



ASSOLOMBARDA

# Design Thinking, User experience e SPRINT Execution

Interviene **Venanzio Arquilla** Professore associato del Dipartimento di Design del Politecnico di Milano e Coordinatore Experience Design Academy

# Introduzione

- *Il ciclo di incontri «Ripartire dall'innovazione»*
- *Il webinar di oggi:*
  - *i temi che tratteremo e il relatore che ci accompagnerà*
  - *alcune informazioni organizzative*

## Venanzio Arquilla

**Associate Professor of the Politecnico di Milano  
POLIMI Design School / Secretary of the Bachelor Degree  
on Product Design and the Master Degree on Integrated  
Product Design**

My research activities deal with UX Design, design innovation tools and methodologies, service design, design policies, including different research on innovation and technological transfer of design at national and international levels. Founder of Politecnico di Milano's Laboratorio Co.Meta - Design for Autism. Founder and Director of the Experience Design Academy - POLI.design.



Venanzio Arquilla - 2020  
#UXDpolidesign  
venanzio.arquilla@polimi.it

A group of people are shown from a low angle, holding onto a thick black rope that runs diagonally across the frame. The background is a clear, light blue sky. The people are wearing casual summer clothing. The text "Do you copy?" is overlaid in a white, cursive font across the center of the image.

*Do you copy?*

# DI COSA ABBIAMO PARLATO

1. Design
2. Design Thinking & Creative Problem Solving
3. Lean UX
4. Creative Confidence

# DI COSA PARLEREMO

1. La transizione in Atto - AI & Servitization
2. L'importanza del design e la sua evoluzione
3. Phygital UX & Conversational Design
4. Sprint execution

# La Transizione in atto

**Digital Transformation, Design,  
Services, New Technologies**

# Servitization



# Gartner Hype Cycle for Emerging Technologies, 2019



[gartner.com/SmarterWithGartner](https://gartner.com/SmarterWithGartner)

Source: Gartner  
© 2019 Gartner, Inc. and/or its affiliates. All rights reserved.



## Emerging Technology Trends 2019



### Sensing and Mobility

- 3D sensing cameras
- AR cloud
- Light-cargo delivery drones
- Flying autonomous vehicles
- Autonomous driving Levels 4 and 5



### Augmented Human

- Biochips
- Personification
- Augmented intelligence
- Emotion AI
- Immersive workspaces
- Biotech (cultured or artificial tissue)



### Postclassical Compute and Comms

- 5G
- Next-generation memory
- Low-earth-orbit satellite systems
- Nanoscale 3D printing



### Digital Ecosystems

- DigitalOps
- Knowledge graphs
- Synthetic data
- Decentralized web
- Decentralized autonomous organizations



### Advanced AI and Analytics

- Adaptive machine learning (ML)
- Edge AI
- Edge analytics
- Explainable AI
- AI PaaS
- Transfer learning
- Generative adversarial networks
- Graph analytics

[gartner.com/SmarterWithGartner](https://gartner.com/SmarterWithGartner)

© 2019 Gartner, Inc. All rights reserved. CTMKT\_741609



# Artificial Intelligence

# An executive's guide to AI



Staying ahead in the accelerating artificial-intelligence race requires executives to make nimble, informed decisions about where and how to employ AI in their business. One way to prepare to act quickly: know the AI essentials presented in this guide.

Jump to business use cases for:

Machine learning →

Deep learning →

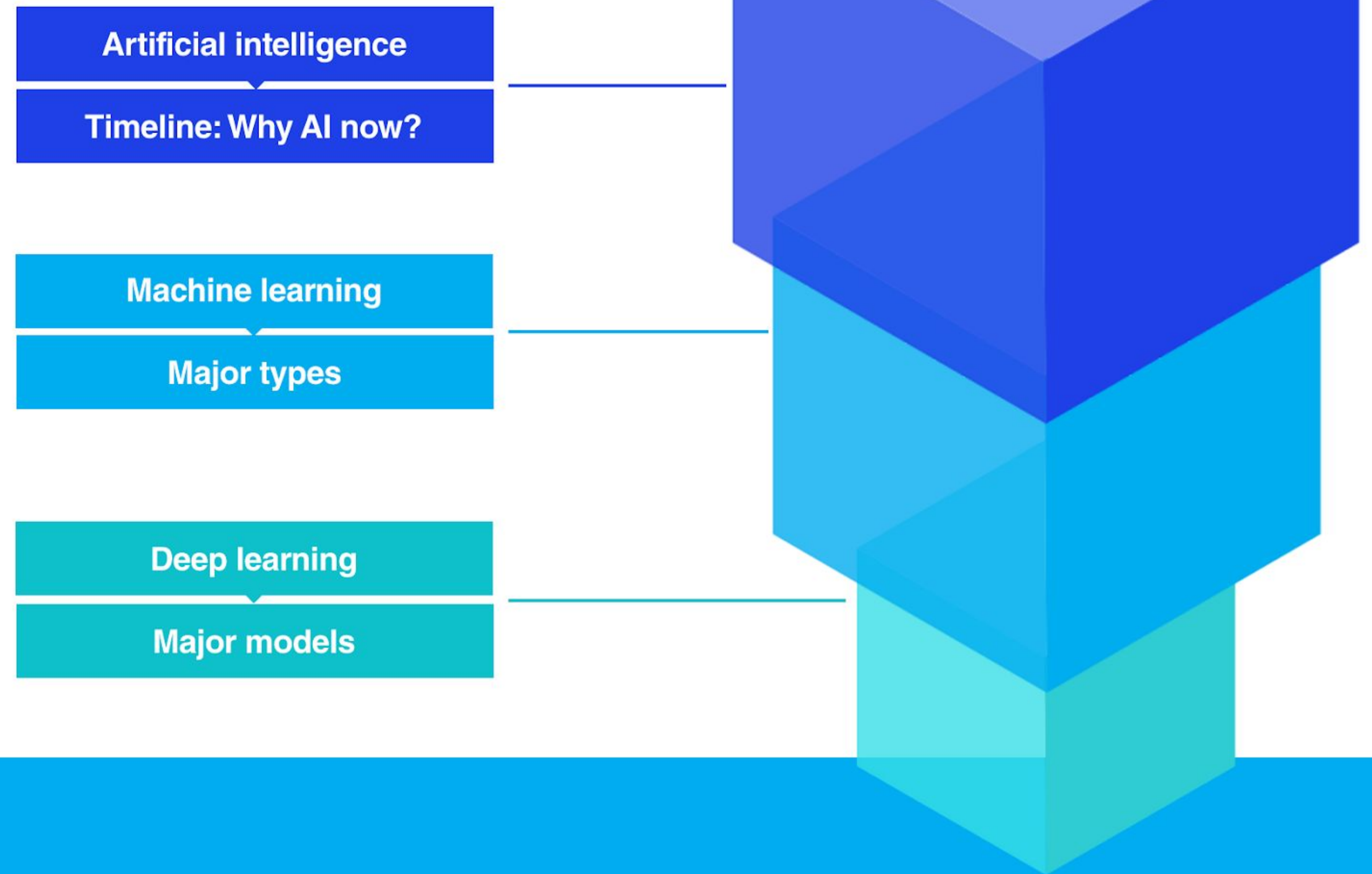


**POLITECNICO**  
MILANO 1863  
DIPARTIMENTO DI DESIGN

**POLI.DESIGN**



Experience  
Design  
Academy



McKinsey&Company

## Competing in the AI economy

<https://www.mckinsey.com/business-functions/mckinsey-analytics/our-insights/competing-in-the-ai-economy-an-interview-with-mits-andrew-mcafee>

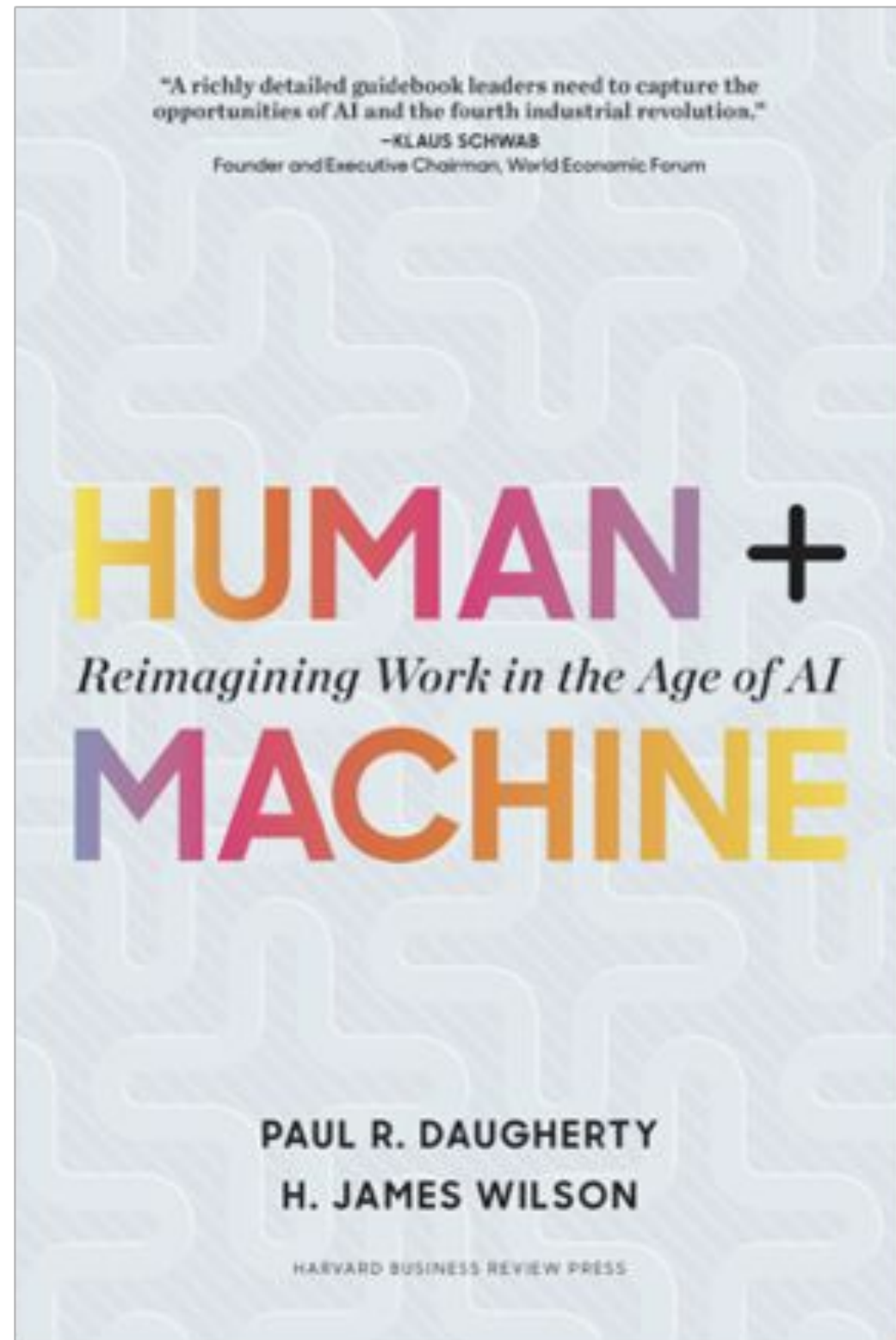


McKinsey&Company

### An interview with Andrew McAfee

Principal Research Scientist, MIT

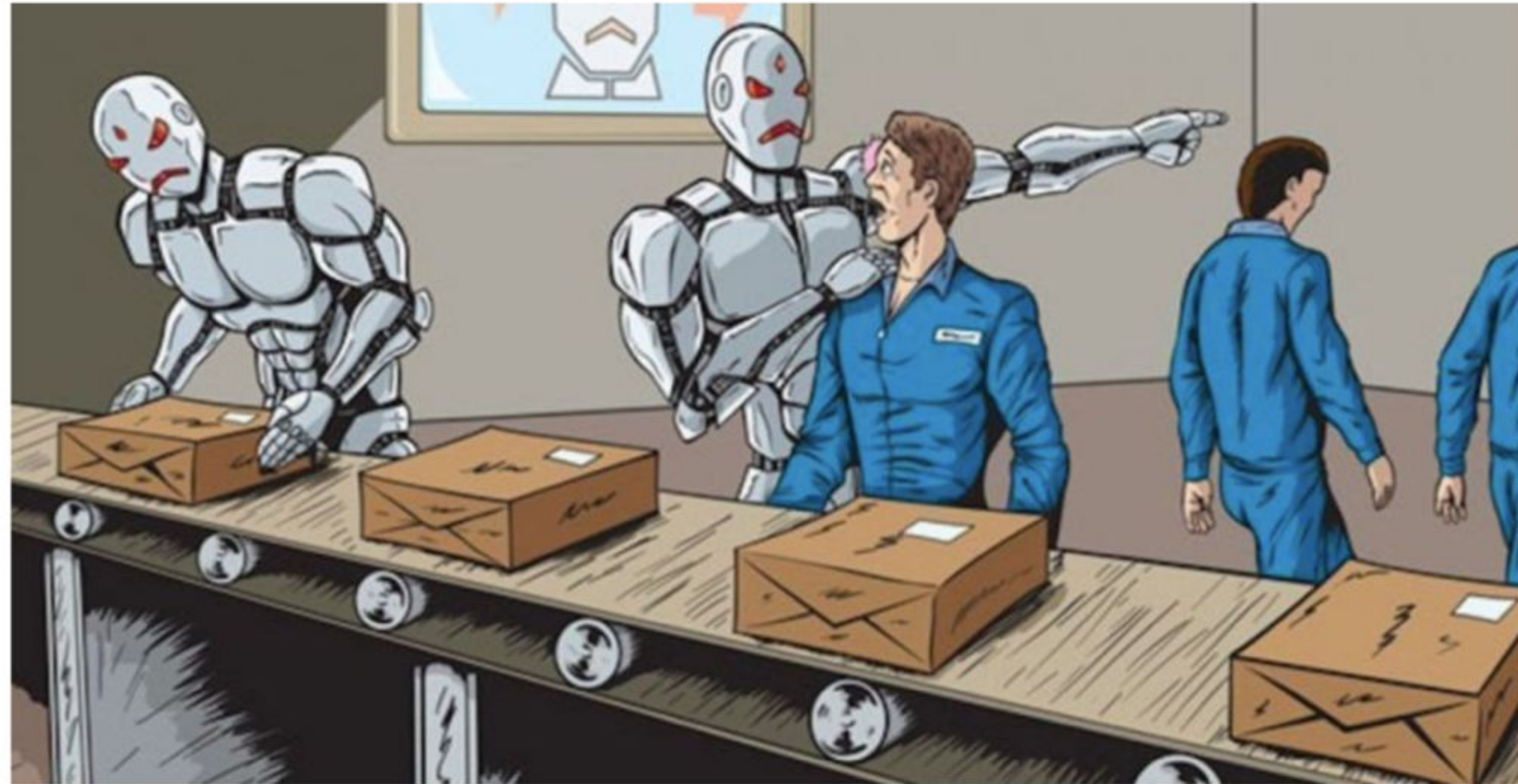
I think the experience economy is already pretty big, but as a share of the stuff that we want to do and that we want to spend our time and money on, it's **probably going to get a lot bigger**. So figure out what people actually want to do in this weird, new world free of all of the hassles we used to experience.



