# / METAVERSE /
# TRANSITIONING *(TO)* FUTURE CITIES

Transdisciplinary platforms as instruments to democratise technology for participatory use in building back neglected urban voids of Riga

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Transdisciplinary platforms as instruments to democratise technology for participatory use in building back neglected urban voids of Riga

*''Digital platforms catalyze community, bringing people together to co-create and fix their city. But what if we had more tools-digital tools to act on the city around us? What if the same mechanisms of smart urban optimization allowed people to take ownership of their city and make improvements that only residents could dream up?'' (Ratti, 2016)*

**Keywords:**

Neighbourhoods, human experiences, digital playground, public spaces, vacant buildings, Europe, Latvia, economy, ecology regeneration, human-centric streets, Metaverse, virtual and mixed realities, local quality analysis, safe, inclusive cities, placemaking, public life, happy city, hyperintelligence, kit-of-parts, serendipity, super pedestrian, micro-mobility, blockchain, smart contracts, decentralized economy, virtual parallel universe, digital instruments, hybrid reality, 3D experiences, NFT, public education, surveillance capitalism, Industry 5.0, urban software

**DRAFT-ABSTRACT:**

The research will start with diving deeper into the Metaverse, what is it, how will it look and feel. Following an understanding of what it means to architects, how we can blend our complex profession into the complexity of Metaverse. While simultaneously studying a location, morphological growth, current city condition, its issues and what causes these problems.

In the second part of the paper, we will explore ways of linking the two subjects. We will apply the findings of the Metaverse to a physical location, how it can be adapted and utilised by city dwellers and if it has the potential to be a larger solution to a struggling nation.

Riga will be analysed through the lens of digital environments and how architects can play a role to help Riga and similar locations around Europe. and the next chapter of the internet. The chapter in mass media is referred to as the Metaverse. Metaverse can be summarised as a 3D immersive digital ecosystem. It is hard to exactly define what Metaverse is or will be, as it can take 10 - 15 years to reach its expected form. However, key components or elements do exist, like the virtual + augmented reality headsets, blockchains, digital twins, online collaboration and IoT, just to name a few. For now, the metaverse is being developed in gaming and in online collaboration platforms, which is shaping the appearance and functionality of the virtual world.

Specialists alongside tech companies acknowledge that it will be a creation of many parties, companies and stakeholders together.
So this leads to a question; What is the Metaverse and who will be involved in its development? What architects/spatial designers are able to do to contribute and steer the development of this next chapter? More specifically, If the Metaverse proceeds, if it can be used as a neighbourhood / urban void governance platform. Or in other words, how can we utilize the digital ecosystem as tools of co-creation and placemaking.
This research will slowly flow into the design project - program, typology and scale will be informed and depend on the first three chapters of the research.

Fig. 01
Temporary building intervention as part of NGO initative in Riga.

## INTRODUCTION

This paper aims to explore two personal fascinations. The First can be referred to as loss of identity and value. The second comes from a technological curiosity about how we will experience cities and collaborate in the future. The paper will be researched concurrently, linking two topics back and forth.

Riga, a port city and the capital of the Baltics, was formerly utilised as a prominent industrial city of the Russian Empire. Since the regaining of independence in 1991, Riga has experienced mass corruption and was heavily affected by the global financial crisis. Latvians can be seen as a resilient nation; amid all the drama, the country joined the EU in 2004 and Eurozone and has seen a creative and cultural appetite growth. However, the young and educated journey has not been easy; the unemployment is around 8%[1] and wages to survive are very low. All this has had a significant impact on the population growth or, in this case, a decline of almost 20%[2] in the last few decades. As the nation fled for better opportunities and new experiences, the urban fabric of Riga has taken on a dramatic makeover, leaving every fifth building in the city centre abandoned and decaying.[3] Amongst locals, Riga has gained a new nickname, The European capital of empty buildings.

