of the contemporary settlement reality; it’s a condition in vertiginous evolution in which the traditional European-centred perspective has lost its cogency by the time, leaving space to the global metropolitan city phenomenon all over different continents”.

The volume collects the contributions of scholars, professionals and administrators involved in the theme of urban and territorial regeneration, investigating, with an open eye to interdisciplinarity, the relationships between urban resilience, mobility planning, and the settlement domain, essential for tackling ecological and socio-economic challenges involving the contemporary metropolitan dimension. Present times require the overcoming of the sectoral visions that have guided urban, territorial, and environmental planning for decades, and, at the same time, the need to act at different scales, attributing ever greater importance to the inter-municipal, metropolitan dimension.

In line with the new cultural references and the emerging infrastructural policies, the reflections are aimed at recomposing

cognitive approaches and interpretative paradigms to innovate urban and metropolitan planning, starting from the integration between environmental, morphological, and socio-economic issues, and rethinking new design scenarios towards sustainable and resilient urban space, with the support of new strategic partnership and participatory tools.

Therefore, starting from the contextualization of the different cognitive and planning approaches, the *fil rouge* of the volume pursues the objective of defining methodological and operational references for inter-scalar and integrated regeneration strategies: plans and projects at inter-municipal and metropolitan scale, based on the reconfiguration of the mobility system and public space, in line with the new national and international political demands.

The authors briefly explore the evolutionary path of the term ‘resilience’, today significantly extended to urban and regional planning studies. Within its polysemic nature, as Berkes reminds us, the resilience ontologies have been distinguished as “the amount of change a system can undergo and still retain the same controls on function and structure”, or “the degree to which the system is capable of self-organization”, and “the ability to build and increase the capacity for learning and adaptation”. The book highlights how resilience can be considered the key for rethinking the multiple dimensions of present

Prefazione

La centralità del rapporto tra resilienza e mobilità per un futuro sostenibile delle città metropolitane contemporanee

Il tratto più originale di questo interessante e significativo volume curato da Bruno Monardo e Chiara Ravagnan è probabilmente racchiuso nella triangolazione delle chiavi interpretative (resilienza, mobilità, città metropolitane) e delle loro reciproche relazioni «esplorando l'intricato quadro concettuale che riflette la complessità della realtà insediativa contemporanea; una condizione in vertiginosa evoluzione in cui la tradizionale prospettiva centrata sull'Europa ha perso nel tempo la sua cogenza, lasciando spazio al fenomeno globale delle città metropolitane nei diversi continenti».

Il volume raccoglie i contributi di studiosi, professionisti e amministratori impegnati sul tema della rigenerazione urbana e territoriale, indagando, con uno sguardo aperto all'interdisciplinarietà, le relazioni tra resilienza urbana, pianificazione della mobilità e insediamenti, essenziali per affrontare le problematiche ecologiche e sfide socio-economiche che coinvolgono la dimensione metropolitana contemporanea. I tempi attuali richiedono il superamento delle visioni settoriali che hanno guidato per decenni la pianificazione urbana, territoriale e ambientale e, al tempo stesso, la necessità di agire a scale diverse, attribuendo sempre maggiore importanza alla dimensione intercomunale e metropolitana.

In linea con i nuovi riferimenti culturali e le politiche infrastrutturali emergenti, le riflessioni sono volte a ricomporre approcci

conoscitivi e paradigmi interpretativi per innovare la pianificazione urbana e metropolitana, partendo dall'integrazione tra questioni ambientali, morfologiche, socio-economiche, e ripensare nuovi scenari verso uno spazio urbano sostenibile e resiliente, con il supporto di nuovi partenariati strategici e strumenti partecipativi.

Partendo quindi dalla contestualizzazione dei diversi approcci conoscitivi e progettuali, il *fil rouge* del volume persegue l'obiettivo di definire riferimenti metodologici e operativi per strategie di rigenerazione interscalari e integrate: piani e progetti a scala intercomunale e metropolitana, basati sulla riconfigurazione del sistema della mobilità e dello spazio pubblico, in linea con le nuove istanze politiche nazionali e internazionali.

Gli autori esplorano sinteticamente il percorso evolutivo del termine "resilienza", oggi significativamente esteso agli studi di pianificazione urbana e territoriale. All'interno della sua natura polisemica, come ci ricorda Berkes, le ontologie di resilienza sono state distinte come «la quantità di cambiamento a cui un sistema può essere sottoposto pur mantenendo gli stessi controlli su funzione e struttura», o «il grado in cui il sistema è capace di auto-organizzarsi» e «la capacità di costruire e aumentare i livelli di apprendimento e adattamento». Il libro evidenzia come la resilienza possa essere considerata la chiave per ripensare le molteplici dimensioni delle attua-

European metropolitan cities within the holistic approach framework, combining spatial, environmental, social, and institutional issues, exploring in particular strategies and specific mobility tools (Sustainable Urban Mobility Plans) between public, green and movement spaces. Resilience in the present times, marked by the explosion of threatening global phenomena and emerging crucial issues (as climate change disasters, mass migrations, pandemics, wars...), paradoxically represents a powerful opportunity to boost new paradigms in urban and metropolitan strategies, as the selected case studies show.