**New Competences  
New Opportunities**

**VS**

**A possible dystopic vision**



# Un breve esempio: l'Automotive



## Blockchain revolution!

<https://www.e-zigurat.com/innovation-school/blog/blockchain-in-mobility/>

car-wallet

**Smart Insurance**

insurance linked to the user

carsharing ecosystem

Temporary Vehicle Functions

flocking

profile  
**smart contracts**

EV Charging

new possibilities of vehicle

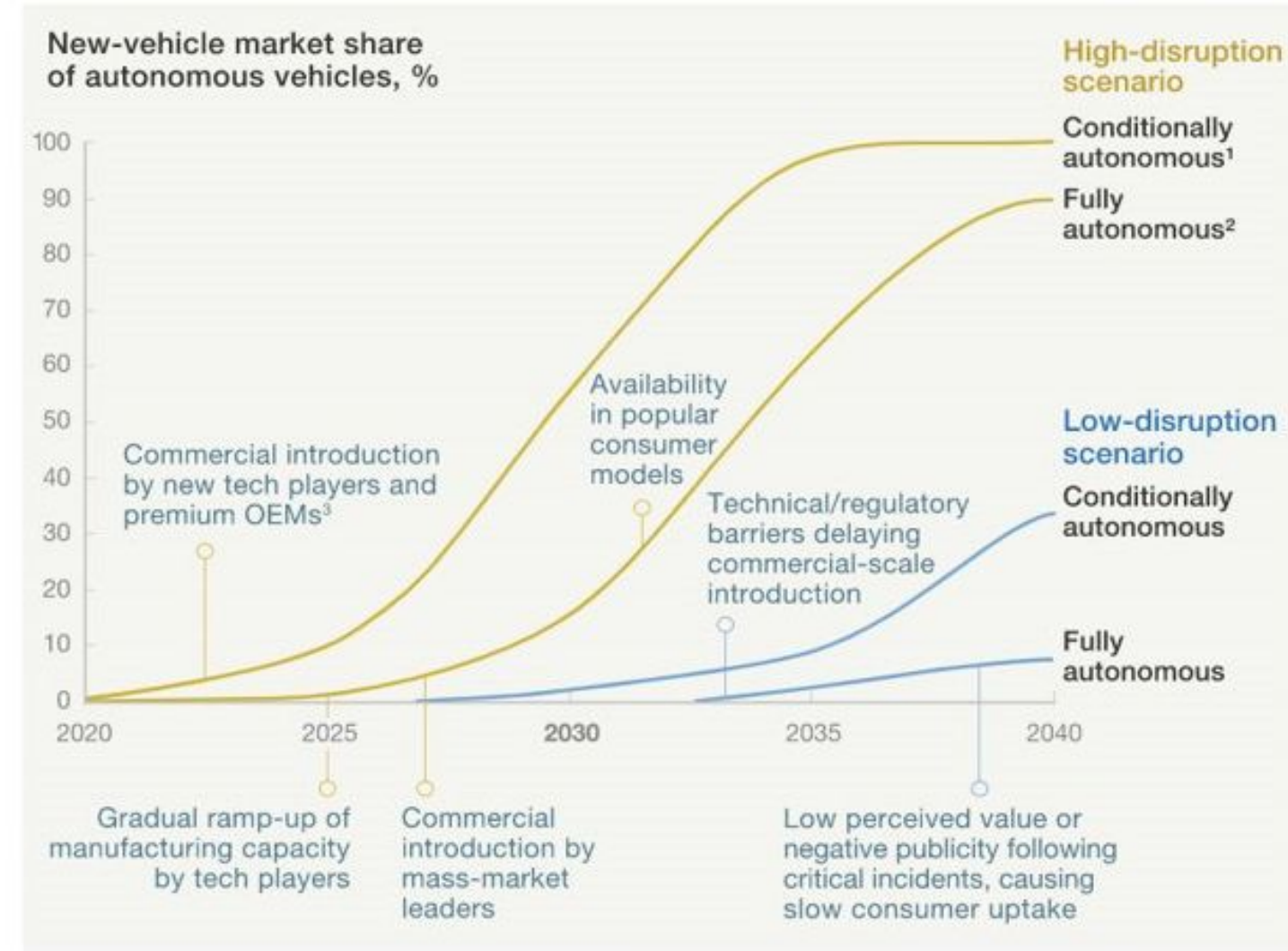
real-time data could be kept on a blockchain to create a digital twin

ownership  
**Sharing Economy**

WP3 | SMART VEHICLES & MOBILITY

a vehicle that represents a separate financial entity

## How many new cars may be fully autonomous by 2030?

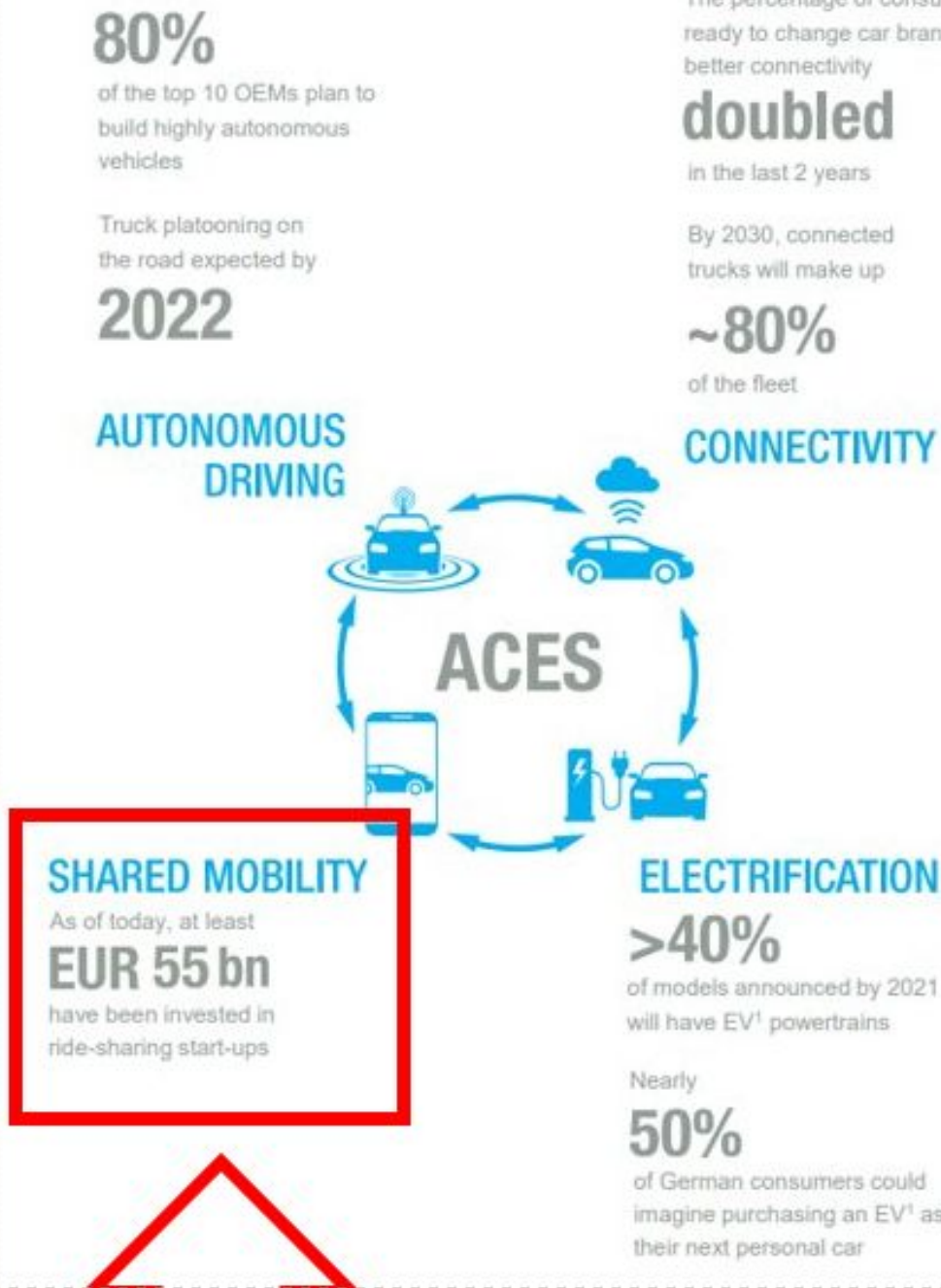


Factors in disruption scenarios	High disruption	Low disruption
Regulatory challenges	Fast	Gradual
Safe, reliable technical solutions	Comprehensive	Incomplete
Consumer acceptance, willingness to pay	Enthusiastic	Limited

<sup>1</sup>Conditionally autonomous car: the driver may take occasional control.  
<sup>2</sup>Fully autonomous car: the vehicle is in full control.  
<sup>3</sup>Original-equipment manufacturers.

McKinsey&Company

Exhibit 5  
 The 4 technology-driven ACES trends are reinforcing each other and will disrupt the automotive industry



**LEVEL 4**  
 Fully-automated driving

The driver completely hands over the control but can take it back anytime.

Example: Parking Garage Pilot

**CONTROLLED BY:**

- Only the human
- The car in certain situations
- Only the car

**LEVEL 5**  
 Autonomous Driving

The system can handle every situation. No driver is necessary.

Example: Sedic

**CONTROLLED BY:**

- Only the human
- The car in certain situations
- Only the car

di **Andrea Senatore** - 20 luglio 2020 - 15:19  
 Ultimo aggiornamento: 20 luglio 2020 - 15:27



La Germania pronta a stupire tutti consentendo per prima la guida autonoma di livello 4 nelle sue strade

### Guida autonoma di livello 4: la Germania è pronta a legiferare

**Forbes** | Billionaires | Innovation | Leadership | Money | Business | Small Business | Lifestyle

EDITORS' PICK | 35,474 views | Jul 9, 2020, 11:54am EDT

## Elon Musk: Tesla Will Have Level 5 Self-Driving Cars This Year

**John Koetsier** Senior Contributor @ Consumer Tech  
 John Koetsier is a journalist, analyst, author, and speaker.



# L'importanza del design

## E la sua evoluzione

# The next big thing in design is circular.

**A RADICAL, RESTORATIVE,  
REGENERATIVE APPROACH  
TO BUSINESS**

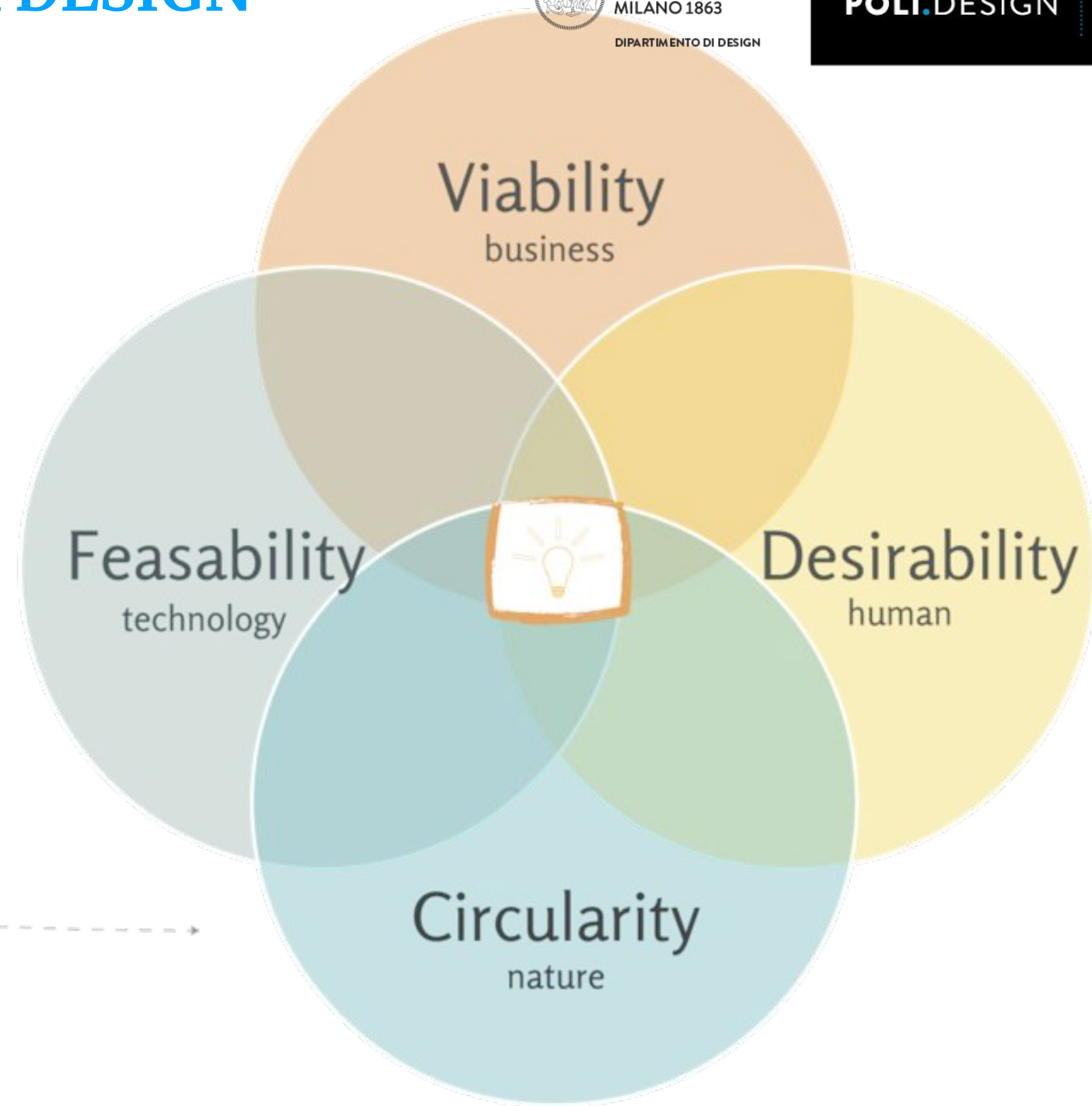
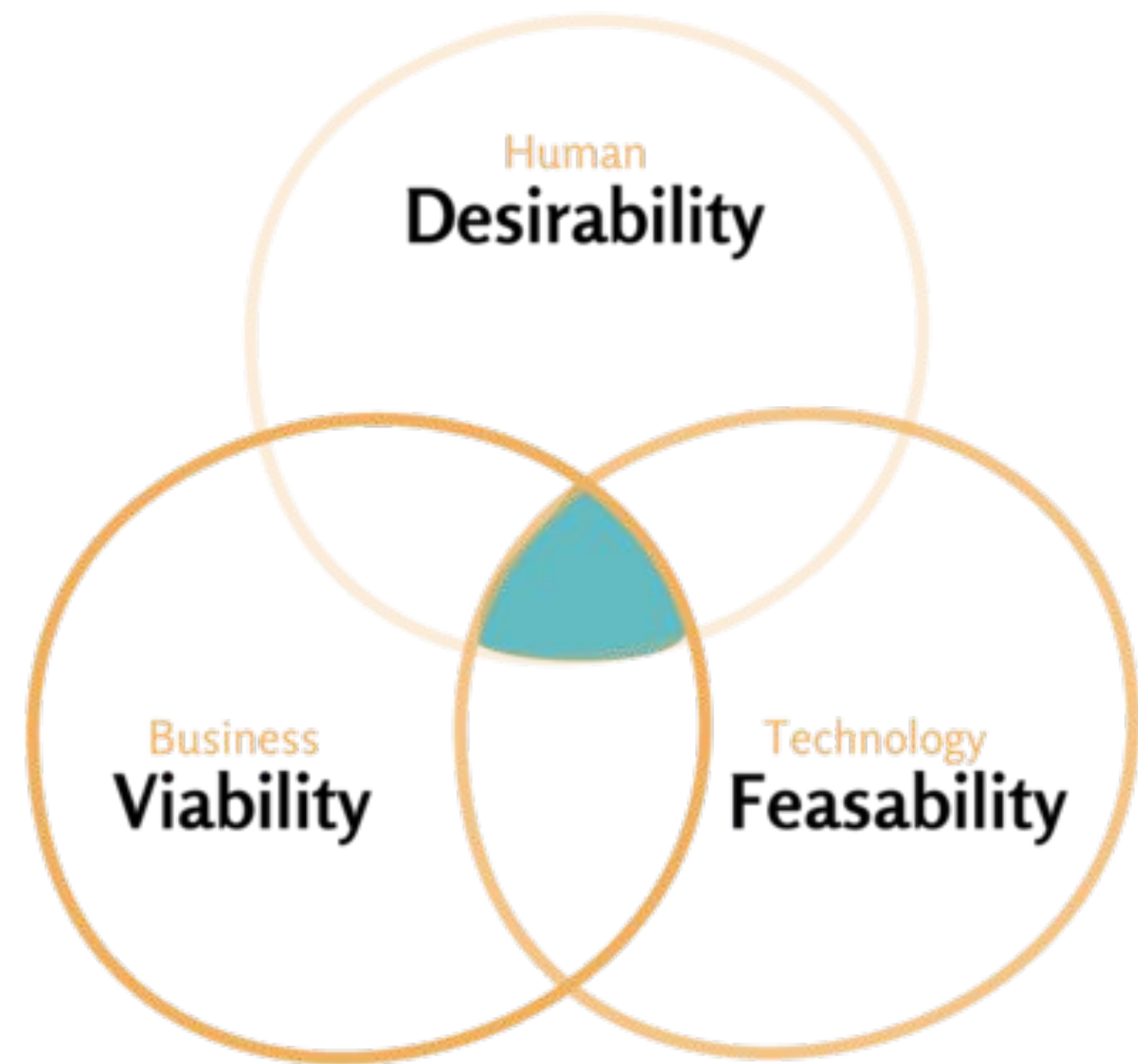
A new mindset for business is emerging. It's worth around a trillion dollars, will drive innovation in tomorrow's companies, and reshape every part of our lives.

But making the shift isn't easy. That's why we created this guide: to help innovators create more elegant, effective, creative solutions for the circular economy. Solutions that are invaluable for people, give businesses a competitive advantage, and are regenerative for our world.



