HACKCITY | URBAN DESIGN CHALLENGE
100 MOVING PIXELS

Co-build a self-organizing sustainable city
with 100 modular moving spaces

CONTENTS

INTRODUCTION

Modern cities are now plagued by traffic congestion, over-centralization, unaffordable housing, and privacy disclosure due to the general uneven distribution of resources. It is difficult for promising new technologies like autonomous driving, robotics, blockchain, vertical farming, AI, 3D printing, VR, flying cars etc. to be employed effectively and extensively in cities. Under the influence of Le Corbusier's Charte d'Athènes, **cities and towns were patternized in an excessive pursuit of high productivity, resulting in a degraded quality of people's lives.**

According to Wiener's *Cybernetics*, **a city's complex changing orders necessitate a dynamic loop of "feedback-adjustments" to preserve its inner balance.**
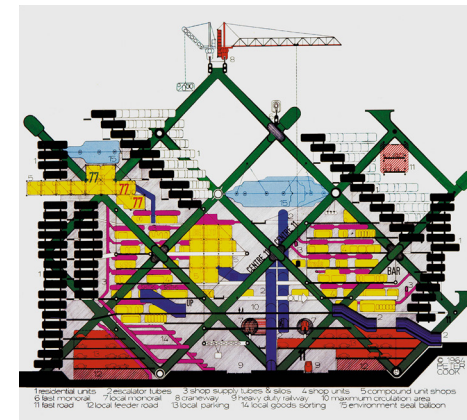
Over the last 2000 years, urban evolution has been centered on "human-space interaction". The residents' needs for modern living change constantly while it took the city decades to complete the loop. The current urban system is gradually collapsing because the cities today are capable of perceiving changes yet reluctant to react.
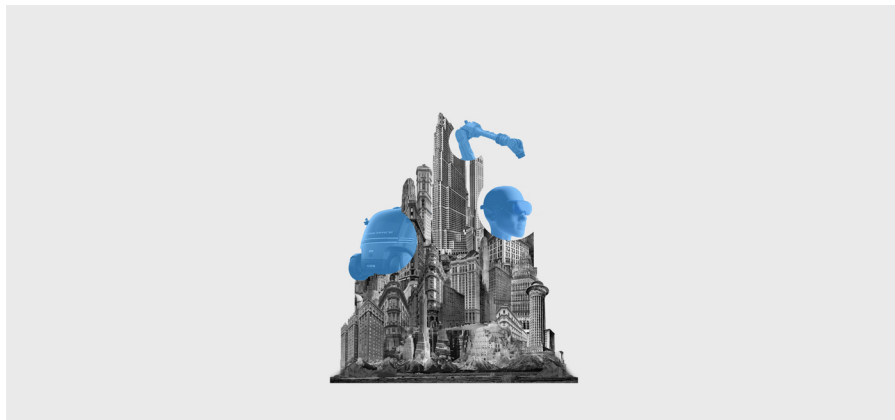
Early in 1964, Archigram, an avant-garde architectural group founded at Architectural Association School of Architecture, proposed a visionary, but contentious solution called "Plug-in City".

Space was standardized in this hypothetical city as "capsules", and plugged into megastructures. A massive crane lifts these "capsules" one by one to insert into the city, which, like electronic units, may be plugged in and out, and function at any time.

Citizens will be able to grow their own dwellings in order to meet changing personal demands. Due to technical limitations and practical concerns, unfortunately, such an edging design was not able to be finished.

1 residential units   2 escalator tubes   3 shop supply tubes & silos   4 shop units   5 compound unit shops
6 fast monorail   7 local monorail   8 craneway   9 heavy duty railway   10 maximum circulation area
11 fast road   12 local feeder road   13 local parking   14 local goods sorting   15 environment seal balloon

Crane

+

"Capsules"

Plug-in City (Archigram, 1964)

Hopefully, with autonomous chassis and other new technologies available today, the "crane" and "capsules" will be replaced with modular moving spaces – Robobus. **This led to the introduction of PIXCITY as a sustainable superorganism and a self-organized prototype running based on moving space.**

PIXCITY represents skepticism regarding static cities. As a result, Cybernetics is used to the city and community construction of PIXCITY. It will be a sustainable superorganism capable of reacting and adjusting to demand variations based on mobile, configurable, and sharable moving spaces.

