Herzlich Willkommen

Markus Schröppel

Professor, Doctor of Arts, Diplom Designer;
Visuelle Kommunikation

Media
University
of Applied Sciences

ADR
Designwissenschaftliches Arbeiten

Wissens-transfer

Die ADR Pilgerreise beschreibt den iterativen Prozess der Forschung im Design. Sie teilen ihre Erfahrungen, Erkenntnisse und praktischen Tipps auf einer anspruchsvollen und lohnenden Reise. Das Modul ist als Informations-austausch mit anderen Studierenden gedacht. Die ADR Pilgerreise wird ein fortlaufendes Projekt.

Value Through Design

Methodologie und Methodik

Theorie und Praxis im Dialog:

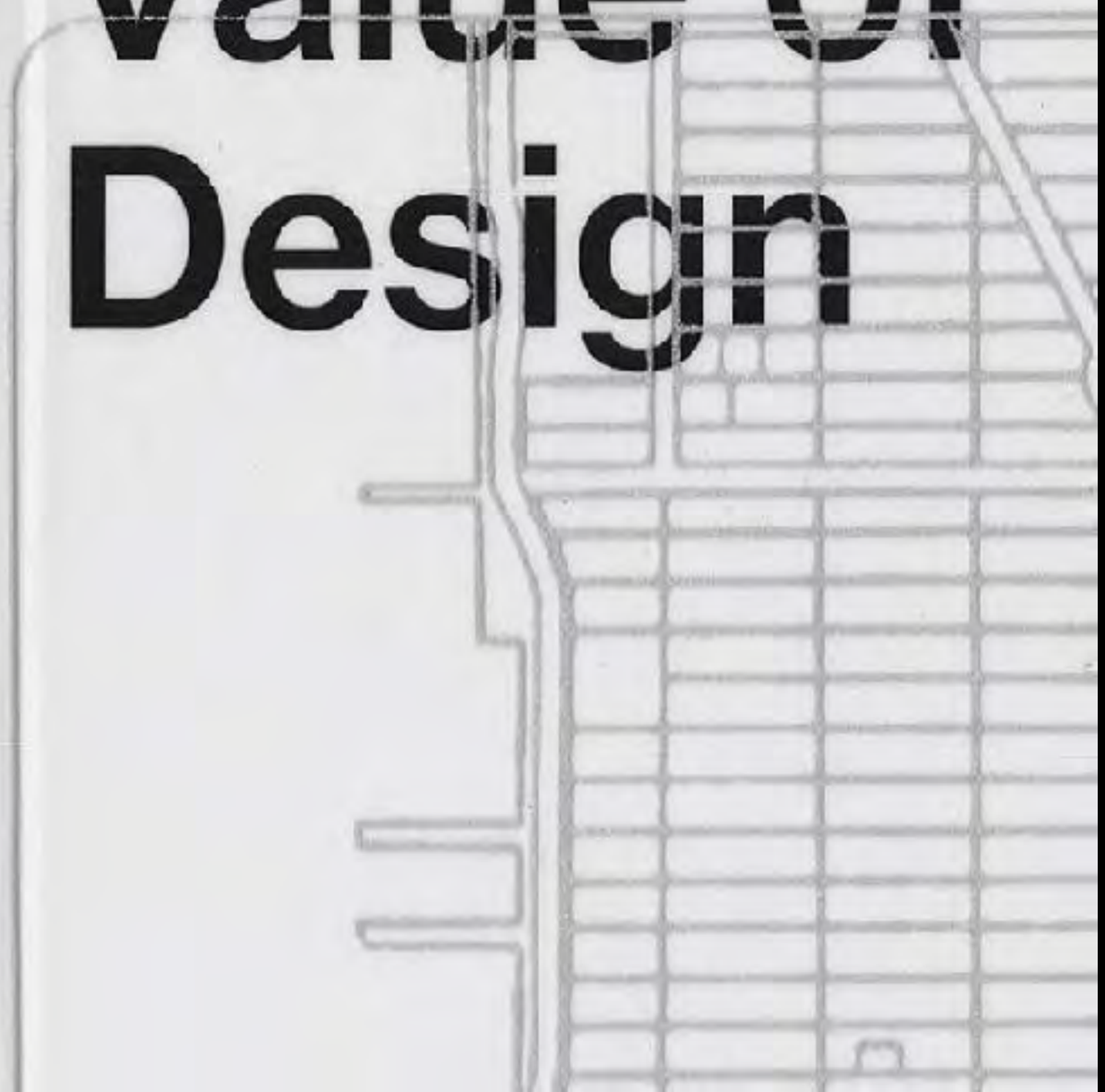
Entwerfen + Reflexion + Nutzer / Erfahrung kombinieren, so dass Designs bedeutungsvoll und wirksam sind.

Value of Design: Creating Agency Through Data-Driven Insights

Value of Design: Creating Agency Through Data-Driven Insights

Die Brücke zwischen Design und Wirtschaft/Immobilien

Value of Design



Value of Design: Creating Agency Through Data-Driven Insights

- Das Buch zeigt, dass Design nicht nur ästhetische oder funktionale Qualität hat, sondern wirtschaftlich und wertsteigernd sein kann – z.B. in der Immobilienbewertung. (valueofdesign.mit.edu)
- Es handelt sich darum, dass Merkmale wie Tageslicht, Aussicht, Grünflächen, gestalterische Besonderheiten in Gebäuden oder Quartieren messbare Effekte auf Mietpreise oder Verkaufspreise haben. (valueofdesign.mit.edu)


Value of Design
Creating Agency Through Data-Driven Insights
Dr. Andrea Chegut, Minkoo Kang, Helena Rong, and Juncheng "Tony" Yang
A R + D

Value of Design: Creating Agency Through Data-Driven Insights

Für Studierende: Das heißt, Designentscheidungen sollten nicht nur aus gestalterischer oder programmatischer Sicht gedacht werden, sondern auch mit Blick auf Wirkung, Wert und Nachwirkung.

Fig. 15 **Building Design Performance Metrics**

Spatial Flexibility

Spatial flexibility, which refers to the transformative quality of a space to assume more than a single function, has been an enduring inspiration for architects. It has been appreciated as a cost-effective response to the changing needs of the users and a crucial factor in increasing a building's longevity.[44] For office spaces, "flexible space" has been used to describe a number of office types used by occupants to increase portfolio flexibility, foster collaboration among different teams, and reduce occupancy costs. Among these office types, co-working spaces and incubators are the most prevalent and increasingly well-known solutions to enhance spatial flexibility. Fig. 16

Suggestion for Measurement

- Measure the total surface area of a building which has more than one programmatic function

44 E. Sarah Slaughter, "Design Strategies to Increase Building Flexibility," *Building Research and Information* 29, no. 3 (May 1, 2001): 208–17

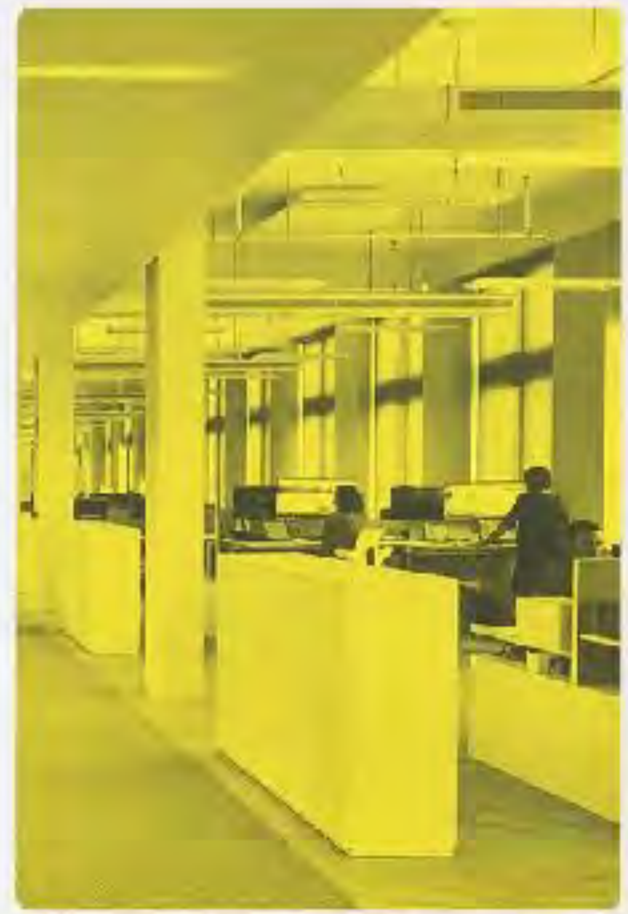
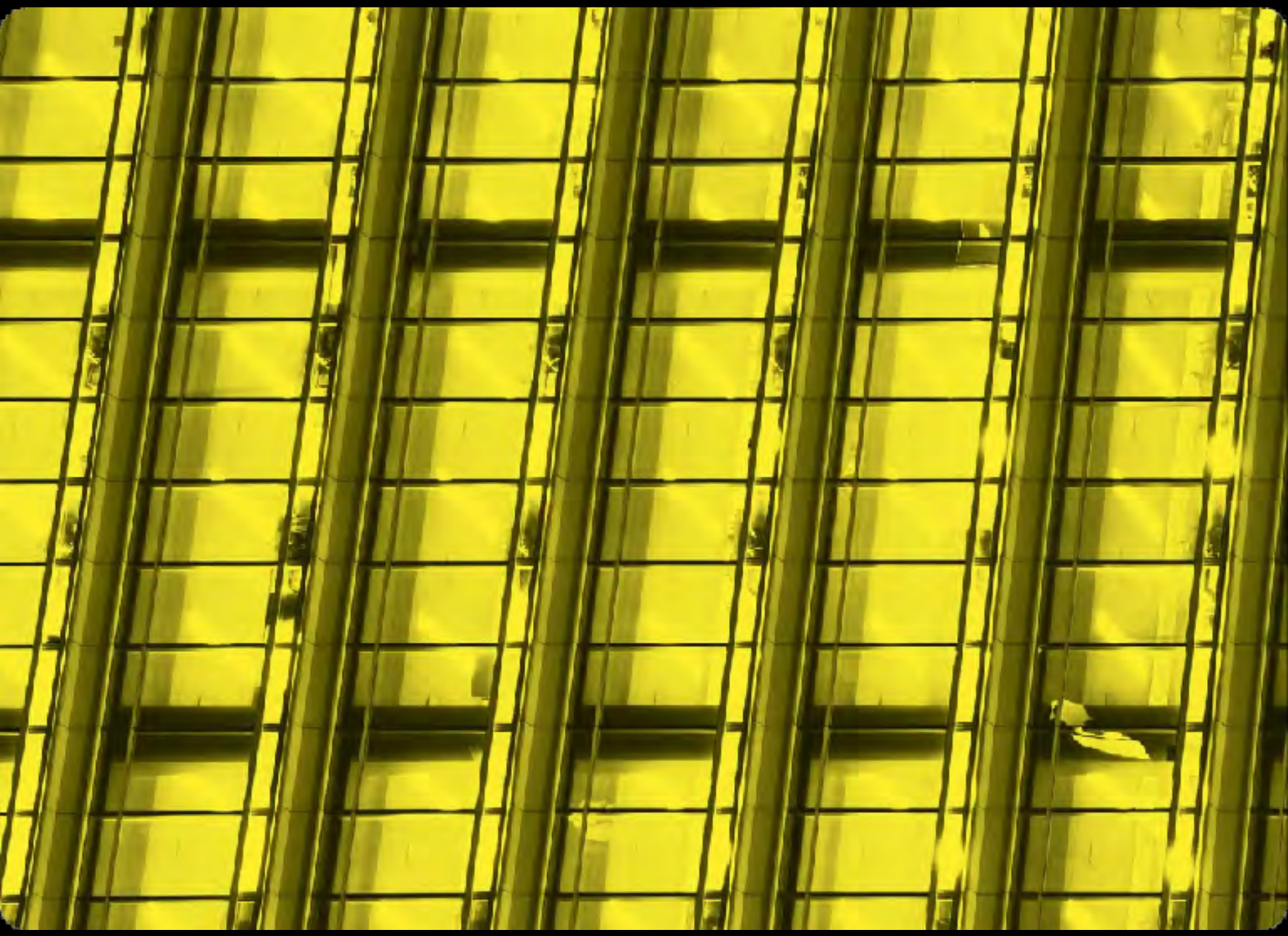


