

ARUP

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ANCE Giovani

MATTONI 4.0 , Digitalizziamo un antico e nobile mestiere

Roma | 19 Maggio 2017

1970



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A photograph of a large industrial facility, likely a steel mill or foundry, from 1970. The scene is filled with massive, dark, heavy-duty machinery and structural components. In the center, a man in a light-colored shirt and dark trousers stands near a workbench, providing a sense of scale to the enormous equipment. The background shows a high-ceilinged building with structural beams and various industrial fixtures. The overall atmosphere is one of a busy, large-scale manufacturing environment.

1970

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1970

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A photograph of two towers of the Burj Khalifa under construction in 2012. The towers are cylindrical with a glass facade and a golden, geometric-patterned exterior. They are set against a clear blue sky. In the foreground, there are palm trees on the left and a low green hedge. A white bus is visible on a road between the hedge and the towers.

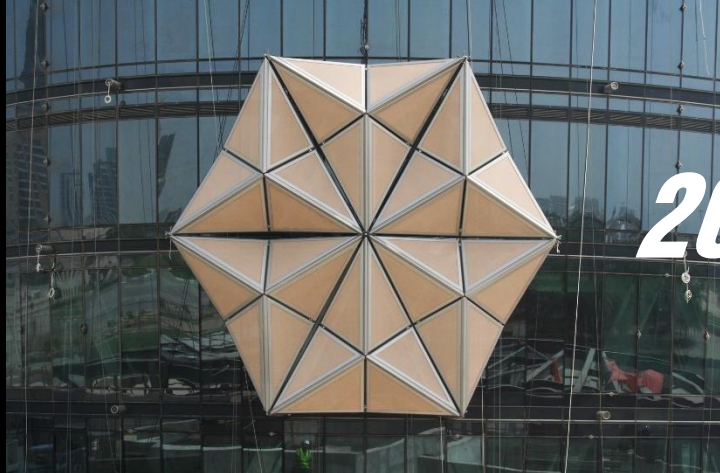
2012

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2012

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2012



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***Why Digital Transformation?
What has changed?***



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What has changed?

QUESTIONS + CONTEXT + RESPONSABILITY

What has changed?

QUESTIONS + CONTEXT + RESPONSABILITY

from "is it feasible?"



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from "is it feasible?"



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from "is it feasible?"



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to "is it useful?"



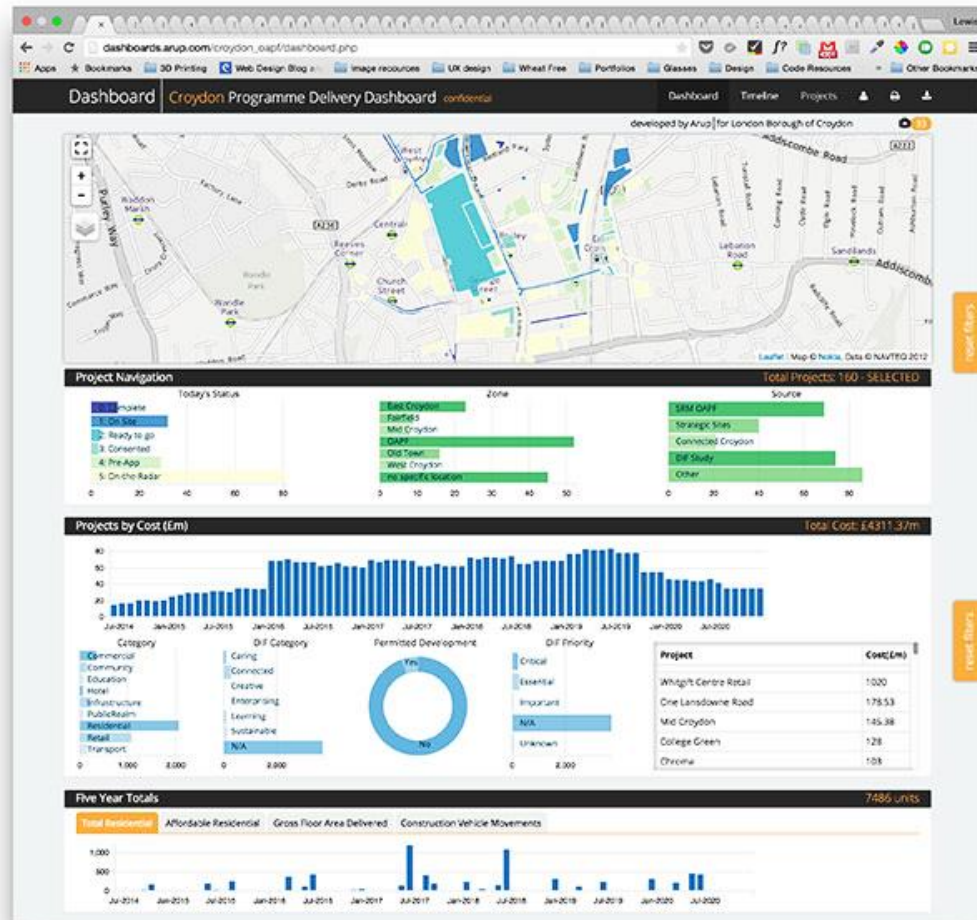
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"In God we trust; all others must bring data."

