CONNECTING THE DOTS IN NOVEL WAYS

ACROSS KNOWLEDGE AND TECHNOLOGY BOUNDARIES

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A NOVEL TAKE ON **OPEN INNOVATION**

- **Most relevant knowledge** for non-linear evolutions in human history **is still unknown or poorly understood.**

- Only **a fraction of human evolutions** and complex technology revolutions **are captured by history books.**

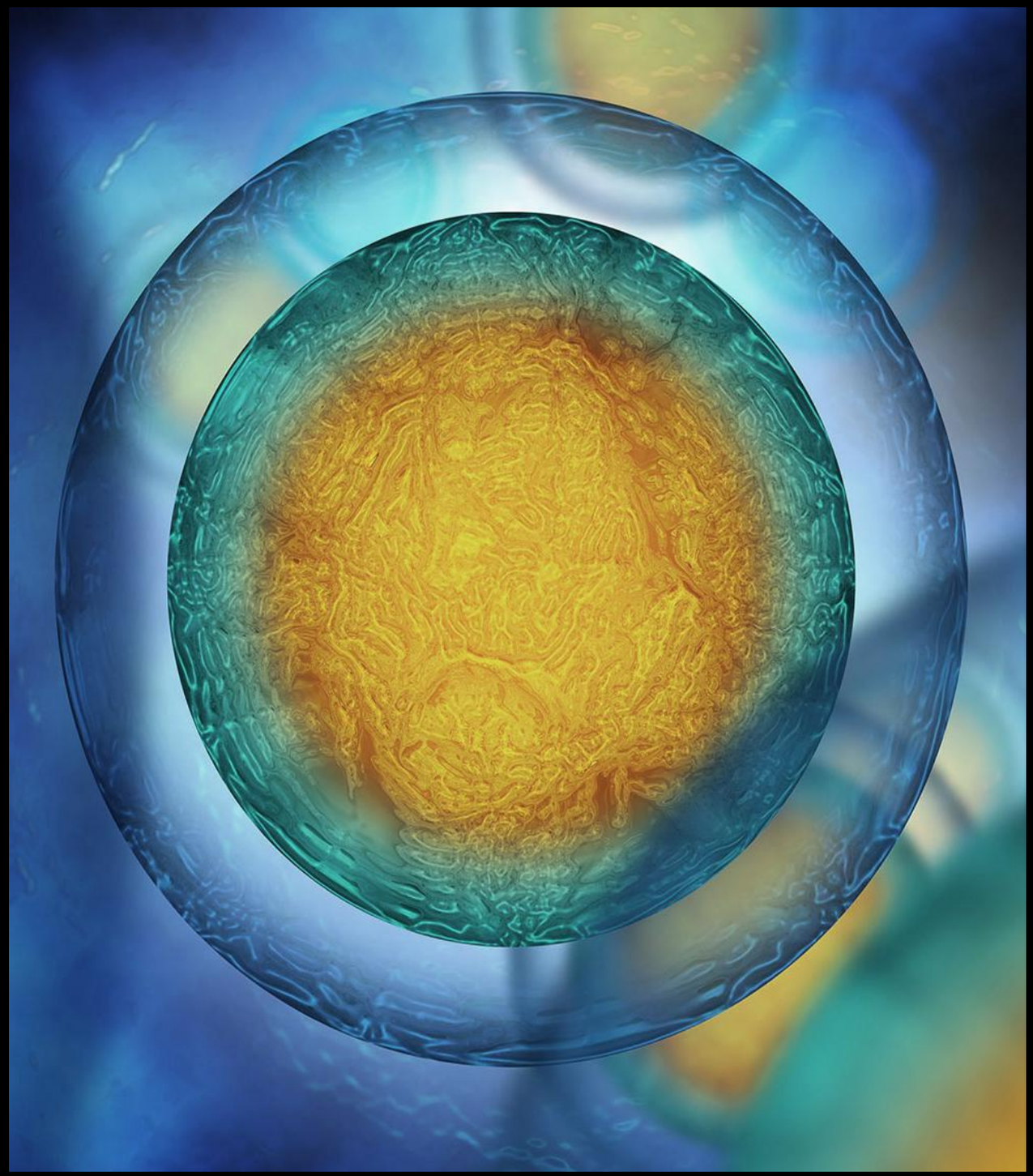
- Connecting **multi-disciplinary knowledge and ancient technologies** across time and spaces in history, **with modern technologies and material science**, can lead to a new Renaissance and a long, peaceful prosperity.

- Fresh perspectives from **recombinant innovation** can seed novel ecosystems with high diversity and longevity.

RECOMBINANT INNOVATION

Can Accelerate Evolution ...

through the **recontextualization of knowledge and technologies** across disciplinary boundaries, time and space in history.



