City of the Future

Crowdsourcing project

The first report on the results of the intellectual work
of the community of volunteer experts (crowd)

December 2021

Sponsored by

COTECCONS®

Operated by

OmniGrade
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1. Introduction

The City of the Future is a crowdsourcing project aimed both at describing how **advanced cities on Earth will look like in 2035-2040**, and at identifying and finding solutions to the most significant problems and challenges that the urban population will have to face.

The project has two main objectives:

1) **To predict the main trends** in the creation, planning, functioning and development of the Cities of the Future in order to provide valuable information to city authorities, construction, transport, tourism and other interested companies and organizations, as well as to all people who are interested in forecasting the future.

2) **To find optimal solutions** to tasks that will make the urban environment of the future more comfortable, safe, creative and friendly to people and nature.

Since in the near future the majority of the world's population will live in cities, these objectives are of great concern to many people.

These objectives are solved with the help of intelligence, imagination, creativity and curiosity of **volunteer experts of different professions and nationalities** who have shown personal interest in the project. Anyone can join the community of volunteer experts (crowd).

We believe that **intellectual crowdsourcing (crowd intelligence)**, along with and together with **artificial intelligence**, is a powerful tool for solving the most complex problems faced by particular companies and organizations, as well as the entire human civilization.

The operator of the project is the Universal crowdsourcing Agency OmniGrade, the sponsor is Coteccons.

This report includes a brief description of certain suggestions, reflections and conclusions of the volunteer experts. Selecting these suggestions, we aimed at the following:

1) We wanted the readers of the report to have a holistic picture of both the main problems and challenges residents of the Cities of the Future and the companies and organizations that will work there will face, as well as unique approaches to solving them.

2) We sought first of all to reflect the problems and solutions that have a diverse nature, that is, they combine technological, social, environmental and psychological tasks and challenges.

3) We also tried to reflect problems and solutions that have a non-trivial and original nature, which are not always paid enough attention to.

At the first stage of the project, we focused on five tasks: finding a solution to the problem of preventing **epidemics** in the City of the Future, finding a solution to the problem of preventing **burnout syndrome** for urban residents, identifying other **pressing problems and challenges** in the

City of the Future, description of **transport and transport infrastructure** in the City of the Future, as well as **holidays and weekends**. At the next stages of the project, the list of tasks will be expanded.

As a result of the first stage of the crowdsourcing project, we would like to express special thanks to the volunteer experts who made a particularly significant contribution to the development of solutions and approaches described in this report: Jim Yuan, Tatiana Peresypkina, Daniel Zaretsky, John Brehcist, Izhak Yogev, Kate Korolkevich, Svetlana Zikic.

We would also like to thank the students of Excelia Business School for their active participation in the project.

If you have any questions and suggestions about the project (or about crowd intelligence), if you want to join the expert community of the project or to receive regular reports with conclusions on the project or if you are interested in sponsorship opportunities, please contact us by email smarty@omnigrade.com.

2. Problems and challenges: preventing epidemics in the City of the Future

The COVID-19 pandemic has demonstrated that a comfortable life in the City of the Future is impossible without a high degree of protection of its residents from epidemics of dangerous infectious diseases. The system of such protection should be formed continuously, not only when an epidemiological danger appears.

2.1 De-urbanization

The city in its modern form, assuming a concentration of the population on a small territory and frequent contacts between residents, for example, during rush hours in public transport, becomes a factor contributing to an increased risk of epidemics. At the same time, it is impossible to give up the advantages of cities in the form of simplified access to cultural objects and events or, for example, fast and high-quality medical care.

Therefore, we must strive for a de-urbanization that will not destroy these advantages of cities. This is possible either by creating conditions for easy and quick access to urban privileges for rural residents or by reducing the negative consequences of urbanization for city residents (for example, by creating a system that supports remote work or by developing city parks, as described later in this section).