As a capital, Riga, with several thousand empty spaces, sits at the top of the EU ' vacant building' list, compared to population size.[4] Many buildings across the city region are wooden structures dating back to the 17th century. Only a handful of such timber agglomerates have been given a second chance, mainly, if not only, from bottom-up initiatives. One such example can be seen in Kalnciema Quarter, where the rejuvenation process started after several smaller art events **[Fig.2]**. According to NGOs, many stakeholders struggle to develop a plan and funding to bring these parts back to life, as 90% of empty housing, factory and cultural buildings are privately owned. In 2013, FR marked several buildings with a yellow sticker saying ''Occupy Me'' as 'vandalism' to see if locals would be interested in occupying any of the empty buildings **[Fig.3]**. It turned out, many groups, artists, start-ups and businesses, were actively looking for short and long term occupancy.

People are interested in collaboration and better cities' futures, although long processes still make cooperation impossible long term. Free Riga has a 30-month[5] delivery and execution time for a temporary project. The research will dive deeper into understanding who the owners are, their will-power and agendas regarding the rotting properties and relationships among 'space searchers' and 'space providers' **[Fig.4].**
Alongside empty buildings, research will dive into the urban squares as precincts react faster to dynamic urban lifestyles, change in how we live and the way we co-inhabit.

Amongst urbanists, gaming and online platforms have been a popular trend in engaging different user groups in the design processes[6]. Letting voiceless citizens experience the city in a way they feel it should be shaped. Block by block, as an example, operates in the developing world where they allow children and the elderly contribute towards virtual city fabric[7]. With the EU funding under the Urban Cultural Planning project, Riga has created a Minecraft city **[Fig.5]** as a digital tool to engage young people in their local communities. Although these are great platforms, they can be challenging to translate into collaboration; the AEC industry still has a pixelated 2-dimensional interaction with their surroundings that passively generate datasets. As we see in Riga, other locations worldwide

1
Unemployment rate at 8.1% in Latvia in Q1 : https://eng.lsm.lv/article/economy/employment/unemployment-rate-at-81-in-latvia-in-q1.a406111/

2
Geo.stat.gov.lv: https://geo.stat.gov.lv/stage2/#lang=en

3
OCCUPY ME! Video reference: https://refillthecity.wordpress.com/2017/06/09/occupy-me/

4
Filling Vacancies, Vacant Real Estate: https://ec.europa.eu/futurium/sites/futurium/files/long_version_en.pdf.pdf

5
Urban Toolkit - Free Riga Process: https://urbantoolkit.eu/case-studies/free-riga/

6
New digital tools for planning culturally in the era of #stayathome: https://urbcultural.eu/news/cultural-planning/post-pandemic-cultural-planning-digital-tools-for-developing-new-ways-of-planning-culturally/

Fig. 2
Kalnciema Quarter Before / After


Fig. 3
Occupy me sticker campaign, Riga (Latvia). Photo by Free Riga

Fig. 4
Video capturing a neighbourhood in Riga. https://www.youtube.com/watch?v=VC2vzSx-pvVQ

Fig. 5
Riga in Minecraft. https://geoboxers.s3-eu-west-1.amazonaws.com/riga_ov/index.html#Riga/0/7/597/-1744/64

democratise digital platforms as co-creation methods, leaving us wonder how other similar digital systems could be broadened and implemented in a synchronous manner? How could we interact with our empty buildings and public spaces not only by co-designing but by sharing our creation with others, building virtual and physical elements with the ability to bring them out of the screen to experience it together?
Olafur Eliasson, a Danish-Icelandic artist, says the most impactful way to learn or understand something crucial is by experiencing it with one's skin. Metaverse is believed to be the next chapter of mobile internet, where instead of a 2D interaction with our mobile devices, we will be able to have an embodied 3D experience **[Fig.6]**. We can step into it, visit different places, experience different climates and aromas, and participate on-site or remotely in a design and construction process.