RECOMBINANT INNOVATION MODALITIES

- **INNOVATION BY COMPLEX COORDINATION**
  - It takes a lot of different components and combines them in a new form, like has never been done before, or in a better way
  - It requires vertical integration (e.g. Tesla, Apple, SpaceX)
  - It's typically more capital intensive

Suggested reading:
Why Not? by Barry J. Nalebuff, Yale University

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  - Platform technologies like pluripotent stem cells!
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- **INNOVATION BY EXAPTATION**
  - Re-contextualize domain-specific knowledge, IP and technologies, across disciplinary boundaries and/or different industry verticals

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EXAPTATION

IS A KEY MECHANISM IN THE **EMERGENCE**

OF RADICAL NOVELTY

IN COMPLEX, ADAPTIVE SYSTEMS

EMERGENCE + SENSEMAKING
FOR EXAPTIVE INNOVATION

Connecting The Dots In Novel Ways

using semiotics (= *the study of meaning-making*)

Find New Meanings In Reality

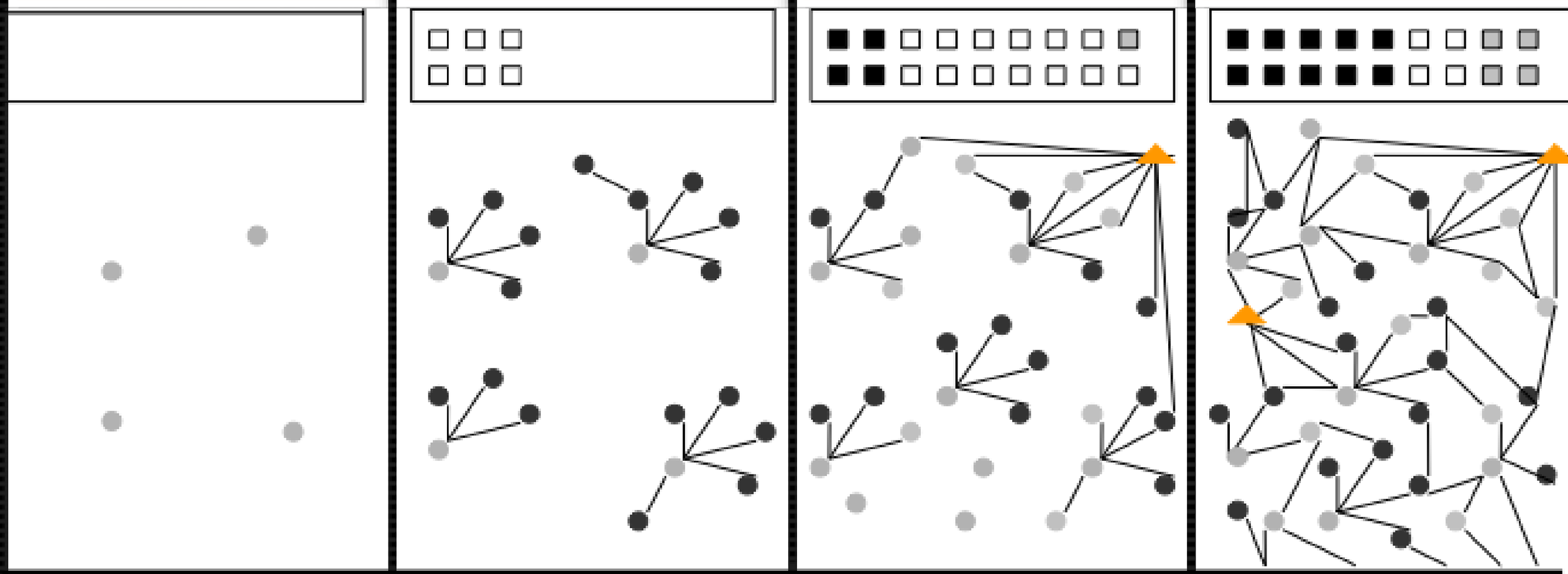
using context filters and different levels of abstraction

Use Innovation Metaphors

to explore new meaning, across disciplinary boundaries

MAKING SENSE OF **EMERGENT COMPLEXITY**

Stage 1	Stage 2	Stage 3	Stage 4
KNOWLEDGE ASSETS	KNOWLEDGE ASSETS	KNOWLEDGE ASSETS	KNOWLEDGE ASSETS
TECHNOLOGY CAPABILITIES	TECHNOLOGY CAPABILITIES	TECHNOLOGY CAPABILITIES	TECHNOLOGY CAPABILITIES



Key

- Practitioner building Components
- Knowledge Component
- Practitioners using Components
- Knowledge Component Clusters
- Communities of Practice
- Accredited Component Clusters