As the editors of this remarkable book demonstrate, “creating resilient cities through effective mobility plans is crucial for ensuring that urban areas can adapt to and recover from emerging challenges. Resilient cities leverage comprehensive mobility plans as a cornerstone for sustainable and adaptable urban and metropolitan regeneration”.

*Fabrizio Tucci*¹

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li città metropolitane europee nel quadro di un approccio olistico, combinando questioni spaziali, ambientali, sociali e istituzionali, esplorando in particolare strategie e specifici strumenti della mobilità (Piani urbani della mobilità sostenibile) tra spazi pubblici, verdi e di movimento. La resilienza nell'epoca attuale, segnata dall'esplosione di minacciosi fenomeni globali e di cruciali questioni emergenti (come i disastri legati al cambiamento climatico, le migrazioni di massa, le pandemie, le guerre...), rappresenta paradossalmente una potente opportunità per rilanciare nuovi paradigmi nelle strategie urbane e metropolitane, come illustrano i casi studio selezionati.

Come dimostrano i curatori di questo pregevole volume, «creare città resilienti attraverso piani di mobilità efficaci è fondamentale per garantire che le aree urbane possano adattarsi e riprendersi dalle sfide emergenti. Le città resilienti sfruttano i piani integrati della mobilità come pietra angolare per una rigenerazione urbana e metropolitana sostenibile e adattabile».

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The Research Project:
Concepts, Aims, Methodology, Potentials

Part 1

Il progetto di ricerca:
concetti, obiettivi, metodologia, potenzialità

Parte 1

Chasing the Nexus Between Resilience and Mobility in Contemporary Metropolitan Cities

Conceptual Framework and Interpretive Keys

Bruno Monardo

The interpretative keys of the research project, whose results are synthesised by the contributions in this book, aim at exploring the intricate conceptual framework that reflects the complexity of the contemporary settlement reality; it's a condition in vertiginous evolution in which the traditional European-centred perspective has lost its cogency by the time, leaving space to the global metropolitan city phenomenon all over different continents. The European urban realities are looking for a new identity while tackling the emerging challenges related to the global critical issues that humanity has been experiencing since the previous Century.

It is well known that the 20th Century has been defined "short" (Hobsbawm 1994) arguing that historically – even if not temporally – its real beginning could be postponed to the end of the First World War with the fall of the "Great empires." If we follow this interpretation, the 20th Century, after plenty of other dreadful tragedies (the second devastating world conflict, the nuclear threat during the "cold war," the energy crises), is supposed to having come to its end with the "real socialism" sunset in 1989 followed by the fast rise and sudden decline of the new "progressive era" and its prosperity certainties. The first decades of the 21st Century have presented a no less dense sequence of critical issues, from the global terrorism to the financial crisis, from the climate change disasters to the pandemic sea-

son up to new dangerous conflicts, all events threatening political, socio-economic and environmental stability at planetary level.

Since the very beginning of the 21st Century the policymaking sensitiveness and the scientific disciplinary debate about the evolution of contemporary settlement policies have mostly focused on the present and future role of urban and metropolitan areas as steady and at the same time flexible ramparts against the harmful effects of recurrent systemic crises.

Within the contradictory kaleidoscope depicted by such a scenario, a multifaceted debate has been developed about the capacity of decision makers and their communities to set up virtuous policies and effective strategies in order to face, tackle, mitigate and manage the shocks of recurrent global crises, starting from a particular attention on the human settlement challenges and their undeniable entanglement with at least the key issues of resilience and mobility.

1. Resilience: an Evolutionary Concept

If we try to reconstruct the "resilience" concept starting from the original root of the term, it is immediate to focus its "horizontal-ity," a rare capacity to assume in time a polysemic dimension.

How can we trace the crucial steps of the concept evolution from the origin up to the

Alla ricerca del legame tra resilienza e mobilità nelle città metropolitane contemporanee

Quadro concettuale e chiavi interpretative

Bruno Monardo

Le chiavi interpretative del progetto di ricerca, i cui risultati sono sintetizzati dai contributi raccolti in questo volume, mirano a esplorare l'intricato quadro concettuale che riflette la complessità della realtà insediativa contemporanea; si tratta di una condizione in vertiginosa evoluzione, in cui la tradizionale prospettiva eurocentrica ha perso la propria forza di persuasione, lasciando spazio al fenomeno globale della città metropolitana nei diversi continenti. Le realtà urbane europee sono alla ricerca di una nuova identità, mentre sono impegnate ad affrontare le sfide emergenti legate alle criticità globali che l'umanità ha iniziato a sperimentare a partire dal secolo scorso.

