New generations of city officers will speak the language of games and they will play to plan their cities. We, the experts working for the city, need to adapt our methods to fit a new generation of policy makers and city makers that are born into a world that not only contains, but is reshaped by, the likes of Minecraft, Pokemon Go and Foursquare on a daily basis. Interactive maps, mixed realities, 3D environments, and multiplayer settings are the new mediums through which an entire generation perceives the urban world. Imagine a future where cities are modeled, tested, designed, and reshaped through interactive, collaborative games. At Play the City, we are working towards creating this future. This book therefore will inspire not only the city officers or experts in city making, as architects and planners, but anyone who feels interested and responsible for their living environments.

'This open approach runs against the tide of managerialism and efficiency we're facing at the moment and which is dominant in the current 'smart city' discourse. Only through creative and design-oriented processes, can cities become what I call energetic societies, in which the creativity and capacities of all stakeholders are utilized.'
—Maarten Hajer

'We need to extend today's city games temporally and spatially so that they become embedded in the social and physical fabric of the day-to-day lives of ordinary citizens. I imagine permanent spaces in cities where people can come together to plan, prototype and evaluate improvements to their living environments in a situated manner.'
—Kars Alfrink

'Today, new technologies are probably bringing us closer to the Situationist utopia. City gaming is one of the possible tools to accelerate urban participation and engagement. As in Alan Kay's adagio, "the best way to predict the future is to invent it."'
—Carlo Ratti

Play the City

Play the City

Play the City

Games Informing the Urban Development

Ekim Tan

Jap Sam Books

Play the City

Ekim Tan

Play the City

Games Informing the Urban Development

Ekim Tan

Jap Sam Books

'A systemic approach to cities frees us from the division of urban players at the bottom and the top, and calls for innovation of open and collaborative city making methods. Constant exchange of information, continuous learning, and negotiation for decision-making and collective implementation are fundamentals of new city making. Games are the prefect laboratory forexploring this.'

Gaming: An Ancient Method New to the Twenty-First Century City

The twentieth century's obsession with the 'planned city' is transforming into an awareness of the 'city as a self-organizing system'. A greater number of contributors are taking part in the making of their cities; it is no longer novel to posit that a communication revolution is paving the way for such collaborative urban processes to flourish. Resident groups, developers, local governments, activists, entrepreneurs… are finding new ways to co-create their cities. While new collaborative bottom-up tools frequently emerge, the top-down production of cities by traditional powers — such as governments planning institutions, commercial developers, and architects — continues to exist. Instead of replacing the old ways of city making with new, we often observe the coexistence of past methods with newly emerging ones.

This understanding of cities helps to break down dichotomies between bottom-up and top-down, planned and unplanned, or formal and informal. In their place, an organic mixture of these forces steers the city's trajectory. As a complex urban system, the city is constantly seeking balance. Spatial, social, economic, political, environmental, and cultural systems are perpetually in flux, continually influencing a shifting state of potential equilibrium. An urban stakeholder comes into

power for a given time — until the city changes its state and follows a new set of rules that are influenced by other active players. This continues as the city shifts into yet another, different state — and a new, temporary balance emerges once more. Any attempt to represent these dynamics through static blueprints is doomed to fail. The process is open-ended and dynamic. The emergence of new rules/plans aimed at modifying former conditions is a natural part of this process. These rules can be organized either by war refugees or by world-renowned architects. In both cases, for large segments of society, the key parameter is accessibility, both in terms of process and outcome. However paradoxical 'designing for the self-organizing city' may sound, the challenge of today's designers is proposing new methods for supporting the city to function as a self-organizing system. We believe that new collaborative city making methods need to:

— synthesize social, economic, environmental, cultural, and polit-ical dynamics shaping the city;
— include a multiplicity of urban players to to incorporate society in all its complexity;
— allow for smooth, jargon-free trans-disciplinary work between diverse urban actors;
— assess urban patterns and rules by applying the intelligence and experiences of real human players; and
— reveal existing rules and observe their evolution, propose new rules, or generate others for particular urban situations in order to re-make the city.

The central motivation of this book is to investigate 'city gaming' as a valid method for transforming urban planning into an inclusive and self-organizing process that generates humane cities.

Our primary assumptions are:
1. that cities function as self-organizing systems.
2. that game systems inherently support self-organization.
3. that games can therefore

be used to support self-orga-
nizing urban development.