Venanzio Arquilla - 2020  
#UXDpolidesign

# DESIGN THINKING > CIRCULAR DESIGN



# DESIGN THINKING > CIRCULAR DESIGN > LIFE-CENTERED DESIGN

HOLISTIC

NEW



DESIRABILITY

VIABILITY

FEASIBILITY

THERE IS NO  
PLANET B

Trend 7

Life-centered

design

<https://trends.fjordnet.com/trends/life-centered-design>



POLITECNICO  
MILANO 1863  
DIPARTIMENTO DI DESIGN

POLI.DESIGN



Experience  
Design  
Academy

Overview

Many faces of growth

Money changers

Walking barcodes

Liquid people

Designing intelligence

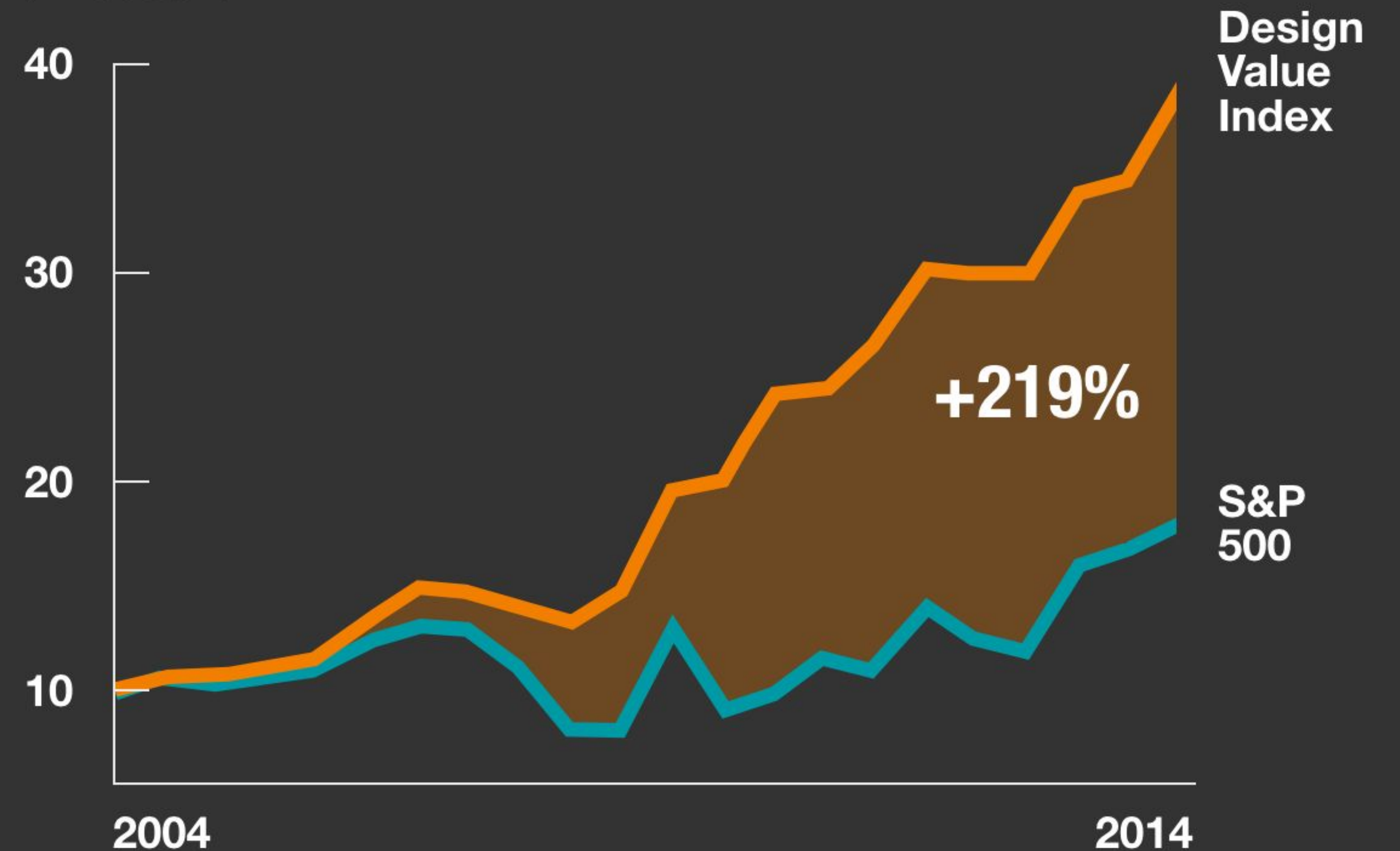
Digital doubles

Life-centered design

# Design pays

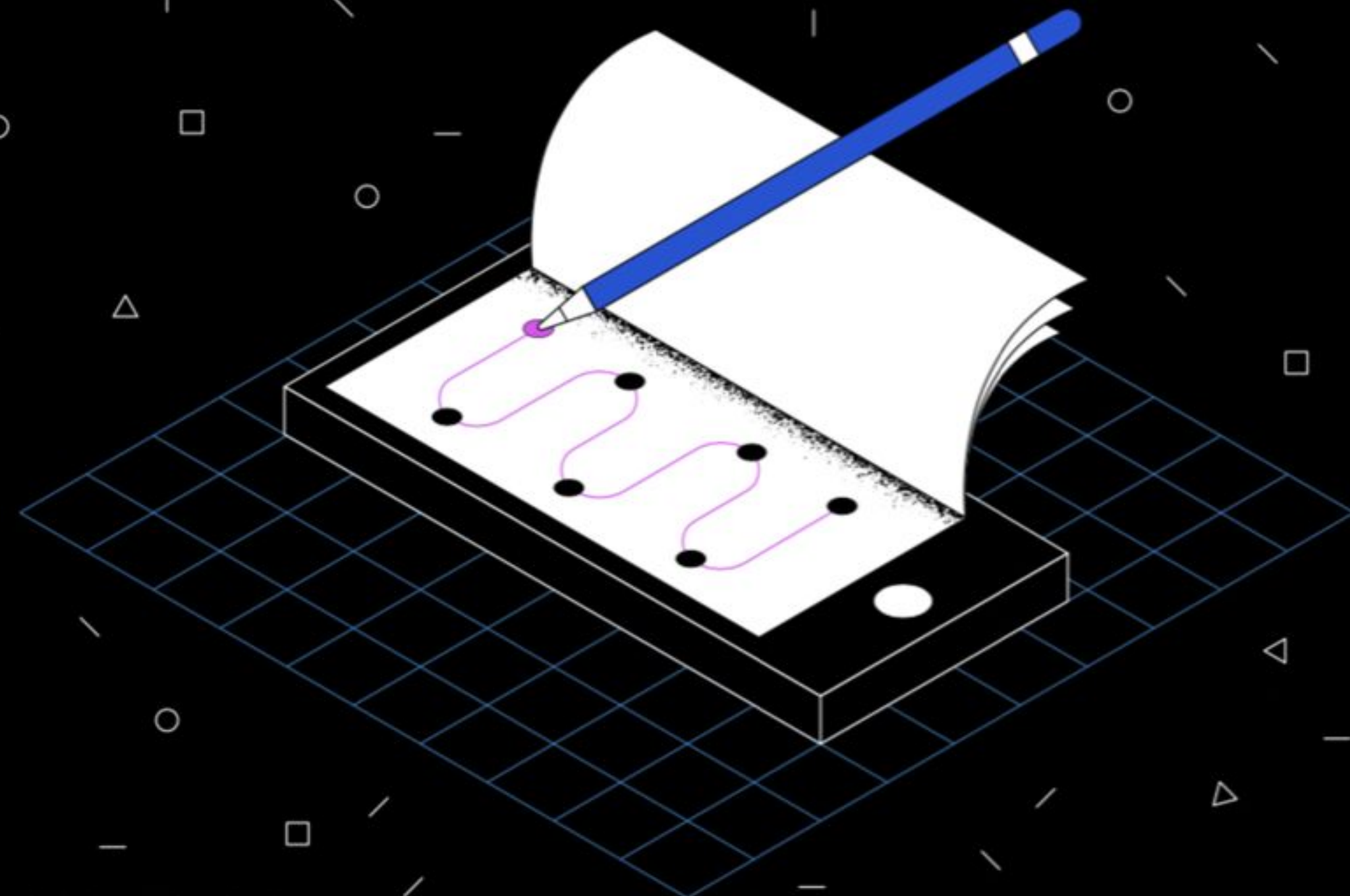
The outperformance of design-led companies suggests that good design continues to be good business.

Value of \$10,000 investment  
\$ thousand



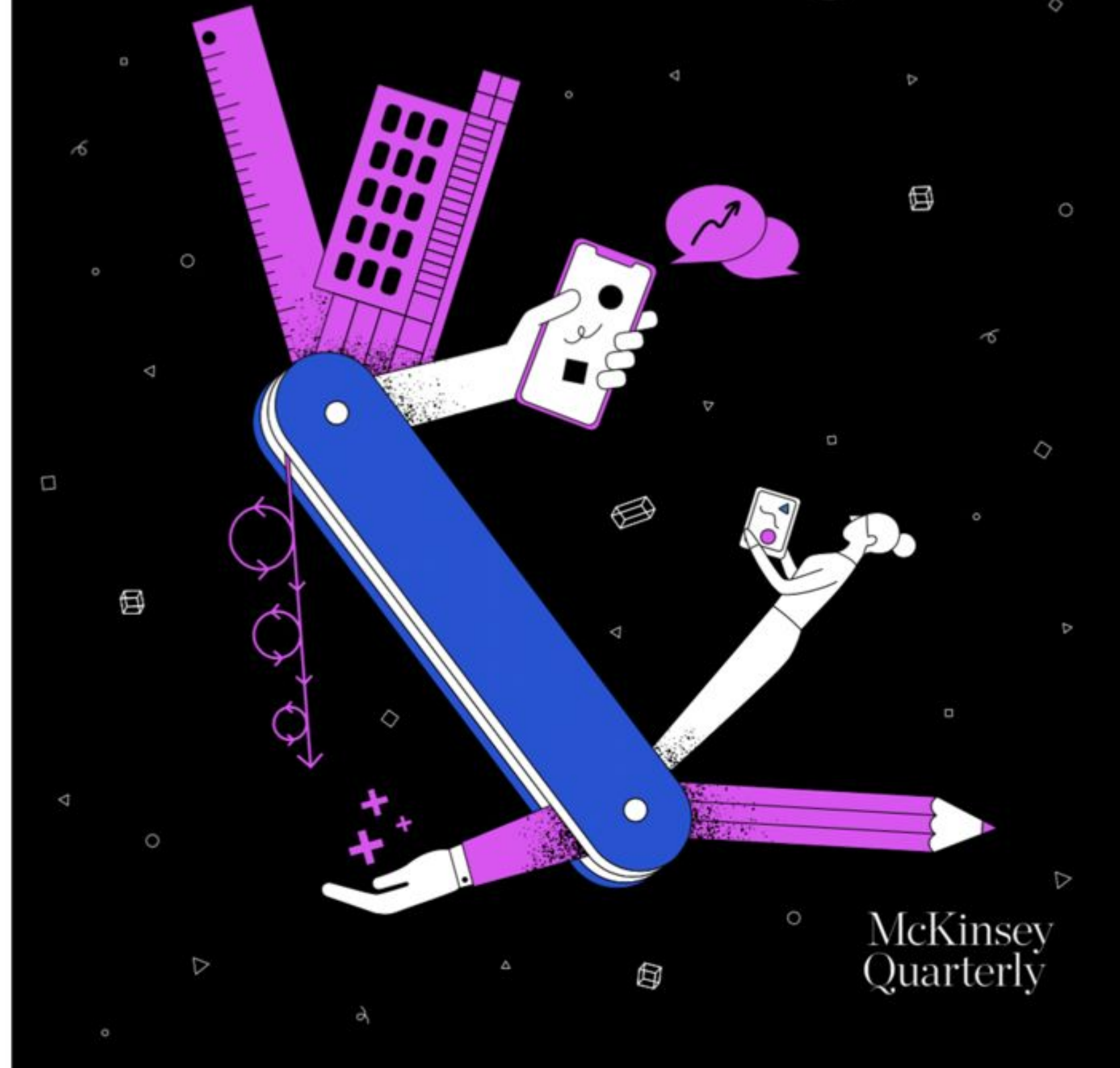
Source: Design Management Institute; Motiv Strategies

# More Than a Product: It's User Experience



The Business Value of Design

## The Business Value of Design



<https://www.mckinsey.com/business-functions/mckinsey-design/our-insights/the-business-value-of-design>

# DA DOVE VIENE?

[UX]