Hobsbawm, nel 1994, ha definito il XX secolo come "il secolo breve" asserendo che storicamente – anche se non temporalmente – il suo vero inizio potrebbe essere posticipato alla fine della Prima guerra mondiale con la caduta dei "grandi imperi". Se seguiamo questa interpretazione, il XX secolo, dopo tante altre terribili tragedie (il secondo devastante conflitto mondiale, la minaccia nucleare durante la Guerra fredda, le crisi energetiche), dovrebbe essere giunto alla sua fine con il tramonto del "socialismo reale" nel 1989, seguito dalla rapida ascesa e dall'improvviso declino della nuova "era progressista" e delle sue certezze di prosperità. I primi decenni del XXI secolo hanno presentato una sequenza non meno fitta di criticità – dal terrorismo globale alla crisi finanziaria, dai disastri legati al cambiamento climatico alla sta-

gione pandemica, fino a nuovi pericolosi conflitti –, tutti eventi che minacciano la stabilità politica, socioeconomica e ambientale a livello planetario.

Fin dall'inizio del XXI secolo la sensibilità dei policy maker e il dibattito scientifico disciplinare sull'evoluzione delle politiche insediative contemporanee si sono concentrati soprattutto sul ruolo presente e futuro delle aree urbane e metropolitane come baluardi stabili, e allo stesso tempo flessibili, contro gli effetti dannosi delle ricorrenti crisi sistemiche.

All'interno del contraddittorio caleidoscopio rappresentato da un simile scenario, si è sviluppato un poliedrico dibattito sulla capacità dei decisori e delle loro comunità di introdurre politiche virtuose e strategie efficaci per affrontare, fronteggiare, mitigare e gestire i colpi delle ricorrenti crisi globali, a partire da una particolare attenzione alle sfide degli insediamenti umani e al loro innegabile collegamento con i temi chiave della resilienza e della mobilità.

1. La resilienza: un concetto evolutivo

Se proviamo a ricostruire il concetto di "resilienza" partendo dalla radice originaria del termine, riusciamo immediatamente a mettere a fuoco la sua "orizzontalità", una rara capacità di assumere nel tempo una dimensione polisemica.

Come possiamo tracciare le tappe cruciali dell'evoluzione del concetto dalle origini fino al

domain of urban and regional studies? It is not in the purpose of these notes to deepen in detail our understanding about the conditions that addressed the use and diffusion of the term in its long path from the antiquity to contemporary times, however, it is useful to shortly draw some “milestones” which represent undoubtedly an evolutionary leap in enrichment and complexification compared to the original concept.

The numerous reflections produced in the last decades in parallel with the rising success of the “resilience idea” can help us. The rich literature dealing with the evolutionary concept highlights its versatility which allowed over time a multidisciplinary diffusion.

There are different interpretations about the origin and the first use of the term, however, starting from the etymological level, there is no doubt that the root of the word “resilience” stems from Latin *resilire* namely “to bounce,” hence the immediate idea of a cycle process that begins with a primary action and develops itself through “bouncing back” or “reflective” effects.

Although the majority of scientific contributions converge on the Latin origin, some authors highlighted intriguing prodromic links with the ancient Greek Stoicism philosophers’ school, in which “resilience” is not only a sort of “detachment” attitude or the ability to withstand the shocks of life, but also the strength to transform challenges into opportunities to growth.

However, as argued before, the convergent interpretation by the majority of scholars identifies the mature development of the concept in the Latin domain (Alexander 2013, Indirli 2019). Some experts have argued about the use of the verb *resilire* by plenty of Latin authors dealing with diverse topics and heterogeneous semantic contexts, from architecture (Marcus Vitruvius Pollio) to philosophy (Titus Lucretius Carus, Lucius Anneus Seneca), from natural science (Plinius Secundus Maior) to poetry (Publius Ovidius Naso), from politics (Marcus Tullius Cicero) to histo-

ry (Titus Livius). According to some positions (Pizzo 2015) the first trace of the term can be observed in the Latin poem *De rerum natura* by Titus Lucretius Carus, who had used the verb *resilire* in order to explain the complex processes related to the action of Nature.