E.W.Demig

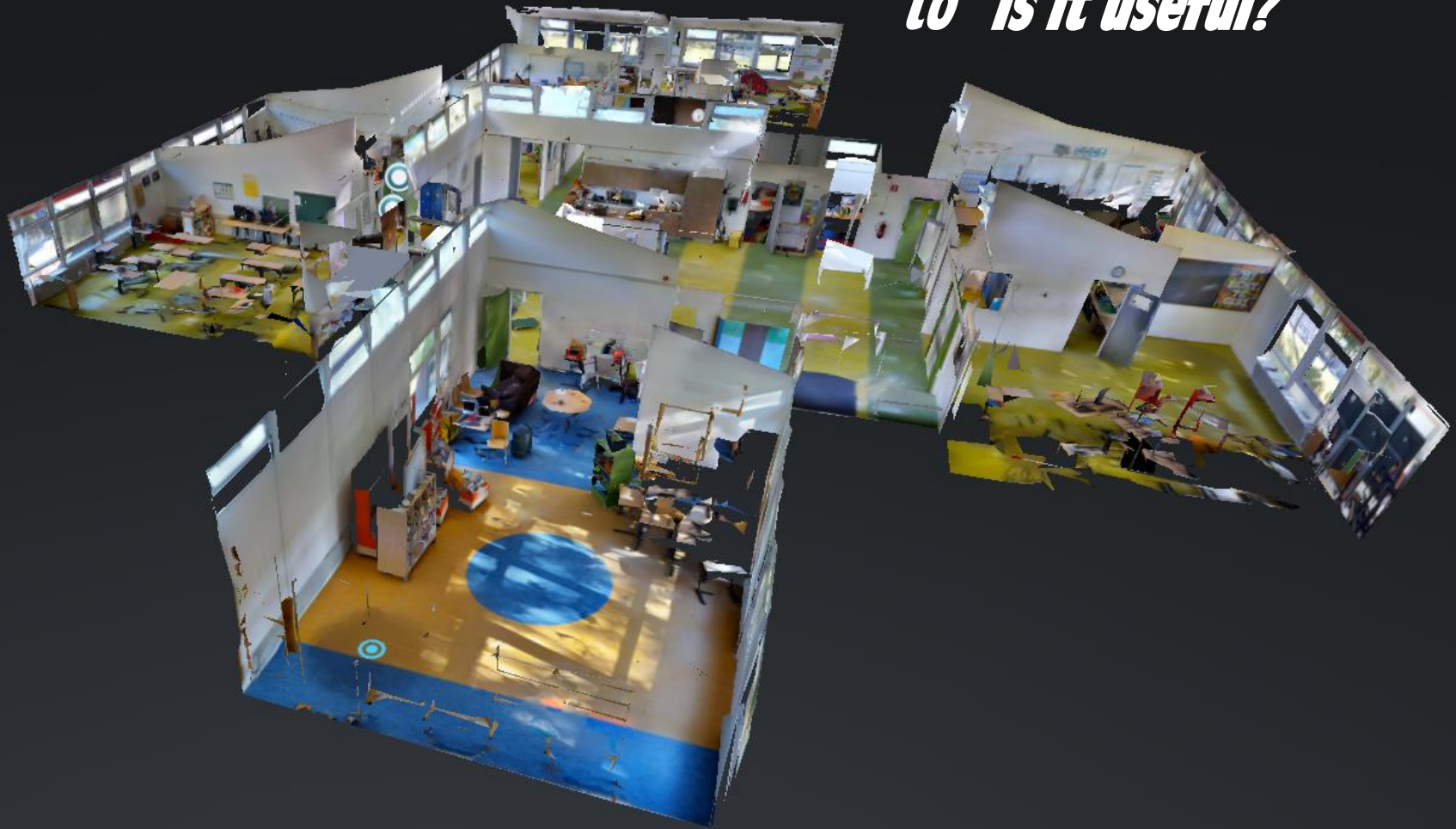


to "is it useful?"