The modular moving spaces will be a part of everyday life in PIXCITY. **The Residents will have the flexibility and choice to design their home, allowing them to customize rooms and easily replace them when required.** The variety and growability of spaces also shared in PIXCITY. Similar with Uber Eats, citizens can order the additional 'moving spaces' in the app, such as "gym", "karaoke", and "kitchen" to expand their living space. Life expenses will be greatly reduced, and a sustainable city development paradigm will emerge.
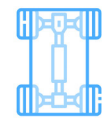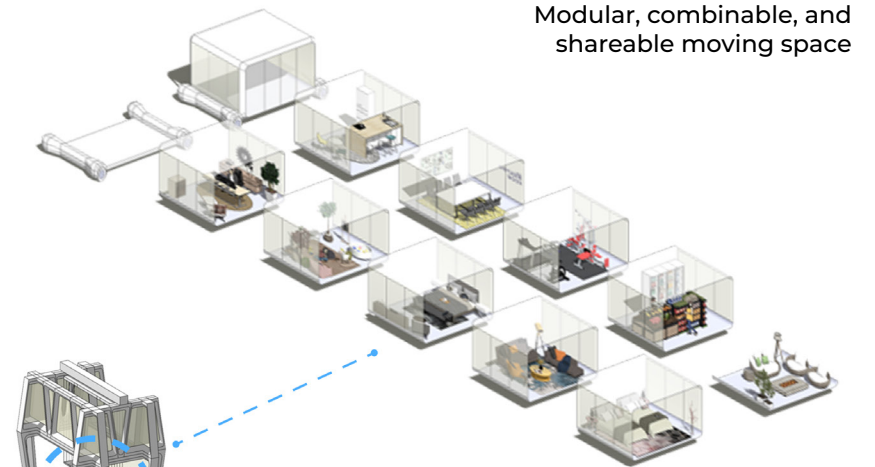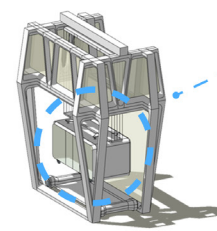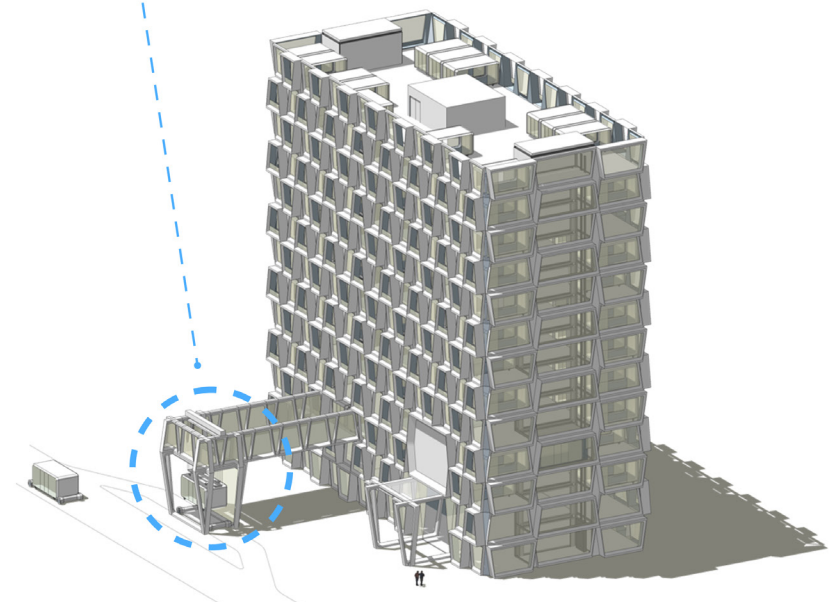

Chassis

+

Pod

PIXCITY (PIXCITY DAO, 2022)