2.2. Epidemiological safety of buildings

Each of the buildings in the City of the Future could have an epidemiological safety class assigned to it according to a special methodology. It could depend on the quality of ventilation,

air conditioning and air disinfection systems, the availability of a sufficient number of elevators and the adequate entrance space (to avoid excessive crowding of people), the use of building materials that prevent the long-term survival of viruses and bacteria and allow rapid disinfection and other parameters.

The minimum requirements for the epidemiological safety rank rate could be established by the city authorities.

2.3. Educational programs in the field of epidemiology

It is advisable to create conditions for the majority of residents of the City of the Future to gain basic knowledge in the field of epidemiology, which will allow them to make informed decisions about managing personal risks (and the risks of their family) during future epidemics. This could start with a course on epidemiology in schools and also include special online educational programs available to all residents of the City of the Future.

2.4. Creating the most comfortable conditions for remote work

If remote work becomes the norm for most city residents, it will not only reduce the rate of spread of epidemics that have already arisen, but, perhaps, prevent the emergence of a number of new epidemics, as it will reduce the number of contacts between people in offices, public transport and other places.

Considering that the creation of 100% of jobs involving remote work is probably an unattainable goal, it is worth striving for jobs with a hybrid schedule, assuming, for example, the presence of a person in the office (or at production site) two days a week. In the pre-covid-19 era it was assumed that a person spends two days a week with his family. By analogy, two days a week should be enough for face-to-face contacts with colleagues or customers.

At the same time, it would be worth to create convenient working conditions in the houses and apartments of city residents, as well as in all places where city residents can visit: parks, museums, shopping malls, and so on. Premises for such temporary work can be considered as an analogue of children's playrooms or playgrounds. If children are given the opportunity to temporarily play in a shopping center or park, then adults may also be given the opportunity to temporarily work there.

2.5. Development of city parks

The larger the area in the city will be occupied by parks, the fewer city residents will spend time in enclosed spaces, where the risk of the spread of viruses and other pathogenic microorganisms is particularly high.

For the development of the park system it is advisable to reconsider their role in the life of the city. They should become not only a place of recreation, but also, perhaps, a place of work and education for city residents.

If we come up with such a system of monetization of parks, in which the placement of a park on a certain territory will be no less profitable than the construction of a building, we will be able to come to a system of municipal and private parks covering most of the urban area.

2.6. Transition to real-time city

The ability to analyze urban data and respond to it in real time solves many tasks, including the task of preventing the spread of epidemics. This can be achieved, for example, by analyzing real-time data on excessive concentrations of people (especially if there is information about the presence of people there who could contact infected people) and instant response to them.

We recommend paying attention to the development and research of MIT Senseable City Lab in this area.

3. Problems and challenges: prevention of burnout syndrome in the City of the Future

Burnout syndrome caused by hard work and emotional stress and characterized by symptoms such as emotional exhaustion, depersonalization, etc., leads to a sharp deterioration in the quality of life of urban residents.

New problems and challenges, such as epidemics or climate change, significantly exacerbate this problem. We present a number of solutions that can be implemented in the City of the (including the near) Future.

3.1. Visual zones of psychological comfort

The movement of people around the city should be accompanied by updatable visual effects that relieve stress and create a good mood. These can be easily washed-off graffiti, illumination of pedestrian zones, displaying of a special photo or video sequence related to natural objects, art objects, etc on the walls of houses, special screens or on the sky.

3.2. Creation of distributed offices

Taking into account the fact that long trips to work create increased stress and provoke physical and psychological fatigue, and the creation of a proper workplace at home is often not feasible, the possible solution in the City of the Future may be the creation of many business centers located close to residential buildings, in which employees of different companies living in the area will simultaneously work.

Thus, the headquarters of a particular company will turn into a distributed office, where workplaces will be located in several dozen or even hundreds of such business centers. The

arrangement of such a business center should enable each of its users to have access to its infrastructure (for document processing, sports, meal, etc.) and at the same time ensure the confidentiality of their work in cases where it is necessary.

In cases where it is impossible to do this, a simple opportunity to change the place of residence (permanent or temporary) should be implemented in the City of the Future in the event of a change of place of work, for example, through an apartment exchange service.