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to "is it useful?"



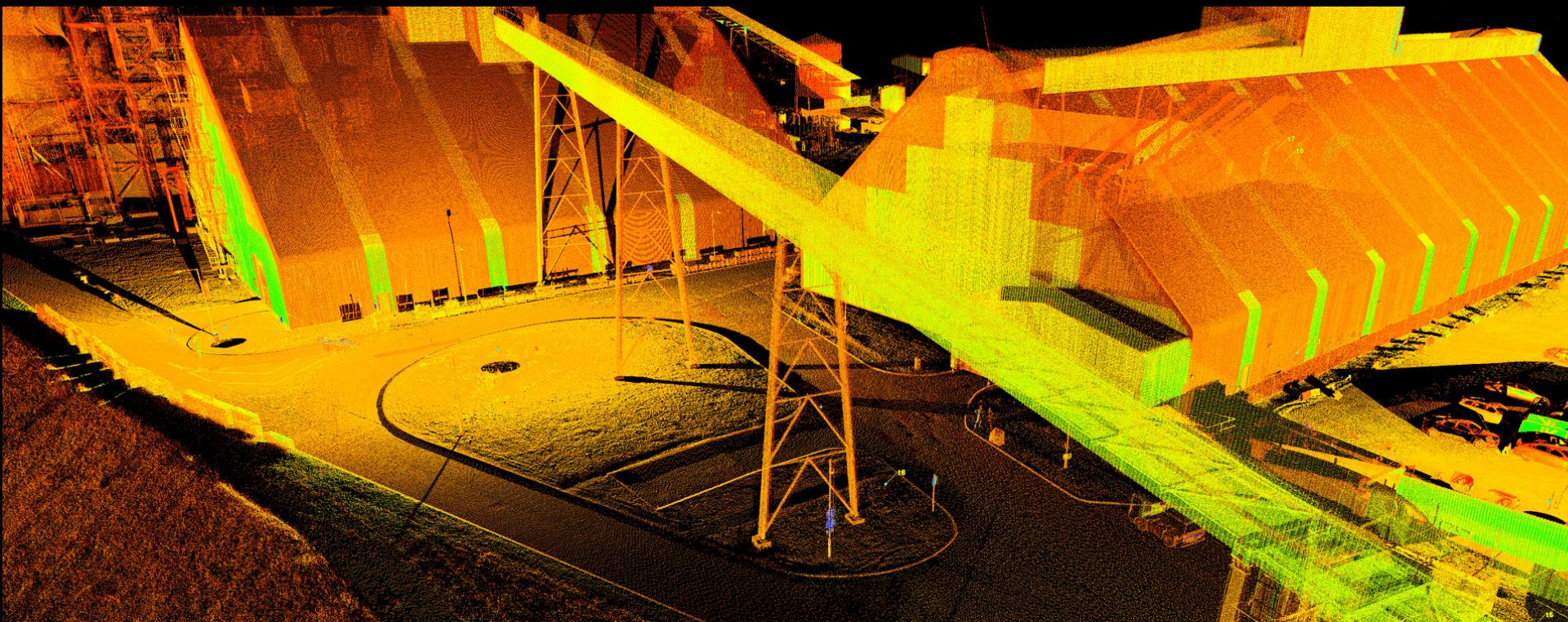
Dollhouse

Floor plan

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to "is it useful?"