Modular, combinable, and shareable moving space

Robotic arms and lifts assist the transportation of moving space

REQUIREMENT

The Hackcity Urban Design Challenge "100 Moving Pixels," aims to inspire "city-hackers" (participants) to **"plug" the 100 PIX modular moving spaces into architecture structures, as Archigram was expected to do, design and plan a self-responsive trial urban community.**

On the one hand, entries must thoroughly consider **how to connect and assemble the moving spaces, as well as conceive a clear real-life dynamic scenario in a smart city.**

Entries, on the other hand, must focus on two areas: modular moving space and new technologies, with emphasis on 5 dimensions: shareable, responsive, configurable, connectable, and achievable. The work should be innovative as well as practical, incorporating cutting-edge technologies and meeting the feasibility criteria.

City-hackers are permitted to choose a hypothetical site.

We encourage city-hackers to innovate from the following, but not limited to, three perspectives:

1. To create various real-life scenarios of moving space used in the smart urban community.

The modular moving spaces will transform the way people acquire space. Entries can include designs for how citizens call for moving spaces, the assembly mode of moving spaces in architecture structures, the connection method between moving spaces, and even scenarios of urban service robots, the Citybot (self-driving cleaning vehicles, delivery vehicles, and mobile charging vehicles), operating in PIXCITY.

2. To address the issues afflicting modern cities.

Offer solutions utilizing 100 moving spaces in order to challenge the rigid city paradigm. Apply new technologies, including but not limited to autonomous driving, assembled architecture, blockchain, Web3.0, Metaverse, Internet of Things, VR, 3D printing, and AI, in combination with moving spaces in the community to address issues like traffic congestion and over-centralization etc.

3. To plan a "15-minute" community ecosystem

Hackcity encourage city-hackers to plan a smart urban community with a 15-minute walking distances (rather than a single tower with 100 units). 100 modular moving spaces should be dynamically configured in the 15-minute community ecosystem according to different functional clusters, including office, residential, commercial and public spaces. Citizens will inhabit in this evolving smart city organically with various clusters.

PRIZES

Total Prize Fund
37,000$

"THE FUTURE CITY AWARD | VILLE FUTUR"

The design outcome meets the criteria of being shareable, configurable, connectable and achievable, and has the potential to be landed in a way that effectively making the urban space autonomously mobile, responding to the demands of citizens, and maximizing the quality of life of future residents

1st Prize	2nd Prize	3rd Prize
15,000$	**7,000$**	**5,000$**
Project Landing Opportunities Trophy, Exhibition and Forum Promotion, NFT Collaboration, PIXCITY Urban CHO Medal of Honor, CG Animation Promotion	**Project Landing Opportunities** Trophy, Exhibition and Forum Promotion, NFT Collaboration	**Project Landing Opportunities** Trophy, Exhibition and Forum Promotion, NFT Collaboration

During the construction phase, the design fee will be increased according to the construction content

"THE GENESIS CITY AWARD | VILLE GENESIS"

Most Popular Award.

The design outcome is innovative and construct urban aesthetics. It boldly proposes a future smart city scenario that uses new technology to change the quality of human life, and is highly loved by the public.

5,000$

Trophy, Exhibition and Forum Promotion, NFT Collaboration

"THE RADIANT CITY AWARD | VILLE RADIEUSE"

Most Humanistic Valued Award.

The design outcome practically take into account specific application scenarios through the application of new technologies and provide future life plans for special groups.

5,000$

Trophy, Exhibition and Forum Promotion, NFT Collaboration

SUBMISSION REQUIREMENTS

Description Board

City-hackers are quired to present the scheme as a whole on
A2 landscape-orientated presentation board (up to 3 boards),
300DPI, marked readable (margin 10mm), including:

• description text: less than 1200 words
• design description drawings (sketches, plans, sections, elevations, diagrams), and renders
• Registration number: located in the upper right corner of the drawing, font Arial, font size 20

The Presentation File (Optional):

City-hackers may submit the following (not limited to) documents according to their needs:

• description animation: MP4 format, 1080p, within 1 to 5 minutes, less than 50mb
• GIF file
• model file (FBX/OBJ/3DM/SKP format)

Preliminary Review (Optional):

City-hackers are welcome to submit their competition presentation draft panel/s before submitting it/them as a final competition entry for a preliminary review, and book a open tutorial with jury members. Jury members can review your presentation and give your valuable feedback.