Metaverse can operate not only as an entertainment unit, the direction we can see it going today, but it can be a collaboration platform that combines large amounts of data into 3D environments, which can be 'played' with by anyone in the city[8]. **[Fig.7]** Networked technologies overlaid in physical space add a fine-grained control of the public & private realm. Today tools are used to control separate visible and invisible infrastructures of the city. (Ratti, 2016). As a partial deliverable of the thesis work, an attempt to develop a beta version of a platform or software that could bridge the gap between stakeholders and digitalisation will be researched.

Urban settlements are flooded with data, and only a tiny amount of the information is being implemented into the built environment. Metaverse has an opportunity to (re)distribute the control of information; this may empower individuals to be more participatory into where and what information is being gathered, giving each a choice over how the digital traces are being used. Know over your information can be defined as a 'mutation' of our present-day systems that can emerge from all parties' active participation. The future where we all have a chance to benefit from the inherent value of our daily activities is possible and maybe even more desirable. (Ratti, 2016) As the controlling power is divided between multiple large tech companies, a bottom-up intervention is necessary to facilitate and steer the growth of an inclusive, open, decentralised and safe online ecosystem[9].

Once architects, planners and policymakers discover ways to collaborate with data engineers and urban specialists - the outcomes can solve signif-


**Fig. 6**
Internet today is viewed through a rectangle screens, tomorow, within the metaverse, the we can experience the Web through augmented 3D environments.

7
The Block by Block Methodology: https://www.blockbyblock.org/resources

8
Virtual Meeting rooms chaning how we work: https://www.dezeen.com/2020/04/20/venn-room-space-popular-virtual-reality-communication/

9
Holistic data gathering platform and integrated tool run by an NGO: https://www.ushahidi.com/features

**Fig. 7**
A Travis Scott concert in Metaverse. First signs of metaverse. Credit: Epic Games / Fortnite

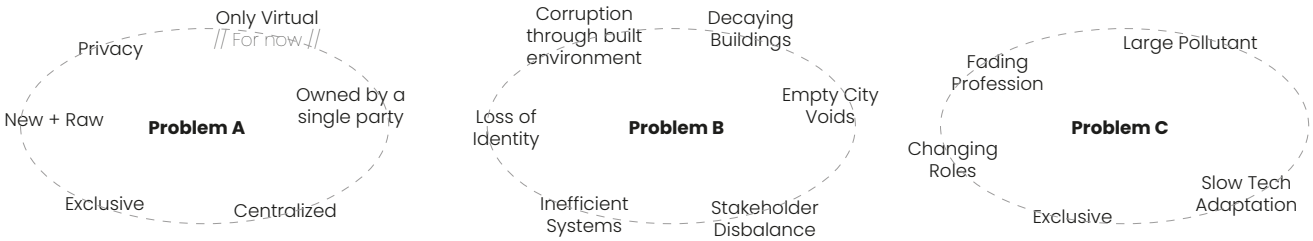


**Fig. 7**
Problem statement mind-map in three parts; A, B,and C.

icant global challenges, not only architectural. (Bibri, 2020)
Blending Riga and Metaverse in the same sentence, we can simulate a top-down and bottom-up system that can foster widespread engagement and hopefully lead to effective data implementation, which could even lead to healthy, livable urban pockets. (Ratti, 2016)

## PROBLEM STATEMENT

### Problem Summary:

The metaverse is a broad term; it overarches multiple issues that can co-operate and create new meanings for each subject **[Fig.8]**. Metaverse