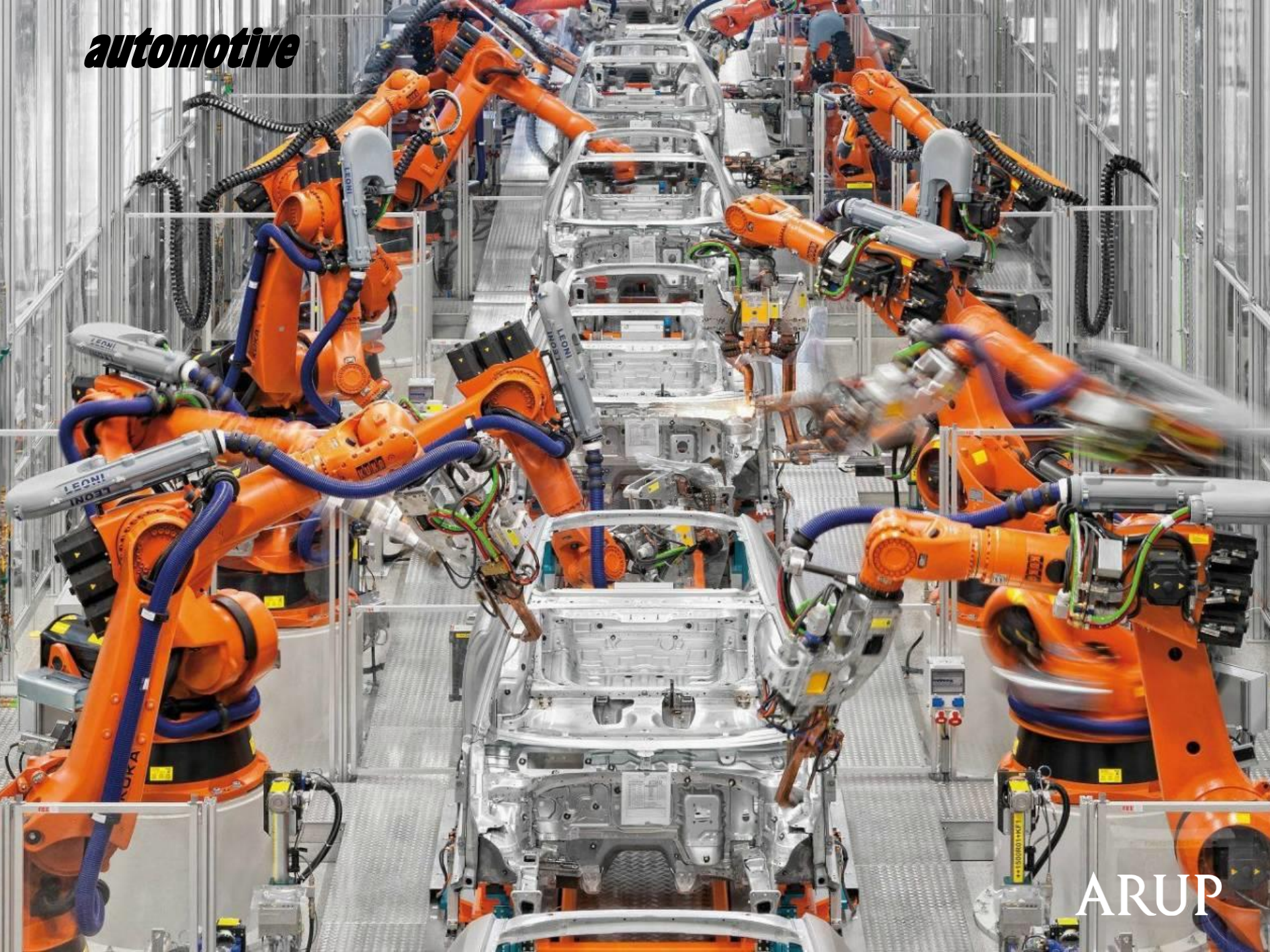
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What has changed?

QUESTIONS + **CONTEXT** + RESPONSABILITY

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automotive



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medical



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fashion design

© ***Adidas***

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and the BUILDING sector ?

What has changed?