Fig. 16 **Open Plan Office Interior**



Value of Design: Creating Agency Through Data-Driven Insights

Für Studierende: Das heißt, Designentscheidungen sollten nicht nur aus gestalterischer oder programmatischer Sicht gedacht werden, sondern auch mit Blick auf Wirkung, Wert und Nachwirkung. **Es lohnt sich, solche „nicht-offensichtlichen“ Effekte mit zu denken.**


Value of Design
Creating Agency Through Data-Driven Insights
Dr. Andrea Chegut, Minkoo Kang, Helena Rong, and Juncheng "Tony" Yang

Daten, Methoden und Nachweislichkeit

- Die Autor*innen nutzen empirische Forschung, Datenanalyse, Methoden wie Hedonic Regression, computergestützte Auswertung (z.B. Bilddaten, Mobilitätsdaten, NLP) um zu zeigen, wie Design quantitativ bewertet werden kann. (valueofdesign.mit.edu)
- Beispiel: Grünanteile an Straßenfront, Sichtachsen, Tageslichtverhältnisse wurden in Studien als Einflussgrößen auf Immobilienwerte nachgewiesen. (realestateinnovationlab.mit.edu)

Fig. 04 **GVI Captures the Visually Perceived Density of Greenery at the Street Level**

[illegible]

show that visible street greenery and street accessibility in cities across the globe have a positive economic impact, with a significant positive coefficient for housing prices. [illegible]

Using this method, we were able to calculate the GVI for specific buildings in New York. We then paired the GVI data with over 1,400 rental transaction data and over 7,400 sale transaction data, and found that offices located in "low," "medium," and "high" street level greenness obtained a [illegible], 10%, and [illegible] price premium for sale transactions, and a 7.6%, 4.1%, and 5.0% price premium for leasing transactions, respectively, compared to those offices that were spatially correlated with virtually no greenery. [illegible]

[illegible]

Fig. 05 **GVI Identification Process**

[illegible]

patrons of the new building typology and single buildings achieving increased significance in terms of their physical and investment size, it opened new opportunities for real estate developers as well as architects to have greater impact in shaping the city.

The subsequent text offers an overview of Manhattan's real estate market, tracing its evolution from the inception of skyscraper construction in the late 20th century. It unfolds through narratives centered around the development of select prominent buildings. These structures played a significant role in shaping the operational landscape of real estate development and have also been instrumental in molding the evolving values attributed to the collaborative designs crafted by developers and architects.

The Equitable Life Assurance Building (1870)

Between 1870 and 1913, Manhattan's skyline drastically transformed from a city defined by four to five-story buildings to a metropolis of 50-story skyscrapers.[30] The burgeoning life insurance industry fueled the rapid growth of office towers. During the first half of the 19th century, insurance companies were often temporary and operated from simple storefronts.[31] It was only in the late 1800s that large, stable insurance companies emerged, and they embraced the new skyscraper typology which could showcase their significance as well as convey reliability and safety to the public. (Fig. 6)

The Equitable Life Assurance Building is considered the catalyst of such a trend. The building was located at 120 Broadway, rising seven stories above ground, with a height of approximately 140 feet. It was an immediate financial success upon completion. Thousands of people visited daily to experience the world's first passenger elevator. The basement and first floor were occupied by banks. The 50 office units on the fourth, fifth, and sixth floor were exclusively occupied by lawyers. The top floor's rent was twice the amount of the other floors. Architect George B. Post, who consulted on the building's design, became the first tenant of the premium space, which had an unobstructed panoramic view of the city. The ingenious financial engineering of renting out the building allowed the Equitable Life Assurance Society, both the *owner* and *developer*, to occupy the *entire* second and third floor rent-free. In the

30 Sarah Bradford Landau and Carl W. Condit, *Rise of the New York Skyscraper 1865-1913* (New Haven: Yale University Press, 1996).
31 *Severini, The architecture of Finance*, 13-16.

Fig. 6 **The Equitable Life Assurance Building, Arthur Gilman and Edward H. Kendall, 1870, New York**

Sidewalks

In the built environment, the street is a political site of both public engagement and contestation, and space for building trust and inclusion, which according to Jane Jacobs, "... must not only defend the city against predatory strangers, they must also protect the many, many peaceable and well-meaning strangers who use them, ensuring their safety too as they pass through."[49] In particular, sidewalks are gaining traction in the present discussion of building healthy and walkable cities as a fundamental element of transportation infrastructure [illegible] popular mobility modes such as [illegible] transit.[illegible] [illegible] that everyone gets hurt from "many, many little sidewalk contacts" which together with sidewalk safety, is able to "lower segregation and social discrimination."[50] More recent research from the AARP further emphasizes the benefits associated with well maintained sidewalks and higher walkability, including crime reduction through increased pedestrian activity, encouragement of physical activity which brings benefits to health, support for local businesses in economic centers, and higher housing prices reflecting the growing preference for walkable communities.[51] Attention to measuring sidewalks was also seen within the design and planning community during the COVID-19 pandemic. In 2020, New York-based design technologist Meli Harvey has developed an interactive map that shows the widths of all the sidewalks in New York City to evaluate which areas of the city provide paths wide enough for safe social distancing practices.[52] The resulting visualization unveils a highly uneven landscape of sidewalks across New York's five boroughs. Although the city of New York is hailed to be one of the most walkable cities in the world, its sidewalks are generally very narrow in widths, especially in the oldest parts of Lower Manhattan. During the pandemic, sidewalks with larger widths were able to accommodate outdoor dining spaces to support local restaurant businesses, which became a crucial contribution to the economic survival of the restaurant industry. The design of sidewalks in post-pandemic urban design will become especially important to building healthier, more equitable, and more resilient cities. [illegible]

Suggestion for Measurement – Calculate the width of sidewalks in front of each building using existing Open Street Map (OSM) data or satellite street photographs

49 Jane Jacobs, *The Death and Life of Great American Cities* (New York: Random House, 1961), [illegible]
50 [illegible] "An Evaluation of Sidewalk Availability and [illegible] [illegible]," International Conference on Transportation and Development 2021 [illegible]
51 [illegible]
52 AARP Livable Communities, "AARP [illegible] Fact Sheet: Sidewalks," AARP 2015 accessed December [illegible]
53 [illegible] "Sidewalk Widths NYC," [illegible], accessed December [illegible]

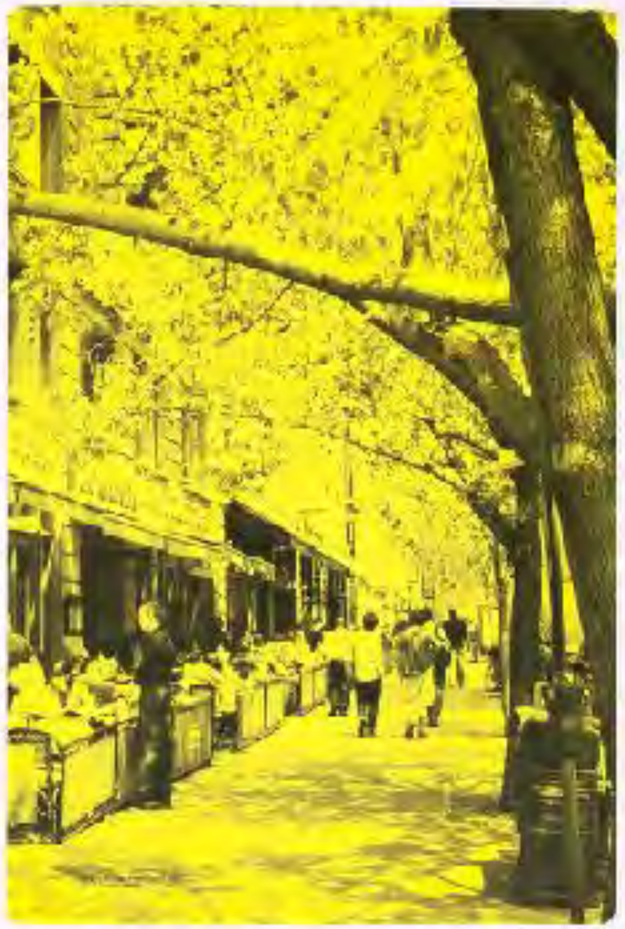


Fig. [illegible] Broadway Sidewalk, New York

Daten, Methoden und Nachweislichkeit

Wenn ihr Design-Thesen aufstellt, kann es hilfreich sein, Daten- und Bewertungsmethodiken mitzudenken:

Daten, Methoden und Nachweislichkeit

Wenn ihr Design-Thesen aufstellt, kann es hilfreich sein, Daten- und Bewertungsmethodiken mitzudenken: **Wie könnte ich eine Gestaltungslösung messen, evaluieren oder argumentativ absichern? Das stärkt Ihre Projekte gegenüber rein subjektiven Bewertungen.**

Designqualität als strategische Ressource

- Das Buch argumentiert, dass Design nicht nur optional oder „nice to have" ist, sondern eine strategische Ressource – etwa zur Differenzierung auf dem Markt, zur Markenbildung von Immobilien, zur nachhaltigen Stadtentwicklung. (ACC Art Books UK)
- Außerdem wird betont, dass Designentscheidungen Wirkung auf soziale, ökologische und stadtstrukturale Aspekte haben – also nicht nur auf den finanziellen Wert. (valueofdesign.mit.edu)

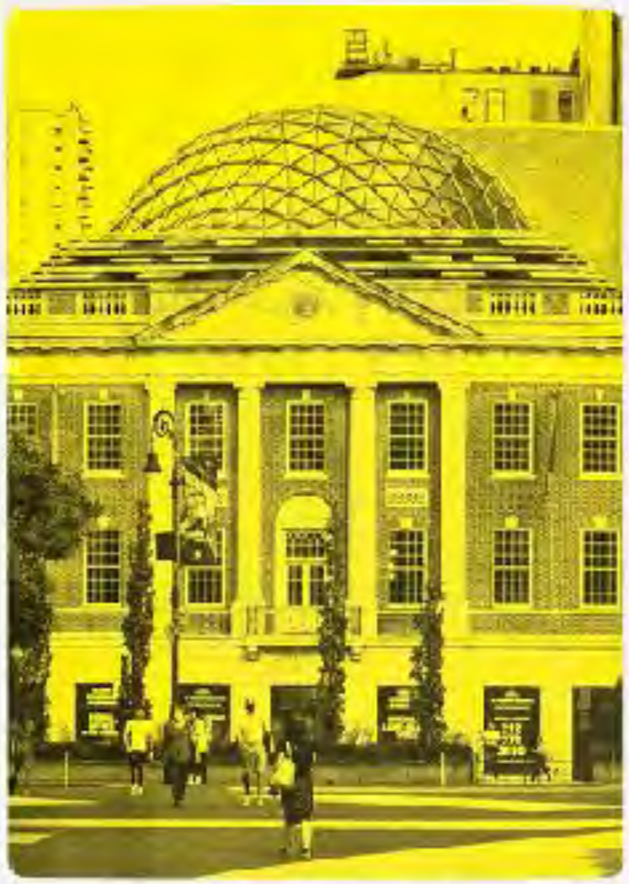


Fig. 47 **Tammany Hall, Thompson, Holmes & Converse and Charles B. Meyers, 1929, New York**

Adaptive Reuse Buildings

Relating to spatial flexibility is adaptive reuse. Since it is unlikely that a building will retain the same function throughout time, adaptive reuse becomes a necessary transformative process that allows for economical retrofitting of old structures for new uses. Originally developed as a way of protecting historic buildings from demolition, adaptive reuse has successfully transformed many industrial structures into office or residential buildings while allowing them to retain their historical value. This process supports a circular economy that presents solutions to both architectural obsolescence and the housing market shortage, helping to revitalise declining neighbourhoods and bringing environmental advantages that benefit surrounding contexts beyond the building itself.

