

~~Environmentally~~ Responsible Design



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Aspirational sustainability is an oxymoron



“I’d love to design a Passivhaus* but we haven’t had a client willing to pay”

*Insert environmental target of choice.



Teslamotors.com

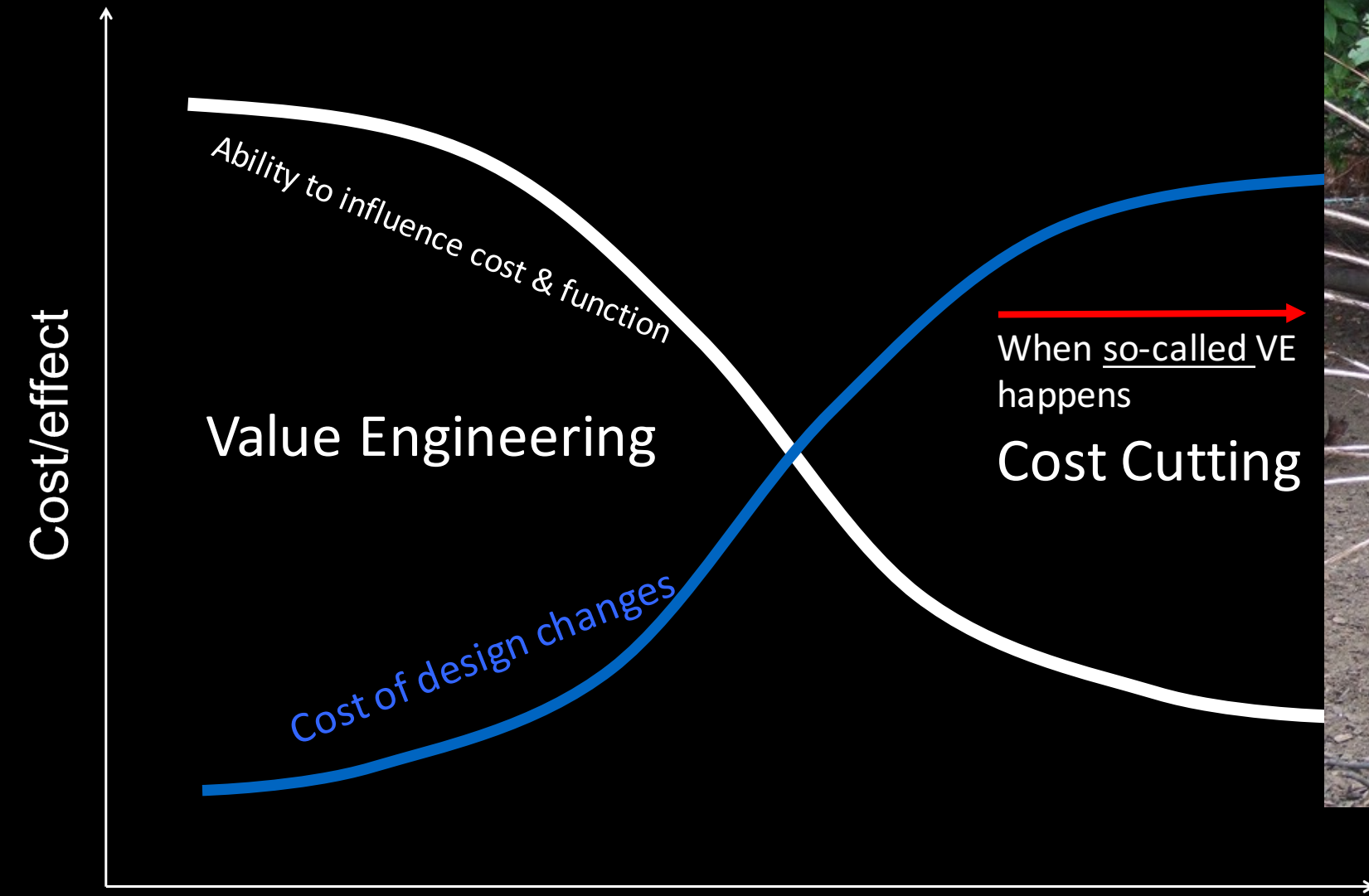
Nature is all about value

$$\text{Value} = \frac{\text{Function}}{\text{Cost}}$$

Humans Discovered Value Engineering:
The originators of VE found that
reducing cost often improved function &
improving function can reduce cost.



VE ≠ Cost cutting



Daisy Stone; Flickr

Pre-design Schematic design Design development Construction docs Tender Construction

Graph; Mark Siddall & others

What is the function of Buildings?

$$\text{Value} = \frac{\text{Function}}{\text{Cost}}$$

- Protection
- Comfort
- Physical health
- Mental health

Design from
inside out

- Impress other architects??