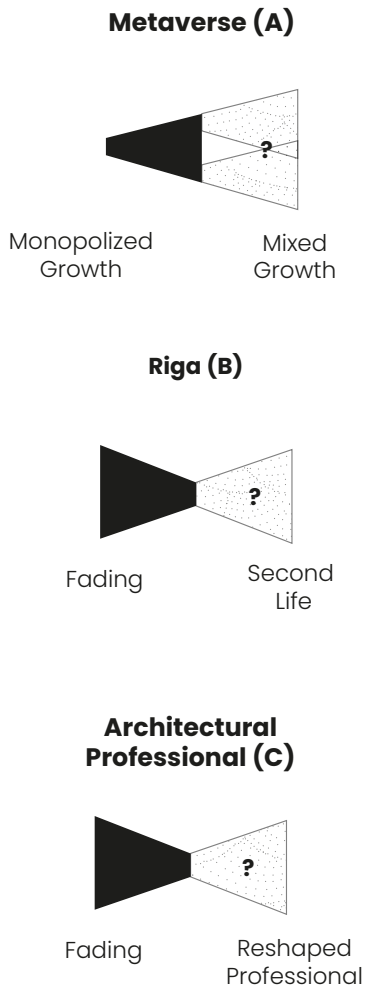


**Fig. 9**
Problem abstraction. The dark side is the current direction the subject is going. The lighter side is the questionable future we must act upon before it's too late.

10
Urban Public Spaces in the Digital Age: https://www.moreno-web.net/urban-public-spaces-in-digital-age/

11
Urban population growth. 70 year char: https://www.weforum.org/agenda/2019/09/mapped-the-dramatic-global-rise-of-urbanization-1950-2020/

12
Latvia population decline: https://eng.lsm.lv/article/society/society/latvias-census-shows-sharpest-population-decline-among-baltic-states.a406618/

13
Urban voids in Central Europe mapped: https://issuu.com/kekfoundation/docs/vacant_central_europe

being virtual needs a physical counterpart to gain meaning. While physicality loss is a common theme in this research paper, it can have a second chance to work together. We are losing Riga, and we are losing architects. At least their physical counterparts, while a new digital phenomenon is on the rise. **[Fig.9]**

**Problem A:**

The pandemic has had an explosive impact on digitisation **[Fig.10]** and virtual collaboration growth, leaving physicality in question. We are experiencing a significant shift from the actual brick-and-mortar to the digital economy. Our cities are experiencing the fading of local shops, and potentially even the need for public realms might fade one day.[10]

The Metaverse is not a platform or a single online destination we will create. Just like the internet, arguably nobody owns it, but we are all creating spaces, places and communities within it. At first, it does not seem to be affecting the AEC industry directly, but our cities are becoming less like machines and more like computer chips. City planners, municipalities and individual architects hire tech companies like IBM and Cisco (to name a few) to help us transition into industry 5.0. A chapter where virtual, augmented and physical will co-operate. Virtual and augmented age will be a collaborative creation unless architects decide to wait 20 more years.

During the writing of this Research Plan, Facebook Inc. (FB) has rebranded as Meta.com, showing their commitments towards the Metaverse and shaping this next chapter. They are building a large-scale ecosystem that stretches beyond video games or entertainment. Analysing the presentation, FB appears to be making a centralised ecosystem that will let others contribute in its making but will have to be within the protocols set out by FB. Pushing a single ecosystem can be seen as FB's attempt to capitalise on our experiences in the virtual space single-handedly.

**Problem B:**

Cities around the globe are believed to densify and host the majority of our population in the coming decades.[11] However, on the contrary, it can be observed that in Riga, Latvia, residents are emigrating from the city and the country as a whole, leaving a questionable future ahead. Since the fall of the Iron Curtain in the 1990s and the joining of the EU, the population of Riga decreased from almost 1 million citizens in the 1980s to around 600.000 today.[12] As a consequence, the dramatic emigration has left multiple voids in the urban fabric and local economy. Decaying buildings and empty plots of land are scattered around the city with no clear rejuvenation plan in place. This has created tactical or guerilla urbanisms around the city. Temporary initiatives pioneered by small NGOs and start-up groups that need places to reside and organise local and global, public and private engagements are rising.