3.3. Special hotels for city residents

A large number of specialized hotels for local city residents, giving them the opportunity to relax from a few hours (for example, on the way from work to home) to several days in comfortable conditions can be part of the solution to the problem of combating professional burnout.

3.4. Public transport for relaxation

Taking into account the large amount of time people spend on public transport, maximum conditions should be created in it for relaxation or for doing important things on the way (which would allow people to spend more time relaxing at home). This may include massage chairs or special quiet carriages on public transport, as well as special infrastructure at stations that could provide opportunities for short-term physical exercise or meditation.

3.5. Ensuring the privacy of city residents

The modern city leaves few opportunities for people to "be with themselves". This leads to serious psychological problems, especially for introverts, and worsens burnout.

One possible solution may be to switch to mobile capsules and micro-apartments, where people could spend time alone with themselves at a convenient time. At the same time, technologies will be needed that will allow, for example, through augmented reality, to create the effect of the presence of friends and any other people nearby at those moments of time when conscious loneliness wants to be interrupted.

4. Other problems and challenges

As part of this task, we strive to identify other serious problems and challenges for the Cities of the Future in order to continue searching for approaches to their solution in the future.

4.1. Excessive centralization of cities and the problem of reflecting the interests of city residents in the decisions taken.

Modern cities bring together many diverse communities of residents with diverse interests and desires.

It will become increasingly difficult to make citywide decisions that take into account the interests of all communities.

A possible solution would be to create such a decentralized city management system, when different communities will live by different rules.

It will be easiest to imagine this in a situation where a particular community will live within a certain area. Then in this area, for example, a ban on movement by gasoline cars or on the placement of industrial facilities may be introduced.

4.2. The disunity of cities

Major cities around the world are becoming more and more similar to each other in terms of lifestyle and the problems and challenges they face. As cities grow, their problems may be very different from those of the rest of the country/province/state, and proper representation may become a problem.

For example, New York may have more in common with a city-state Singapore than with rural America.

In this regard, the creation of global associations or alliances of cities, similar in terms of development level, existing problems and system of values, may receive special meaning.

4.3. Lack of resources

As urbanization continues, especially in rapidly developing countries, the pressure on the resources that support the life of urban areas - for example, food, water, energy - increases.

Probably, some of these newly consumed resources will be produced in the cities themselves due to the activities of urban farms, solar panels, atmospheric water generators, and so on.

4.4. Lack of space

The development of urbanization will also inevitably lead to a shortage of urban spaces. One of the possible solutions will be the creation of multi-level cities. Another is the construction of microblock buildings with micro-apartments (like Carmel Place in New York). The construction of micro-apartments will require the creation of a fundamentally new class of furniture and household appliances. They can be transformable and, when assembled, can be easily hidden under beds, behind walls, etc.

4.5. Climate change

In a few decades, some cities of the world may face more serious consequences of climate change and even go under water. Let's take Amsterdam, for example. About a third of the city of Amsterdam is already under water. In cities such as Miami in southern Florida (USA), things may not be any better: sea level rises by about 2.5 cm every three years. Cities cannot independently make decisions affecting climate change issues, but it is likely that the associations or alliances of cities discussed in paragraph 4.2., will have more opportunities to do so.

5. Transport in the City of the Future

As can be seen from the previous sections of our report, the quality of transport and transport infrastructure can be critically important for solving such significant problems of the City of the Future as the prevention of epidemics or burnout syndrome. This is another important reason to pay special attention to this topic.

5.1. Multi-level transport system

The City of the Future can develop several tiers of transport.

This will help to create comfortable conditions for all road users.