QUESTIONS + CONTEXT + RESPONSABILITY

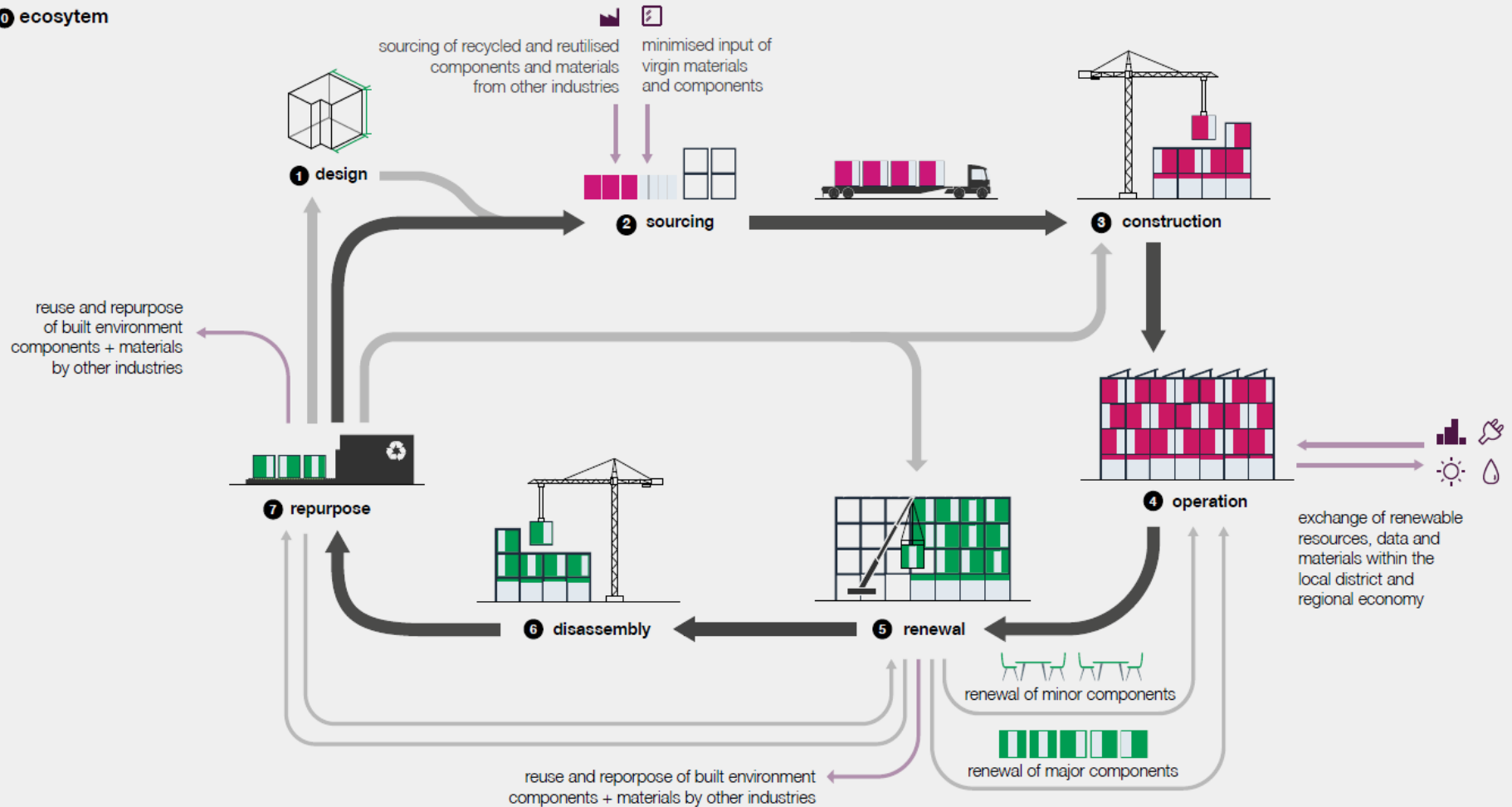
"There is no energy crisis. There is only a crisis of ignorance."