1937

Lo **user-centered design**

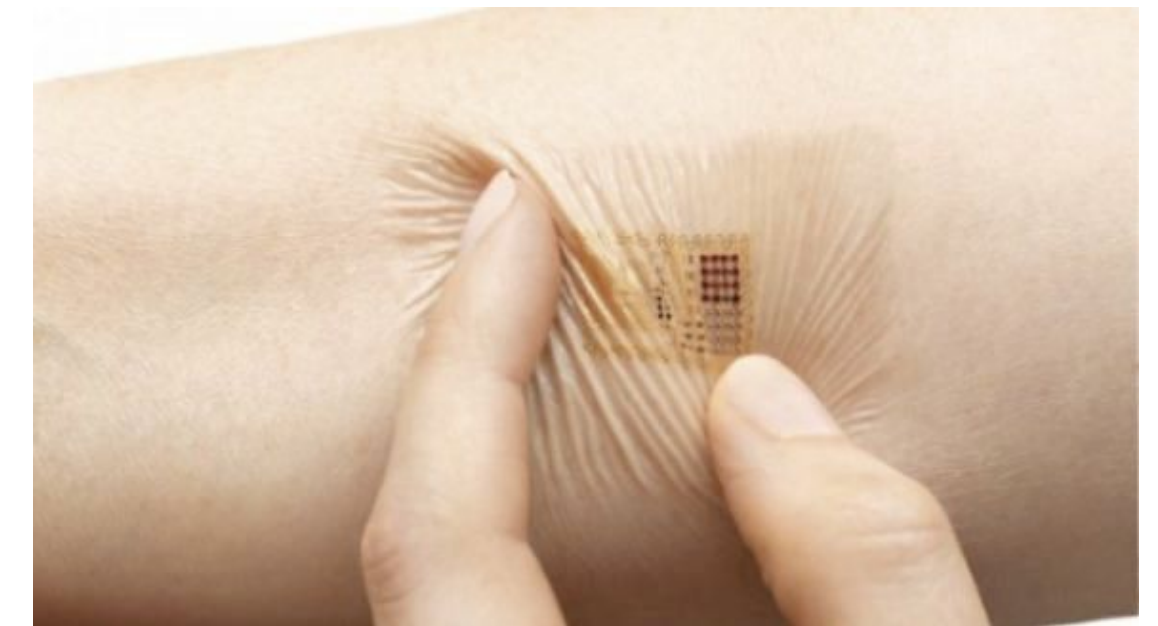
**DESIGNING STARTING FROM HUMANS  
OBSERVATION IS NOTHING NEW.**

Chicago, New Bauhaus

Lazlo Moholy-Nagy

---





CONTINUOUS EVOLUTION > TECHNOLOGICAL ADVANCES > CHANGING INTERFACES > NEW INTERACTIONS > NEW DESIGN OPPORTUNITY



POLITECNICO  
MILANO 1863

DIPARTIMENTO DI DESIGN

POLI.DESIGN



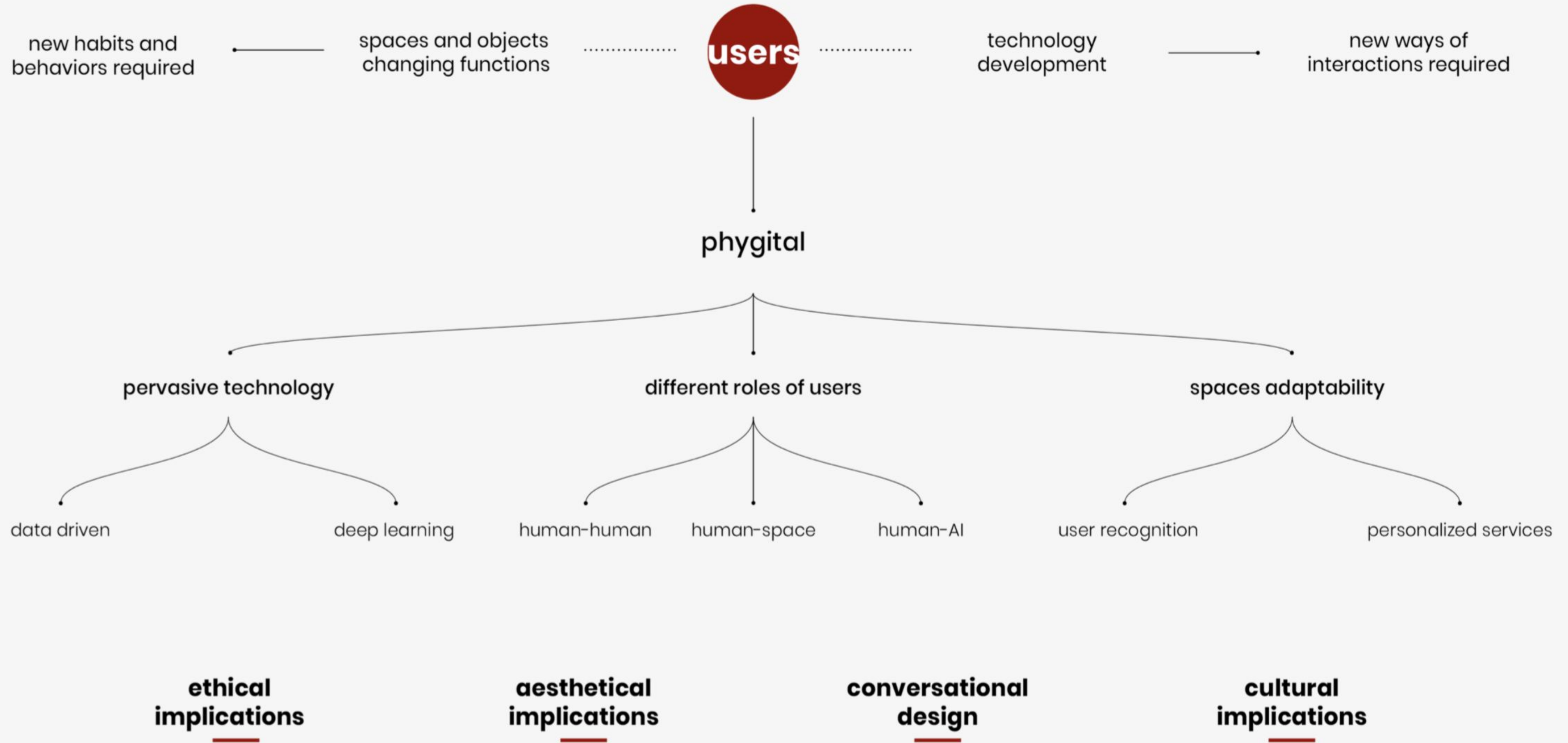
Experience  
Design  
Academy

Physical + Digital

---

**PHYGITAL**

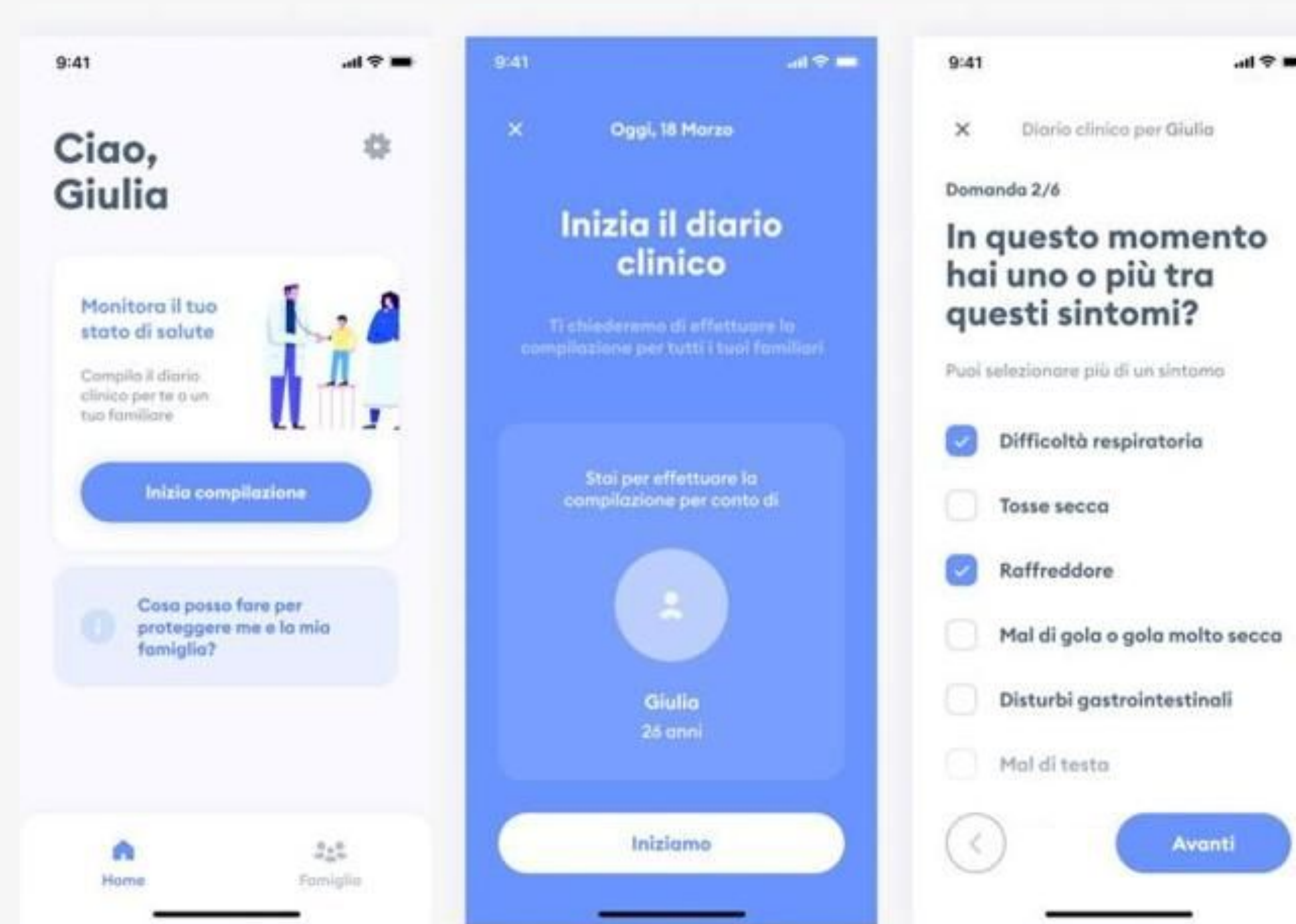
# 4 IMPLICATIONS IN DESIGNING PHYGITAL EXPERIENCE





## ethical implications

attention to users' awareness and his privacy in data collection and analysis



*App IMMUNI - Concept*



## aesthetical implications

the relation shape-function is defined by the technological component.

The **branch of philosophy** dealing with such notions as the **beautiful**, the **ugly**, the **sublime**, the **comic**, etc., as applicable to the fine arts (and design), with a view to establishing the **meaning and validity of critical judgments concerning works of art (and design)**, and the principles underlying or justifying such judgments (“the sense of” - as perceived by the users).

<https://www.iep.utm.edu/aestheti/>

<https://en.wikipedia.org/wiki/Aesthetics>

<https://www.dictionary.com/browse/aesthetics>

# from FORMS

Complete the information below to apply for a designer position at Moment's New York office. You can review the job description [here](#).

## Apply for this Job

\* Required

First Name \*

Last Name \*

Email \*

Phone

Resume/CV \* [Attach](#), [Dropbox](#), [Google Drive](#), [Paste](#)

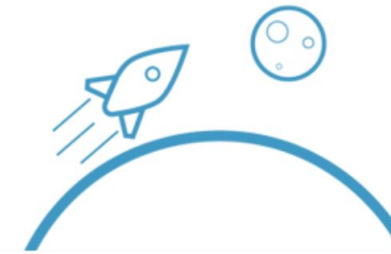
Cover Letter [Attach](#), [Dropbox](#), [Google Drive](#), [Paste](#)

Portfolio/website \*

Moment

DESIGN MANAGEMENT OFFICE

## Assessment Survey



This short assessment is designed to help you think critically about your organization's design operations and management across the Design Management Framework's 12 components.

After you complete the survey, you'll receive a free download of the book, *The Design Management Office: A guidebook for delivering design at scale*, which will help you tackle the problem areas uncovered in the survey.

Begin press ENTER



POLI.DESIGN



Experience Design Academy

1 → Some quick questions before we jump into the Design Management Office Assessment Survey

Your personal information will not be shared with anyone outside of Moment. Assessment data will be anonymized for a future report.



1 → Some quick questions before we jump into the Design Management Office Assessment Survey



a. What's your first name? \*

venanzio

b. And last name? \*

c. Your company? \*

d. Company email? \*

4% completed

Powered by Typeform

to TYPEFORM



## cultural implications

the cultural component will be part of the design process

*Google Glasses*



MILANO



MILANO TODAY



HAKONE, GIAPPONE



ProPILOT Park Ryokan, Giappone - Ciabatte autoparcheggianti Nissan





## **conversational implications**

new ways of interaction allowed by technological development



Hi, how can I help?

*Google Assistant*



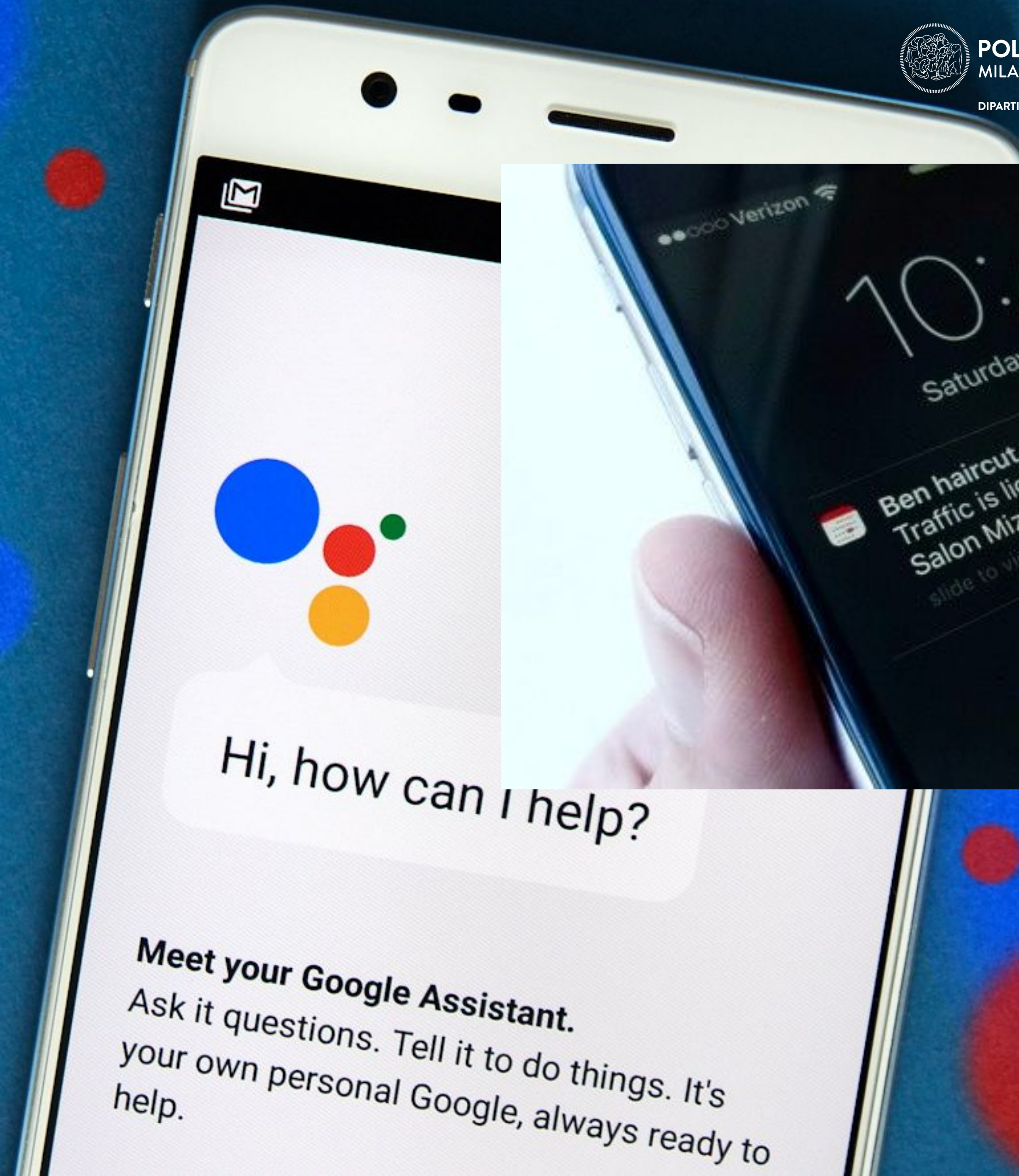
POLITECNICO  
MILANO 1863

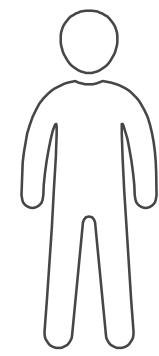
DIPARTIMENTO DI DESIGN

POLI.DESIGN



Experience  
Design  
Academy

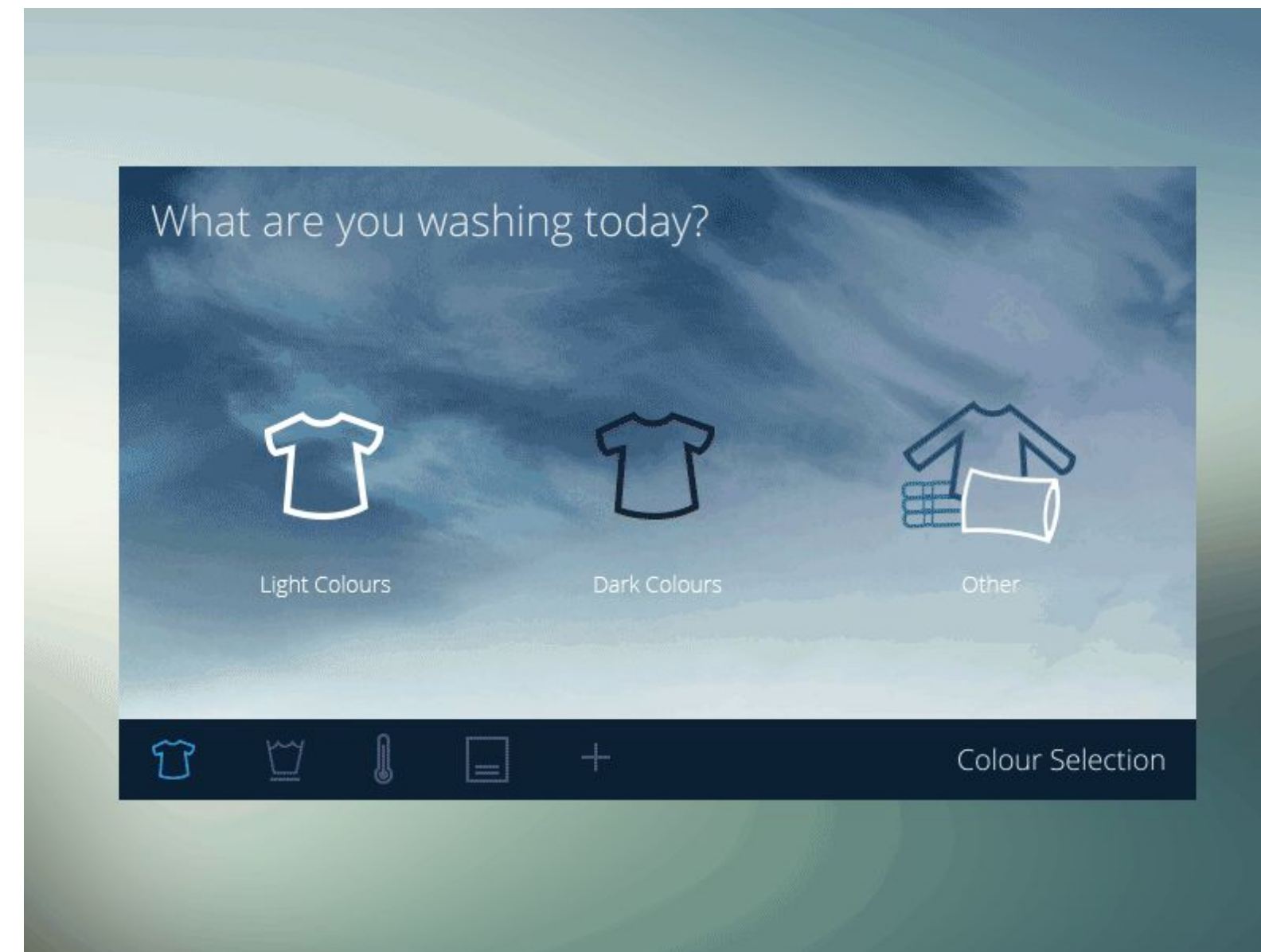


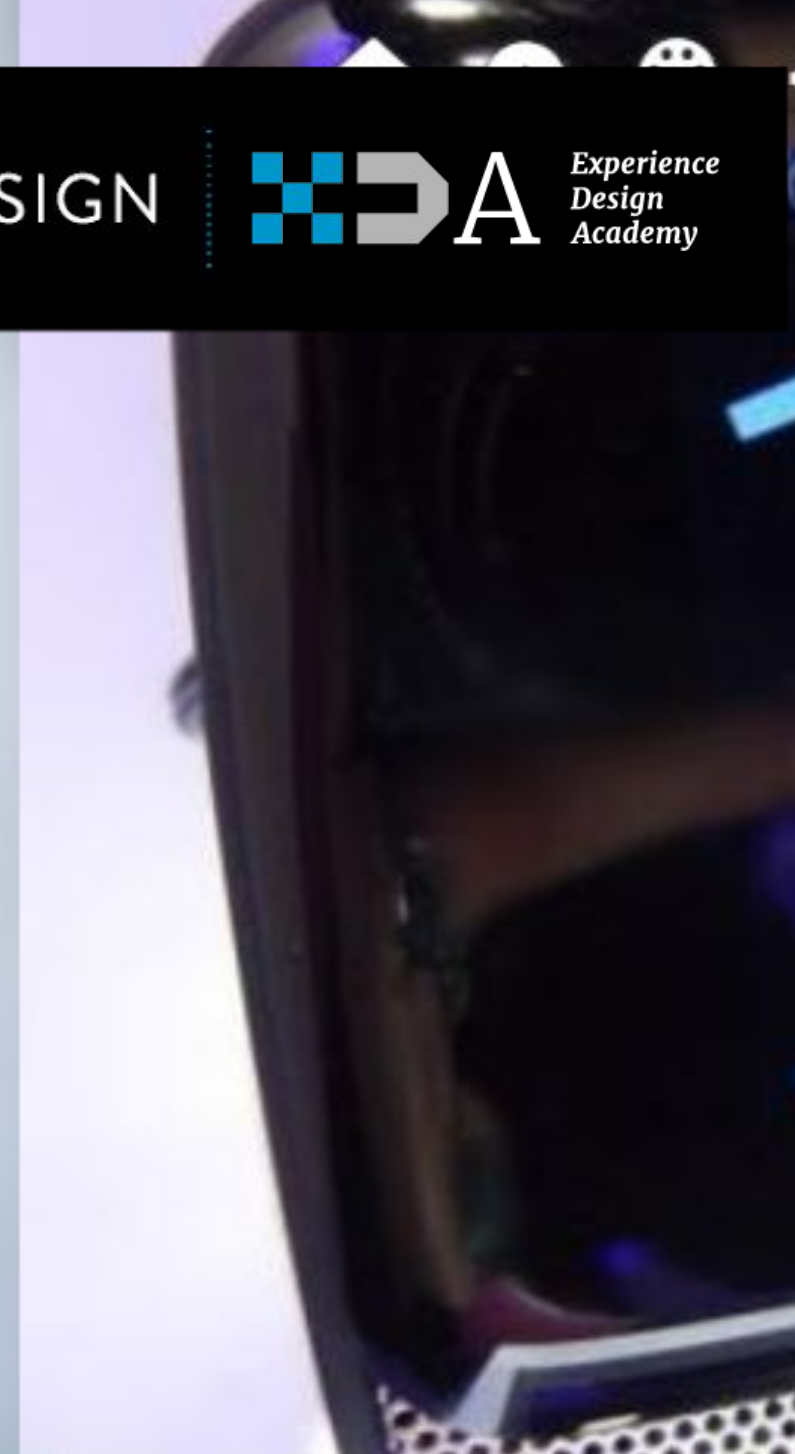


HUMAN THAT NEED TO “THINK LIKE MACHINES” TO INTERACT WITH PRODUCTS/SERVICES



INTERFACES TRYING TO USE A MORE “HUMAN, NATURAL LANGUAGE”