For example, it may have an underground metro system at tier -2. Above the metro tier, in the busiest areas, it may have an underground passage through which people to cross on foot (tier -1). On the ground, it may have streets that combine trams in the center of the roadway with wide lanes on both sides (tier +1). On some outer lanes, there may also be Transit Elevated Bus (TEB) above the cars, forming another layer (tier +2). Similar buses are being tested in the Chinese city of Qinhuangdao. The TEB is a bus that straddles traffic by driving over the top of it, running along fixed tracks. Its main compartment is elevated, leaving the street clear for cars underneath. The design also incorporates solar panels on the roof and at bus stops to partially power the vehicle. Finally, there can be elevated city rails on top (tier +3).

Such a multi-tier system will significantly reduce the risk of serious traffic jams.

5.2. Creating additional opportunities for pedestrians

Walking is an important part of getting around the city. Its importance will increase as cities move towards carbon neutrality. Its importance will also be facilitated by the fact that the places of work will be located closer to the places of living of urban residents (for example, due to the transition to a system of distributed offices, as described in paragraph 3.2). Also, its role will be very significant in caring for the maintenance of the health of the urban population.

Additional opportunities for pedestrians will appear thanks to:

- replacement of part of the city sidewalks with moving walkways (travolators). Such moving walkways will be equipped with canopies to protect from precipitation or sun, as well as (partially) seating;

- the allocation of one of the levels in a multi-level urban transport system for the preferential movement of pedestrians.

5.3. Augmented reality road system

Smart roads with augmented reality will be created in the City of the Future, which will enable land cars and flying vehicles to move between locations.

Such a smart road will take into account not only the concentration of vehicles on a particular road segment at a particular time, but also the emissions of CO_2 and other harmful compounds generated by them.

Each city designs its own roads infrastructure, based on the primary spots in the city to be chosen as flying or landing augmented road.

5.4. Customized public transport routes

In the City of the Future, the system of public transport routes will flexibly change depending on the needs of each of the future passengers to get from point A to point B with maximum comfort and within a given time. Depending on the needs that a new group of passengers will have at any given time, the artificial intelligence system will rearrange public transport routes to meet the needs of each of this new group of passengers.

5.5. Reducing the share of traditional vehicles

The share of traditional vehicles (conventional cars) in the City of the Future will decrease.

What kind of vehicles will replace them?

Firstly, flying cars (private and public), including hybrid cars (that is, capable of traveling part of the route by air, and part by land).

Flying cars will provide lower emissions and minimize traffic. In addition, the increased use of flying cars will give pedestrians and cyclists more latitude to walk and ride a bike and reduce the number of accidents.

Besides, parking spaces for flying cars can be built above the ground, which will make cities more compact and create conditions, for example, for the creation of parks instead of the current multi-parking lots.

Flying cars will be much safer if artificial intelligence is used to calculate the required energy, wind, direction, etc.

As an interim solution, there will also be quasi-flying cars using a system of ziplines at different levels, so that these quasi-flying cars can jump from one zipline to another, thus arriving at their destinations.

Modern airships can become another flying type of urban transport.

The second category of vehicles that will become more widespread is compact individual vehicles, such as bikes and scooters. But expanding their use will require the creation of a separate road infrastructure, since they are able to create no less inconveniences and even threats to pedestrians than cars.

6. Holidays and weekends in the City of the Future

You can't feel happy without experiencing positive emotions. Holidays and weekends should be a particularly powerful source of positive emotions. Therefore, finally, we could not help but think about how they will be held in the City of the Future.

6.1. New format of real and virtual travel

Travel will remain an important form of leisure that develops cognitive abilities of people and allows them to "recharge the batteries" through temporary changes of surroundings.

Switching to a 2- or 3-day work week will create more opportunities for frequent travel.

But the format of travel for residents of the Cities of the Future will change.

Firstly, the number of tourist destinations will multiply due to the emergence of new places with a developed tourist infrastructure or with new original attractions (invented, among other things, with the help of crowd intelligence).

Secondly, real travel will be combined with virtual and hybrid ones. Virtual travel will be a hobby of "homebodies", and will be also used in cases when a person or family has little time to make a full trip or temporary restrictions are imposed (for example, due to epidemics or natural disasters).