INNOVATION METAPHORS
PRODUCE TECH EXAPTATIONS

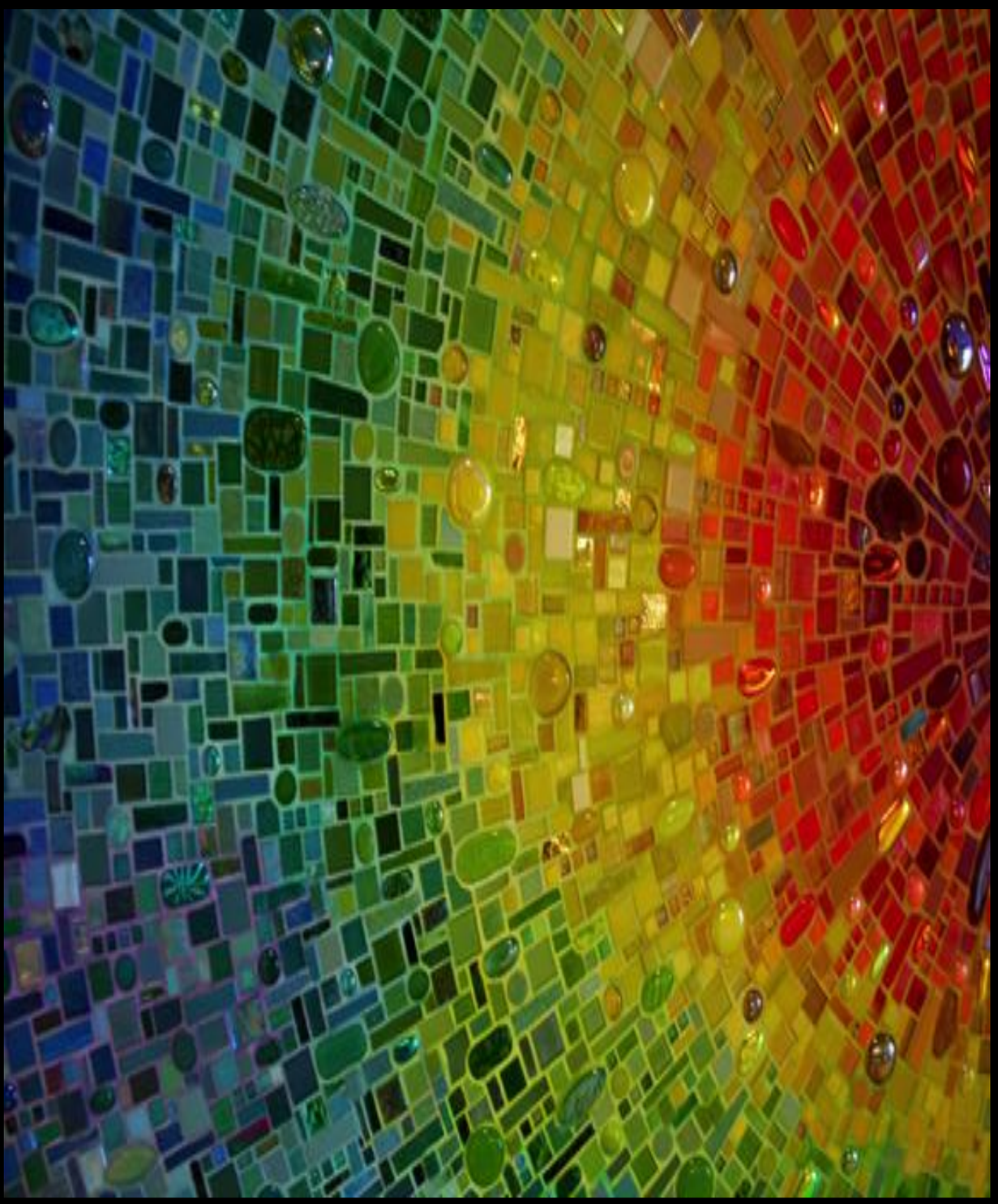
Recontextualize domain-specific knowledge, IP and technologies, across disciplinary boundaries and/or different industry verticals, by:

- Using innovation metaphors to recognize points of intersections among different fields (evolutionary exaptation).

- Applying a non-linear sense-making process, in order to cluster IP, knowledge assets and technologies from various sources.

- Frame problems and unmet needs as “innovation attractors” to organize potential solutions in complex but cohesive mosaic.

MULTIDISCIPLINARY KNOWLEDGE
AT THE INTERSECTION OF DOMAINS



Recognizing intersections
across knowledge and technology boundaries, is a similar thinking process to clustering the pieces of a complex mosaic.

Polymaths and generalists
play a key role in navigating inter-disciplinary complexity and seeing the invisible, at the intersections.

EXAMPLES + INSPIRATIONS

FOR CROSS-DISCIPLINARY INNOVATION

- **Phoenician naval architecture** and modern sails design
- **QuantumDots,** stained glass, and Renaissance art
- **Antique techniques for weaving oriental rugs,** AI-based structural designs and computational material engineering
- **Integrating architecture into nature**
- **Integrating nature into architecture**
- **Origami** and ultra-light satellites (Rob Lang)

INNOVATION IN NAVAL DESIGN: ALINGHI WINS THE AMERICAS CUP

PHOENICIAN-INSPIRED SAILS GEOMETRY
+
ADVANCED MODERN MATERIAL SCIENCE
=
ALINGHI WINS IN 2003 & 2007 THE AMERICA'S CUP (FIRST EU TEAM)