Suggestions for Measurement

- Measure how many prior uses that a building has had.
- Create a dummy variable to check whether a building has had a prior use.

Designqualität als strategische Ressource

Beim Entwerfen kann man explizit überlegen, welche strategischen Effekte das Design haben soll (z.B. höhere Mietbereitschaft, bessere Nutzerzufriedenheit, nachhaltigere Nutzung) und wie sich diese in Konzept, Form, Materialwahl widerspiegeln.

Kontextualität und Messbarkeit

- Ein wichtiges Learning: Design wirkt nicht losgelöst – es ist stark kontextabhängig (Gebäudeform, Umgebung, Markt, Nutzerstruktur). Die Autor*innen betonen, dass kein „einfaches Rezept" existiert – Variation und Kontext zählen. (MIT Nachrichten)
- Gleichzeitig zeigen sie Wege auf, wie auch qualitativere Merkmale (z.B. Grün, Aussicht, Form-Variation) in Messgrößen überführt werden können. (MDPI)

Materiality

A building's materials—both exterior and interior—complement the impacts of formal and spatial design and greatly influence how the building is experienced and perceived. Much attention has been paid in the past to the ties between materiality and different physical, social, and cultural transformations.[41] Over the last decade, a rising trend in materiality research has emerged to study the impact of innovative material application on building design and construction, and possibilities for new forms of interactivity. And even more recently, the rise of image recognition technology has led to explorations of studying building materiality through computational façade analysis to assess the visual complexity of a building's exterior appearance.[42] However, this method mixes materiality with the building's overall appearance, which includes geometric information and ornamentation rather than studying it in isolation, thus the impacts of specific materials in social and economic terms remain underexplored.

Suggestion for Measurement

Identify the primary materials used for a building's facades. Large-scale calculations on exterior materials could be performed using state-of-the-art computer vision techniques to analyze street-view images.

41. [illegible], "Architecture as Material Culture: Building Form and Materiality in the Pre-Pottery Neolithic of Anatolia and Levant," Journal of Anthropological Archaeology 32, no. 4 (December 1, 2013): 546–58.
42. [illegible] "Measuring Faces: [illegible] Materiality [illegible]" [illegible] 2018, 2–22.

Fig. 43 Building Textures, Generated by Midjourney

Kontextualität und Messbarkeit

Das heißt, wenn Sie ein Designprojekt angehen, lohnt es sich, den Kontext genau zu analysieren (Ort, Markt, Nutzung, Nutzergruppen) und im Konzept festzulegen, wie Designmerkmale messbar oder evaluierbar gemacht werden könnte.

Partizipative Wirkung und Rolle der Designakteure

- Ein weiterer Aspekt: Design kann „Agency“ schaffen – nicht nur für Investoren, sondern auch für Gemeinschaften, Nutzer*innen, Stadtentwicklungspolitik. Das heißt: Designentscheidungen beeinflussen, wie Städte funktionieren, wer teilhat, wie Räume erlebt werden. (MIT Nachrichten)

Fig.40 The Ford Foundation, Kevin Roche John Dinkeloo and Associates, 1967, New York

Atrium

Suggestion for Measurement

Partizipative Wirkung und Rolle der Designakteure

Sie können Ihr Designverständnis erweitern – nicht nur als „Formgeber“, sondern als Gestalter von Wirkung, Beteiligung und Wertschöpfung. Ihre Entwürfe können Argumente sein für Partizipation, Nachhaltigkeit, Inklusion.

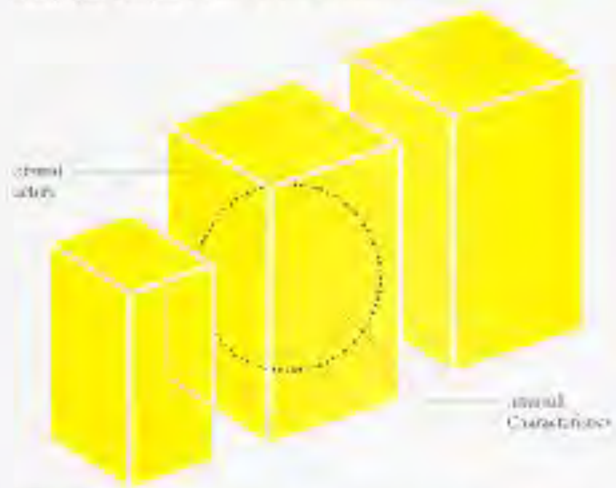
Impulse für Ihre Masterarbeit

- Wenn Sie eine Masterarbeit schreiben: Nutzen Sie das Buch als theoretische/ methodische Fundierung, wie man Designwirkungen messen kann. Beispielsweise könnte eure Forschung untersuchen, welchen Einfluss bestimmte architektonische Merkmale in eurem Untersuchungsgebiet haben (Wohngebäude, Büro, öffentlicher Raum).
- Überlegen Sie früh im Prozess: Welche Designparameter möchte ich gezielt setzen (z.B. Tageslicht, Sichtbeziehungen, Grünbezug)? Wie könnte ich im Konzept darstellen, dass diese Parameter Wirkung haben (z.B. Nutzungsqualität, Mietwert, Nachhaltigkeit)?
- In der Kommunikation: Ihr können Sie Ihre Entwurfsentscheidungen stärker argumentieren mit Blick auf Wert und Wirkung – nicht nur mit ästhetischen oder funktionalen Argumenten, sondern mit Daten-, Bewertungs- und Wirkungsperspektive. Das erhöht die Professionalität eurer Präsentation.

Fig. 12 **Hedonic Regression Model**

$$\log P_i = \alpha + \beta X_i + \delta G_i + \varepsilon_i$$

Housing Value = External Factors + Internal Characteristics



[illegible]

In the community of architects, urban designers, and planners, exacerbating the difficulties of generating quantitative data to describe design, a tendency this book strives to counteract.

What Is Data?

When we use the term "data," we are referring to individual facts, statistics, or items of information, often numeric. In a more technical sense, data is a set of values of qualitative or quantitative variables about one or more persons or objects, while a datum is a single value of a single variable.[2] Data is commonly referred to in scientific domains as instructions for computation, but it is often also a representation of the human experience. Moreover, it is a systematic collection of experiences that can be organized for analysis to help inform creation and decision making.

Data has an unfortunate reputation for being something intangible and abstract. It is a representative set of information that we use to signal that an event has occurred. The existence of events or information, in rudimentary terms, can be recorded in a database as ones, and the absence of information or events is recorded as zeros. Mathematically, the weight of the one then carries a greater significance and signals in a model that the event literally counts, and very simply, when there is a zero it does not count. When we start to aggregate the ones and zeros, we can then calculate the relative occurrence of people, places, and things happening. However, statisticians, economists, and data scientists are always working to get at something deeper. The data generating process produces data that is able to capture events and experiences temporally, spatially, and visually, and without bias. In this way, data represents our human, emotional, mental, physical, connected, and disconnected experiences. It is our collective story—what is common and what is quirky and unique about all of us—and data scientists spend a lot of time listening and observing what the data has to tell us.

In this endeavor toward understanding the true data-generating process, data can minimize and expose bias. When we use models and statistics, we uncover facets of the data that can [illegible] stakeholders. As data scientists, we have an ethical and technical responsibility to remove bias from models to improve the understanding of results and their impact on stakeholders.

2 [illegible]

Non-Rectilinearity and Non-Orthogonality

"There are 359 other angles. Why would anyone insist on this single, solitary one?"
– Daniel Libeskind 2005

Why are most buildings rectangular and orthogonal? Such a simple yet fundamental question is rarely asked. Planning and architecture scholar Philip Steadman attributes the wide popularity of the rectilinear form to "the superior flexibility of dimensioning allowed by rectangular packing". From an architectural perspective, when rooms of varying sizes are stacked in plan, rectangular shapes minimize the chances for unusable spaces such as crevices, while maximizing the room functionality and flexibility for interior layouts. For most buildings, an exception to the rule of orthogonality occurs along the outer edge of the building which leads to more unique exterior facades that give off an impression of free-form design while the rooms located closer to the core remain orthogonal and rectilinear in plan. Even Frank Gehry's renowned Guggenheim Museum in Bilbao follows this logic.

Suggestions for Measurement

- Create a dummy variable to check whether a building's footprint features one or more non-90-degree angles.
- Measure the degree of non-orthogonality by calculating the sum of the angles of the building footprint.

24 [illegible] Press, 2005.
25 Philip Steadman, [illegible]

Fig. 38 The Flatiron Building, Daniel Burnham and Frederick P. Dinkelberg, 1902, New York

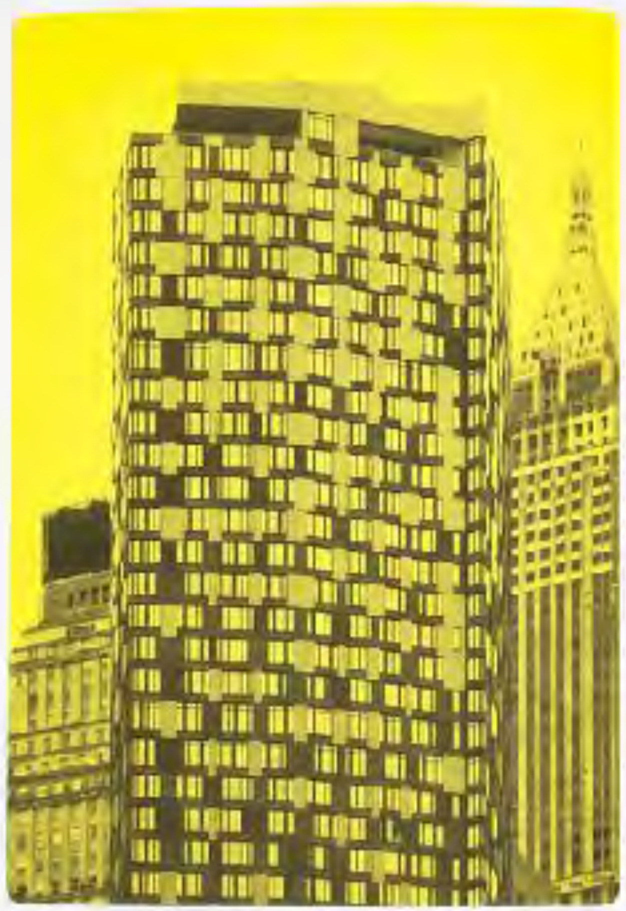


Fig. 11 William Beaver House, Tsao & McKown, 2008, New York

Color

For humans, color is a sensory perception that influences both our psychological and physiological experience. The use of color in architecture does not only have aesthetic significance, but symbolic and emotional effects.[31] Architects are tasked with understanding the impact of colors and designing for the appropriate visual stimulation for different programs such as hospitals, medical facilities, office buildings, and educational facilities where social functions may call for different visual treatment and psychosomatic effects.

Suggestion for Measurement

- Create a dummy variable to check whether a building's façade uses colors which deviate from its actual materiality
- Identify building façades through computer vision algorithms and calculate the RGB value range of primary building façade color

31 Donald N. Wilber, "The Role of Color in Architecture," Journal of the American Society of Architectural Historians 2, no. 1 (January 1, 1942): 17–22.

Fig. 36 Lipstick Building, John Burgee and Philip Johnson, 1986, New York

Curvature

While most buildings follow a rectilinear footprint, or in some cases a triangular footprint due to the urban layout, many incorporate curvilinearity in the overall massing, especially in prestigious work designed by famous architects that intend to create fluid and organic forms that blend with surrounding landscapes and nature. According to Pythagoras, a building's physical characteristics directly impact its aesthetics, whose beauty can be measured mathematically by assessing the relationship, proportions, and ratios between its constituent architectural elements.[26] For instance, the golden ratio is scientifically proven to be aesthetically pleasing, inspiring many 20th century artists and architects to use its proportion in their works.