# Conversational design



# CONVERSATION IS MULTIMODAL



EXPRESSIONS



GESTURES

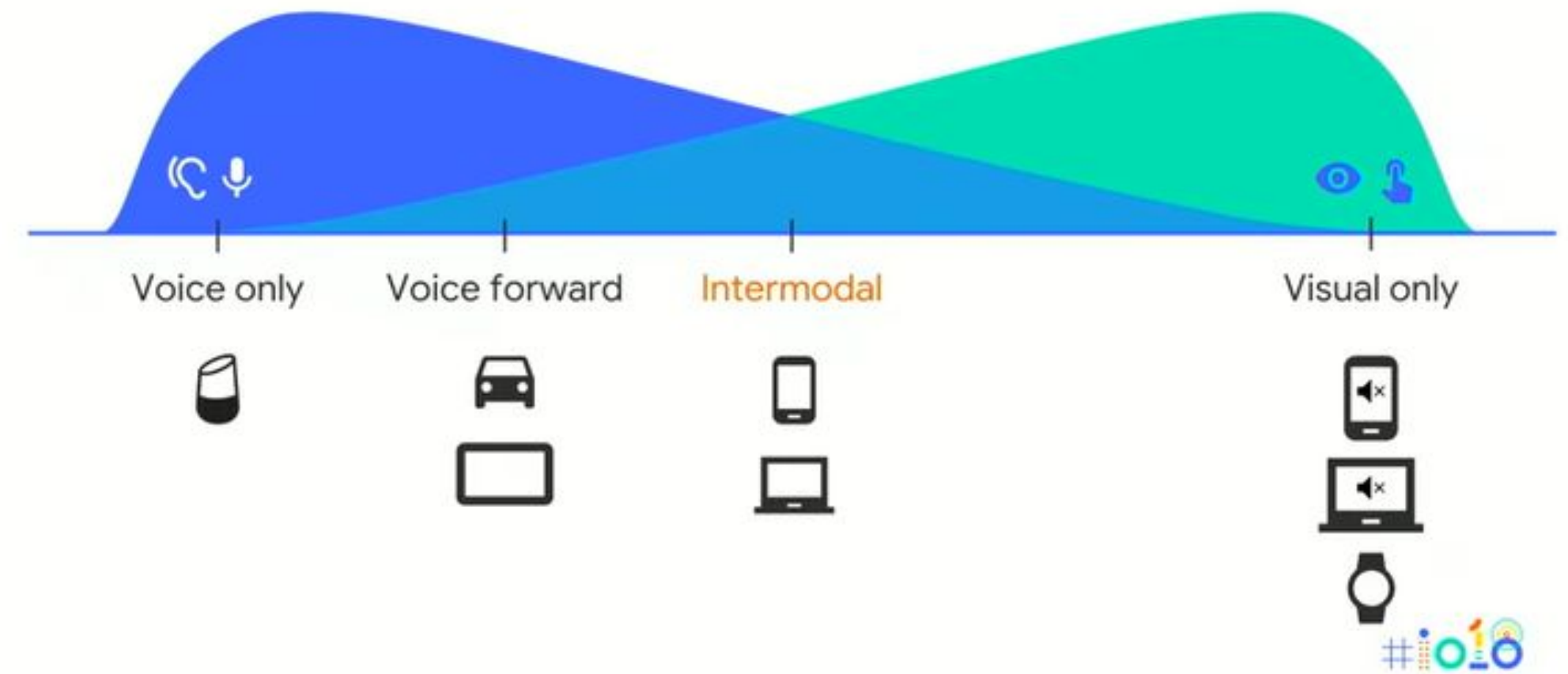


KINESICS



PARALANGUAGE

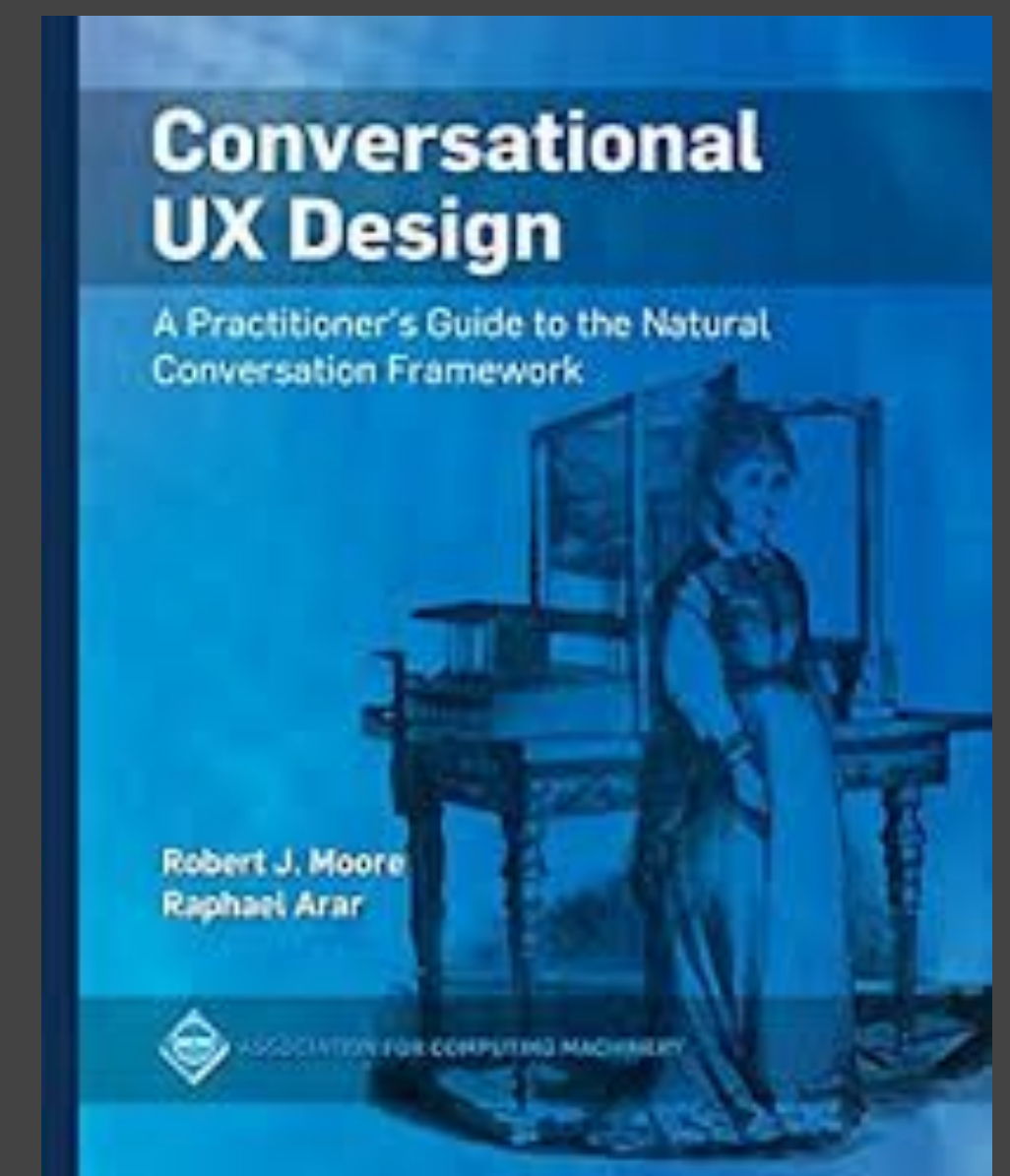
## Multimodal Spectrum



Google, Conversation design guidelines ; Jibo the robot

Conversational design means designing experiences that follow the metaphor of natural human conversation.

This implies being able to apply interaction patterns that humans display in natural conversation.



# UX PERSPECTIVES

[PRODUCT-SERVICE  
ECOSYSTEMS]

Beyond UX as we know it,  
today we go towards:

— Specialization

— Integration/Hybridisation between  
Digital & Physical

NEW DOMAINS

NEW SKILLS

NEW OPPORTUNITIES

---



IDEO

We are a global design consultancy. We create impact through design.

9 hrs ago · 14 min read



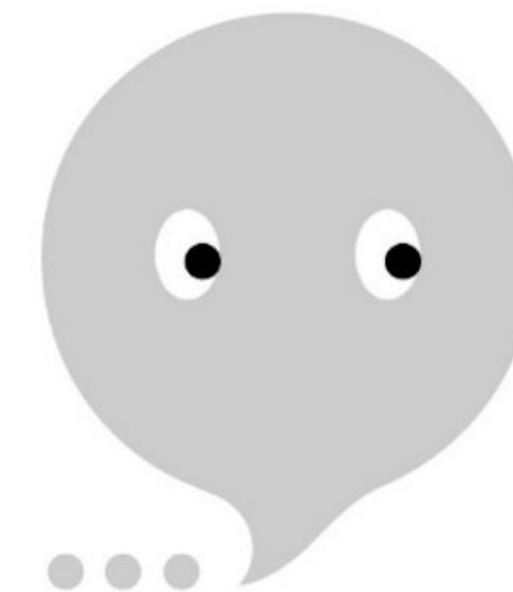
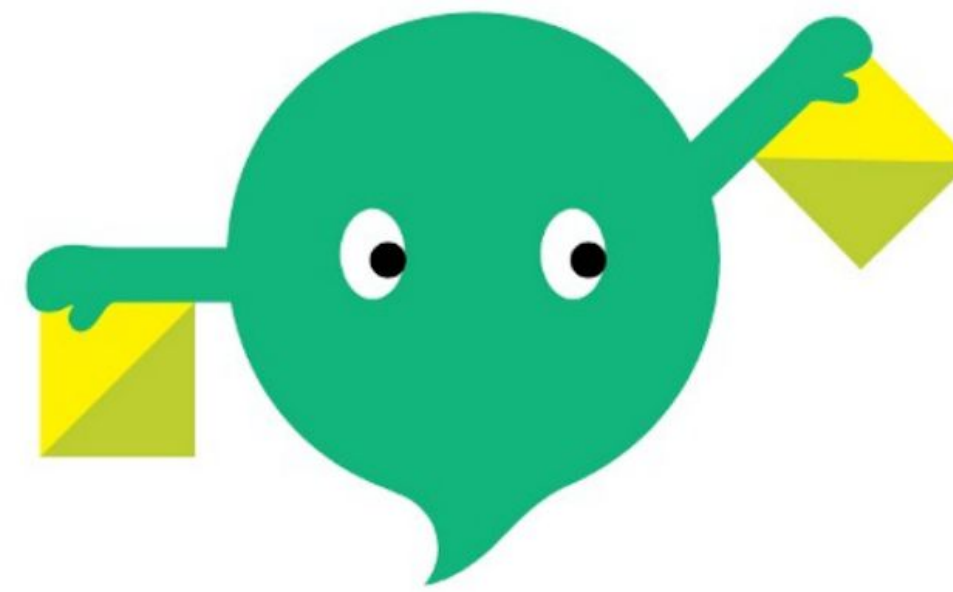
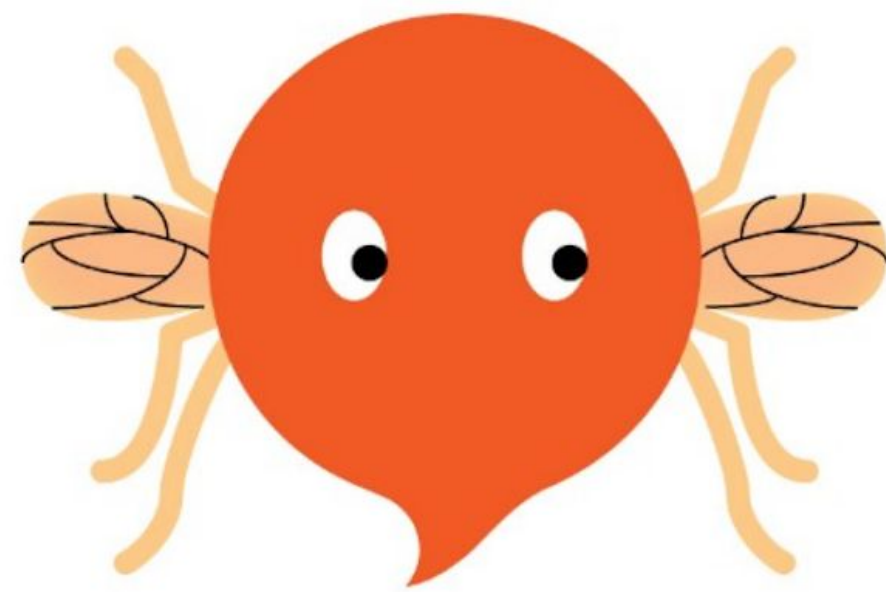
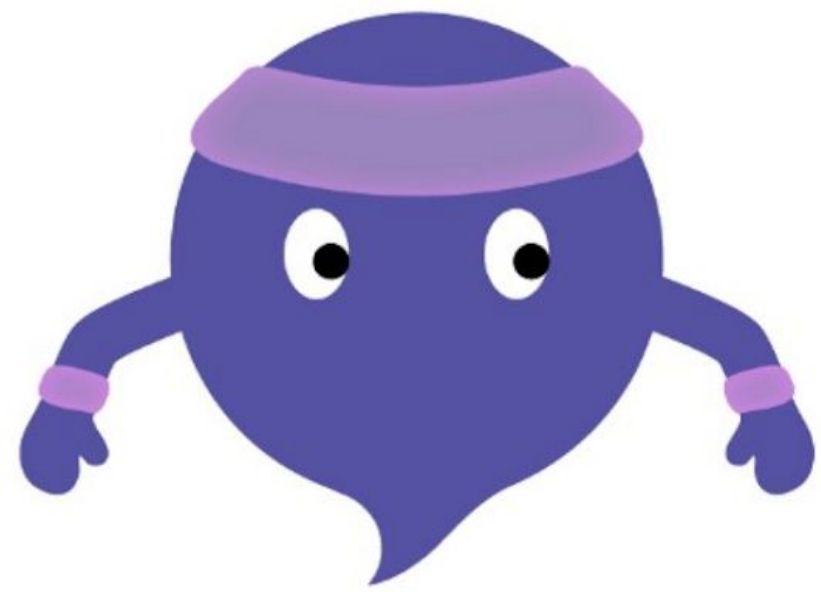
POLITECNICO  
MILANO 1863

DIPARTIMENTO DI DESIGN

POLI.DESIGN



Experience  
Design  
Academy



## Chatbots: Your Ultimate Prototyping Tool

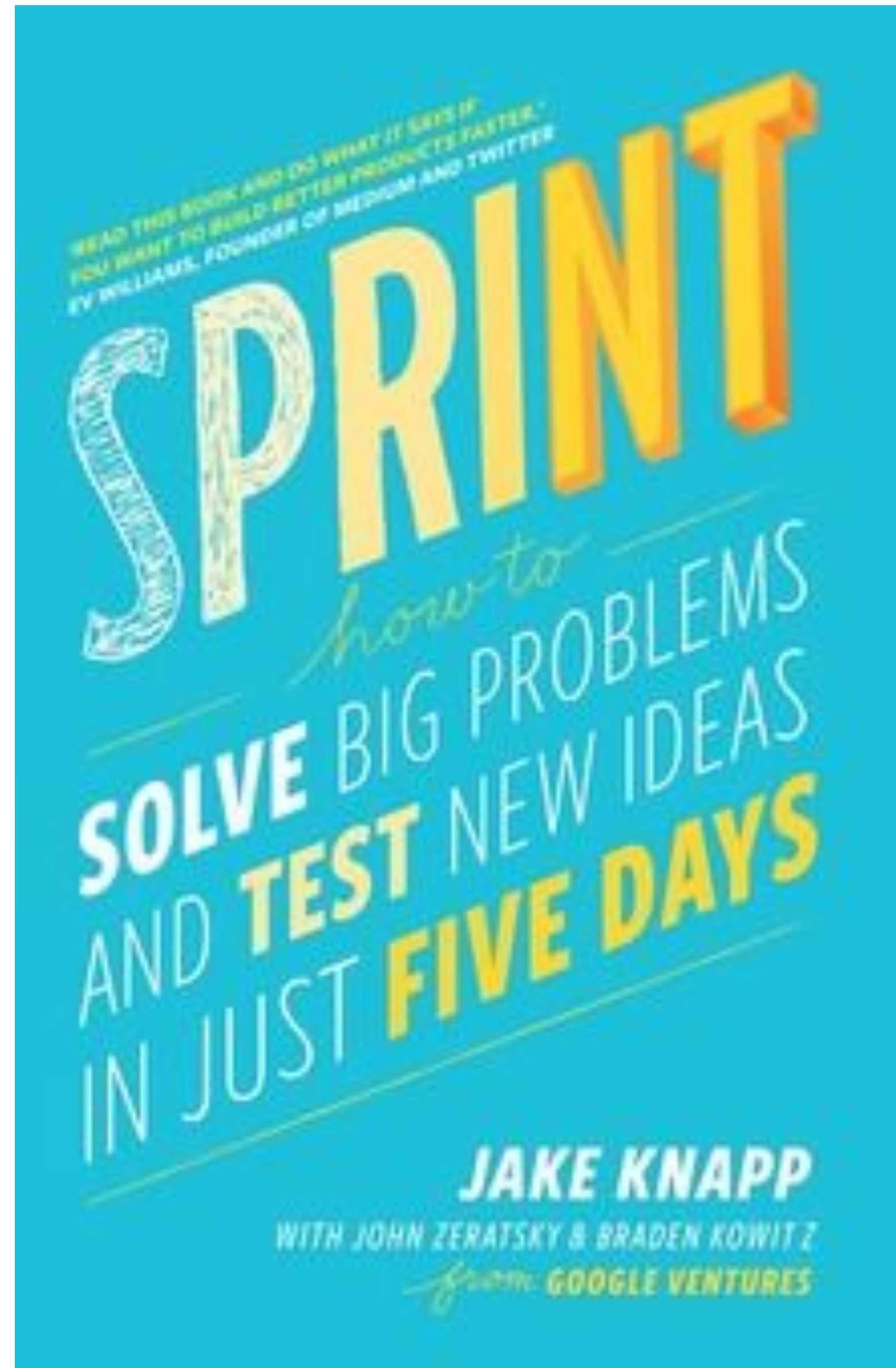
*How chatbots can teach us to learn what people need when designing products and services*





# Design Sprint

# Sprint execution (?)





Jonathan Courtney

[Follow](#)

Designer and Founder at AJ&Smart Berlin, a Digital Product Design agency.