Hybrid travel will mean that people will actually make part of the trip, and another part with the help of virtual and augmented reality technologies. Part of VR travel will be time travel, when VR technologies will allow tourists to feel like they are in a new place in the past or in the future.

Augmented reality technologies will also help to create virtual guides at any time and in any place of travel and use their services as long as necessary, based on personal preferences, interest and degree of fatigue.

6.2. Planning of city holidays and entertainment, taking into account the individual preferences of its residents

The artificial intelligence system that manages the City of the Future will recognize and analyze the individual and collective preferences of its residents and select leisure options for them on rest days. This system will be able to plan actions at the level of an individual, apartment building, a city neighborhood or even the city as a whole in order to meet individual and group preferences, as well as the situation in the city itself.

6.3. The renewed role of museums in the leisure of residents of the City of the Future

Museums will become the most important place for recreation and leisure in the City of the Future.

The number of museums will increase dramatically due to the appearance of new original private, family, corporate and municipal museums.

Actually, the creation of museums will become for many families or entrepreneurs either a form of hobby or a new business.

Museums will become the most important element of the edutainment system, helping people to learn a lot of new things in a fun and comfortable way.

Visiting a museum or a group of museums will be equivalent to getting an education in a certain profession.

The exhibits of the museums will be equipped with an Internet of Things system. They will be able to interact with museum visitors and their gadgets.

The museums will operate 24/7 due to the fact that there will be no need for the presence of human personnel - robots will cope with the organization of excursions and control over visitors. Thanks to this, there will be no crowds in museums.

The museums will provide sleeping places (possibly capsule type) for those who want to relax before, during or after their visit, as well as workplaces for those who want to process video or photo materials received during a visit to the museum or just work remotely.

About the project organizer

Universal crowdsourcing agency OmniGrade

What are we doing

Geniune supporters

We create communities of supporters and voluntary experts (crowd) interested in helping extraordinary companies and projects with their intelligence, time and energy;

Genuis solutions

With the help of intelligence, time and energy of the crowd, we find extraordinary solutions to the most important and complicated business issues.

What are we aiming for

- To ensure that the maximum number of companies and organizations with ambitious and noble goals can achieve them despite any crises and difficulties due to non-standard breakthrough solutions;
- To ensure that the maximum number of creative people who want to participate in interesting, exciting and ambitious projects can realize their desires, regardless of their place of residence and their current profession.

Brief general information about crowdsourcing

Crowds are a hit. Millions of people, connected by the Internet, are contributing ideas and information to projects big and small. Crowdsourcing, as it called, is helping to solve tricky issues and providing localized information. And with the right knowledge, contributing to the crowd - and using its wisdom - is easier than ever.

The New York Times

What crowd is able to provide

- ideas and solutions (Crowd Intelligence)

- information and experience

- time

- useful contacts

- emotional support

- money (crowdfunding)

* provided by OmniGrade agency technology

Personalities of UCA OmniGrade

Chief moderator
- Hyrax Smarty *
smarty@omnigrade.com

Key objectives

- to produce a relaxed atmosphere where the supporters and voluntary experts can share their creativity;

- to guide the discussion of the tasks set in such a way as to come to the most creative and effective solutions.

* Hyraxes are furry animals the size of rabbits and are actually very close relatives of elephant.

About the sponsor

Coteccons - the leading construction company in Vietnam

Coteccons built on a reputation for delivery of world-class high-rise buildings and major projects.

Founded in 2004, Coteccons Group has successfully grown in both size and reputation for delivering world-class projects, including Residential, Commercial, Hospitality, Infrastructure, and Industrial. By investing in modern construction practices and management techniques to ensure that, we remain at the cutting edge of our industry.

Coteccons started in 2004 from privatising a member company of Fico Corporation. Listed on the Vietnam stock market in early 2010, today we have owner's equity of USD358 million.

Our policy of research and development from materials to technology is one of the key benefits to clients that not only ensure quality but timely delivery of projects.

One of the milestones in Coteccons' development is our ability to offer clients a Design and Build option, including a full turnkey approach to projects. We will continue to focus on the D&B model to improve the value chain in the construction industry.