Design from outside in



“Who ever said that pleasure wasn't functional?”

Charles Eames

"He saw the beauty of the river and the railways and the way their energy blended and began to sketch in green felt pen on a napkin what he saw as a giant sail or an iceberg,"



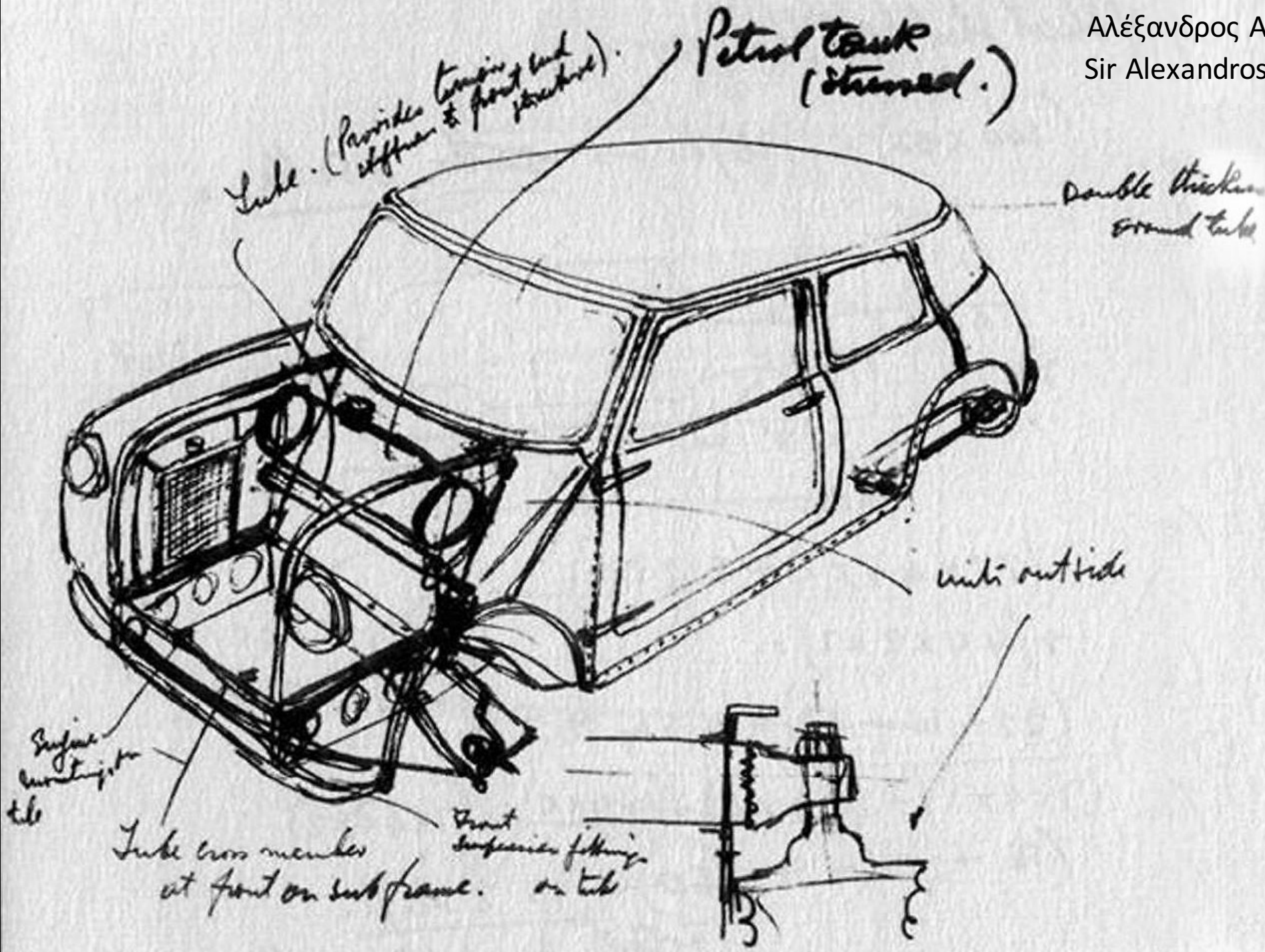
‘Architecture’ laughing in the face of physics

“I received a questionnaire
— ‘Which is more important
— beauty or function?’
I should make a choice
between keeping my head or
my heart?”

Charles Eames



Αλέξανδρος Αρνόλδος Κωνσταντίνος Ισηγόνης
Sir Alexandros Arnoldos Konstantinos Isigonis



“The extent to which you have a design style is the extent to which you have not solved the design problem.”

Charles Eames



Form followed function



Style is not design

Design freedom as aspiration



Random mutation
tested by constraints



Unconstrained
creativity

“The marvellous part about a kite problem is that this is one area in which one can definitely judge its success or failure – that is – it will fly or it will not fly.