Feb 18 · 4 min read



POLITECNICO  
MILANO 1863

DIPARTIMENTO DI DESIGN

POLI.DESIGN

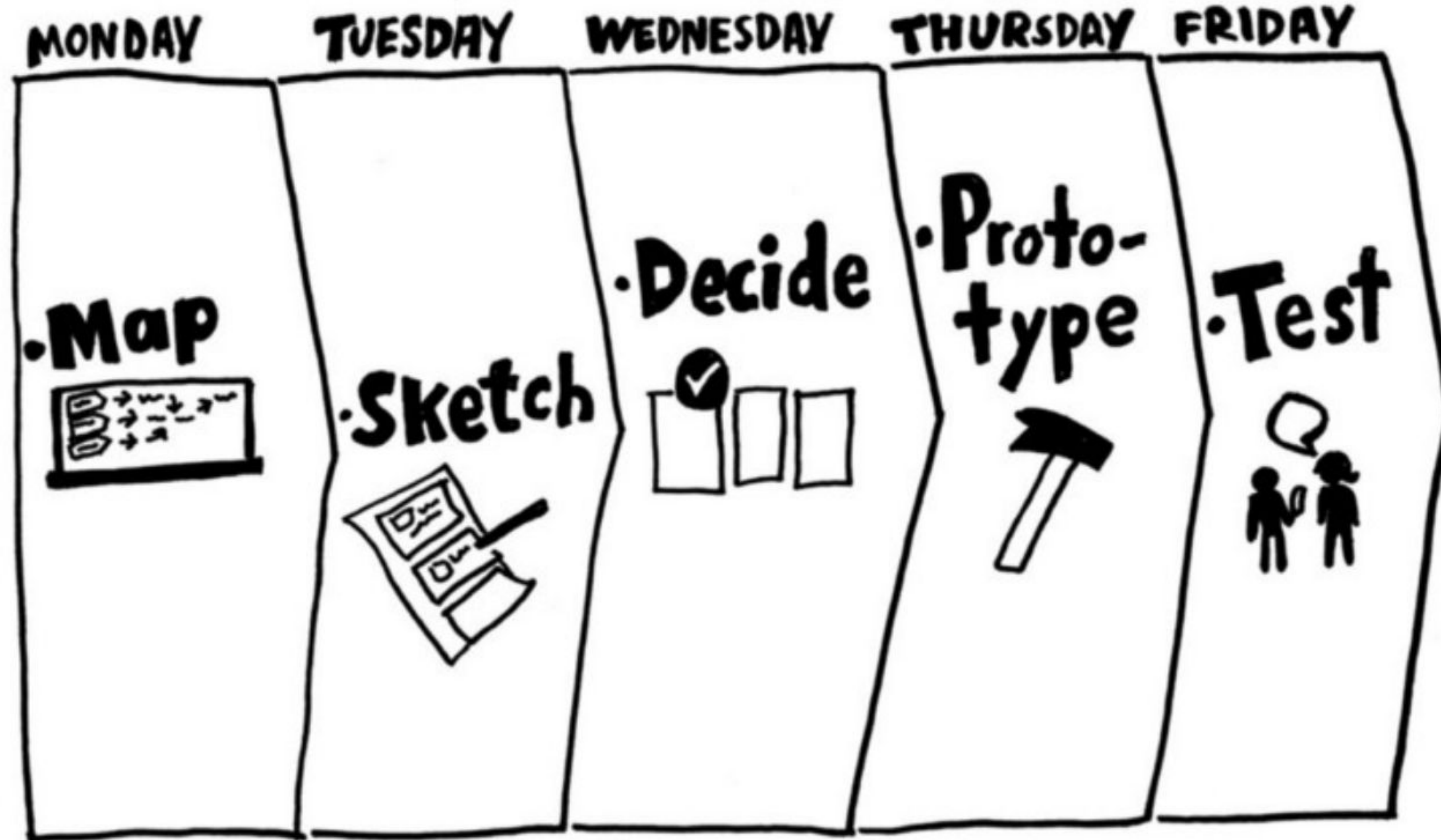


Experience  
Design  
Academy

# User Research is Overrated

Design Sprints have revealed an expensive waste of time in the modern design process.





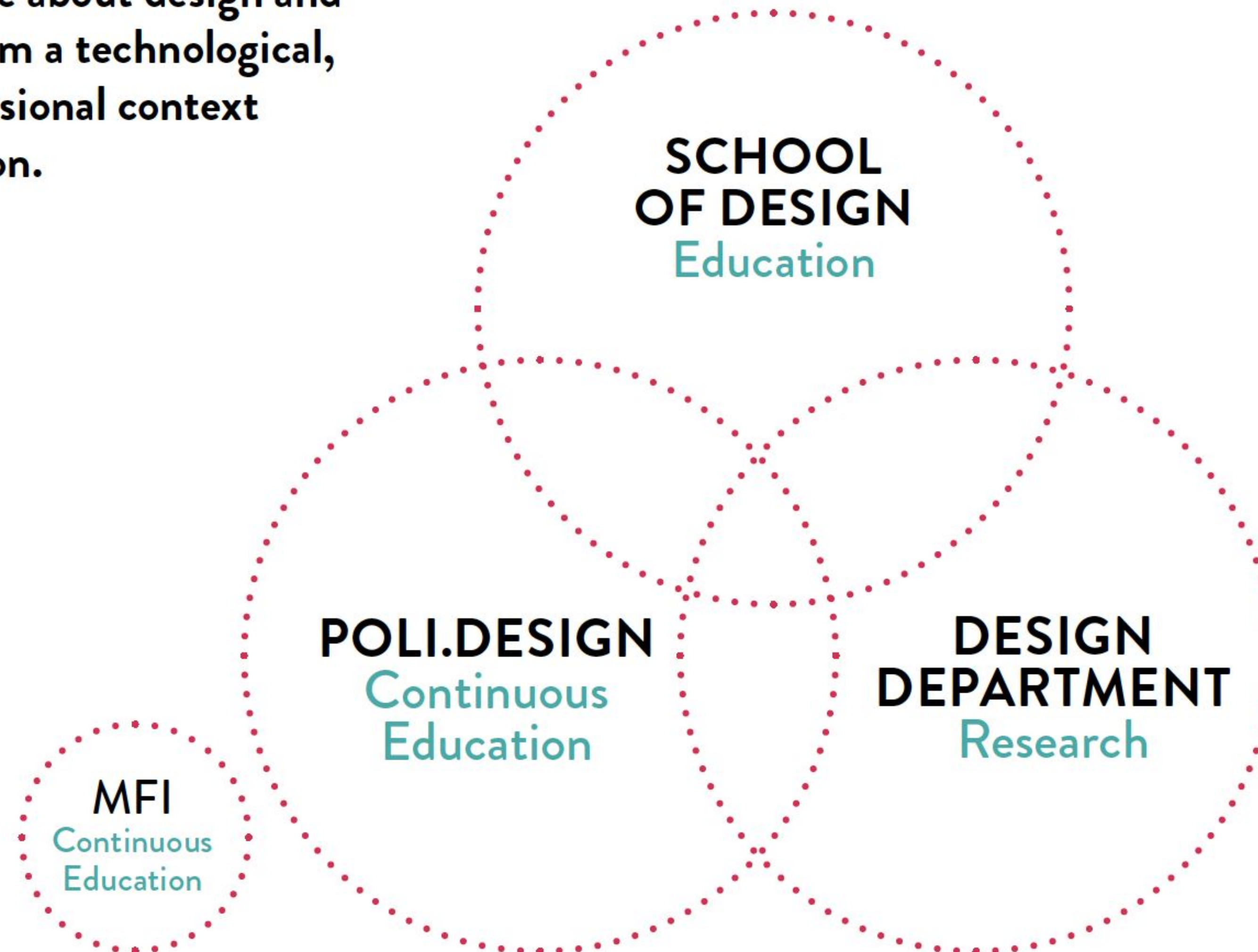
Using the Design Sprint process, we compressed 6 weeks into one week.

# POLIMI

# Design System (2)

# POLIMI DESIGN SYSTEM

It consists of 3 entities and intends to carry out excellence about design and to satisfy requests from a technological, productive and professional context in continuous evolution.



INTRODUZIONE

## POLI.DESIGN PARTE DEL POLIMI DESIGN SYSTEM

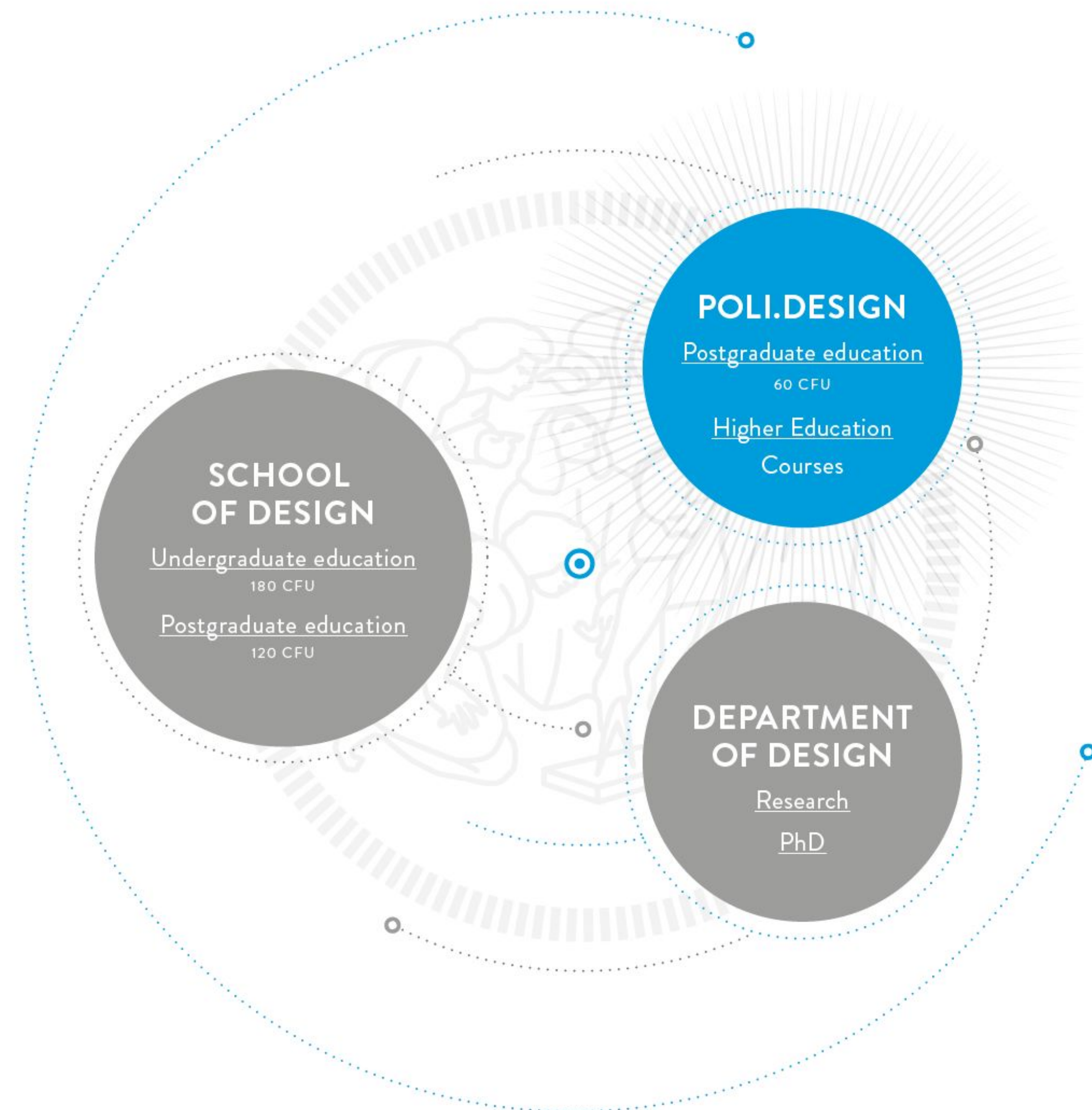
Il Politecnico di Milano figura nella classifica **QS World University Rankings** (Settore Art&Design) come ateneo:

**1°** IN ITALIA    **3°** IN EUROPA    **6°** AL MONDO

OLTRE IL

**40%**

DEI DESIGNER  
IN ITALIA SI È LAUREATO  
AL POLITECNICO DI MILANO





IL CATALOGO DI MASTER E CORSI

## COSA FACCIAMO

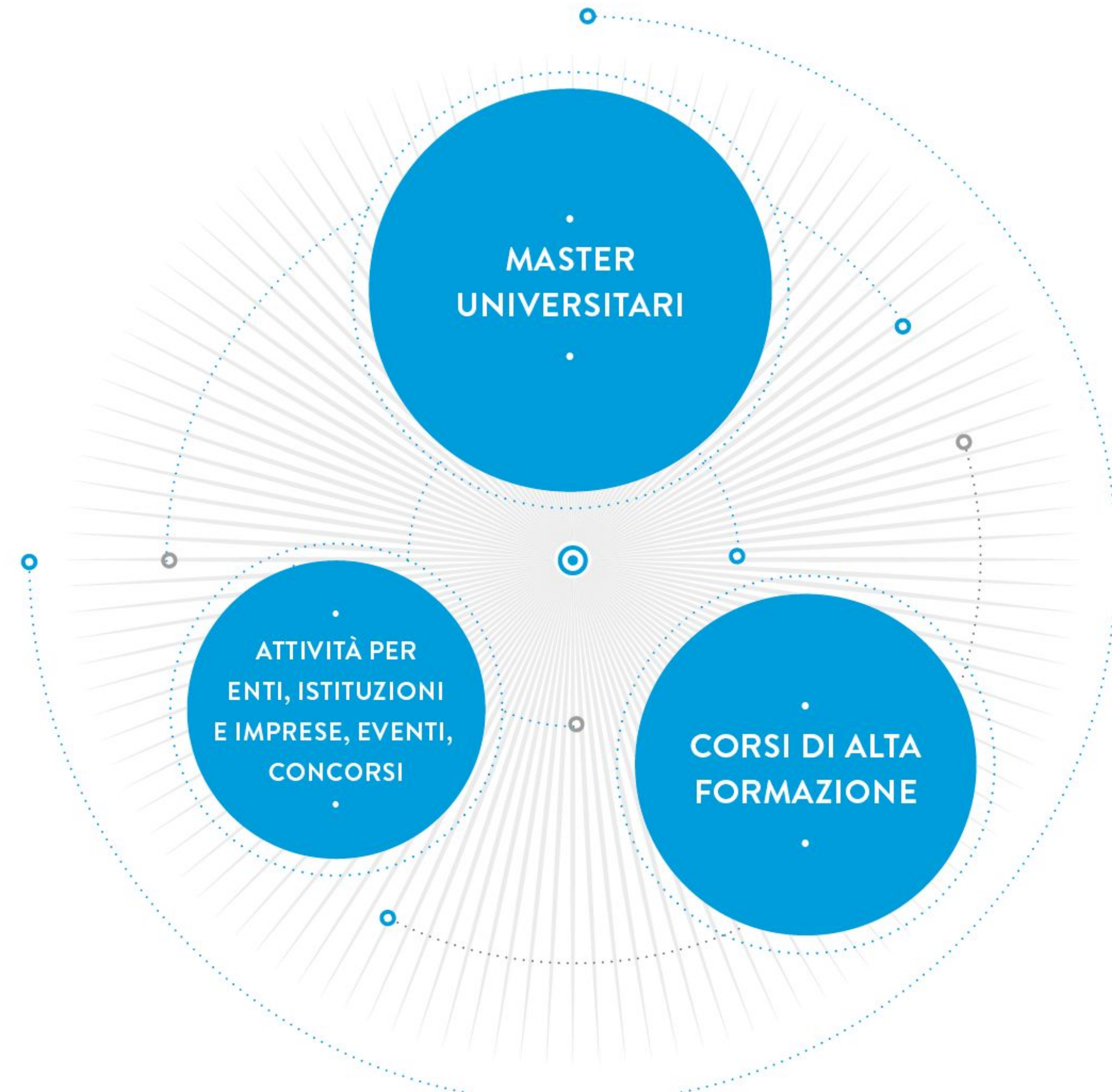
### POLI.design

sviluppa programmi di formazione per:

- giovani
- junior
- senior
- enti
- istituzioni
- organizzazioni
- imprese

con un preciso orientamento  
all'**innovazione**.