Local municipalities rely too much on these momentary projects, as the temporality is becoming a convenience overshadowing a larger socio-economic issue governments struggle to fill; this is relevant all across the EU.[13] This, alongside corruption, is strongly marginalising the growth of the city and its people. Even if top-down support is not extensively present, tools and methods of linking different stakeholders in a bottom-up way are limiting, leaving many local inhabitant voices and needs unmet, resulting in an everlasting economic struggle and further population loss.

**Problem C:**

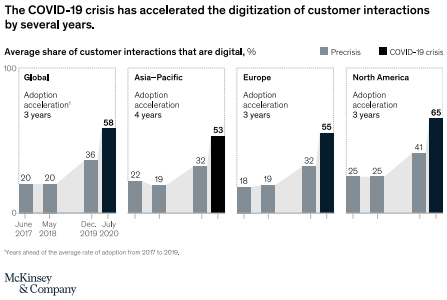


Fig. 10
Businesses saw a large digitalization growth during the pandemic.

14
Changing role of architects: https://www.eaae.be/eaae-academies/education-academy/themes/changing-roles-architect/

Over the last few decades, the master builders have turned into form-finders, visualisers and collaborators–architects - once known as the professional that knows the ins and outs of building a building.[14] From mechanics, structures, electricals and construction management, we have been ''pushed'' sideways to mediate and overlook a successful collaboration that takes at least five or even ten years. In modern times, the progress of architecture is too slow for the innovations happening outside the architectural field. Once a specific quest of urban planners, architects and social theorists, future cities have shifted towards new players. Using new tools and developing innovative technologies, companies like Microsoft, IBM, Siemens, and Google are rushing to build and program the future city with a goal of efficiency and well-being at the forefront. (Ratti, 2016) However, how do we know what their intentions are within the city data? Architects are at the cusp, from today know architect to whatever we will make of ourselves. However, we have to get involved, well-prepared, and position ourselves for a diverse and transdisciplinary future.

## RESEARCH QUESTIONS

Considering the historical and political background of Riga and the speculative-future proposals of Metaverse, the following research questions will be shaping the investigation.

**A.** How can Metaverse be used to rejuvenate decaying urban voids of locations similar to Riga?
**A.1** How can we use the platformisation of metaverse to give voice to all neighbourhood residents and property stakeholders?

**B.** How can architects and city dwellers utilise and shape the digital ecosystems as tools of co-creation and placemaking?
**B.1** Would the traditional architectural practice shift to a Metaverse architectural practice or a hybrid?

Combining A + B, we can formulate an overarching research questions, that might not be tackled directly but will guide the main question A:

**C.** How can we mix digital & physical environments as participatory instruments to build our public places and neighbourhoods?

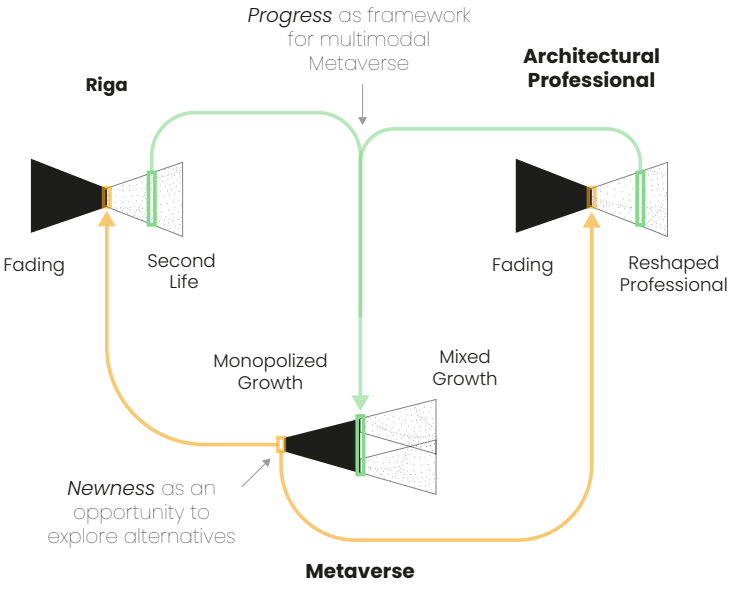


Fig. 11
Solution strategy which will be explore during the paper. Before architects and Riga dissapears, we can strategically feed of of the newness of the digitalisation to give second chance to neglected neighbourhoods and fading profession.