1 - 3 panels

• Please name the files as concisely as possible and name the files according to the format of "Application No.-Program Name".

• Language of submission: Chinese and English, or English only.

• Cover: The cover must be uploaded as the main visual of the work

• Size limit: 20 MB

• All winning entries will be required to submit source files for curatorial promotion purposes.

Please upload the submission file on the Hackcity Urban Design Challenge Website

Link: *https://www.pixmoving.com/hackcity*

SUBMISSION CONTENT

The final design result is expected to contain the following content:

- **Smart urban community planning and design**

- **Architecture structure design**

- **Dynamic operation and civic service scenarios of moving space**

- **Assembly and connection of moving spaces**

RECOMMENDED PRESENTATION

The final design result is expected to contain the following content:

- Urban Plan

- Street elevations

- Sections

- Axonometrics (providing information on connetion between moving spaces and architecture structures)

- Perspectives

- Diagrams

- Rendering

- Animation

Recommended Presentation listed above is a suggestion only. Participants can choose what would explain their design in the most efficient manner.
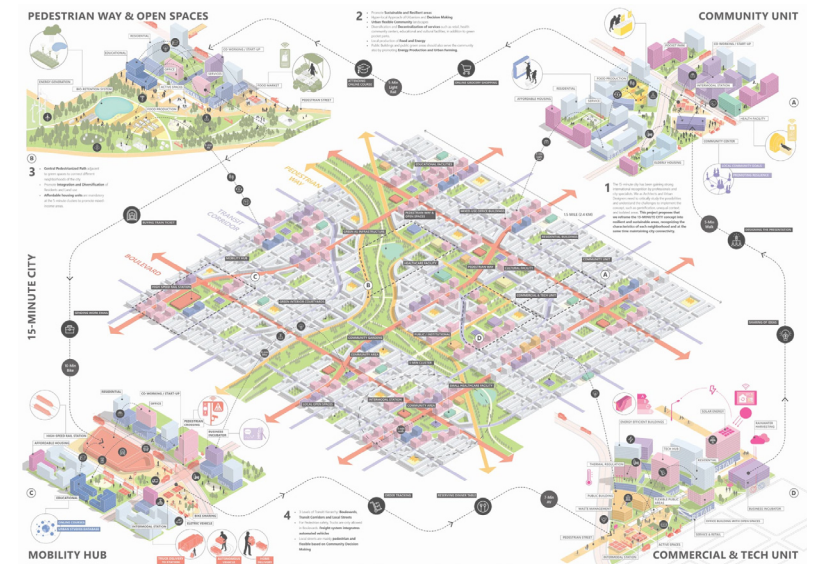
1st prize in the "15-Minute City 2021" competition (GATE ARCHITECTS, 2021)

JURY

Maria
Fedorchenko

Urban Consultant
Co-Director of Karta Architecture Ltd
Diploma Unit Master of
Architectural Association