**POLI.design** organizza concorsi  
ed eventi e fornisce consulenza per  
iniziative culturali e di comunicazione.



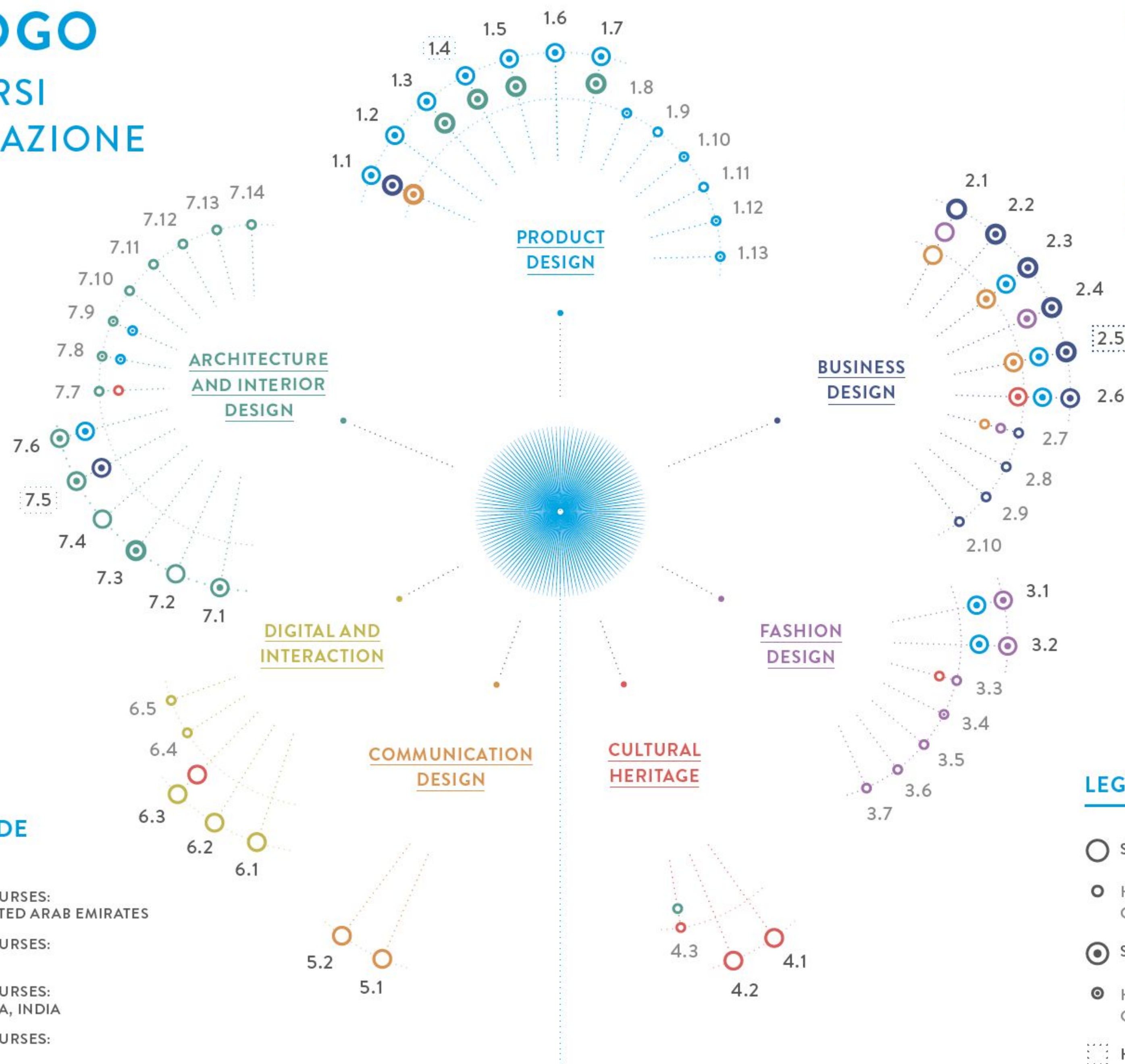


# IL CATALOGO

## MASTER E CORSI DI ALTA FORMAZIONE

PIÙ DI

- 28** MASTER UNIVERSITARI
- 26** CORSI DI ALTA FORMAZIONE
- 19** CORSI TAYLOR MADE



### 19 CORSI TAYLOR MADE

- TAYLOR MADE COURSES: ITALY, CHINA, UNITED ARAB EMIRATES
- TAYLOR MADE COURSES: CHINA
- TAYLOR MADE COURSES: BRAZIL, COLOMBIA, INDIA
- TAYLOR MADE COURSES: CHINA, JAPAN

### LEGEND

- SPECIALIZING MASTERS / ITA
- HIGHER EDUCATION COURSES / ITA
- ⊙ SPECIALIZING MASTERS / ENG
- HIGHER EDUCATION COURSES / ENG
- ⋯ HELD IN CHINA

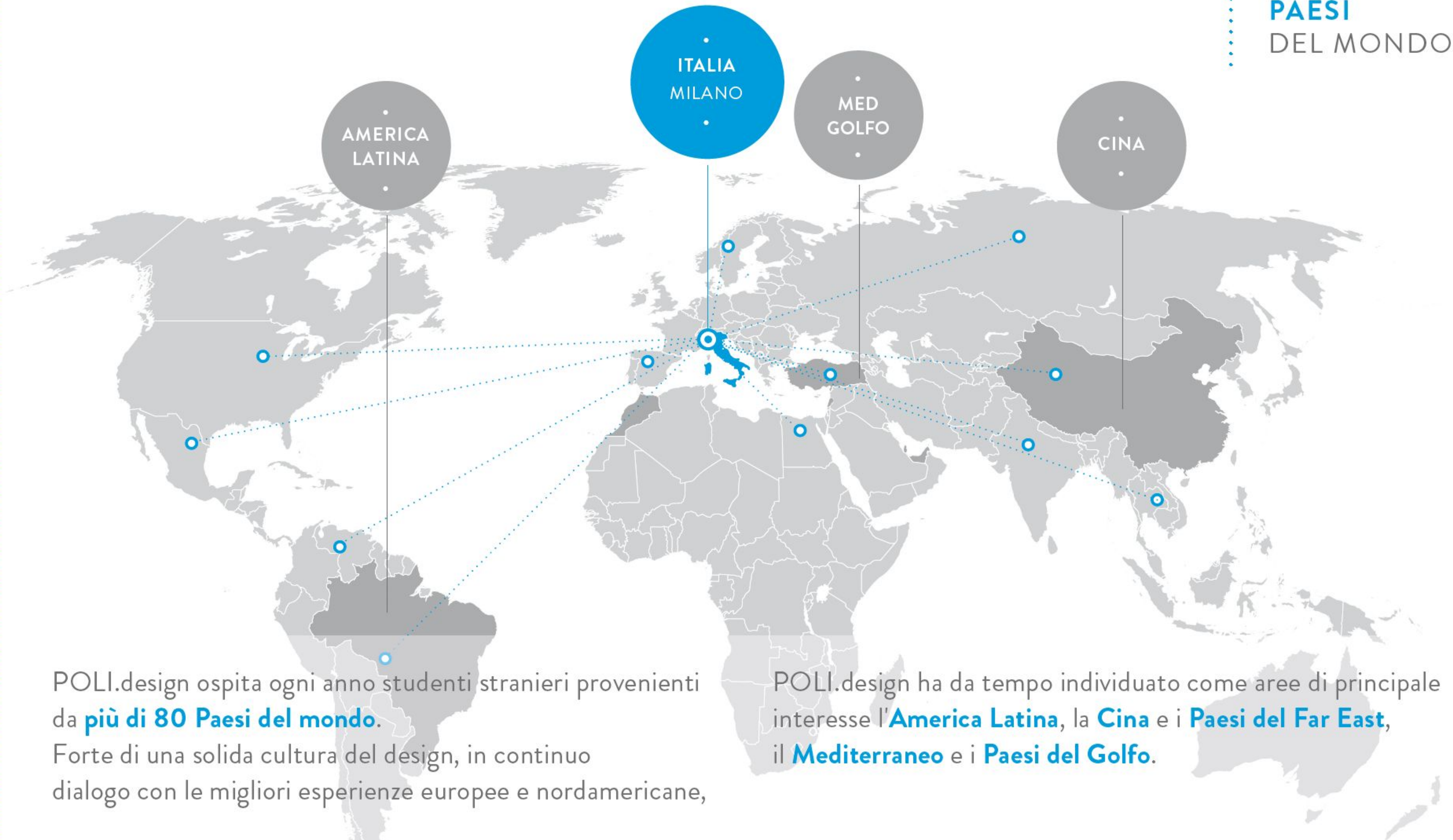
# ATTIVITÀ PER ENTI, ISTITUZIONI, IMPRESE



# INTERNAZIONALIZZAZIONE

88

PAESI  
DEL MONDO



POLI.design ospita ogni anno studenti stranieri provenienti da **più di 80 Paesi del mondo**. Forte di una solida cultura del design, in continuo dialogo con le migliori esperienze europee e nordamericane,

POLI.design ha da tempo individuato come aree di principale interesse l'**America Latina**, la **Cina** e i **Paesi del Far East**, il **Mediterraneo** e i **Paesi del Golfo**.

# IL NETWORK ATTUALE

SOCIO 2019  
FEDERLEGNOARREDO

## SOCI CONSORZIATI



## PARTNER



## NETWORK



# Un filiera per l'innovazione

## La terza missione POLI

Un esempio di spin-off / Start Up Innovativa



# Narvalo

---

**Air of Change**



**Protect your**

**breath.**

**Change habits.**

**Become a Narvalo.**

---

# Perchè Narvalo?

Narvalo è un animale atipico, e per questo affascinante. Antico cetaceo, ha alimentato mitiche storie legate alla sua zanna, che oggi alcuni ritengono essere un'antenna capace di orientarsi nell'ambiente, probabilmente interpretando la salinità marina.

**Narvalo** - per questo - è il nome del nostro progetto. Che ne riassume la visione.

Avere **antenne sensibili** oggi è più che mai necessario, in un ambiente che sta perdendo le sue qualità naturali, il suo equilibrio sistemico, all'interno del quale anche noi umani ci troviamo a nuotare, e vivere.

Antenne sensibili che sappiano **proteggerci, riconoscersi e segnalarci**.



*“Il Narvalo è l’unicorno del mare”*



# Le origini

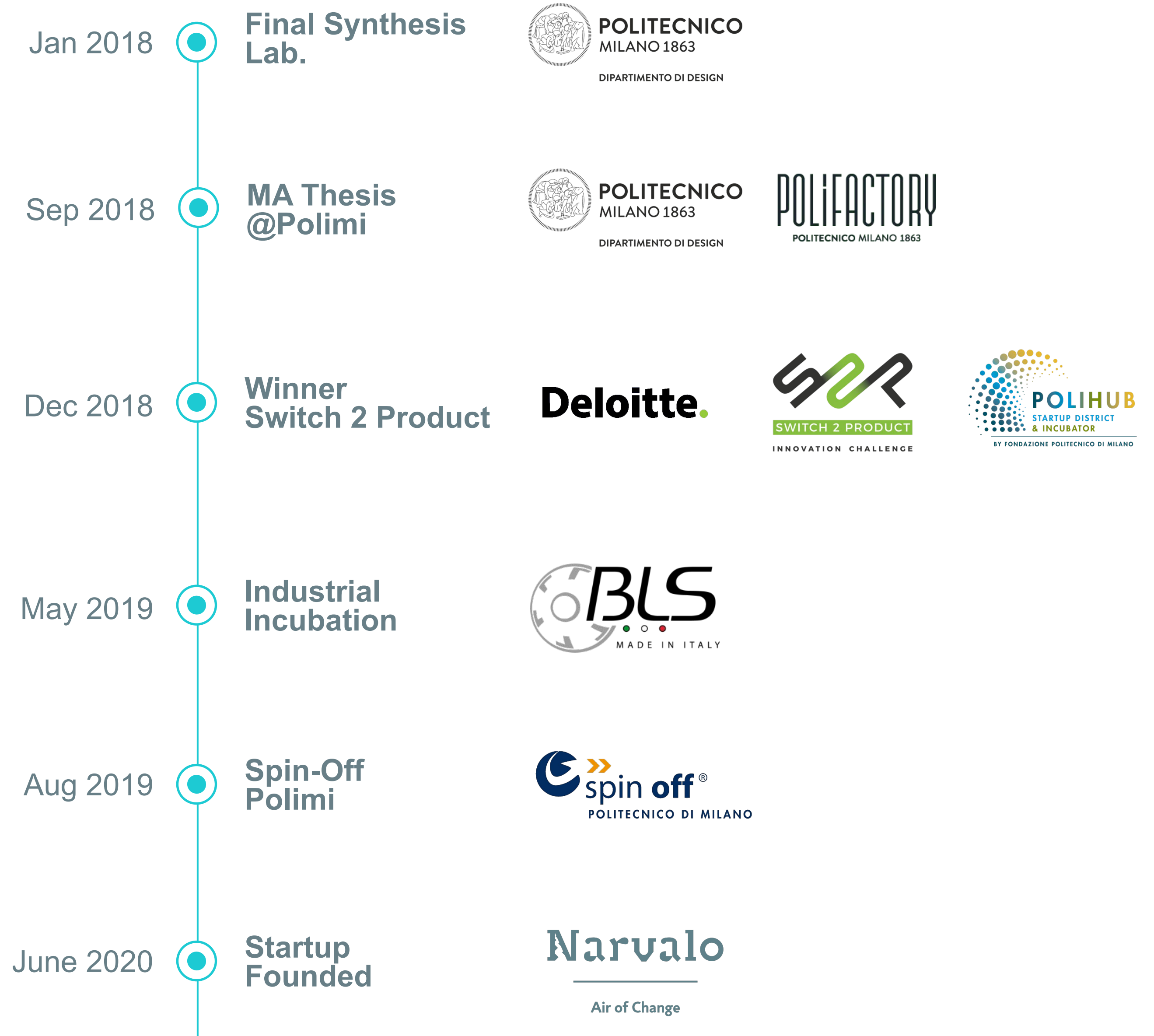
**Narvalo** nasce libero, si sviluppa al Politecnico, fa crescere la Bovisa

Narvalo nasce sui banchi della Scuola del Design del Politecnico di Milano. Nella testa di un giovane designer italiano di origini olandesi, **Ewoud Westerduin**.

**Venanzio Arquilla** - Professore del Dipartimento di Design e suo relatore di tesi – lo aiuta a svilupparla. Siamo nel settembre del 2018.

L'idea è interessante e viene incubata da **Polihub**, nell'ambito dell'iniziativa **Switch to Product**.

Il progetto interpreta concretamente la **Terza Missione** del Politecnico di Milano, che si propone di favorire lo sviluppo sociale, economico e culturale del suo territorio riferimento: la Bovisa.



# Noi siamo Narvalo

Core Team



**Costantino Russo**  
*CEO*

**Ewoud Westerduin**  
*Head of Design \ R&D \  
Co-founder*

**Venanzio Arquilla**  
*President \ Strategic  
Advisor \ Co-Founder*

# Noi siamo Narvalo

## Core Team



The screenshot shows the BLS website interface. At the top, there is a green navigation bar with social media icons (Facebook, LinkedIn, YouTube, Vimeo, Instagram) and buttons for 'Accedi' and 'Registrati'. Below this is a header with the BLS logo and 'RESPIRATORY PROTECTION PRODUCTS', along with a search bar and navigation links for 'PRODOTTI BLS / USA E GETTA RIUTILIZZABILI FILTRI'. The main content area features a large image of a person in a white protective suit with their hands clasped. A news article is displayed in a white box with a green header 'ULTIME NOTIZIE'. The article title is 'CORONAVIRUS 2019-NCOV' and the date is '31-01-2020'. The main headline is 'Coronavirus 2019-nCoV: una maschera può proteggere?'. The article text discusses the family of viruses that cause illnesses ranging from the common cold to more severe diseases like MERS and SARS. It mentions that the new coronavirus is given the 2019-nCoV designation because it has never been found before. It notes that while we know how it spreads and its symptoms, we don't know why we should intervene in the debate. A 'Read more' link is visible at the bottom right of the article box. At the bottom of the page, there are navigation links for 'NOTIZIE', 'STORIA', 'DOWNLOAD', and 'CONTATTI'.



# Narvalo Urban Mask

---

◀ PRO-TECTION MASK ▶

**Smart Filtration**

Protection from pollution, virus, bacteria,  
pollen and odours

99,9%

Protection Efficiency tested  
according to EN 149:2001+A1/09 filtration standards

◀ COMFORT ▶

◀ PERFORMANCE ▶

◀ PROTECTION ▶

◀ SUSTAINABILITY ▶



# Urban Commuters

---

Narvalo è un progetto che vuole fare molta strada. Camminando, pedalando e correndo insieme ai protagonisti di una nuova mobilità urbana: i **Narvalo**.