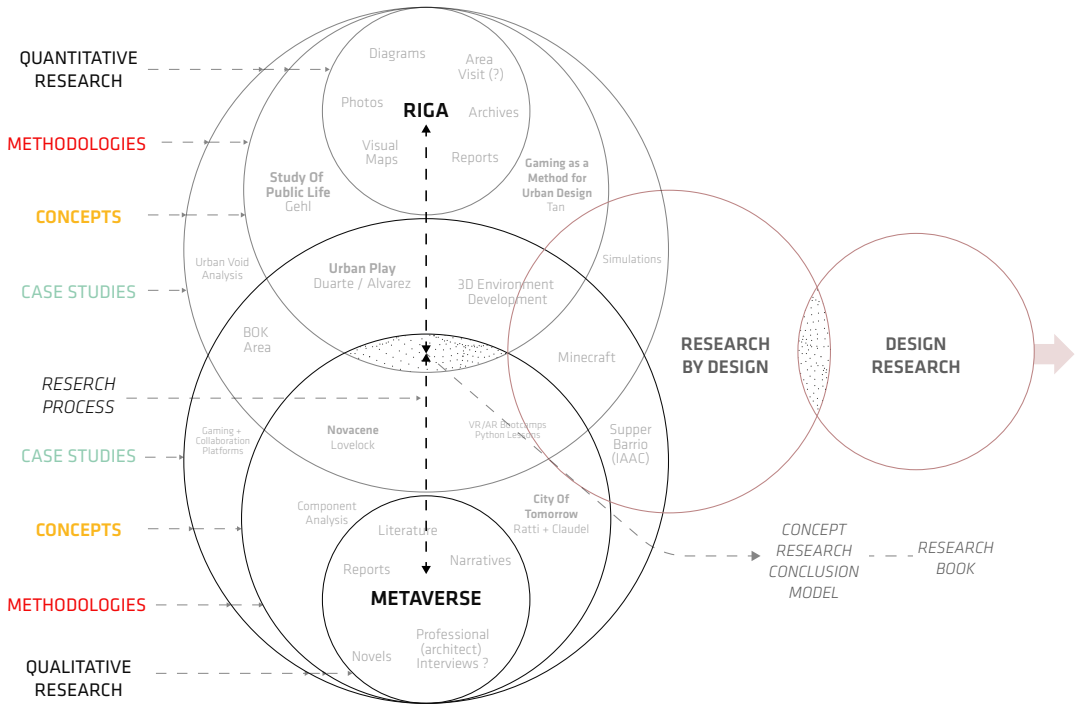


**Fig. 12**
Summarative research diagram

**C.1** How can we manipulate the rawness of metaverse to give a 'second chance' to architects and neglected neighbourhoods?
**C.2** Moreover, utilise digitalisation to create more sustainable, inclusive and safe systems that can be adapted in politically and economically struggling neighbourhoods, such as can be found all across Riga.

## THEORETICAL FRAMEWORK

Theoretical framework is spanning many different subjects, directly and indirectly linking urban design and architecture. The paper is split five thematic categories; summarised themes and key theoretical sources can be viewed on the left.