Ling
Fan

Founder and CEO of Tezign
Director of
Tongji University Design A.I. Lab

Tiantian
Lo

Assistant Professor of
The Hong Kong Polytechnic University
School of Design

Enea
Colombo

General Manager of
Icona Design Group
Leader of Icona Smart City Project

Ivan
Tallarico

Founder and CEO of Hi-Interiors
Ecosystem Builder of DesignTech

Benjamin
Chan

Director of
LWK + PARTNERS

Tommaso
Boralevi

President of Federal Innovation @
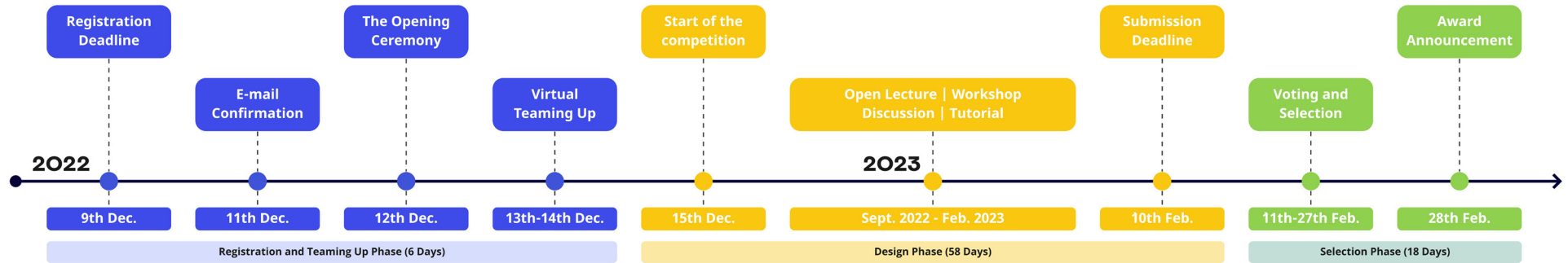MIND
CTO of LendLease

Chuan
Yu

CEO of PIX Moving

All jury members will also participate in open lecture during design phase and share their insightful urban expertise

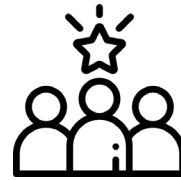More guests will be released ...

COMPETITION SCHEDULE

2022

				2023			

Registration Deadline — 9th Dec.

E-mail Confirmation — 11th Dec.

The Opening Ceremony — 12th Dec.

Virtual Teaming Up — 13th-14th Dec.

Start of the competition — 15th Dec.

Open Lecture | Workshop Discussion | Tutorial — Sept. 2022 - Feb. 2023

Submission Deadline — 10th Feb.

Voting and Selection — 11th-27th Feb.

Award Announcement — 28th Feb.

Registration and Teaming Up Phase (6 Days)

Design Phase (58 Days)

Selection Phase (18 Days)

Hackcity Key Dates

DECEMBER 9 2022	DECEMBER 12 2022	DECEMBER 15 2022	FEBRUARY 10 2023	FEBRUARY 28 2023
Registration Deadline	Kick Off	Competition Start	Submission Deadline	Result Announcement

PARTICIPANTS

Hackcity 1.0 is looking for innovative

- **architects**
- **urban designers**
- **urban scientists**
- **institutions**
- **students and enthusiasts with related background**

In the spirit of decentralization, all participants will be gathering in the PIXCITY DAO virtual prep-camp in Discord/Spatial before the event, getting to know and connect with each other before teaming up to enter the tournament.

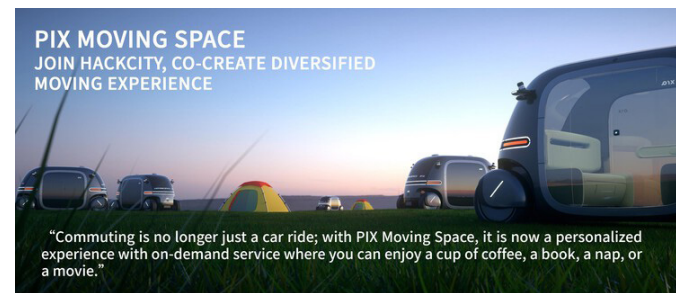 **Discord channel link:** *https://discord.gg/adqFyVKk*

WHAT PIX OFFERS?

- open-source technical information on mobile spaces (specifications, performance, 3D models, features, videos)
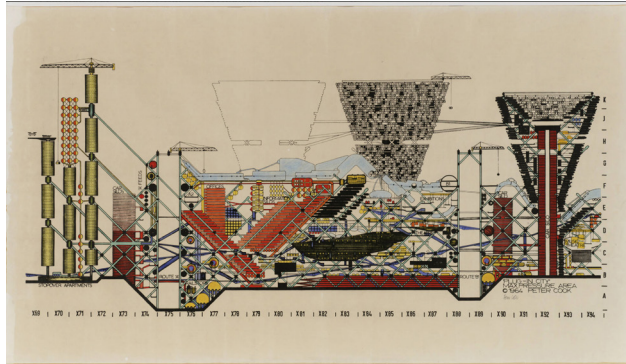