These assumptions are carried forward
from previous research, which can be
read in my previous book, *Negotiation
and Design for the Self-organizing City*.

Consider, for example, the complexity
and potential variations in a game of
chess. Despite its simple, fixed, and
easy-to-comprehend rules, it is almost
impossible to predict the moves of two
opponents after three or four steps,
and all of the intricate and responsive
solutions generated during the play
process. The reach and detail of game-
based work, bounded by simple rules,
can be applied to, and produce, com-
plex scenarios. Another great example
is Monopoly, an easy to play family
board game. It is fascinating how play-
ers as young as 5, learn to tweak
dynamics in order to exploit others
through monopolizing private real
estate markets. Unaware of terms such
as 'capitalism' or even 'monopolize',
players quickly master the basic princi-
ples of running and maintaining a capi-

talist system as they invest shrewdly,
monopolize or go bankrupt.

In addition to providing easy access to
complex dynamics of various rule-
based systems, games do this atop an
engaging base. The act of subscribing
to partake in a game that applies the
same rules to all players reduces
power-imbalances from the outset.
Players enjoy, interact, learn and create
together, which provides a good case
for building trust. These qualities of easy
access to complex dynamics and build-
ing trust make city gaming a strong can-
didate for the laboratory of cities, where
urban rules are tested, adapted, shaped
by collaborative decision-making, and
subsequently studied and further devel-
oped through multi-stakeholder plat-
forms for engagement. Beyond conceiv-
ing of games as laboratories for active
participation and for understanding cit-
ies better, can we transform games into
a more 'generative' city making method?
One that is capable of generating
actionable solutions as opposed to
merely addressing these via contesta-
tion and conflict resolution processes.

Organized in layers, this book will bring you closer to the world of city gaming. The following section, 'Gaming: An Ancient Method New to the Twenty-First Century City', introduces the motivations behind city gaming method by visiting a scientific experiment run in Almere, the Netherlands, in 2009. How did the idea emerge that city planning could be aided by games? How do urban realities influence games, and how do games influence the realities of cities?

The next chapter, 'Play the City Game Manual', zooms into the method of city gaming, as invented and developed further by Play the City. How to decide if a particular urban challenge can benefit from a city game? How to start designing and engaging players for your city game? With a short seven-step overview followed by elaboration, examples and anecdotes, this chapter will help anyone who is considering organizing their own city gaming process.

The following chapter shares 'Reports from the Ground', from locations where Play the City's method has been implemented. Discover the challenges at stake, the players who joined, and the outcomes and mistakes we learned from along the way.

To place 'Play the City's work in context', the City Games Globally chapter explores city gaming methods more generally. A carefully selected group of games with varying themes and technologies are presented. In addition, interviews with prominent city game designers, such as Eric Gordon, Pablo Suarez, and Mohini Dutta, give personal insights into why other experts choose games as a working method for city making.

In 'New Horizons for City gaming', you will find out about about the failures and achievements of Play the City's gaming method, as well as our trajectory for the method in the near future. This chapter includes commentaries from experts in the fields of human geography, design, gaming, urbanism, and architecture, each commenting on the potential and limitations of

Play the City's method. In conclusion, steps are put forward for other designers' to consider when designing their own city games.

Birth of City gaming

In the spring of 2009, professor Juval Portugali, a self-organization scientist from Tel Aviv, professor Arnold Reijndorp, the city sociologist of Almere, and myself, then a PhD researcher in urban design, set up a city design experiment in the Dutch 'new town' of Almere. We were in the world's most planned city and were primarily interested in observing the organic development of a city by its inhabitants. How would a town grow unit-by-unit when built by its residents? How would it differ from a city with a formal blueprint, such as Almere? By mimicking incremental growth, we wanted to demonstrate whether, and how, a holistic order would emerge solely through individual agendas and agents, in the absence of an overall top-down plan. For my doctoral survey, I was documenting informal settlements in Istanbul. Known as *gecekondus*, their inhabitants shape them by following strict yet unspoken rules. Driven by conditions of topography, privacy demands, and public

needs, these informal towns were achieving a pleasant and safe level of urbanity. Although no professional had been involved in the creation of these settlements, organizational rules and spatial patterns were recognizable. Could we break down such a spatial organization in a scientific experiment to understand and hopefully reproduce it in the Netherlands? If we could simulate such a process in laboratory settings, we could also seek ways of creating conditions and rules to steer a desired growth organically.