Alinghi and Team New Zealand race past The World in the America's Cup 2007

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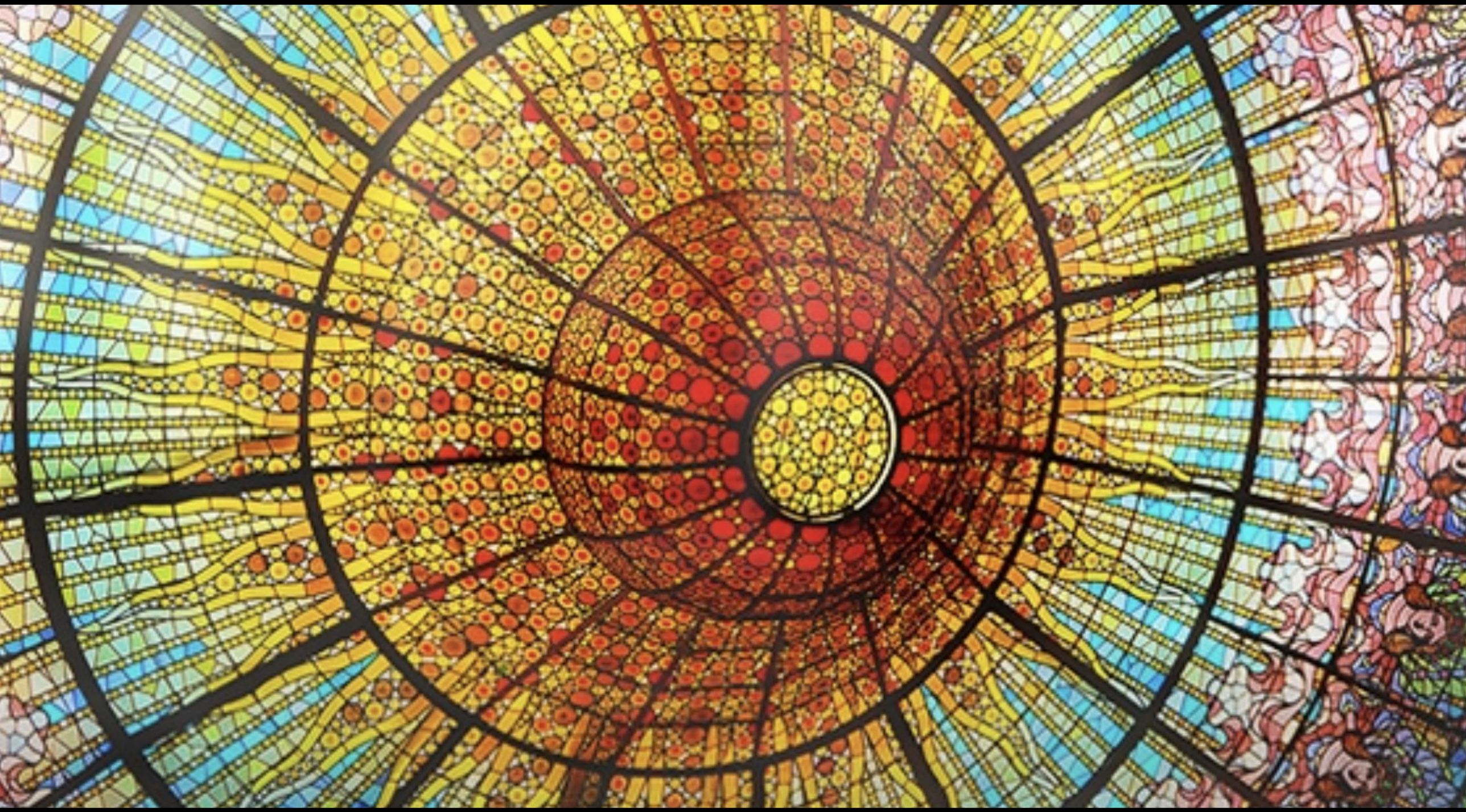
INTERSECTIONAL INNOVATION SPACES ARE EVERYWHERE YOU LOOK

QUANTUM DOTS AND ...

INTERSECTIONAL INNOVATION SPACES ARE EVERYWHERE YOU LOOK

QUANTUM DOTS AND RENAISSANCE ART

INTERSECTIONAL INNOVATION SPACES ARE EVERYWHERE YOU LOOK



INTERSECTIONAL INNOVATION SPACES ARE EVERYWHERE YOU LOOK …

ANCIENT KNOWLEDGE FOR ORIENTAL RUG WEAVING COMBINED WITH ARTIFICIAL INTELLIGENCE + MACHINE LEARNING KNITTING ARCHITECTURE