The term kept on appearing in the Latin language in many other classical and medieval authors from Plutarch to St. Jerome and later to Guido da Pisa and Pietro Alighieri (Dante’s son) in their commentaries to the *Divina Commedia*. David Alexander argues how the term passed into Middle French idiom (*résiler*) with the meaning of “to retract” or “to cancel” and across the Channel it was introduced in English. The verb “to resilire” is present in the State Papers of the king Henry VIII concerning his troubles in his first wedding with Catherine of Aragon: the sense of the verb was referred to the action of “retracting,” namely returning to a former position. From then on, within the English idiom domain, the term “resilience” had a great diffusion, widespreading its use in important writings as the famous compendium of natural history *Sylva Sylvarum* by Sir Francis Bacon, both in English and Latin. With the prodromes of the industrial revolution in the rising Western scientific culture, resilience was referred to physical properties (object rebounding, body elasticity, energy absorption, return to original shape after deformation impact, and so on). The term began to be used in engineering and mechanics fields linking strength, ductility, and resilience of beams (Tredgold 1824; Rankine 1858), spreading immediately to the construction practice and industrial processes.

dominio degli studi urbani e regionali? Il fine di queste note non è approfondire nel dettaglio le condizioni che hanno indirizzato l'uso e la diffusione del termine nel suo lungo percorso dall'antichità all'epoca contemporanea; tuttavia, è utile tracciare brevemente alcune "tappe fondamentali" che rappresentano senza dubbio un salto evolutivo di arricchimento e complessificazione rispetto al concetto originario.

Le numerose riflessioni emerse negli ultimi decenni, in concomitanza con il crescente successo dell'idea di resilienza, possono venirci in soccorso. La fiorente letteratura che si è occupata dell'evoluzione del concetto evidenzia la sua versatilità, versatilità che ne ha consentito nel tempo una diffusione multidisciplinare.

Ci sono diverse interpretazioni sull'origine e sul primo uso del termine; tuttavia, a partire dal livello etimologico, non c'è dubbio che la radice della parola "resilienza" derivi dal latino *resilire*, cioè, "saltare indietro"; da qui l'idea immediata di un processo ciclico che inizia con un'azione primaria e si sviluppa attraverso effetti "rimbalzanti" o "riflessivi".

Sebbene la maggior parte dei contributi scientifici converga sull'origine latina, alcuni autori hanno evidenziato legami prodromici interessanti con l'antica scuola filosofica greca dello Stoicismo, in cui la "resilienza" non è solo una sorta di atteggiamento di "distacco" o la capacità di resistere ai colpi della vita, ma anche la forza di trasformare le sfide in opportunità di crescita.

Tuttavia, come sostenuto in precedenza, l'interpretazione convergente della maggior parte degli studiosi identifica lo sviluppo maturo del concetto in ambito latino (Alexander 2013, Indirli 2019). Alcuni studiosi hanno dibattuto sull'uso del verbo *resilire* da parte di numerosi autori latini che trattano temi diversi e contesti semantici eterogenei, dall'architettura (Marcus Vitruvius Pollio) alla filosofia (Titus Lucretius Carus, Lucius Anneus Seneca), dalle scienze naturali (Plinius Secundus Maior) alla poesia (Publius Ovidius Naso), dalla politica (Marcus Tullius Cicero) alla storia (Titus Livius). Secondo alcuni studiosi (Pizzo 2015), la prima

traccia del termine è riscontrabile nel poema latino *De rerum natura* di Tito Lucrezio Caro, che aveva usato il verbo *resilire* per spiegare i complessi processi legati all'azione della Natura.

Il termine continuò a comparire nella lingua latina in molti altri autori classici e medievali, da Plutarco a San Girolamo, e poi a Guido da Pisa e Pietro Alighieri (figlio di Dante) nei loro commenti alla *Divina Commedia*. David Alexander sostiene come il termine sia passato nell'idioma del francese medio (*résiler*) con il significato di "ritrarre" o "annullare", per poi essere introdotto oltremarina anche nella lingua inglese. Il verbo *to resile* è presente nelle Carte di Stato del re Enrico VIII in relazione ai problemi che hanno caratterizzato il suo primo matrimonio con Caterina d'Aragona: il senso del verbo era riferito all'azione di "disdire", cioè, tornare a una posizione precedente. Da quel momento in poi, nel dominio dell'idioma inglese, il termine "resilienza" ebbe una grande diffusione, e lo si ritrovò in importanti scritti come il famoso compendio di storia naturale *Sylva Sylvarum* di sir Francis Bacon, sia in inglese che in latino. Con i prodromi della rivoluzione industriale nella nascente cultura scientifica occidentale, la resilienza fu rinviata alle proprietà fisiche (rimbalzo dell'oggetto, elasticità del corpo, assorbimento di energia, ritorno alla forma originale dopo l'impatto con la deformazione e così via). Il termine cominciò a essere utilizzato in ambito ingegneristico e meccanico collegando resistenza, duttilità e resilienza delle travi (Tredgold 1824; Rankine 1858), diffondendosi immediatamente alla pratica edilizia e ai processi industriali.

Editors

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