In many other adjacent design fields, from industrial design to interior design, curved forms have been considered as "more harmonious, relaxing, or pleasant—and more in consonance with nature than straight or broken lines."[27] Studies deriving from various disciplines collectively show that people prefer curved-contoured objects for their sense of pleasantness and harmony, suggesting curvature found in the built environment are design decisions with a tangible impact on people's preferences and choices in consumer and social contexts. In architecture, the emergence of organic architecture claims that free-flowing form is more compatible with the human body.[28] Its popularity is increasingly enabled by advancements in computer-aided design (CAD) and CNC construction techniques that fully unleash architects' ability to experiment with parametric modeling of curvilinear forms and to follow structural inspiration from biological precedents and complex natural forms. In contrast to rectilinearity purported by modernism, which lacks spatial sense in human terms, buildings that share formal qualities with natural forms are able to be subconsciously and psychologically perceived as more comfortable.[29]

Suggestion for Measurement

- Create a dummy variable to check whether a building's plan, section, or elevation features curvilinearity
- Measure the amount of curvilinearity based on the curve radii

26 [illegible]
27 [illegible]
28 David Pearson, New Organic Architecture: The Breaking Wave (Berkeley: University of California Press, 2001).
29 [illegible]

Balconies

Balconies are platforms projected from the outside of buildings enclosed by balustrades or walls that provide access to the exterior from the interior of a building. A balcony provides an extension of the private space to the exterior, suspended above the ground. Its origin traces back to circa 1500 in [illegible] and military architecture that served to balance safety and engagement with the public realm below. Its wide applicability makes it a popular feature used on buildings worldwide, with evolving styles that reflect changes in construction technology and building materials, structural design, and stylistic preferences. In contemporary architecture, balconies present unique design opportunities that become an integral part of signature façade design. For many real estate products, unique balcony designs are marketed as an added amenity that enhances a property's overall value, especially for residential properties in dense urban developments. In Hong Kong, the price premium brought about by balconies for residential properties can be as high as 4%. Given the high-density development and increasing vertical construction in Hong Kong, this result may not be surprising since there is diminishing connection to outdoor public spaces on the ground level, which gives higher values to private outdoor spaces. Another known benefit of balconies is noise screening and noise reduction, whose performance is dependent on the materiality of the base panel of the balcony. [illegible]

Suggestion for Measurement

- Create a dummy variable to check whether a building features balconies
- Measure the relative size of the balconies by calculating the ratio of the total surface area of balconies to the total surface area of the building

10 [illegible] et al., *[illegible] of Architecture* [illegible] 2013).
11 [illegible] Wong, [illegible], "The Value of the [illegible] Balconies in [illegible] Hong Kong," [illegible] (2006).
12 [illegible], "[illegible] Value of Balcony as [illegible]": [illegible] the Hong Kong Residential Property Market," *[illegible] Real Estate [illegible]* [illegible], 2017), 27–49.
13 [illegible], "Noise Screening Effects of Balconies on a Building Facade," *Journal of the Acoustical Society of America* [illegible] (1972), [illegible].

Fig. 4 100 United Nations Plaza, Der Scutt Architects, 1987, New York


NDR
Hallo
NIEDERSACHSEN

Research for Designers

RESEARCH FOR DESIGNERS

A Guide to Methods and Practice

GJOKO MURATOVSKI

Research for Designers: A Guide to Methods and Practice

von Gjoko Muratovski

Forschung im Designkontext

- Muratovski argumentiert, dass Designer heute nicht mehr nur „Produkte gestalten", sondern Problemräume erforschen, Strategien entwickeln und Stakeholder-Kontexte verstehen müssen.

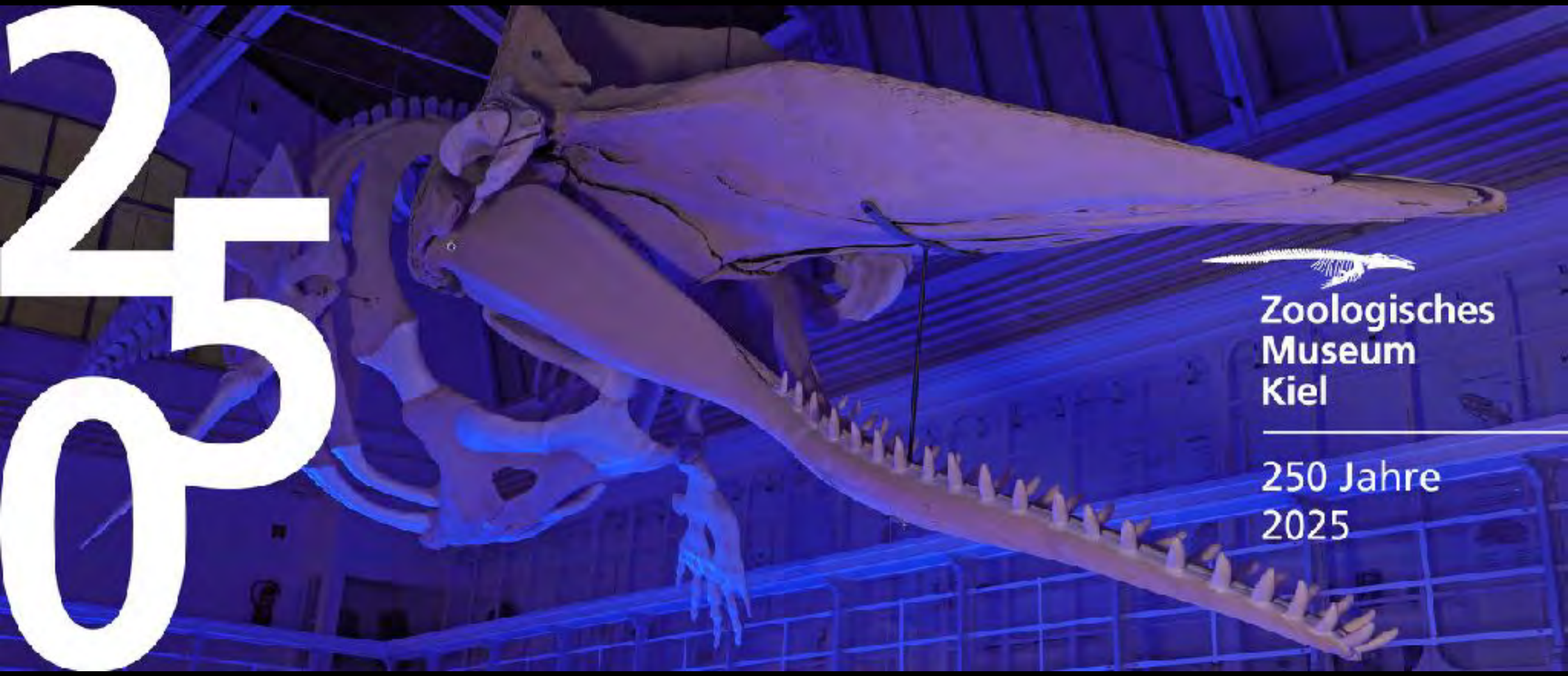
Forschung im Designkontext

- Der Fokus liegt auf „Research for Designers“ (Forschung für das Design) und „Research by Designers“ (Forschung durch das Design) – also Design-Forschung, die nicht nur wissenschaftliche Erkenntnisse generiert, sondern direkt in die Praxis wirkt. (DRS)

Forschung im Designkontext

- Muratovski hebt hervor, dass Designforschung interdisziplinär, kontextsensitiv und evidenzbasiert sein muss – also Daten, Nutzer:innen, Systeme und Praxis mitdenken. (DRS)

Bsp.: Zoologisches Museum Kiel


250
Zoologisches
Museum
Kiel
250 Jahre
2025

Methodologie & Forschungsprozess

Problemidentifikation →
Literatur / Kontext →
Methodenauswahl →
Datenerhebung →
Analyse →
Kommunikation der Ergebnisse.

Sensing the Ocean

A Collaboration between Art, Design and Science

Hrsg.
Tom Duscher
Stephan Sachs
Manfred Schulz

Methodologie & Forschungsprozess

Qualitative Methoden (z. B. Ethnographie, Interviews, Beobachtung) als auch Quantitative Methoden (z. B. Umfragen, Messdaten) sowie visuelle und bildliche Methoden („visual research“) speziell im Designkontext.

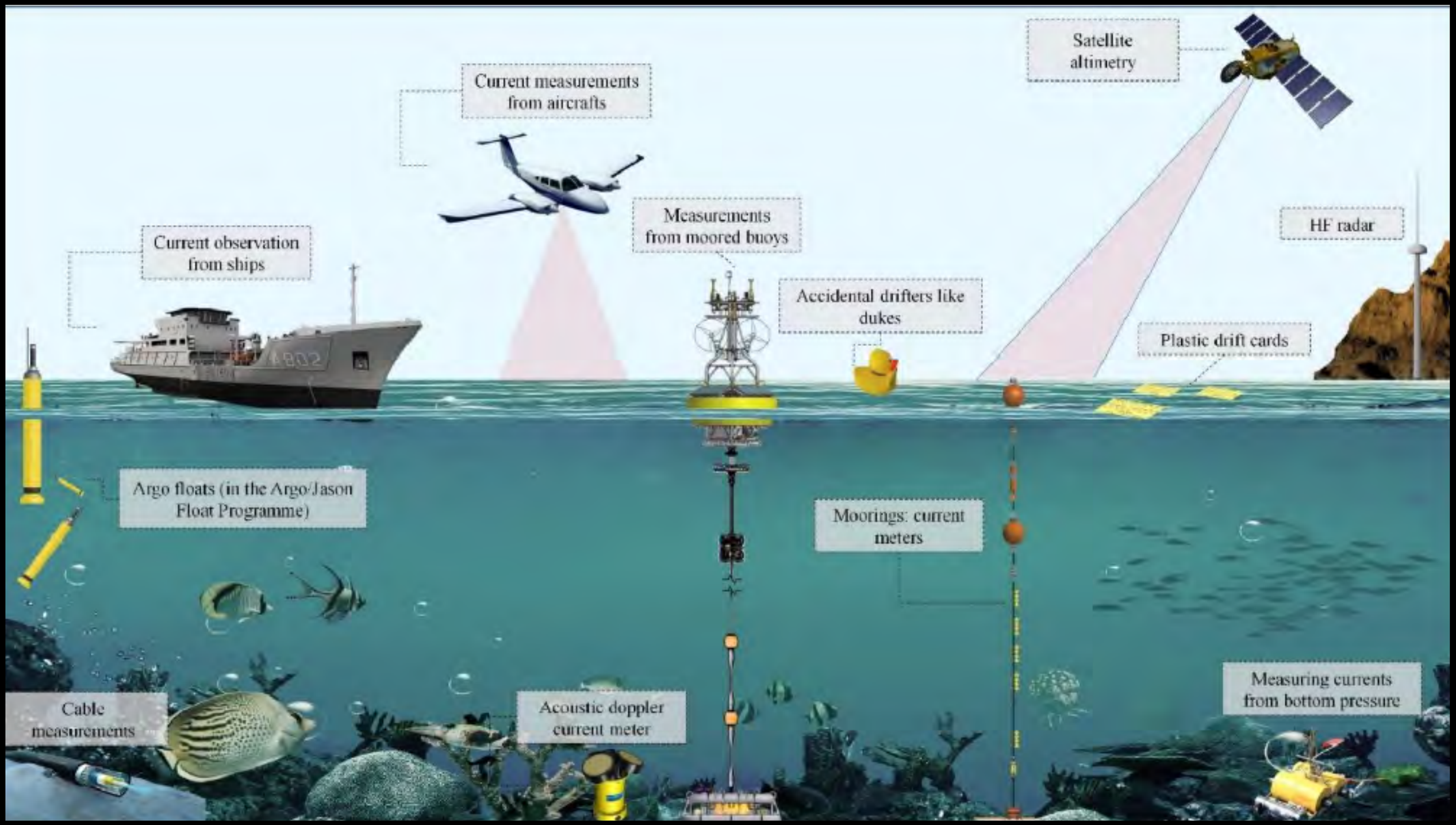

Sensing the Ocean
A Collaboration between
Art, Design and Science
Hrsg.
Tom Duscher
Stephan Sachs
Manfred Schulz
Sensing the Ocean