Phenomenology and praxeology epistemes will help study human interaction, experiences, and perception within the public squares. How do we live in these neglected surroundings? What implication on our well-being and local economy voids can have? (Gehl & Sennett)

Metaverse can be seen as a method fitting under Semiology to find and create meaning of what has lost meaning and value in the public eye. In this case, Metaverse is only yet to gain meaning, which would be studied through the physical and digital realms. (Ratti & Duarte)

Playing with our environments in 3D creates a new meaning for city dwellers, but now with the growth of cryptocurrency and NFTs, the gaming spaces branch out to meet new players and economic modules. (Claypool & Srnicek)

Lovelock and Matthew Bell argue; the world is heading into a phase where virtual and physical are operating in a synchronous synergy. Hybrid cities can be seen more like a Jurassic park; instead of being in a glass bubble, we navigate our surroundings through wearable technology (or implants) linked with networked sensors spread across the city. We are experiencing a 'reorientation of knowledge and power' as described by anthropologist Christopher Kelty. Society is becoming more educated and aware of the

**Theoretical framework themes:**

**01) Science Fiction (Metaverse):**
Lovelock J. - *Novacene*
Wark M. - *The Hacker Manifesto*
Ball M. - The Metaverse Essays

**2) Urban design + digitalization:**
Ratti C. - *Open Source Architecture*
Duarte F. - *Urban Play*

**3) Gaming Theories:**
Tan E. - *Play the City*
Claypool M. - *Robotic Buildings*

**4) Architecture + Urban study:**
Gehl - *Study public life*
Sennett - Together
Lopez-Pineiro S. - *Urban Void Glossery*

**5) Economy & Policies:**
Srnicek - *Platform Capitalism*
Gloerich - *The City as a License*

power data can hold. A single entity should not own and control the data of our cities and inhabitants.

## RESEARCH DIAGRAM [Fig.12]
## METHODOLOGIES

To capture the overarching approach of the thesis paper, a summarised diagram is needed. **[Fig.13]** Research is split into two more significant categories, Location and Metaverse research.
Location can be seen as a physical template through which the non-physical metaverse will be studied. To make this research paper tangible, two topics have to run concurrently; one causing problems while trying to find future solutions . The diagram branches out from the research questions defined earlier and can be read in three parts; (1) black outline as the primary research body and chapters, analysed through (2) red outline with straightforward methods used in that research phase. (3) Yellow outline highlights initial readings that will guide and inform the leading research body and methods.
We can see the first step as studying the neighbourhoods metabolisms, familiarising ourselves with stakeholders and their agendas, local municipality policies and current co-creation methods. This will help set out a strategic framework to ground the metaverse research; these two parts

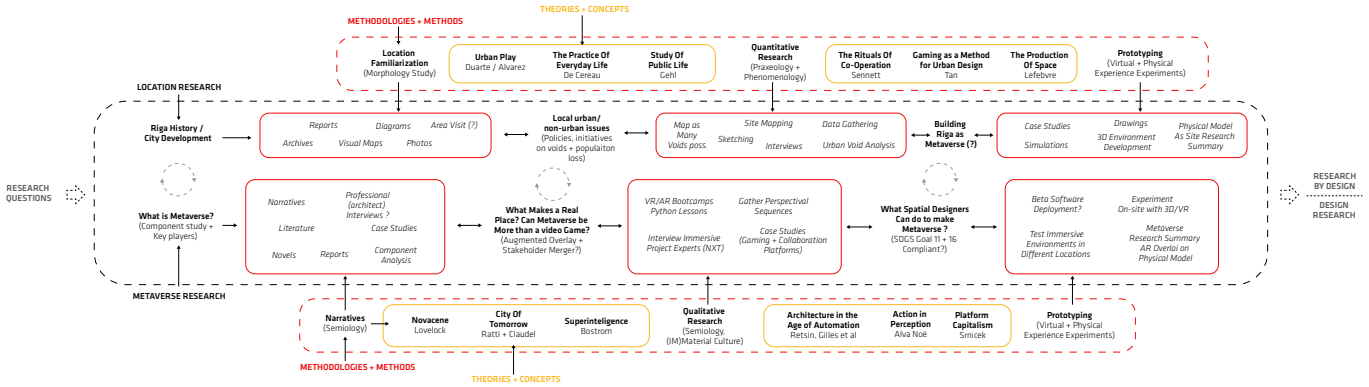


Fig. 13
Methodology diagram. The diagram can be viewed as a timeline, from the research question, whic is today to design research in P2. A larger version is attached at the end of the document.