The Almere Experiment

As Almere's official city sociologist, Reijndorp was interested in how the living demands of residents would correspond to physical environments, while Portugali focused on when and how spatial patterns would emerge. Portugali already had experience with organic housing schemes in Israel, together with his architect partner and Christopher Alexander — they had been modeling city plans on site with future residents. I was particularly curious how a growth model inspired by informal cities could influence the extreme planning culture in Almere. Fortunately the city of Almere, thanks to its alderman of the time, was open to participatory models. He studied Peru's barrios in his youth. Still, an area development solely organized by residents was rather taboo in the city hall in 2009.

We took a 20-hectare area that would be populated by 350 households as our test case. 20 international postgraduates, designers, sociologists, economists, and anthropologists, join-

ing the experiment, interviewed 100 real Almere households. Then the interviewers role-played their profiles during our experiment. Briefing the participants, we asked them to visualize the desires of various households and seek an optimized location, form, and program for these demands on the area model. Following Portugali's advice, we defined three simple rules to guide the participants:

1. Locate game units based on the demands of households you represent.
2. Place units in sequence.
3. Respect formally made decisions by other participants.

The experiment would end as soon as all 350 household mock-ups were placed on our 3D city map. After six hours, we needed to stop participants — realizing they had been smuggling extra mock-ups. Initial purpose of the experiment was to observe the emergence of an urban form with traceable design rules. What we witnessed was beyond our expectations: not only a settlement formation, but also a playful performance of participants creating stories about a city and community. Through their imaginative powers and shared mental models a future city was coming alive, replete with shared narratives: segregation, mixed use, centrality, and longing for nature, to name a few.

With each round's iteration, participants were diving into the development and adding extra layers to the infrastructure, public networks, and green spaces. Beyond finding an optimum location for their household profiles, they were creating imaginary public infrastructure systems to the precision of bus stop locations, public squares, public street sections, urban agriculture sites, high-rise concentrations, family homes in isolation along water streams, shared domestic spaces, and so forth. This was a complex, emergent urban development process in stark contrast to the formal urban scheme for 350 family units. Participants were getting more engaged and more active in finding new neighbors, looking for jobs, starting businesses,

or trying to preserve their quiet gardens along the waterline.

In locating a house mock-up in the growing town, each participant was developing a sense of ownership and responsibility for the well-being of their residents. Numerous negotiations between individual and collective desires ended up in both partnerships and conflicts. If a new step was taken positively by others, we would see how that would spread quickly in the following steps; for example, a business started in the town 'centre,' or suburban homes placed along the water receive nods of approval. We also saw participants join forces to strengthen common areas such as public squares, or to resolve tensions to reach a collective agreement. All of these mechanisms were leading towards a holistic urban design scheme in a playful manner.

Beyond Urban Design

This wasn't just a visual simulation of incremental settlement growth. While we were trying to put our fingers on what was in our hands with the Almere experiment, I came across *The Grasshopper: Games, Life and Utopia*, beautifully and playfully written by Bernard Suits. In his essentially philosophical book about games, Suits was highlighting four conditions required to call an event a game. First, one needs to have a clear goal. Second, to reach this goal, one needs to perform explicitly defined acts, which Suits refers to as rules. Third, collective agreement among players is necessary to embrace the rules and work towards goals. Fourth and finally, players need an assessment loop for continuous motivation. What we witnessed in Almere that day fit precisely into Suits' game framework. We had post-graduates participate with the simple goal of finding a desirable place in an expanding new town. They voluntarily agreed to follow three rules provided by our team. They took on challenges and

satisfied feedback from fellow inhabi-tants as they found creative ways to fulfill their individual goals.

When we designed the experiment, our goal was to observe the physical for-mation of an informal town, while play-ers were asked to optimize their hous-ing needs. By the end of the session, we all arrived at a surprising realization: an organic city making process created and inhabited by a community and enlivened by playful, engaging, and unpredictable stories had been a stim-ulating and productive exercise. Players were programmed to optimize their liv-ing conditions, yet they were unfolding the emergence of a complex city with intricate stories. According to Suits, playing a game is a voluntary act to overcome unnecessary obstacles. What we saw in Almere was not a linear cause and effect between the players' brief and the generated outcome, but there was a link. Was there a way to decode this relationship? We felt like we discovered something special, which could lend strong support to the urban design discipline, long in a type

of slump and seeking ways out of the last century's single-handed, top-down approach. What we discovered was a collaborative, playful, and unpredict-able organizational method for city making. And here, we dove into the old but new field of gaming.