Methodologie & Forschungsprozess

Auch angewandte Forschung („applied research“) und deren Übersetzung in Designpraxis – also wie Forschungsergebnisse in Designs, Services, Produkten umgesetzt werden können.


substrates or
others (e.g. Hu
this transforma
for
bac
env
in the plankton

Bsp.:
Den Ozean verstehen heißt die Zukunft gestalten

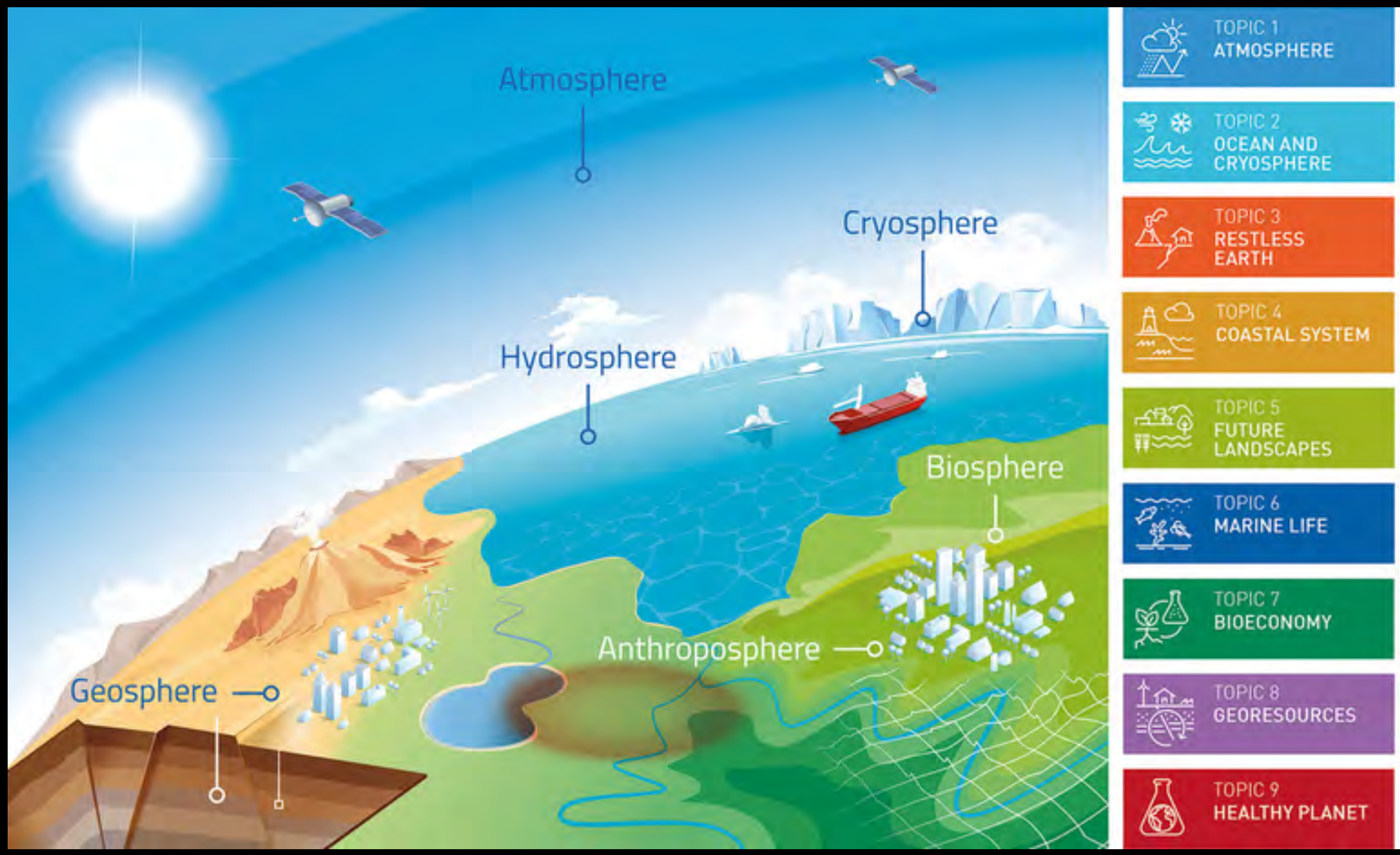

Satellite altimetry
Current measurements from aircrafts
Current observation from ships
Measurements from moored buoys
Accidental drifters like dukes
HF radar
Plastic drift cards
Argo floats (in the Argo/Jason Float Programme)
Moorings: current meters
Cable measurements
Acoustic doppler current meter
Measuring currents from bottom pressure

Theoretische Reflexion und Wert von Designforschung

Muratovski diskutiert, dass Designforschung nicht nur Erkenntnis generiert, sondern Wert schafft – für Nutzer:innen, Organisationen und Gesellschaft.

Forschung konzentriert sich auf die folgende Forschungsfelder

Bsp.: Research Program Changing Earth – Sustaining our Future


Atmosphere
Cryosphere
Hydrosphere
Biosphere
Anthroposphere
Geosphere
TOPIC 1
ATMOSPHERE
TOPIC 2
OCEAN AND
CRYOSPHERE
TOPIC 3
RESTLESS
EARTH
TOPIC 4
COASTAL SYSTEM
TOPIC 5
FUTURE
LANDSCAPES
TOPIC 6
MARINE LIFE
TOPIC 7
BIOECONOMY
TOPIC 8
GEORESOURCES
TOPIC 9
HEALTHY PLANET

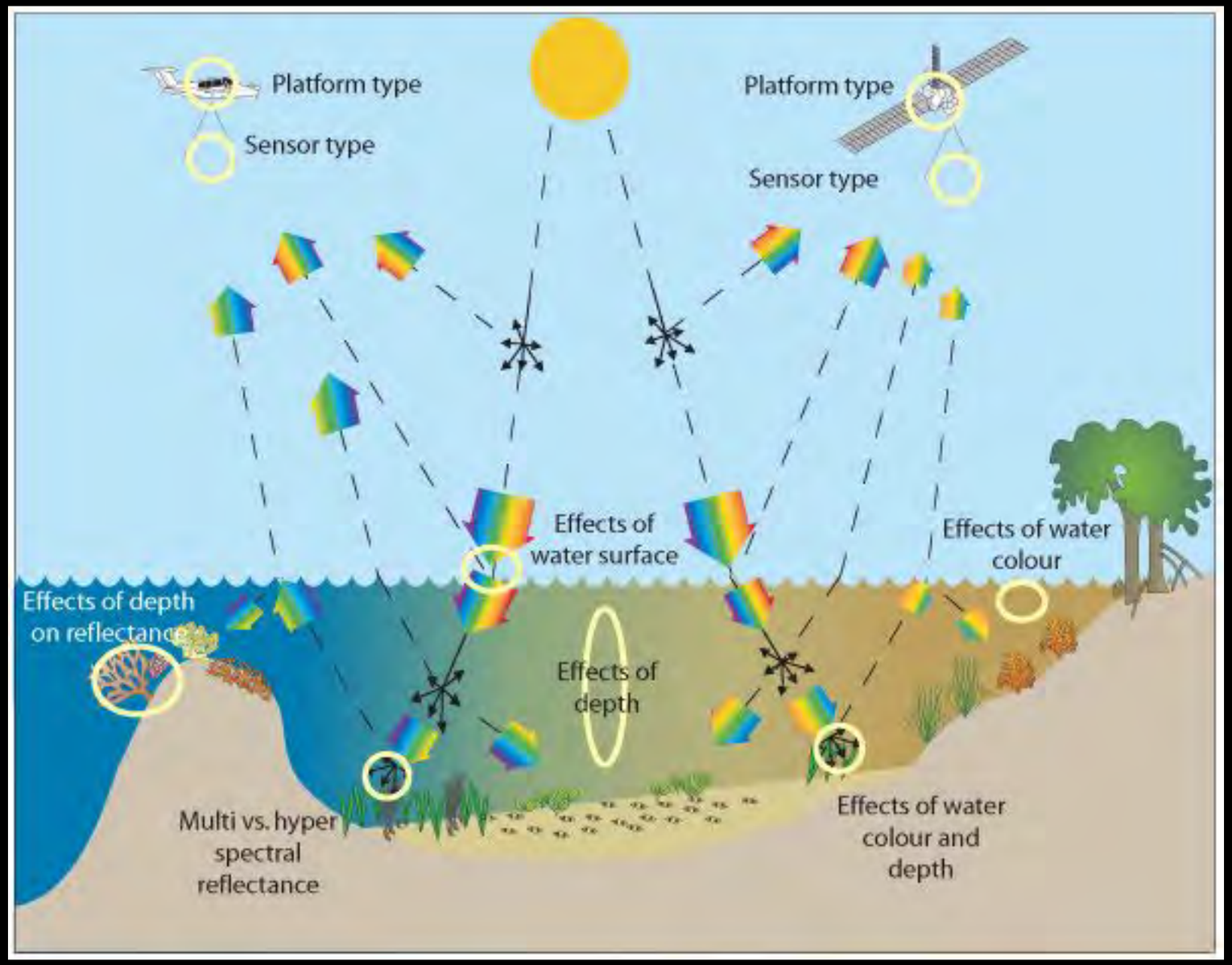
Bsp.:
GEOMAR beteiligt sich am Ozeanpavillon und unterzeichnet die Ozeanerklärung von Belém (BR).