Coteccons covers design management, construction, material and equipment supply, providing a comprehensive and optimal solution for our clients' projects. Given our financial capacity, our experienced team of engineers, architects, experts, technicians, and the proven ability to mobilise resources from our subsidiaries. Coteccons is the contractor of choice in Vietnam.

Scope of operation

We are constructing projects locally and internationally.
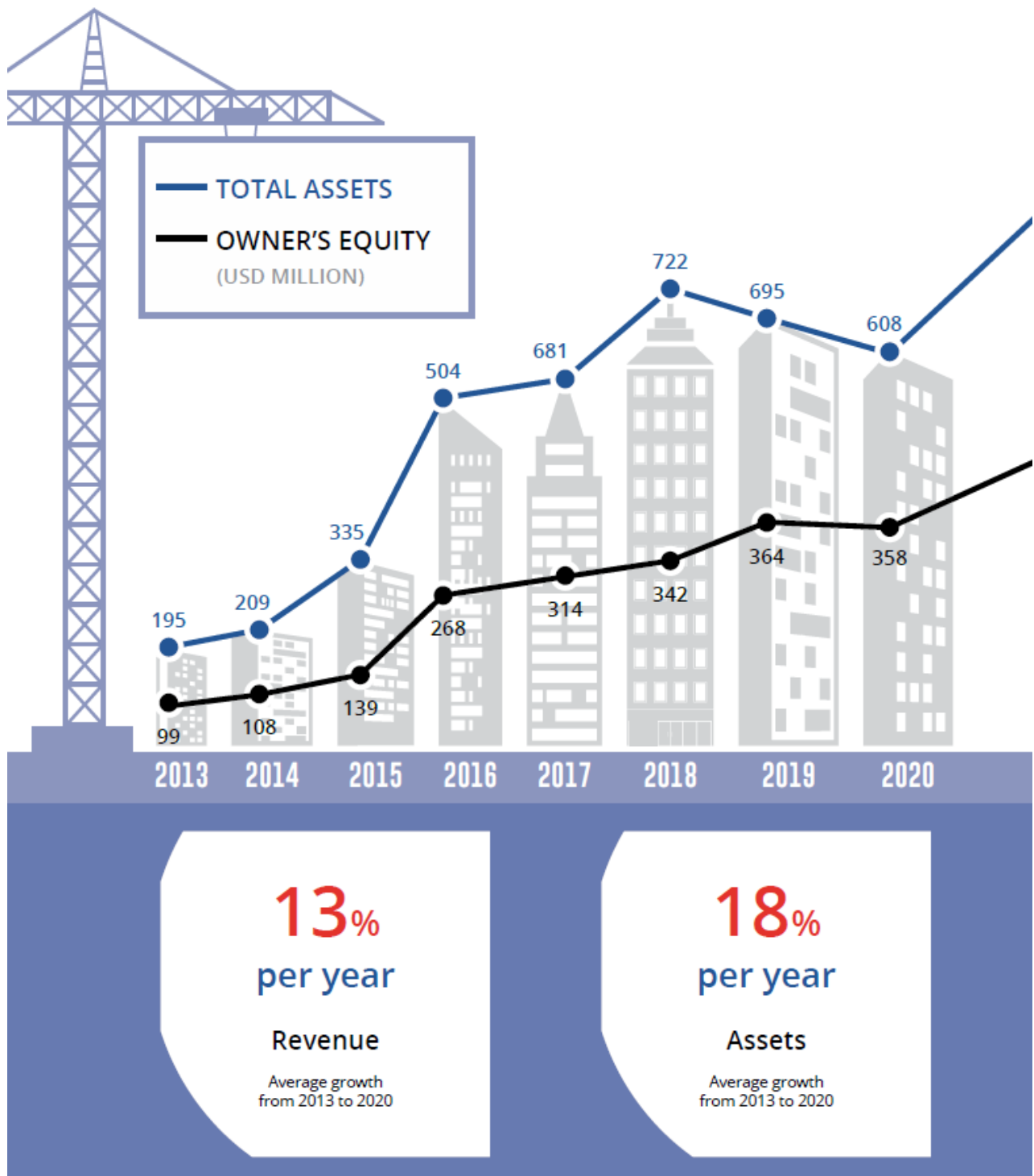
1800+
Coteccons Staff

400+
Projects across Vietnam

International experience

Financial capacity

Coteccons has the capacity of implementing and managing many regional projects with robust financial resources.