I wish more problems could be so beautifully defined.”

Charles Eames

The weak link in the chain between pure artistic
concept and manifestation . . .
(according to some)



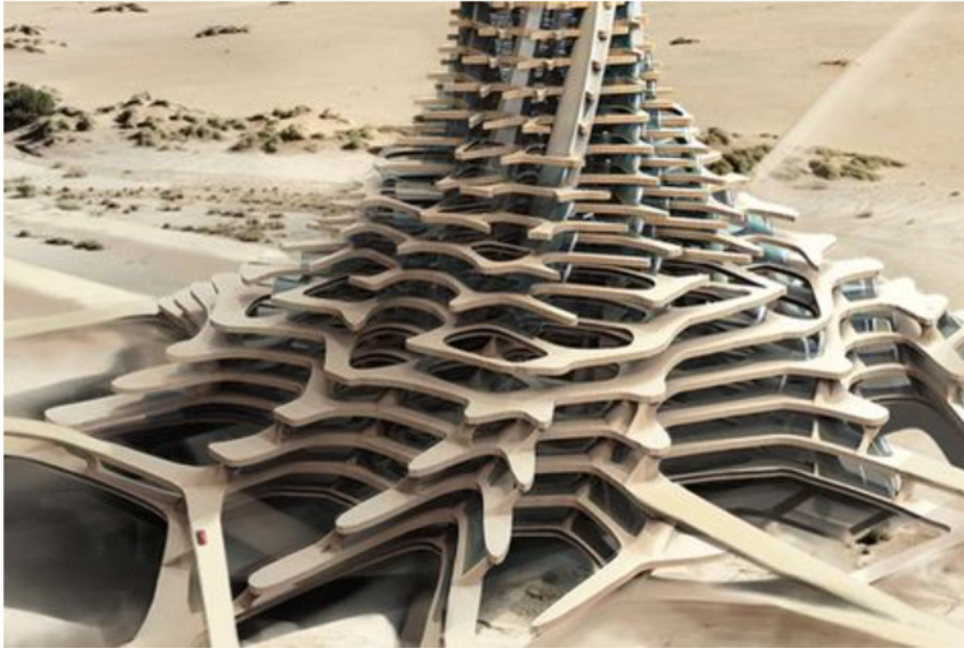
The solution!

25% of Dubai buildings should be 3D printed by 2030, says ruler

ARTICLE

PHOTOS

By Staff writer Wednesday, 27 April 2016 3:18 PM



A quarter of buildings in Dubai will be based on 3D printing technology by 2030 under a new strategy launched by Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai on Wednesday.

Related:

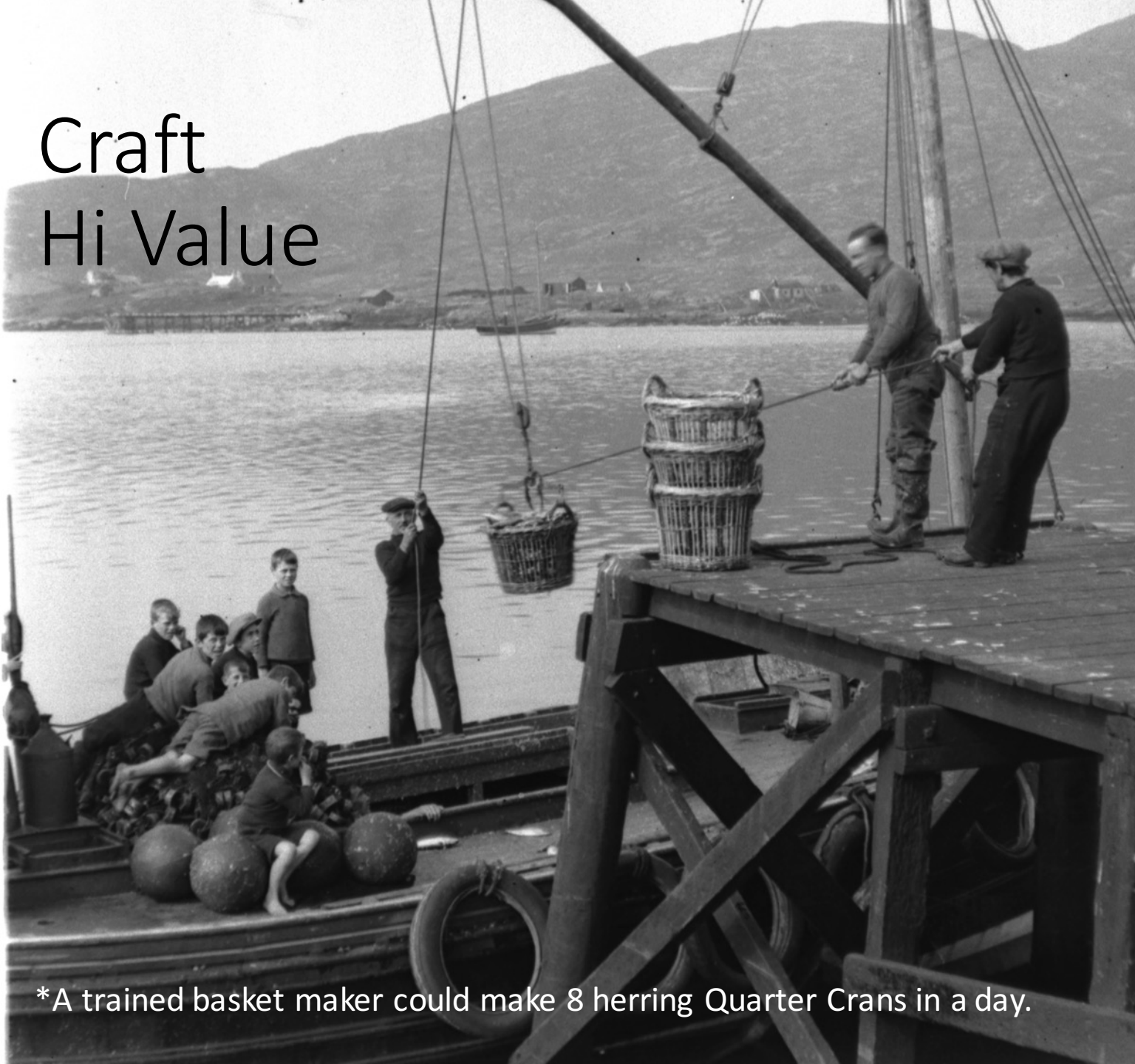
Stories

- ▶ Dubai reveals plan for world's first 3D printed office building
- ▶ Dubai ruler unveils Museum of the future
- ▶ 3D printed sweets get world debut in Dubai Mall shop
- ▶ 3D printers: new or latest threat?

Galleries



Craft Hi Value



*A trained basket maker could make 8 herring Quarter Crans in a day.



Colin Manthorpe making one of the last **Quarter Crans**, a herring basket accurate to 14 measurements. Thanks to *Queen Elizabeth Scholarship Trust (QUEST)* for grant funding for this research. Photo Mary Butcher

Craft & Design Versus Art – value, values & valuation

Traditional Baskets

Joe's baskets are all made to order. If you are interested in ordering please [contact Joe](#) for availability.




£50-£200

$$\text{Value} = \frac{\text{Function}}{\text{Price}}$$

$$\text{Status} = \frac{\text{Price}}{\text{Function}}$$

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1 of 1 images

Large Sculptural Basket with Bog Oak by Joe Hogan Irish Basket Maker





£2,700


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£2,700. Less functional, is it 10X more beautiful?

“Design is an expression of purpose.
It may, if it is good enough, later be
judged as art.”

Charles Eames



Embrace Constraints

“Here is one of the few effective keys to the design problem — the ability of the designer to recognize as many of the constraints as possible — his willingness and enthusiasm for working within these constraints. Constraints of price, of size, of strength, of balance, of surface, of time and so forth.”

Charles Eames

Energy targets, air quality, surface temperatures, airtightness, cost, materials, water use, summer overheating hours, daylight, views, privacy, space, glazing ratios, openable window sizes, reparability, reusability

Constraints provide clear shared goals for the client and the whole design team



Even ants can do it

'Living' Bridges Formed By Army Ants Help Those Cover Gaps and Travel Efficiently

Submitted by [Tim Mayr](#) on Wed, 11/25/2015 - 23:12



A group of researchers recently discovered complex bridges that are constructed by Eciton army ants with their own bodies. Researchers said these bridges are constructed to span gaps in the colony's foraging trail.

According to a paper published Monday in the journal *Proceedings of the National Academy of Sciences*, the ants also weigh the costs and benefits if making long, living bridges.

Researchers said that if a shorter distance requires large number of ants, then the ants decide that it's not worth making a bridge. It has been found that army ants build bridges beginning at the intersection between sticks, vines, or other material the insects are walking on.

Ants simply increase the length of the bridge by adding more bodies in order to span a larger and larger space and

make a more efficient route, said researchers.

The study shows that ants stop moving the bridge when they sense they are actually slowing their progress overall by using large number of bodies.

Trust the process

- Identify constraints
 - Set clear targets for performance
 - Set clear targets for budget
- Design from the inside out
- Work to break down barriers between trades

“What works good is better than what looks good,
because what works good lasts”

Ray Eames