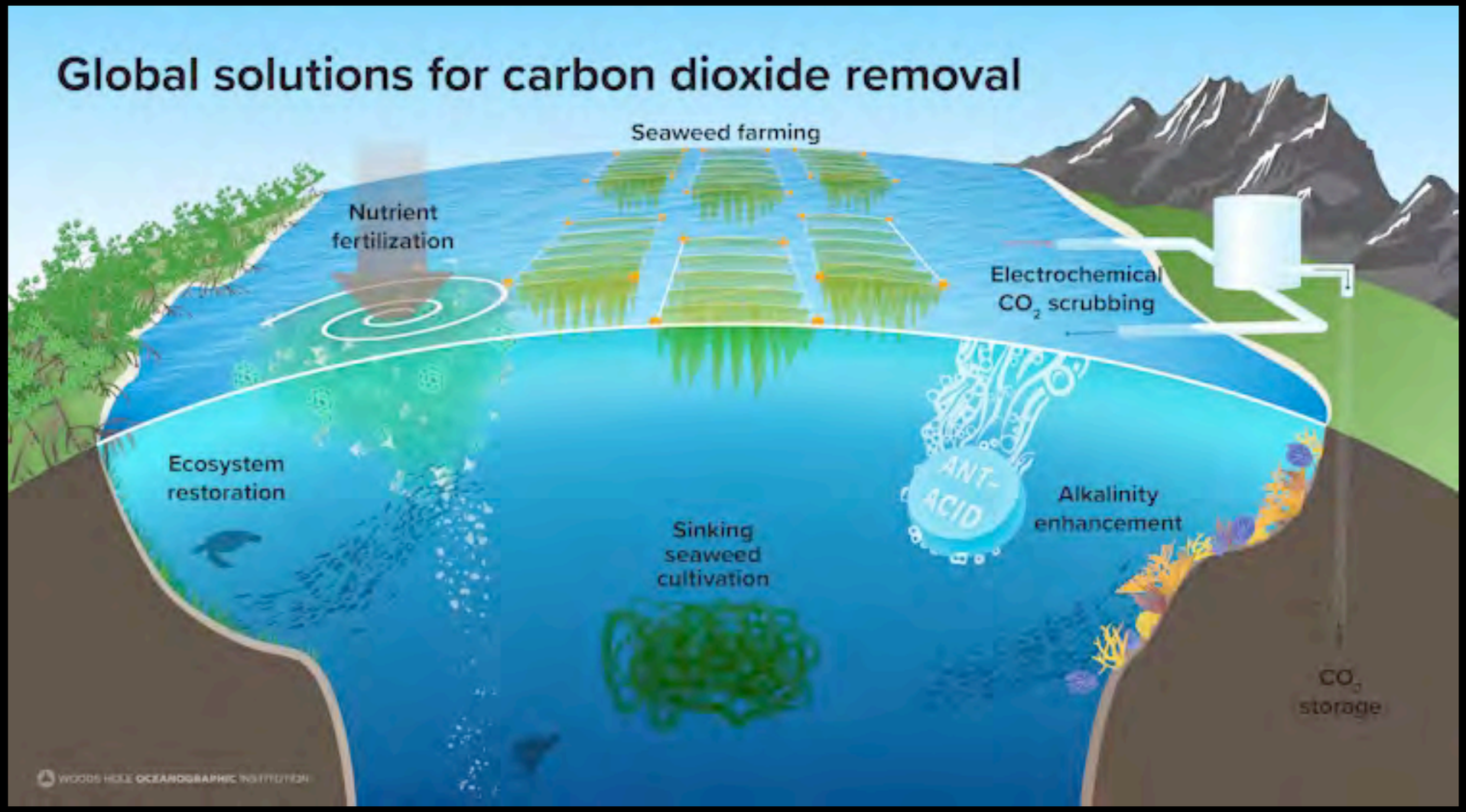
Ocean PAVILION

For our blue planet

Hintergrund

Vom 10. bis 21. November 2025 treffen sich Vertreter der internationalen Gemeinschaft in Belém im Norden Brasiliens zur 30. UN-Klimakonferenz (COP30) – an dem Ort, wo der Amazonas-Regenwald auf den Ozean trifft. Gemeinsam mit internationalen Partnerinstitutionen wird das GEOMAR Helmholtz-Zentrum für Ozeanforschung Kiel erneut im Ozeanpavillon vertreten sein.

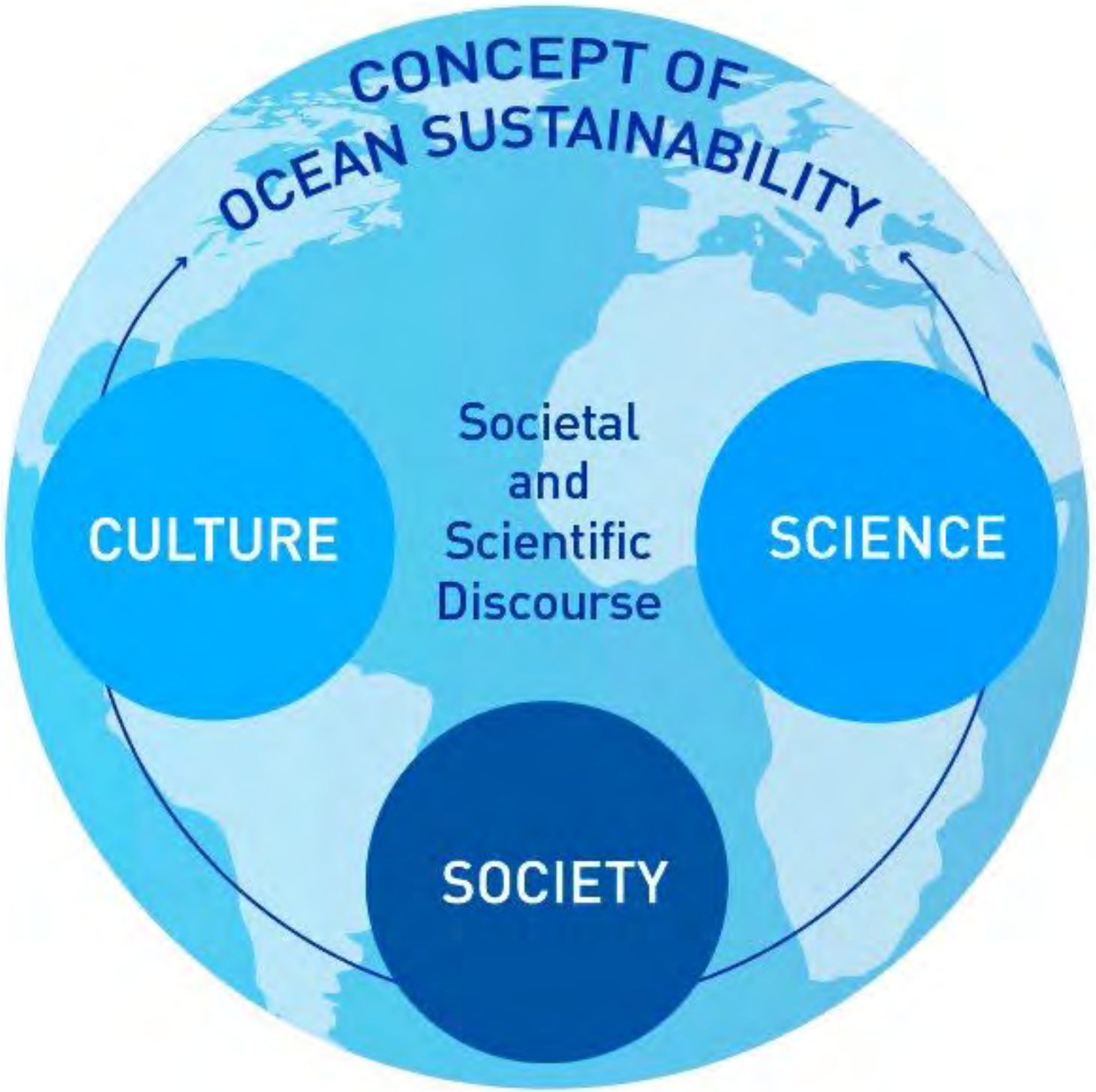

Platform type
Sensor type
Platform type
Sensor type
Effects of water surface
Effects of water colour
Effects of depth on reflectance
Effects of depth
Multi vs. hyper spectral reflectance
Effects of water colour and depth


Global solutions for carbon dioxide removal
Seaweed farming
Nutrient fertilization
Electrochemical CO_2 scrubbing
ANTI-ACID
Ecosystem restoration
Sinking seaweed cultivation
Alkalinity enhancement
CO_2 storage
WOODS HOLE OCEANOGRAPHIC INSTITUTION

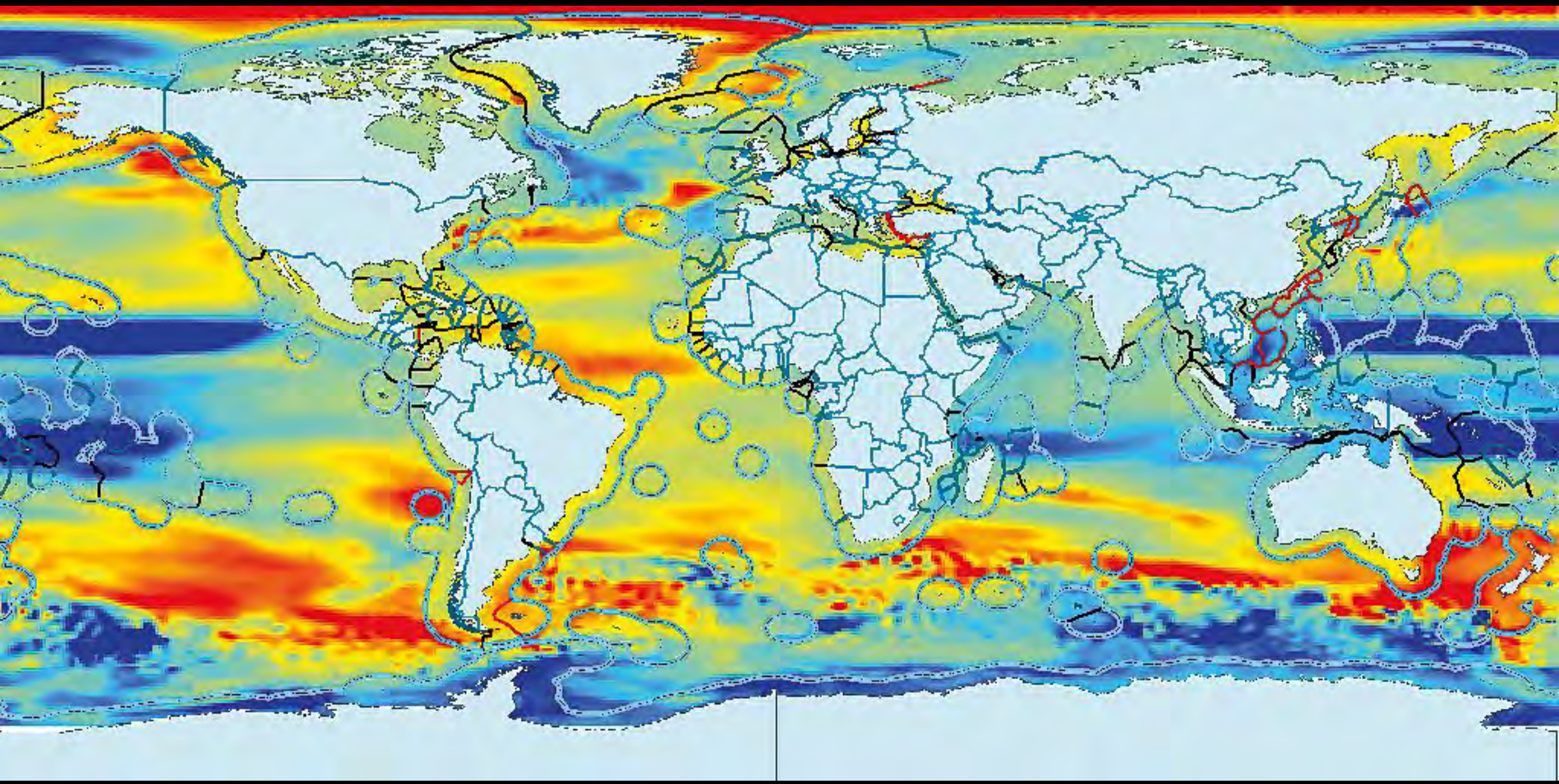
Theoretische Reflexion und Wert von Designforschung

Ein wichtiges Thema ist die Kommunikation von Forschungs-ergebnissen – wie Designer:innen ihre Forschung verständlich darstellen, Stakeholder erreichen und Design-entscheidungen mit evidenzbasierten Argumenten untermauern.