THE CARPET WEAVER'S CREATIVITY SHINES THROUGH IN THE ELABORATE BORDERS, WHICH DISPLAY A VAST LEVEL OF ORIGINALITY

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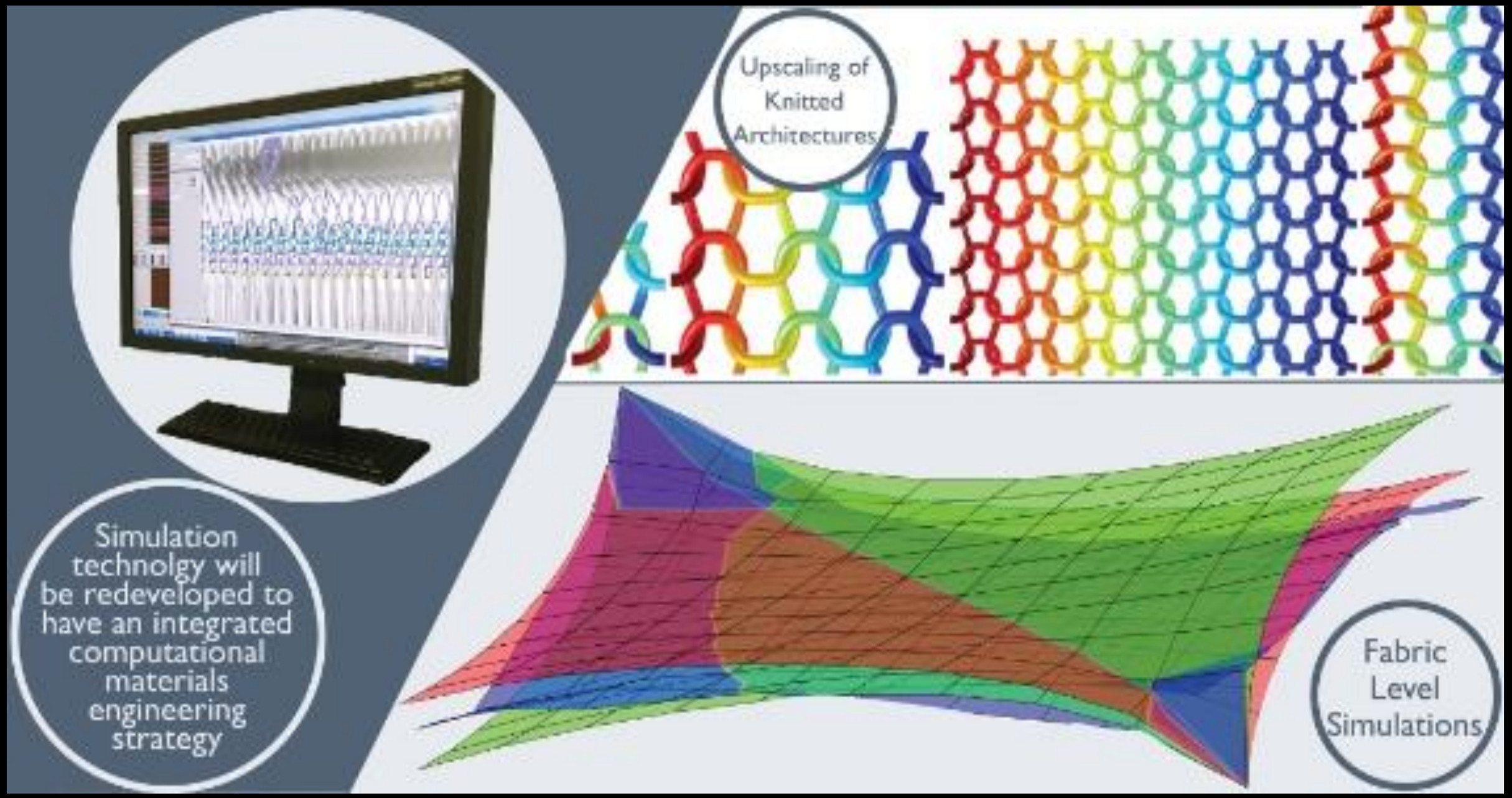

SIMULATION TECHNOLOGY, AI, MACHINE LEARNING, AND COMPUTATIONAL MATERIAL ENGINEERING

INTEGRATING ARCHITECTURE INTO NATURE (BIO-RESPECT)

This eco-resort in the desert of Saudi Arabia showcases French architect **Jean Nouvel**'s masterful innovation in architecture without compromising AlUla's history and heritage.

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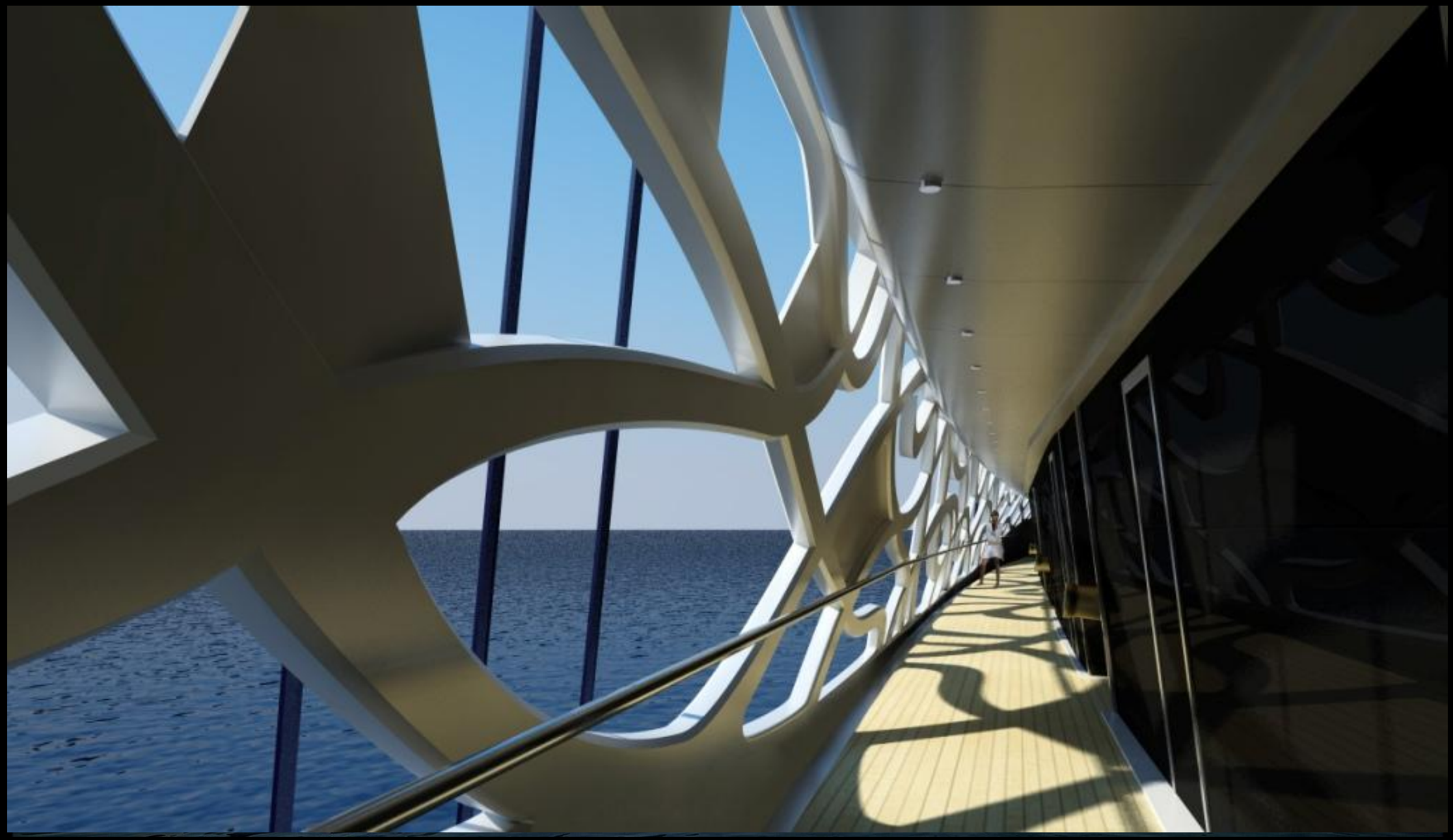
INSPIRATION FROM NATURE (BIOMIMICRY)