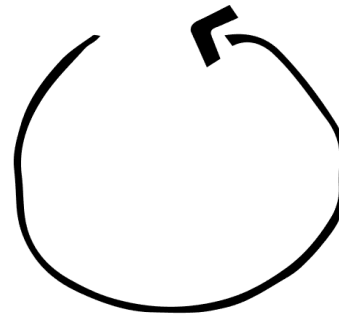
Buckminster Fuller





0 ecosystem





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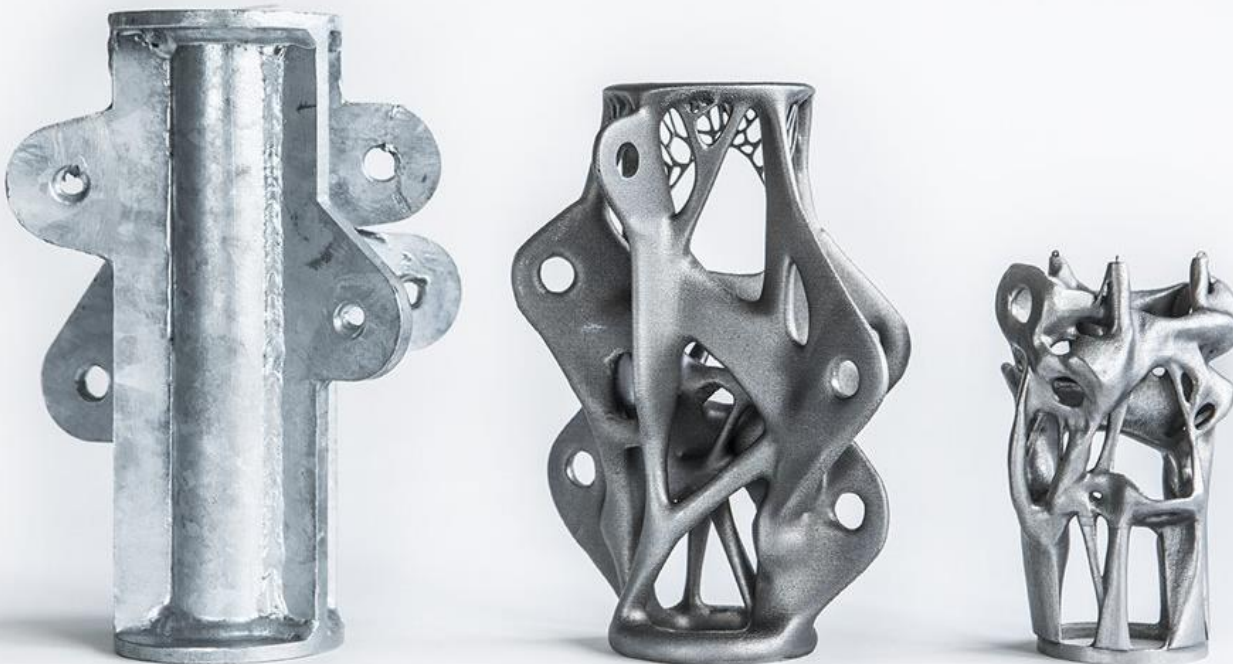
What has changed?

QUESTIONS + CONTEXT + RESPONSIBILITY

DIGITAL TRANSITION at ARUP

Additive Manufacturing

Hyper-efficient Metalwork



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Additive Manufacturing

Daedalus Pavilion

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EXPLORING SOLUTIONS

SHADOW

- ☒ RUN
- ☐ INSTANT
- ☒ WHOLE DAY
- 1/12 14h

INSOLATION (I)

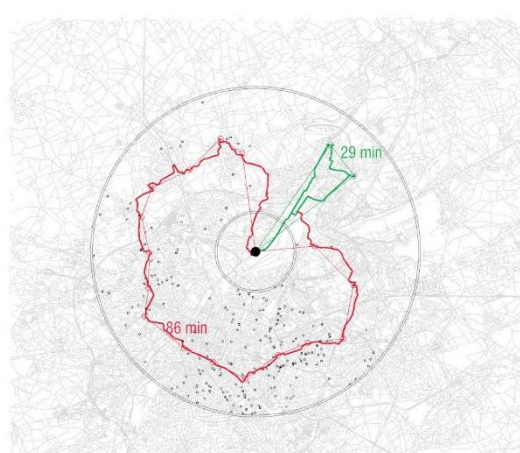
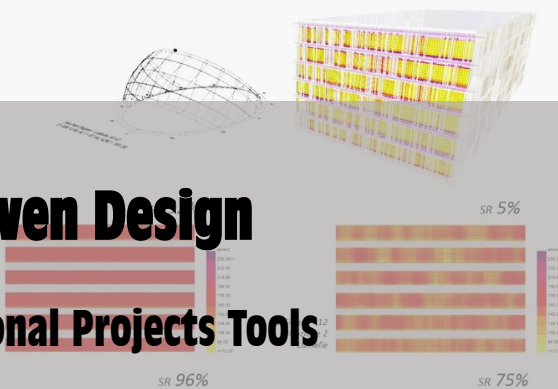
- ☐ RUN
- ☒ CUMULATIVE
- ☐ PEAKS
- ☐ INSTANT
- 1/12 14h

INSOLATION (II)