Bsp.:
Ozean der Zukunft


CONCEPT OF
OCEAN SUSTAINABILITY
CULTURE
Societal
and
Scientific
Discourse
SCIENCE
SOCIETY

Bsp.: Governance der Ozeane



Bsp.: Rohstoffe aus dem Ozean

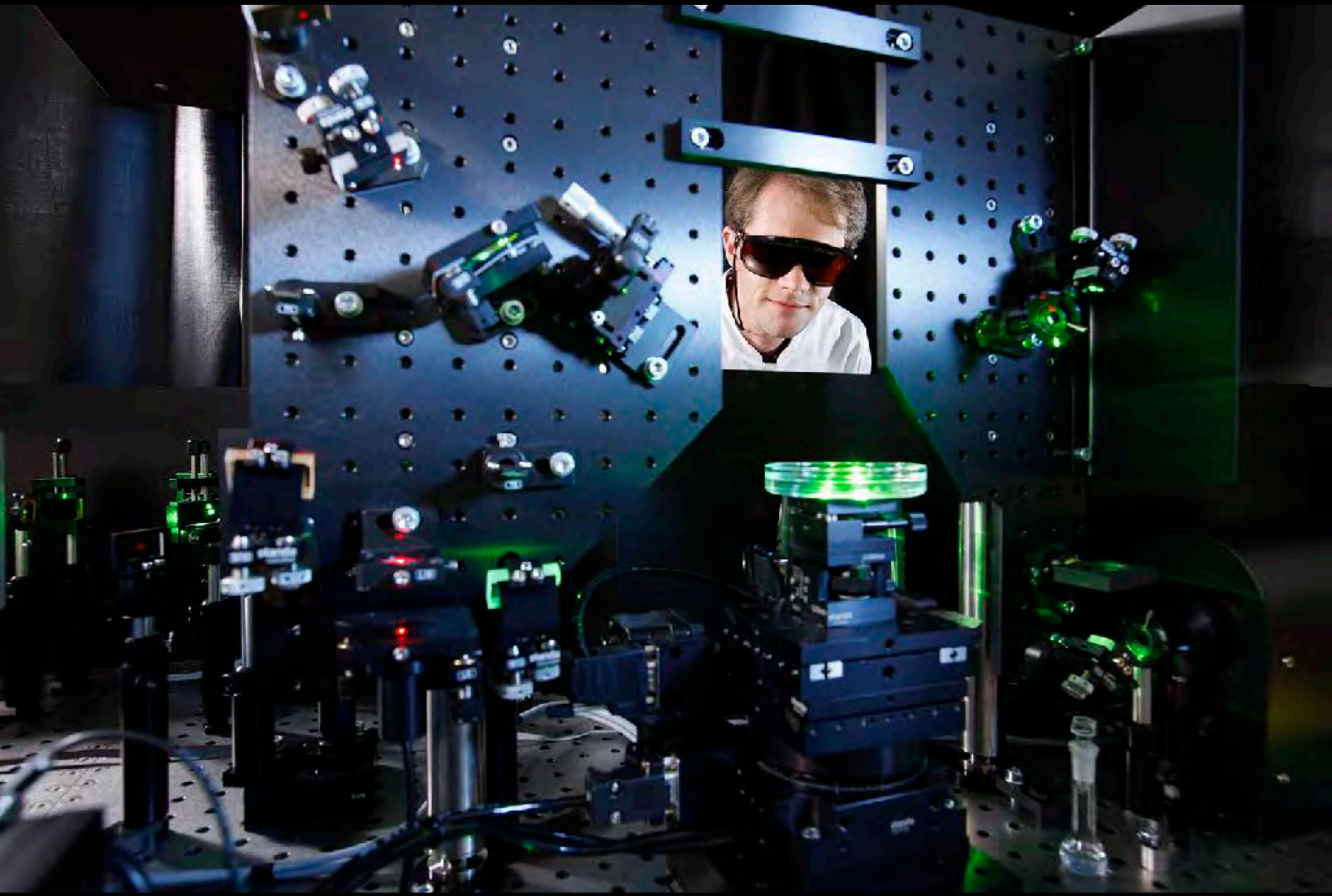

METALS
ENERGY
FISH

Bsp.: Innovationen aus dem Ozean

Bsp.: Ozean als CO_2-Speicher

Bsp.: Gefahren aus dem Ozean

Bsp.: Grenzflächen des Ozeans

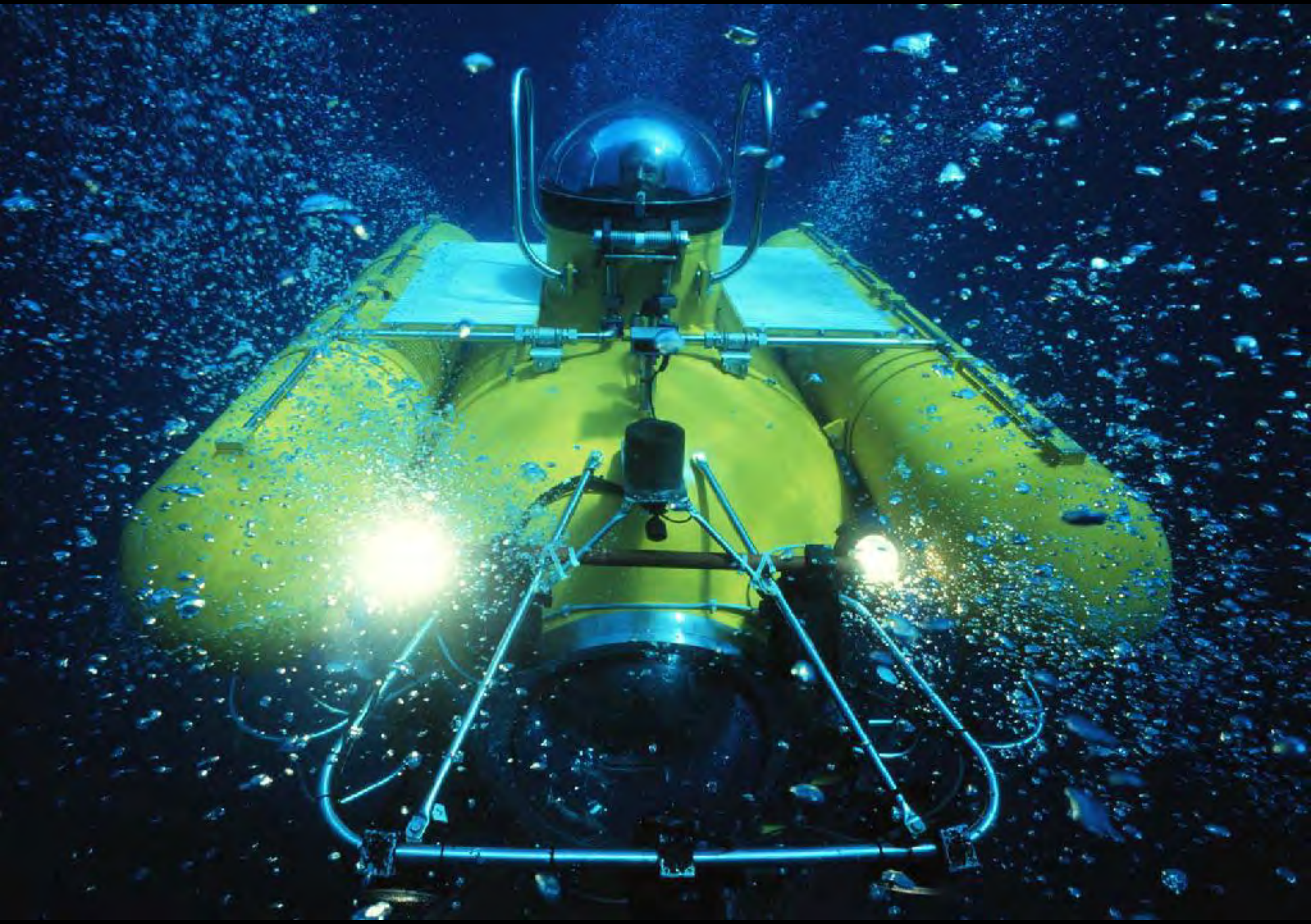


Bsp.:
Evolution im Ozean

Bsp.:
Klima und der Ozean


ALKOR

Bsp.: Beobachtungs-systeme für den Ozean



Bsp.: Vorhersagen über den Ozean

OZEAN DER ZUKUNFT – DIE KIELER MEERESWISSENSCHAFTEN

OZEAN-SYSTEMVERSTÄNDNIS

INTEGRATIVE FORSCHUNGSFELDER

R1 Unser Ozean der Zukunft
R2 Governance der Ozeane
R3 Rohstoffe aus dem Ozean
R4 Innovationen aus dem Ozean
R5 Der Ozean als CO_2-Speicher
R6 Gefahren aus dem Ozean
R7 Grenzflächen des Ozeans
R8 Evolution im Ozean
R9 Das Klima und der Ozean
R10 Beobachtungssysteme für den Ozean
R11 Vorhersagen über den Ozean

NACHHALTIGES OZEAN-MANAGEMENT

VORHERSAGEN UND SZENARIEN

Internationale Kooperationen • Wissenstransfer • Forschungsplattformen • Projektorganisation • Ausbildung und Karriereförderung

Praxisbeispiele & Interviews

Damit wird die Brücke zwischen Wissenschaft und Praxis gestärkt.

Designer:innen als Forschende

Moderne Designer:innen sind forschend handelnde Generalisten — sie bewegen sich zwischen Empirie, Strategie und Gestaltung.

Designer:innen als Forschende

Moderne Designer:innen sind forschend handelnde Generalisten — sie bewegen sich zwischen Empirie, Strategie und Gestaltung.

Designer:innen als Forschende

Design ist nicht mehr nur Problemlösung, sondern Problemerkennung und Problemdefinition.

Kompetenzfelder laut Muratovski

Forschungs- und Analysekompetenzen

Designer:innen müssen fähig sein, Problemräume systematisch zu erkunden.


Klima
im Wandel

Kernfähigkeiten

Kernfähigkeiten

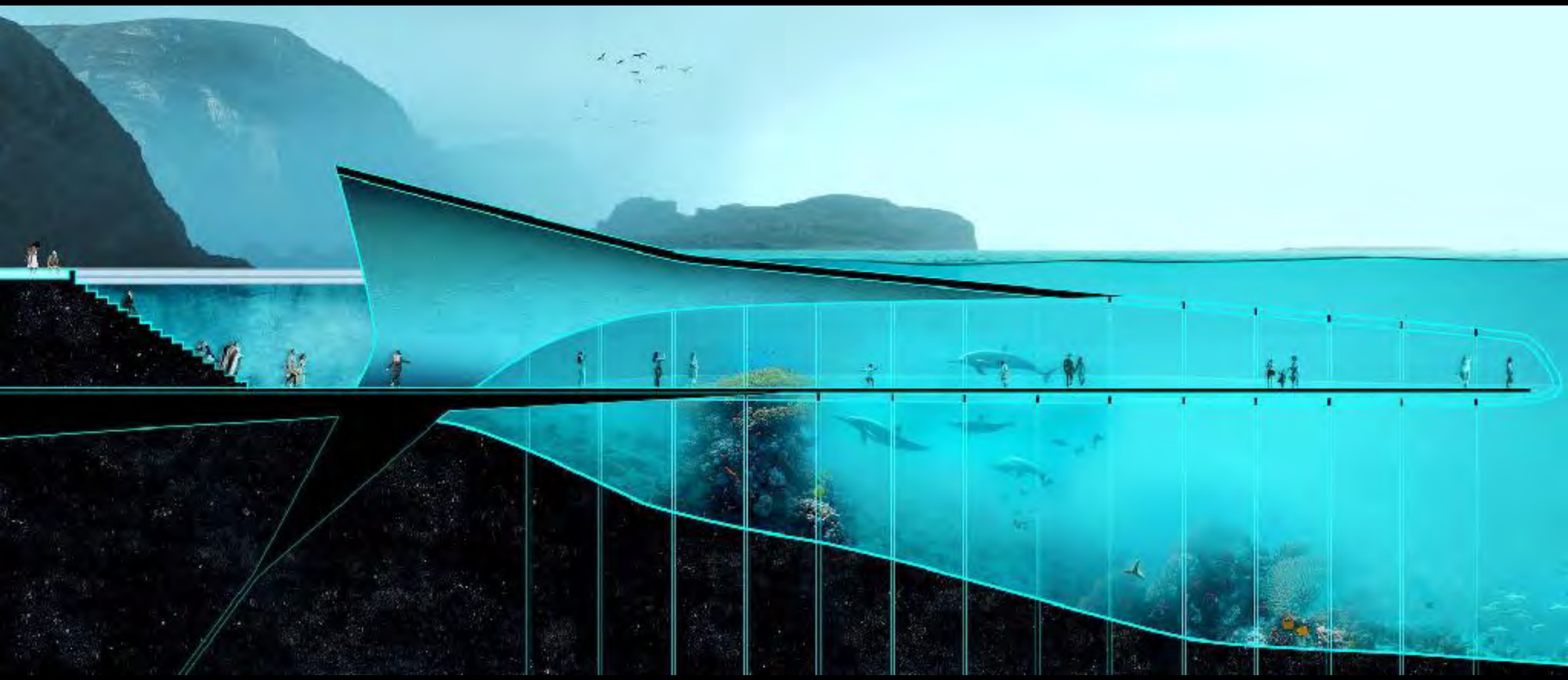
Empathische Nutzerforschung:

Fähigkeit, Lebenswelten und Bedürfnisse von Menschen qualitativ zu verstehen (z. B. Interviews, Beobachtung, Ethnografie).