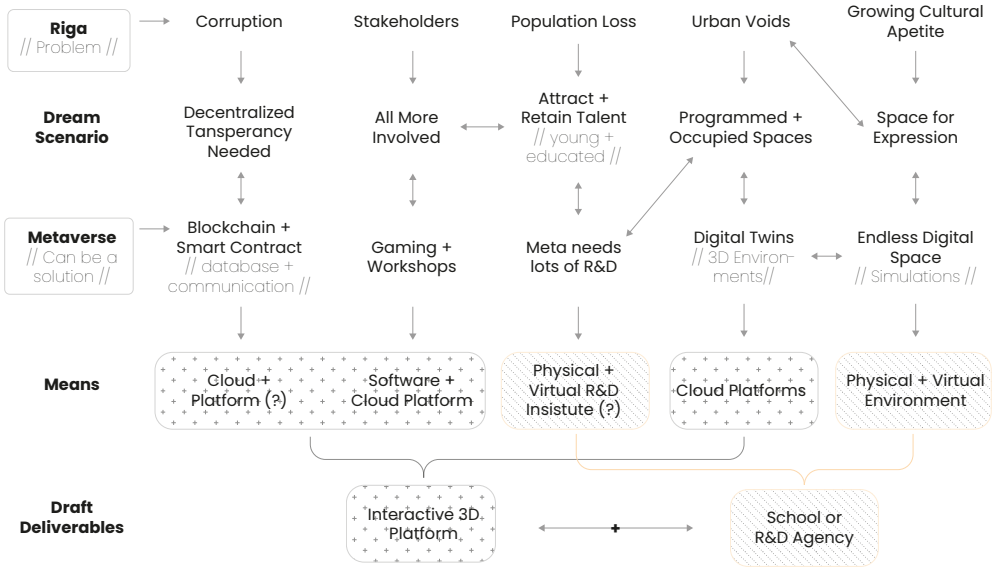


Fig. 14
A draft table of contents and deliverables expectations.


Fig. 15
Inclusive and cultural urban regeneration is seeing wider impact on local economy.


Fig. 16
United Nations 17 Sustainability Goals

do not have to flow in this order but will constantly overlap and intersect. Based on initial research and hypotheses, a bridging platform (software) between Riga and Metaverse, physical and non-physical, policymaker and local granny, might need to be developed to help study governance and co-creation.

## RELEVANCE

The thesis hopes to operate in the junction between the architecture, public spaces, participatory systems, collaboration tools and digital systems. The paper will dive into the unexplored realm of extended realities, digital twins, physical and virtual experiences and the decentralised blockchain ecosystem. It is likely that the paper will not be sufficient enough to study these contemporary topics thoroughly. However, it is the first attempt to combine and practically introduce metaverse to architecture and the physical realm. The metaverse will branch out in many unpredictable directions. However, we can already see that due to its complex and diverse nature, it can solve many global challenges. The research falls under SDGS goal 11 and 16. Goal 11 directly impacts the build environment while 16 overlooks healthy and inclusive societies for sustainable development of institutions.

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https://www.joostgrootens.nl/archive/385_dutch_atlas_of_vacancy

**Vacant Central Europe:**
https://issuu.com/kekfoundation/docs/vacant_central_europe

**Fitting temporary use in the legal framework:**
https://urbact.eu/sites/default/files/refill_magazine_1.pdf

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1. Block'hood - https://www.plethora-project.com/blockhood
2. Block By Block - https://www.blockbyblock.org/
3. Public Play Space - https://www.publicplayspace.eu/
4. SuperBarrio - http://superbarrio.iaac.net/
5. SpaceForm - https://www.spaceform.io/

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