Drawing inspiration from **nature (biomimicry)** and from **ancient naval architecture,** both for aesthetic reasons and for the functional embodiment of advanced technical solutions.

INSPIRATION FROM NATURE (BIOMIMICRY) AND ANCIENT NAVAL ARCHITECTURES

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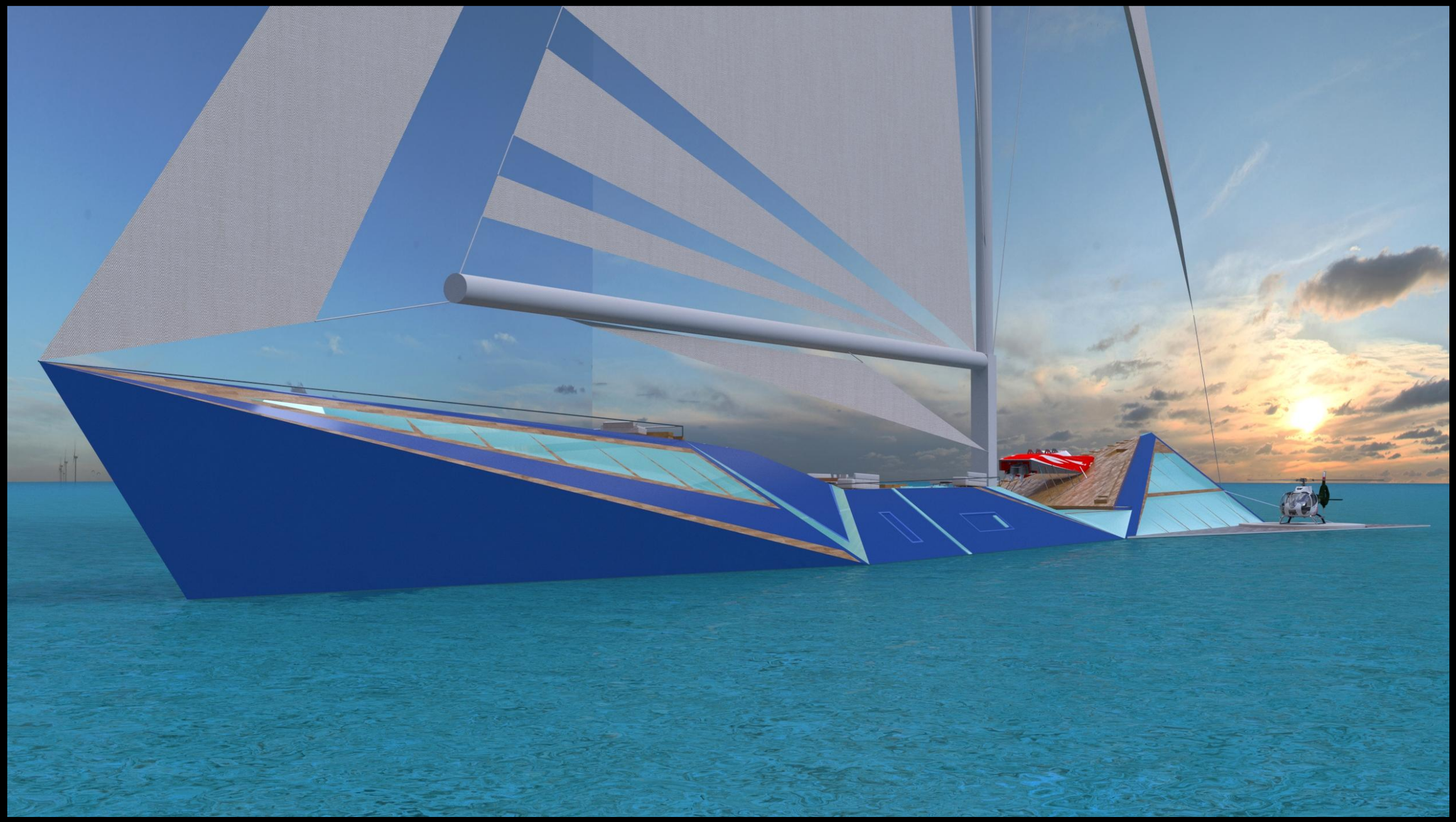
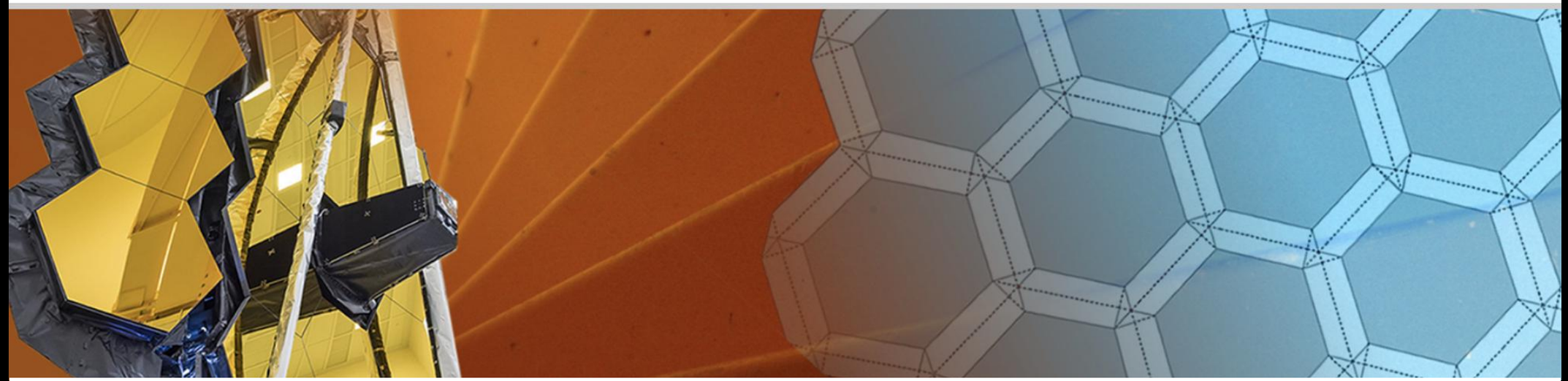
INSPIRATION FROM ORIGAMI