Kernfähigkeiten

Systemisches Denken:

Wahrnehmung von Zusammenhängen zwischen Akteuren, Technologien, Institutionen.



Kernfähigkeiten

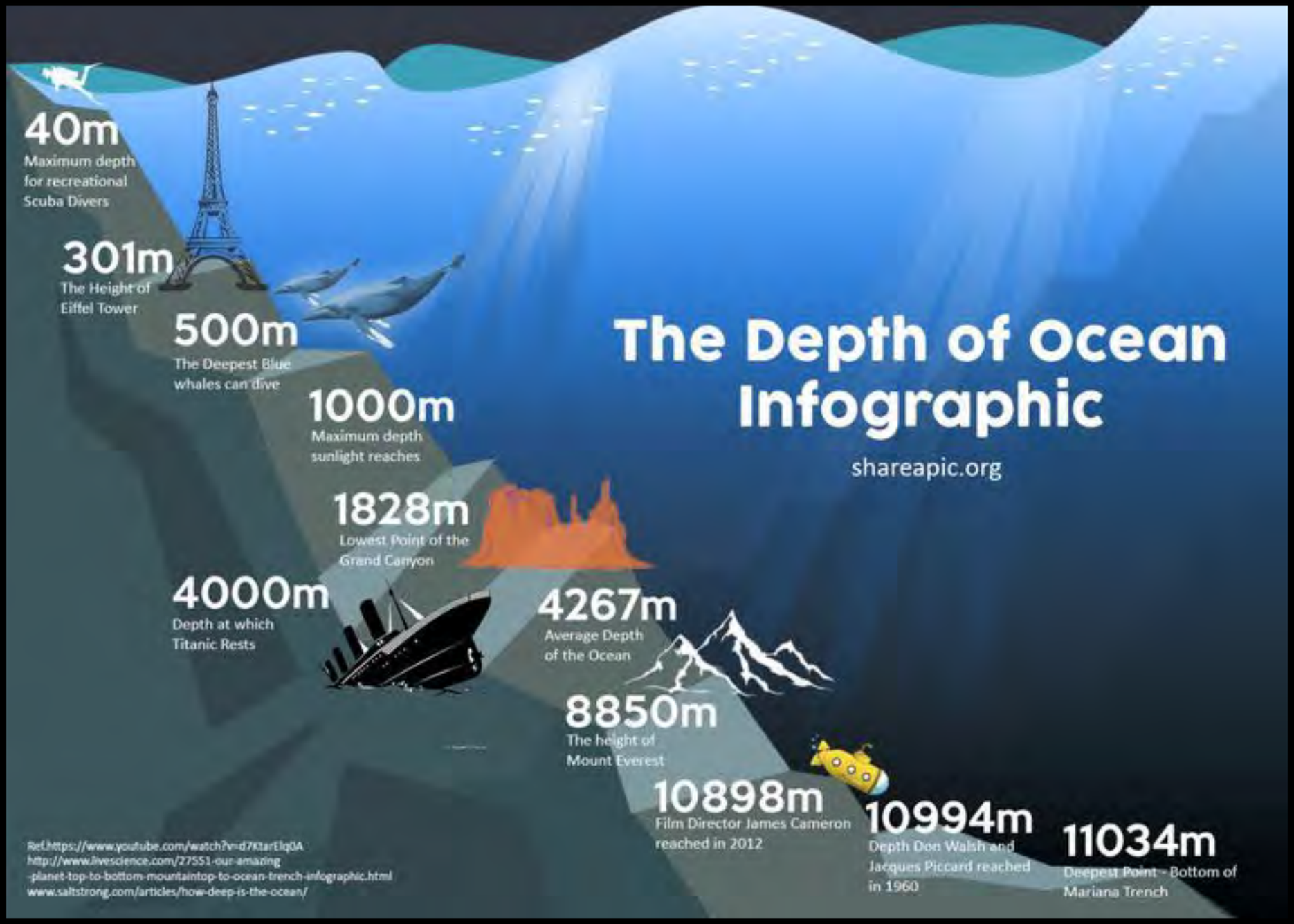
Fragekompetenz:

Formulieren forschungsleitender Fragen statt vorschneller Lösungen („Reframing the problem“).

Kernfähigkeiten

Visuelle und narrative Analyse:

Nutzung visueller Tools (Mapping, Diagramme, Storyboards) zur Strukturierung komplexer Daten.


40m
Maximum depth for recreational Scuba Divers
301m
The Height of Eiffel Tower
500m
The Deepest Blue whales can dive
1000m
Maximum depth sunlight reaches
1828m
Lowest Point of the Grand Canyon
4000m
Depth at which Titanic Rests
4267m
Average Depth of the Ocean
8850m
The height of Mount Everest
10898m
Film Director James Cameron reached in 2012
10994m
Depth Don Walsh and Jacques Piccard reached in 1960
11034m
Deepest Point - Bottom of Mariana Trench
The Depth of Ocean Infographic
shareapic.org
Ref.https://www.youtube.com/watch?v=d7KtarElq0A
http://www.livescience.com/27551-our-amazing
-planet-top-to-bottom-mountaintop-to-ocean-trench-infographic.html
www.saltstrong.com/articles/how-deep-is-the-ocean/

„Designers must learn how to ask the right questions, not just how to provide answers.“

Gjoko Muratovski

Strategische und methodische Kompetenzen:

Designforschung dient dazu, Strategien zu entwickeln, nicht nur Ergebnisse.

Kernfähigkeiten

Methodenwahl und -anwendung:

Kenntnis qualitativer, quantitativer und hybrider Methoden (z. B. Surveys, Interviews, Participatory Design).

The ocean speaks.
New ecologies and new economies of the seas | Disseny Hub Barcelona

Kernfähigkeiten

Interpretationskompetenz:

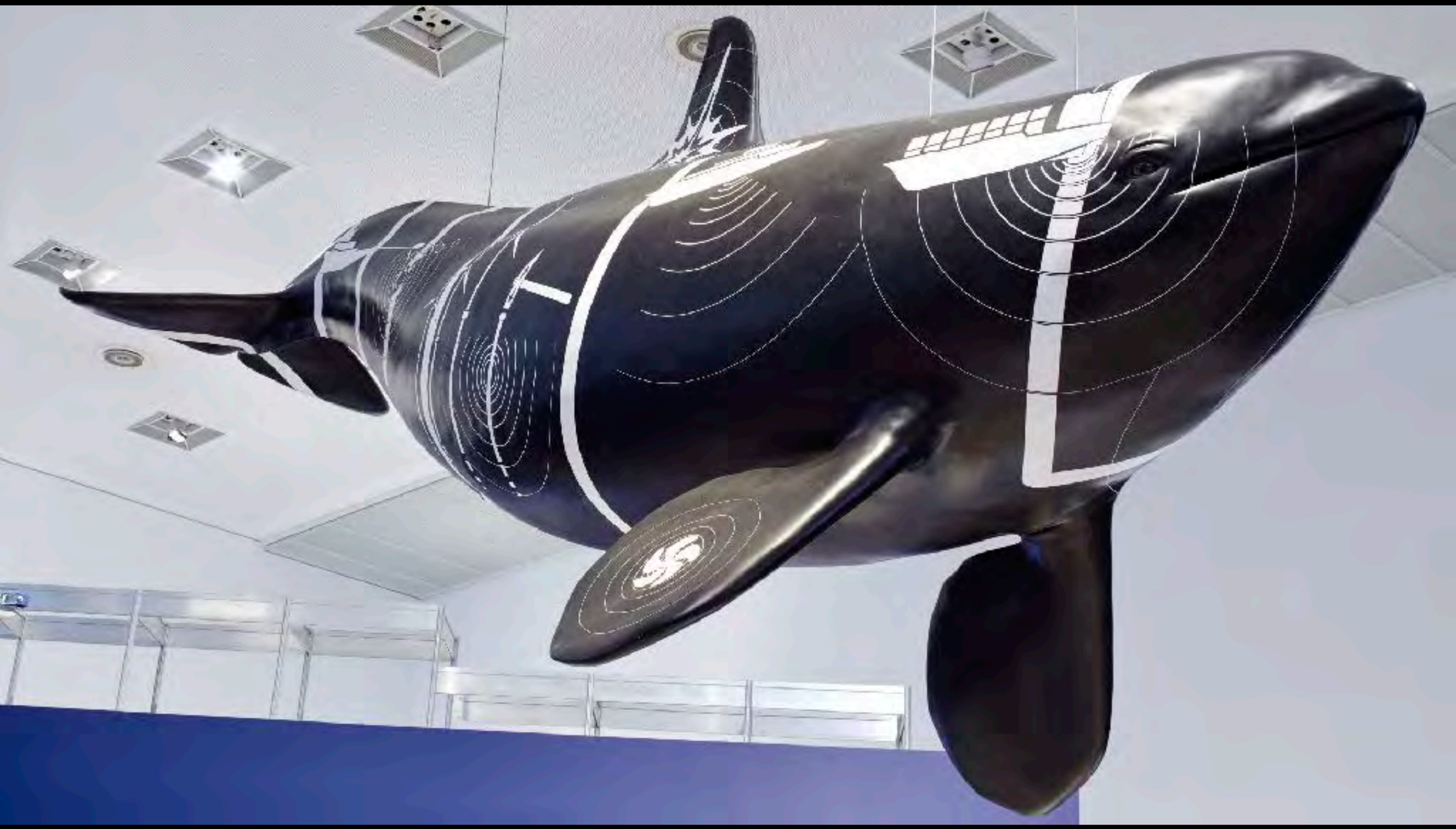
Daten in sinnvolle Einsichten übersetzen („from data to insight“).

Museum für Meereskunde und Fischerei · Stralsund

Kernfähigkeiten

Hypothesenbildung & Experimentieren:

Arbeit mit Prototypen, Szenarien, Simulationen als Erkenntnisinstrumente.



Expedition Weltmeere – Bundeskunsthalle

Kernfähigkeiten

Entscheidung unter Unsicherheit:

Fähigkeit, mit offenen Problemfeldern iterativ umzugehen.

OCÉAN
une plongée insolite

EXPOSITION

conçue et réalisée par le Muséum national d'Histoire Naturelle

Accès libre • Maison de la nature

Parc naturel départemental de la Grande Corniche – Eze

Du mercredi au dimanche de 9h30 à 12h30 et de 13h30 à 17h00

DÉPARTEMENT DES ALPES-MARITIMES

MUSÉUM NAL HIST NATURELLE

„The designer must become both strategist and experimenter — exploring, testing, and validating ideas through evidence.“

Gjoko Muratovski

Soziale und kommunikative Kompetenzen:

Zentral ist die Fähigkeit: Stakeholder-Kontexte zu verstehen und zu vermitteln.

Kernfähigkeiten

Empathie und Moderation:

Verstehen, wie unterschiedliche Akteure (Nutzer:innen, Auftraggeber, Partner) denken und handeln.

Ozeanographisches Museum von Monaco

Kernfähigkeiten

Ko-Kreation & Facilitation:

Gestaltung von Dialog- und Partizipationsprozessen.

Deep Sea Museum and Sports Center in Sanya (CN)

Kernfähigkeiten

Transdisziplinäre Kommunikation:

Übersetzen zwischen Design, Technik, Wirtschaft und Gesellschaft.

Ozeanographisches Museum von Monaco

Kernfähigkeiten

Reflexionsfähigkeit:

Bewusstsein für die eigene Position, Werte und Wirkung im Prozess.

„Designers operate within complex networks of people and power. Understanding stakeholders means understanding systems of value.“

Gjoko Muratovski


GOOD
DESIGN
IS SELF
EXPLAINING