- 100 physical autopilot mobile spaces (urban construction hardware facilities)

- urban construction resources (planning, funding, sites, government liaison, media, business, landing, PR)

PRECEDENTS
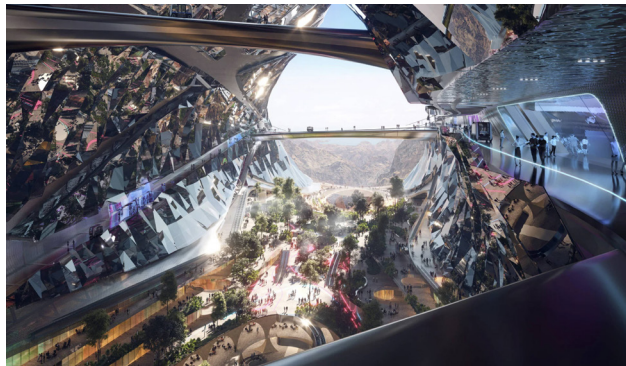
Cases Sharing

Plug-in CIty,
Archigram

Chengdu Future CIty,
OMA

Trojena (NEOM),
Zaha Hadid Architects

BiodiverCIty,
BIG

Telosa,
BIG

Woven City,
BIG

F.A.Q.

Frequently asked question

• **Why Hackcity?**

Hackcity hopes to build a better future habitat for humanity through co-creation and decentralization with new technologies such as autonomous driving, blockchain, and 3D printing.

• **What is Hackcity?**

Hackcity is an architectural competition to build the smart city of the future, a platform to gather the world's leading urban hackers, participants will design cities based on self-driving spaces, and the winning teams (individuals) will receive cash and other prizes.

• **What is the difference between PIXCITY and Hackcity?**

PIXCITY is a future smart city community that will soon be on the ground, and Hackcity is a series of design competitions to realize PIXCITY. Hackcity can be understood as the process and PIXCITY as the result.

• **Why design cities based on self-driving mobile spaces?**

At the underlying theoretical level, because cities are complex dynamic systems, according to Wiener's Cybernetics, dynamic systems need to establish a "feedback-dynamic adjustment" cycle in order to maintain the balance of the system. By introducing cybernetics into the construction of cities and communities, cities become super-organisms that can be metabolized and developed sustainably through mobile, configurable, and shareable modular spaces that provide feedback and adjustment to changes in demand.

On the other hand, it can also eliminate "commuting time" and blur the distance and resource distribution of the city because it frees both hands and feet to work, live and play while on the move.

• **Is it possible to register as an individual?**

Yes, individuals can register individually, and teams/organizations can also register as a group. Participants in the PIXCITY DAO Warm-up Camp will also have the opportunity to participate in the competition in free teams with other participants.

• **Who are the organizers of Hackcity?**

PIXCITY DAO, a decentralized and independent self-organization initiated by PIX Moving. It will initiate, support, operate and implement creative design events about "PIXCITY Future City".

• **What kind of groups can come to the competition?**

Hackcity welcomes architects, urban planners, urban scientists, related institutions, as well as practitioners, students, and enthusiasts with a background in disciplines related to architecture and urban design.

• **Will the final selected design result be actually built?**

PIXCITY DAO will integrate resources and funding to provide technical support to the winning teams (or individuals) and assist in deepening the post-implementation and actual construction.

• **What is the plan for the landing construction?**

PIXCITY will officially launch its construction program in the second and third quarter of 2023. The sites will be selected based on the award-winning entries' choice of site and feasibility guidelines.

• **What are the scoring criteria for the work? Do I have to make an animated video?**

Explain that animated videos will be optional for extra credit. Please refer to the event brochure distributed after registration for specific scoring criteria for entries.

• **Is the mobile space mentioned in the article real? Do I have to use it as a base module?**

Yes, Robobus is a mobile space based on a self-driving skateboard chassis developed by PIX and now in full production.

The Robobus was designed in the conceptual design phase to comply but without having to strictly follow the Robobus parameters.

PIXCITY DAO FOUNDER

O1X

PIXCITY DAO GENESIS PARTNERS

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