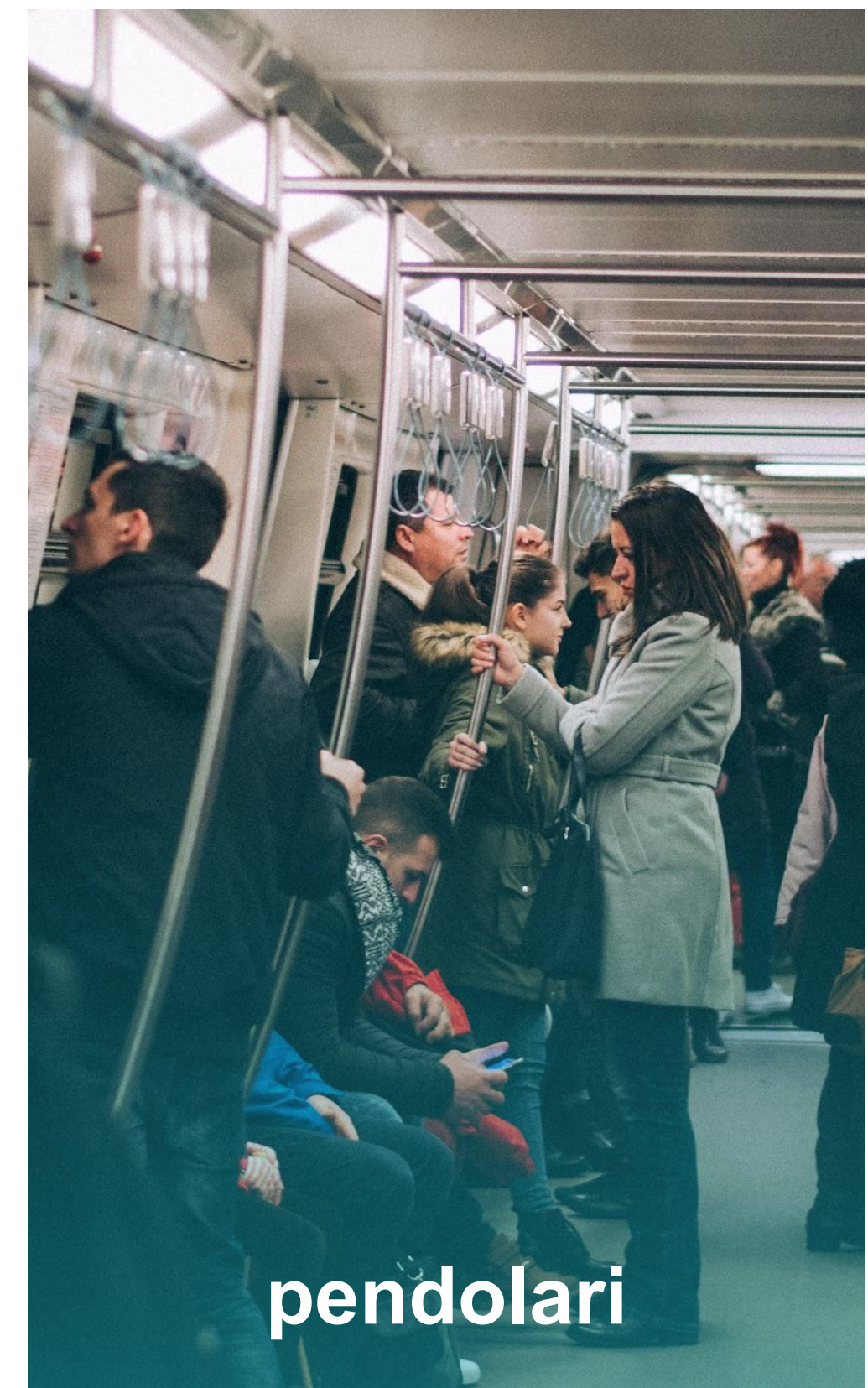
pedoni



ciclisti



motociclisti



pendolari

# Narvalo Urban Mask

---





# Narvalo Urban Mask



# Filtrazione Smart



99.9%  
performance filtrante

- >PM 1
- PM 2.5
- PM 10
- particolato
- virus e batteri
- pollini
- odori



# Tappo Covid

---



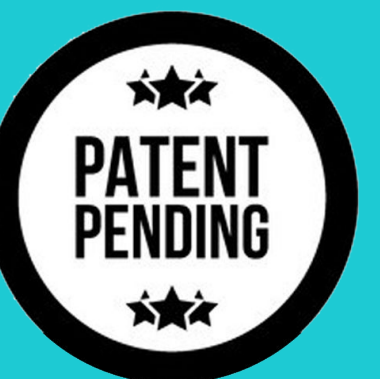
Tappo Covid-19 per rendere la tua Narvalo una Mask altruista.

Blocca il flusso d'aria in uscita del tuo respiro.

# Narvalo Active Urban Mask

---

IoT Smart Mask



# Active Urban Mask

---

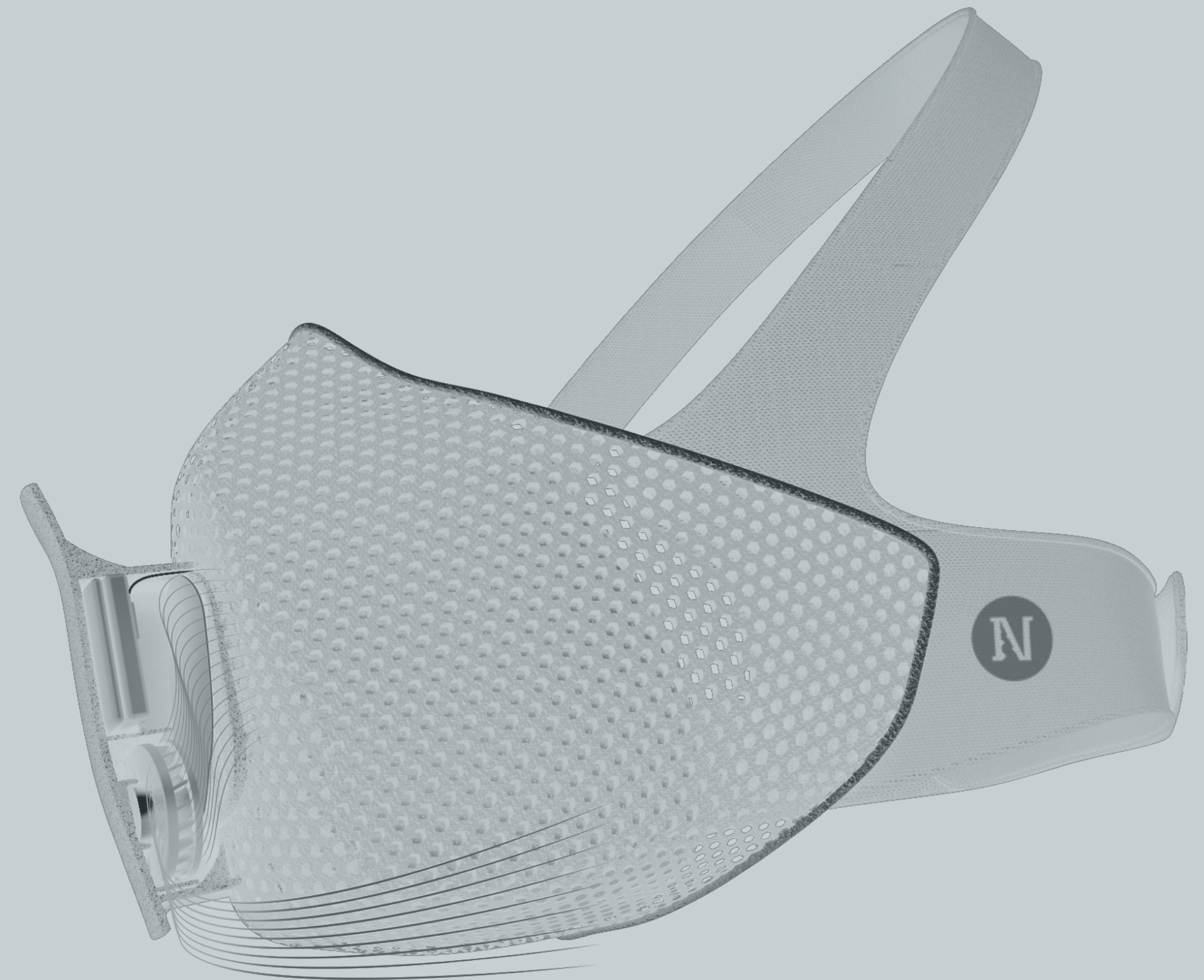
**Ridotto** accumulo di calore e umidità

**Indossabilità** ottimizzata

**Miglior** performance respiratoria

**Smart** ventola di estrazione

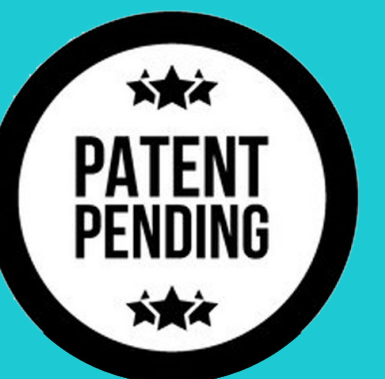
**Intelligent** sensori e comunicazione



# Narvalo Mobile Application

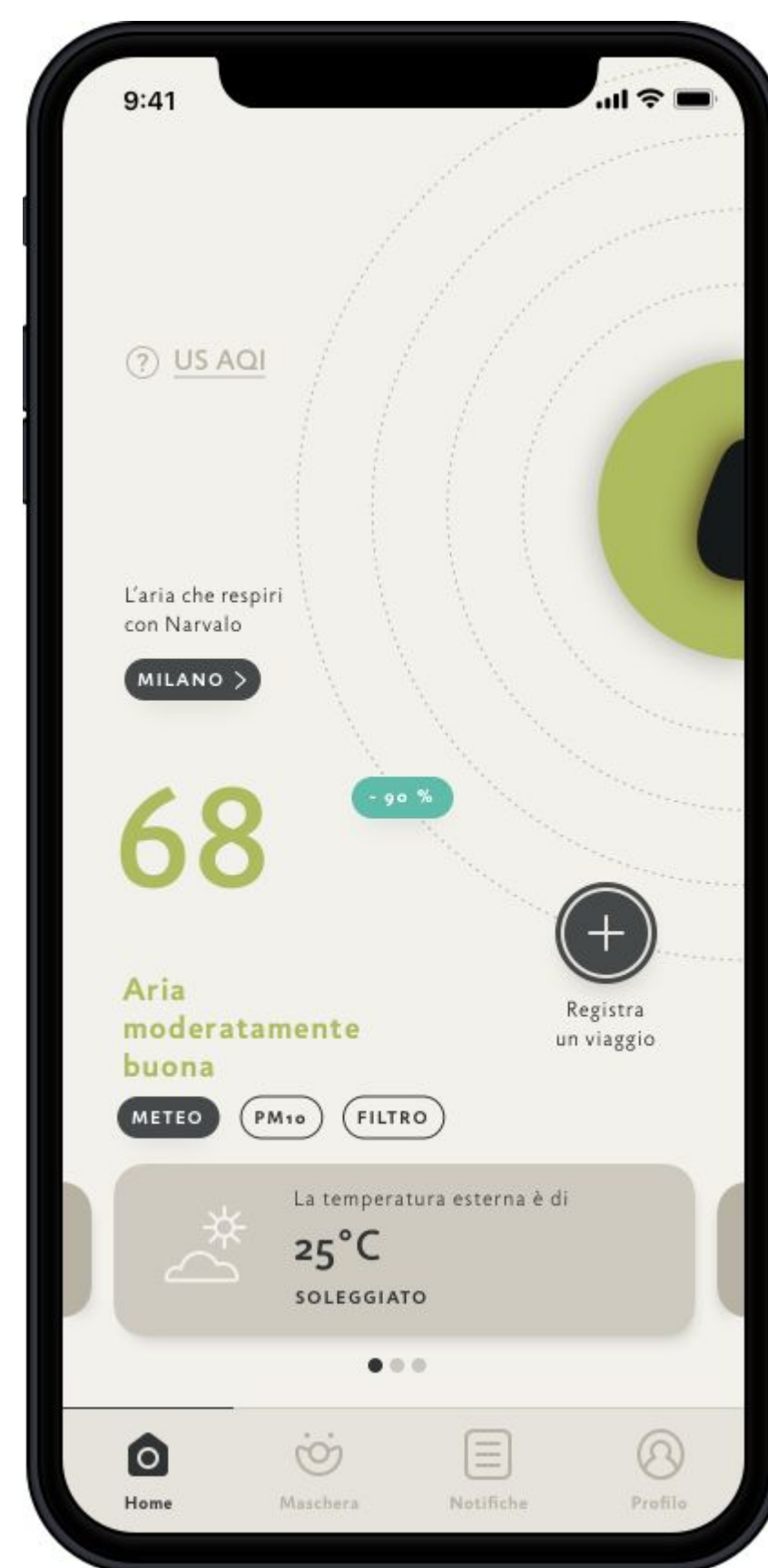
---

Connessa al tuo respiro

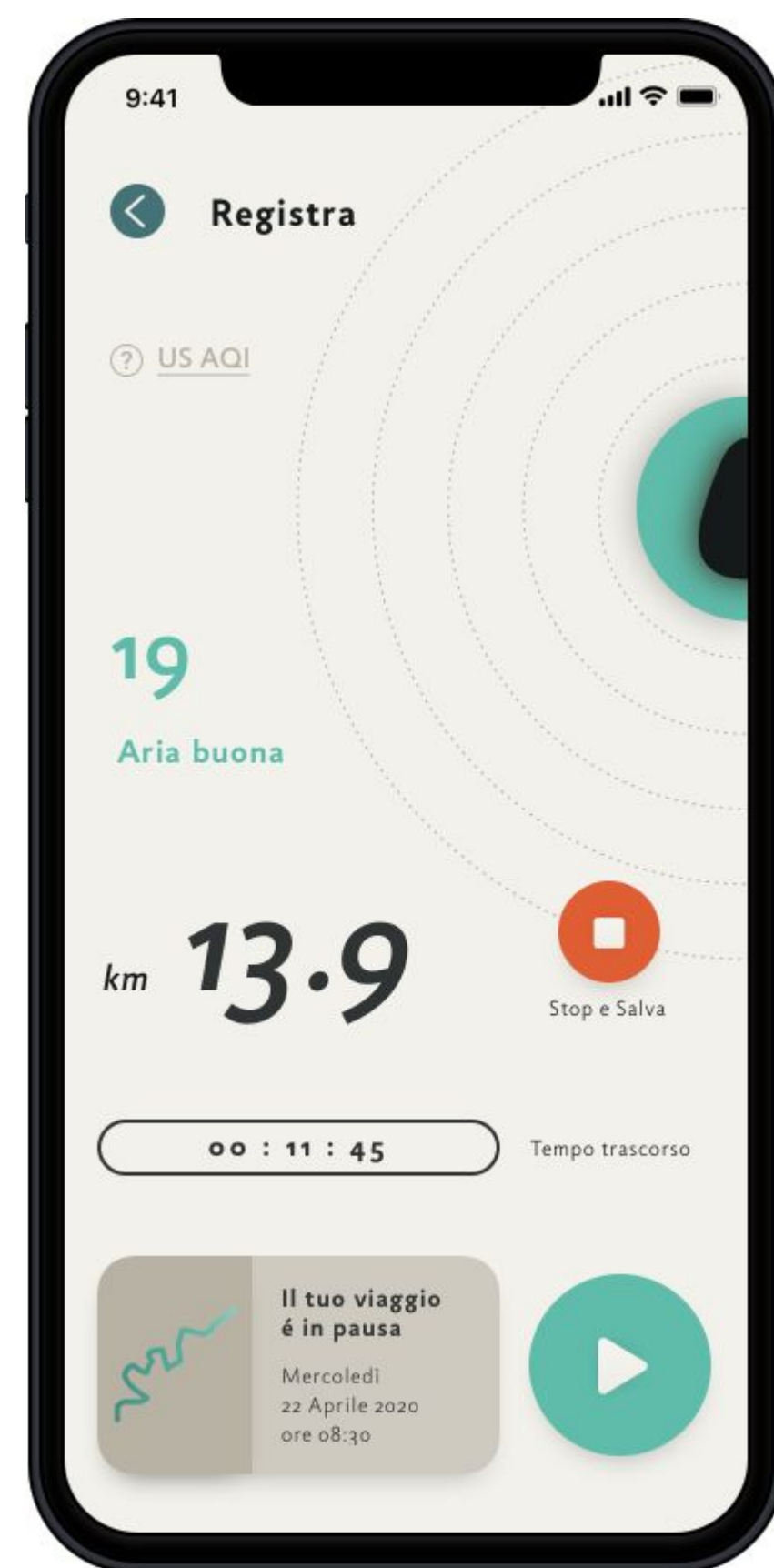


# Applicazione Mobile

Narvalo è una maschera che può essere intelligente. Perché - nella sua versione IoT - dialoga con un'App in grado di monitorare contemporaneamente la persona che la indossa e l'ambiente che la circonda in quel momento. Costruendo un ecosistema connesso.



# Applicazione Mobile



**Monitora** la qualità dell'aria

**Registra** la qualità dell'aria durante il tuo tragitto

**Ottimizza** per avere sempre un comfort adeguato

**Analizza** la tua performance respiratoria



*‘una stupefacente benedizione per il pianeta... dobbiamo essergli molto grati (al **Coronavirus, NdR**) perché potrebbe essere la ragione per cui sopravviveremo come specie’*

*Qualcosa di **terribile e magnifico, perché abbiamo bisogno di fermarci nel produrre a questa velocità.***

**dezeen**

Follow:   



**Coronavirus offers "a blank page for a new beginning" says Li Edelkoort**



Marcus Fairs | 9 March 2020 | 77 comments

# Grazie / Thank you / 谢谢

*venanzio.arquilla@polimi.it*

# Prossimi eventi del ciclo «Ripartire dall’Innovazione»

**Test e prove per manufatti high tech – Galleria del Vento POLIMI Virtual Tour**  
**8 Ottobre 2020 , ore 10.00-11.30**

Attraverso un virtual tour, visiteremo e conosceremo la Galleria del vento, una delle quattro grandi infrastrutture di Ricerca del Politecnico di Milano e la più grande struttura di questo tipo in Europa, con finalità sia di ricerca accademica sia di concreto sviluppo di progetti industriali, con applicazioni principali in ambiti quali aerei, elicotteri, ponti, edifici, veicoli, turbine eoliche, barche a vela e altri sport.  
Programma e iscrizioni:

<https://www.assolombarda.it/servizi/ricerca-e-innovazione/appuntamenti/test-e-prove-per-manufatti-high-tech-2013-galleria-del-vento-polimi-virtual-tour>

**La gestione del fine vita degli imballaggi - Scenari tecnologici nel quadro normativo europeo**  
**13 Novembre 2020, ore 10.00-11.30**

Il workshop presenterà gli scenari di impatto delle nuove tecnologie di materiali e di riciclo delle plastiche alla luce della normativa europea. Verranno anche illustrati i risultati delle ricerche in corso presso il Politecnico di Milano.

**innovazione@assolombarda.it**



ASSOLOMBARDA

[www.assolombarda.it](http://www.assolombarda.it)

[www.genioeimpresa.it](http://www.genioeimpresa.it)

Seguici su