Dungeons and Dragons for Cities

Games are as old as society, yet this new world opened in front of us, bright with novelty and possibility as a relatively unexplored instrument for collaborative urban development. We wanted to know more. How much could we learn from games? Could games teach us about trust and ownership, as platforms with transparent rules valid for everyone with common goals? Could games teach us about learning and engagement, providing fun with strangers while constantly being challenged individually and collectively? Could games teach us about training and strategizing for the real world, as we fail but are allowed the chance to restart? Could games teach us about communication and avoiding jargon, with their effective visual environment and simple language?

From IBM's CityOne to Will Wright's SimCity, and from Richard Duke's Metropolis to Buckminster Fuller's World Game, we started mapping and learning about games that relate to cities in their staging, or directly take place in real urban areas. Many of them were single-player games running on predefined algorithms and quantitative feedback loops. We needed a multiplayer game system. Rules for the organization and composition of the town emerged from the negotiations among players. We thus needed an open system where new rules could be invented or unused rules abandoned, rather than a closed game with a predefined algorithm. Furthermore, in the Almere experiment, there was no scoring, players simply earned adventures by interacting with others.

Soon we realized that a city-themed game wasn't what we needed. We needed a game system that could be modified by the players — that could host a wide range of players and not focus on winning or losing, but on building experience and partnerships as reward. In fact, the game Dungeons and Dragons (D&D), a role-playing and

story-building adventure game, that at first glance says little about urban development, appeared to help us most as we developed the initial Almere experiment into the game system we are practicing today.

No one controls urban development processes, but many 'players' influence them. In D&D, there are numerous characters with unique properties. They come together to build a collective adventure and carry out careful research before they meet to play; about, for instance, the era and location of the adventure, about their character's powers, and who they need to supplement to reach their goals. Building several unique, personal stories that can be based on data and players' knowledge was the most striking property of the game. Similar to D&D's setup, we introduced a wide range of city maker roles and particular influences to our city game. Both usual and unusual suspects of urban development were included, with powers ranging from unlocking legal rules or finding investments, to mobilizing

crowds, vetoing projects, and so forth. As the game system matured, we observed that more realistic and applicable outcomes were reached when players kept their daily, real-life roles in the game. As in D&D, play becomes much more advanced when players already know about their mission and conditions, but are given the chance to develop, expand, and apply an evolving understanding of their roles in an interactive, creative setting with other players. After multiplying characters, as in D&D, we multiplied game props to better depict the context and characters in a 3D environment. Simple housing mock-ups of the Almere experiment evolved into a large library of uniquely designed, modular building blocks.

Adapting the same meta game structure, we created not one but dozens of more complex games designed to tackle urban renewal in Rotterdam, circularity in Amsterdam, township development in Cape Town, urban transformation in Istanbul, economy transition in Shenzhen, affordable housing in Dublin and the list goes on. Looking

back at the diversity of urban challenges reminds me of enthusiastic texts written by game designers. We used to read them with a cynical smile on our faces as they claimed that games are meaningful for a breadth of humanity's complex questions: such as fixing human health — reducing stress, treating depression, obesity, anxiety, and attention deficit disorder — fixing educational systems and social problems, like greying populations and political apathy, or tackling global issues such as climate change and social inequality. It is still too early to support or refute any of these claims, but one thing is for sure — today more people believe that games can help solve problems, and nearly every day we hear of new games that aim to help change our society for the better.

Just a Game, is it?

We were thrilled at having discovered a world with many new avenues to explore. But it did not take long to realize that we had entered risky territory. Conservative decision-makers preoccupied with securing predictable results in the field of urban planning pose a particular threat. I won't forget the first meeting we managed to schedule — a meeting with the alderman in Amsterdam's Noord borough. Looking back, I realize that he was doing his best: spending time with young urbanists arguing that they will help him reactivate a masterplan on hold through a city game. Listening to our city gaming pitch left him pretty puzzled, but still he decided to join the game. Convincing his project office was even more difficult. Responsible for creating the plan, the office's technical advisors refused to join the game and to discuss alternatives outside the walls of project office. At the time, it was not uncommon for planners to think: 'It is just a game, and we do not comprehend the real motivation of a game for such serious matters.'