Monaco-based yacht designer, George Lucian, created a 100-meter sailing yacht inspired by Oriental maritime tradition and Japanese craft of origami, with convertible structures and multi-purpose surfaces such as partially-foldable hull that can turn into a touch-and-go helipad.

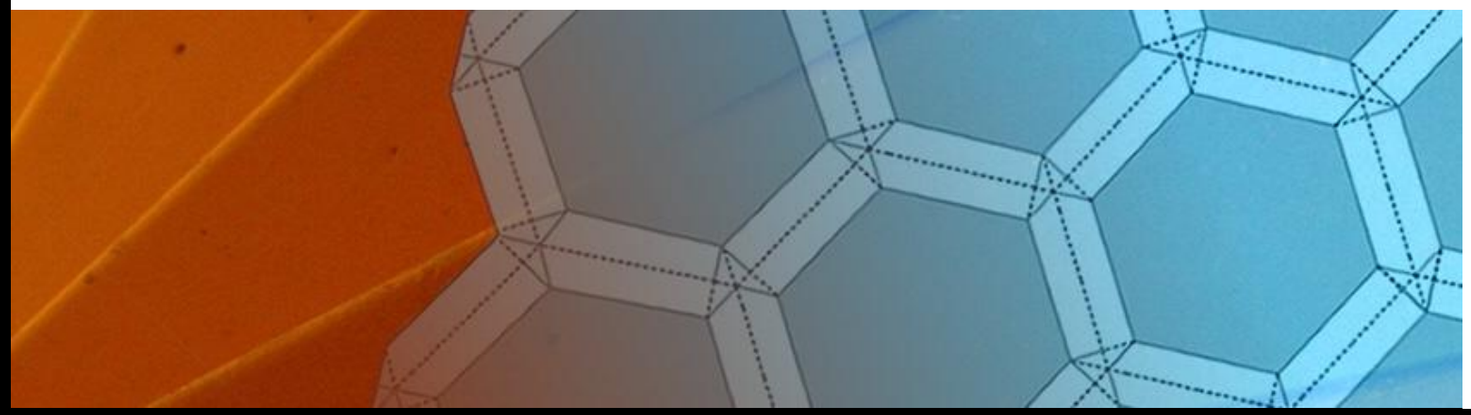
INSPIRATION FROM ORIGAMI

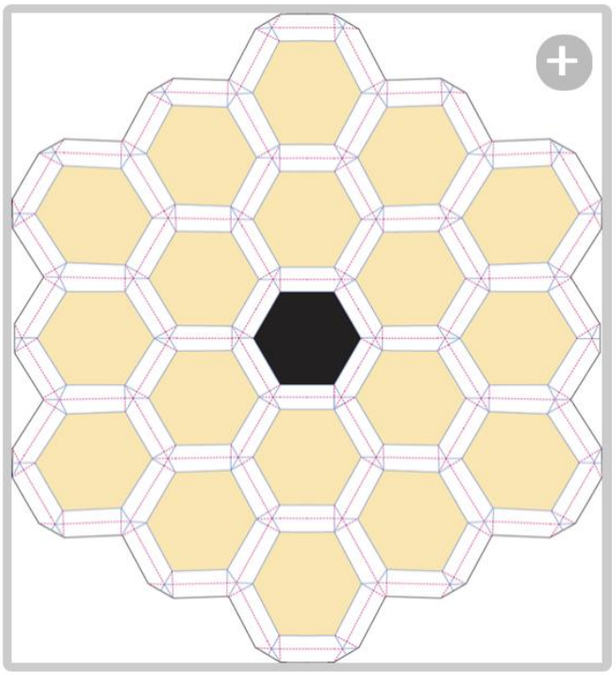
JAMES WEBB SPACE TELESCOPE
GODDARD SPACE FLIGHT CENTER

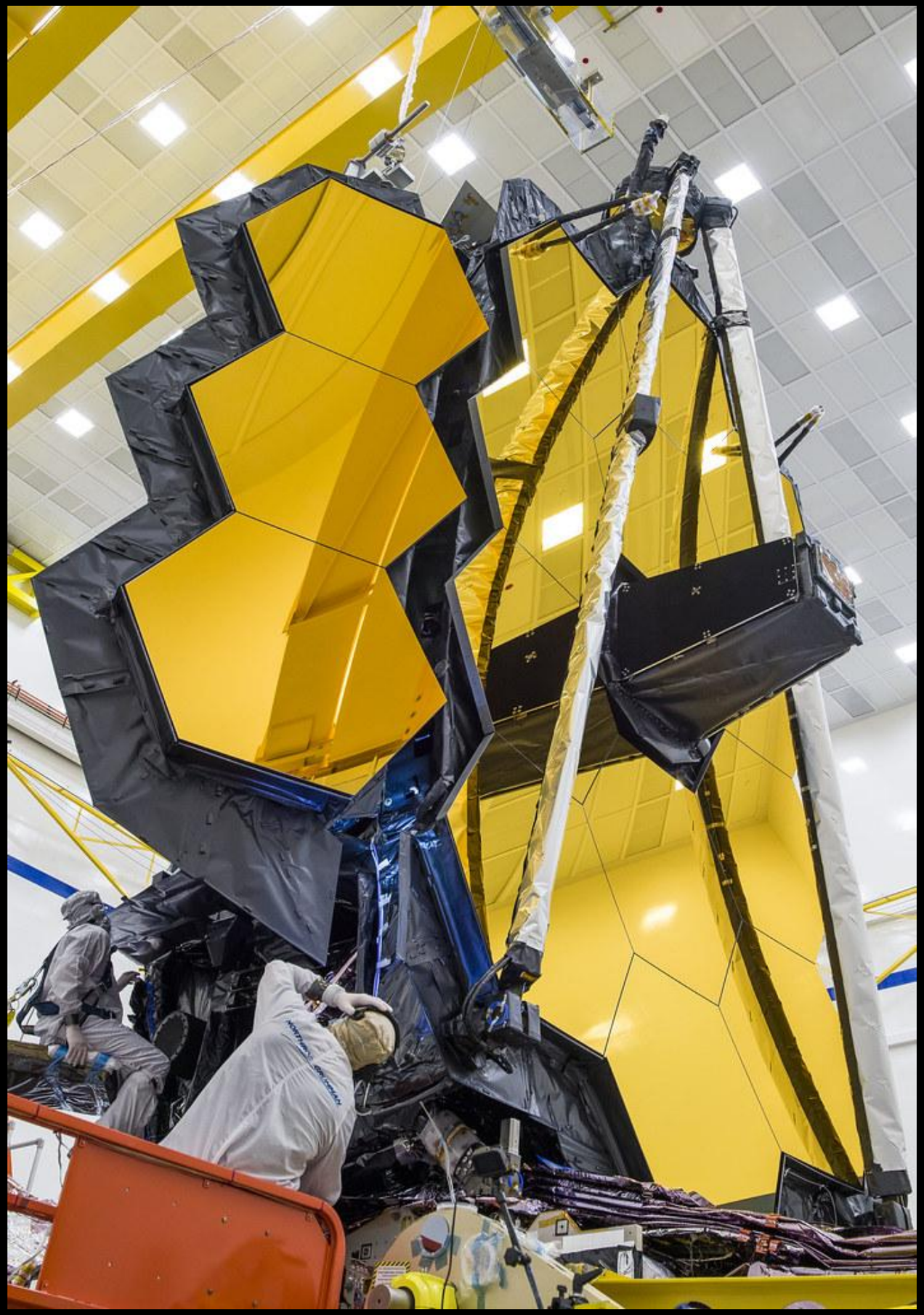


Folding And Unfolding Webb

For the James Webb Space Telescope to fit into a rocket, it must fold up. Whether it is the primary mirror or the sunshield, many parts of Webb are designed to deploy or unfold once in space. This origami pattern of the Webb primary mirror highlights the elegant engineering and artistic inspiration behind the telescope.







VISUAL NARRATIVE CAN RESHAPE CONSOLIDATED CONCEPTS

WHAT IS YOUR INNOVATION METAPHOR?

- Use your brain like a polymath and listen to your “second brain”(the guts) like a wizard
- Connect the dot across time, disciplines and cultural spaces
- Transcend the limiting perspective of the “here and now” ...
- Reconnect deeply with the whole and with higher dimensions of meaning - across time and space
- Escape the logic of linearity and “locality” in time and space
- Embrace and dive into paradoxes
- Find new meanings and create emerging patterns, for good!

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