- ☐ RUN
- THRESHOLD (W-H) 43
- (WEATHER) (15-11/12)

Data Driven Design

Computational Projects Tools



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CONTROL PARAMETERS



VISUALIZATION

- ☒ PICK-UP POINTS NETWORK
- ☒ UNIMPOUND BUS ROUTES
- ☒ REAL BUS ROUTES (takes bus seconds)
- ☒ GOOGLE API BUS ROUTES

TOTAL LENGTH (km)



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EXPLORING SOLUTIONS

OFFICE TO TEST



DESIGN OPTION



RAISE GRAPH



EXPORT TO REVIT



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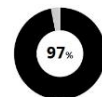
EXPLORING SOLUTIONS

COST IMPACT ANALYSIS (M€)

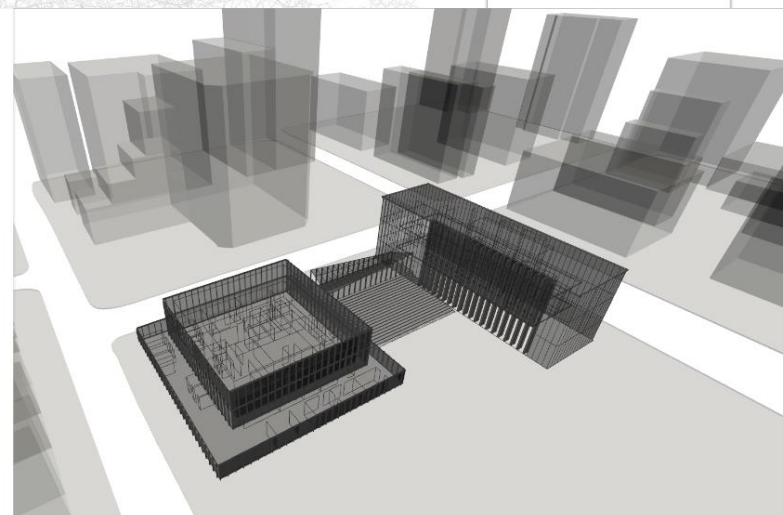


- GLASS (FACADE)
- CONCRETE (FACADE)
- REINFORCED GLASS
- GLASS (WALL)
- REINFORCED GLASS
- REINFORCED GLASS (STRUCTURE)

TOTAL = 13.280.313 €



% total budget



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EXPLORING SOLUTIONS

BUILT AREA / TOTAL AREA



VOLUME (m3)



SURFACE (m2)

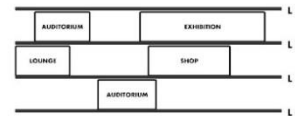


ENVELOPE (m2)



Rhino Viewport

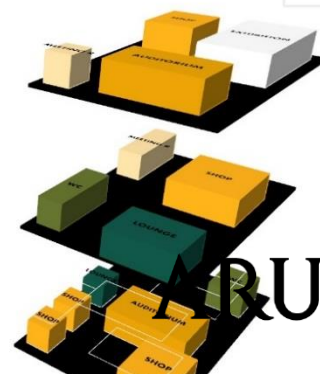
Top



PROGRAM	SPACE	SURFACE (m2)	% OF TOTAL BUILDING SURFACE	POTENTIALLY PEOPLE CONTAINED
SHOP		37	1 %	I
SHOP		37	1 %	I
SHOP		130	2 %	II
LOUNGE		37	1 %	I
WC		79	1 %	II
AUDITORIUM		213	4 %	III
SHOP		250	4 %	III
MEETING R		94	2 %	II
LOUNGE		150	3 %	II
WC		94	2 %	II
AUDITORIUM		202	4 %	III
SHOP		137	2 %	II

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EXPLORING SOLUTIONS



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Experience & Simulation

Virtual and Augmented Reality



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Experience & Simulation

Soundlab



ARUP SoundLab



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The background of the slide is a close-up, high-resolution photograph of a brown, woven fabric. The texture is a tight, regular weave, similar to burlap or a heavy canvas, with individual threads clearly visible. The lighting is soft and even, highlighting the natural fibers and the intricate pattern of the weave.

Innovative Systems

The BioBuild project

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Innovative Systems

The BioBuild project



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Innovative Systems

The Algae Facade

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Transition Services

Robots for the building industry



Systems Development

The Roof of the Apple Campus





The future is here

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