Was it purposeful enough to spend their time on a game, when no one knew what the outcome would be? The confrontation with our colleagues at the city hall proved to be a real challenge over the years. Was it really a good idea to call our method a game? While diving into the world of games had been enriching and eye-opening, we were facing an image barrier. While 'playing games with someone' is considered as being manipulative, 'playing the game' refers to someone who acts the part. Not only in English, but in most languages, you can find similar, suspicious phrasing about games. As we were introducing our method to world cities such as Istanbul, Cape Town, Brussels, and Shenzhen, we were surprised to see how comparable the jokes cracked about gaming were, every time.

The roots of the matter expose the tension between reality and gaming. How close and distant are the 'game world' and the 'real world'? Could they influence each other's progress? I believe the key to explaining how games can perform as real-world problem solvers lies in the particular ways that games and reality connect. There are several ways the two relate:

1.   The most common form is when games run their fictional narrative in an environment the player recognizes from real life; for example, when the popular video game Grand Theft Auto III and IV visualize New York City. Thanks to its realistic rendering, a New Yorker notices particular details about their city, while a teenager from Amsterdam would be able orient himself upon first arrival in New York. Today, gaining familiarity with complex subjects without even being conscious of it is effectively used as an entertaining learning mechanism.

2.   A more direct form of linking to reality is using gaming to fix a real problem, while exploiting its very escapism. Games can remain fictional, but the very act of playing the game will change aspects of reality. A telling exam-

ple for this form comes from the old Greek era, where, in order to survive a severe famine that lasted 18 years the king of Lydia ordered everyone to indulge in games on one day and eat and work on the next.

3.	Game dynamics can be introduced to real life, as Nike's running app does: a digital interface encouraging users to exercise regularly to improve their health, and then congratulating them for it. Thus, the game is introduced through feedback loops into individual's lives. It can also connect these players with each other to make the daily workout more fun and engaging, and less tiring and boring.

4.	Games can be constructed on alternate realities to help initiate real life challenges. This can be done by taking real-life quests like global warming, migration, inequality, and so on, and changing some of their conditions to

generate what-if scenarios. Recalling Buckminster Fuller's World Peace Game, where all nation-state borders disappear, players can trade world resources and move freely. By altering the condition of country borders, the game is able to show that the deadlock is not scarcity but rather unfair distribution of resources; hence a more equal and peaceful world becomes not only visible but also possible through testing alternatives.

5.	Last but not least, a real-life challenge can be introduced into a game (the reverse of number three). This way, in safe game environments, testing and mastering collaborative solutions becomes possible. Real actors can play through out-of-the-box solutions, while mistakes can be made and learned from to eventually reduce risks.

Games can be placed in reality and reality in games. Whether games are

built from an aspiration to resemble the real world, or to escape from it or fix it, they are a reality for those who play them and influence lives in the various ways elaborated above. New theories of play, such as that in the pervasive and ambient gaming literature, bring games right into the heart of the real world, blurring the boundaries of Johan Huizinga's 'magic circle'. In her ground-breaking book *Reality is Broken*, Jane McGonigal invited everyone to design games to repair reality. Almost every day, a new game emerges for education, the health sector, the defense industry, entertainment business, personal development, and also for making more open and collaborative cities.

Among the five mechanisms relating games to reality, Play the City's gaming method in Almere stands closest to the last category. Since the Almere Experiment, all city games have modeled a real urban challenge and were played by real stakeholders. In this model, by playing, participants train for reality by considering and testing vari-ous options, or by making mistakes in the game environment so they can avoid these and articulate wiser decisions for widely negotiated urban processes in the real world. The game helps generate collaborative solutions to collectively defined questions. During this process, the understanding of games as escapism is slowly shifting towards a playful confrontation with reality. Since 2009, with every game we've created, we've discovered a new, unexpected use of city games for city making. A simple design experiment with students slowly evolved into a mature and authentic city making method, practiced daily at the Play the City office. In 2014, I managed to round up my doctoral research and finally dedicated all her time to the development and implementation of city gaming in various cities on a wide range of topics, and in collaboration with experts. At Play the City we find it necessary to share the unique knowledge and experiences we are developing.

In this chapter, we hope to have introduced you to the major motivations behind working with games for cities. We believe that games help us to understand the reality of cities, and with that, they can also lead the way to better cities. There are various forms for creating city games and Play the City has been maturing a particular method for working with games for cities. The next chapter elaborates on Play the City's city gaming method by revealing the fundamental 7 steps that lead to a city game design. A detailed explanation with anecdotes and examples follows a quick summary of each individual step.