We are the first choice as a contractor for demanding projects such as Ho Tram Strip, Vivocity, City Garden, Landmark 81, and Diamond Island. We are the contractor trusted by investors.

TOTAL ASSETS
OWNER'S EQUITY
(USD MILLION)

	2013	2014	2015	2016	2017	2018	2019	2020
Total Assets	195	209	335	504	681	722	695	608
Owner's Equity	99	108	139	268	314	342	364	358

13% per year
Revenue
Average growth from 2013 to 2020

18% per year
Assets
Average growth from 2013 to 2020

History of establishment and development

2004
- Converting operation model into Cotec Joint Stock Company under the Decision No. 1242/QĐ-BXD dated 30 July 2004 signed by the Minister of Construction.

2006 - 2008
- Collaborating in major projects of RMIT University, The Manor, Grand View, etc.
- Attracting investment from large funds of Dragon Capital, Indochina Capital, Tainan Spinning. Increasing charter capital to USD5 million.
- Conquering high-end real estate market with typical projects of Ho Tram Sanctuary, River Garden, The Center Point, etc.

2009 - 2011
- Starting Coteccons office building 100% owned by Coteccons on 10 May 2009.
- Listing and trading Coteccons stock (CTD code) on Ho Chi Minh City Stock Exchange (HOSE) on 20 January 2010.
- Signing the general contractor for the Grand Ho Tram Casino Complex, the largest and most modern casino in the region invested by Asia Coast Development Ltd. (ACDL) on 8 September 2011.

2012 - 2014
- Signing a strategic cooperation agreement with Kustocem Pte. Ltd. (Singapore) to issue 10,430,000 shares (equivalent to USD25 million).
- Raising the stake of Coteccons in Unicons to 51.24% and officially operating under the corporation model.
- Initially gaining success in the Design & Build (D&B) model. Many D&B contracts have been signed with big investors such as Masteri Thao Dien, Regina, etc.

2015 - 2017
- Dealing with many large D&B contracts. Marking a record high growth in revenue and profit.
- Constructing the Landmark 81 project, one of the tallest buildings in the world.
- Starting the Hoi An Casino project with a total value of nearly USD300 million in August 2017.

2018 - 2020
- Completed The Landmark 81 project, a national symbol and one of the Top 10 highest towers in the world.
Completed Vinfast automobile production complex with a record time of 12 months of construction.
- Coteccons continues to maintain its position as the No. 1 private enterprise In the construction industry, marking the 7th consecutive year that Coteccons has lead this ranking and Coteccons is also honoured in the Top 50 most excellent and largest enterprises in Vietnam in 2019.
- In 2020, ranked as one of the leading contractors in Vietnam.

Affiliates

Unicons
COTECCONS GROUP

COTECCONS' OWNERSHIP
100%
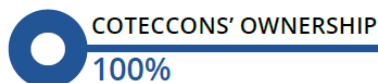
USD **137** million
Total assets

USD **69** million
Owner's equity

A leading industrial construction company who has delivered some of the largest industrial complexes in Vietnam.

Unicons was established in 2006 as a Joint Stock Company, with a current total assets of USD137 million. In 2016, after a continual increase of ownership ratio, Coteccons officially acquired 100% of Unicons' authorised capital.

The company's strength is their team of talented professionals who are innovative and dynamic in their approach to ensuring the successful delivery of industrial projects across Vietnam.

Unicons has confirmed its position in the market by remaining in the top largest private construction companies in Vietnam with an average annual growth rate of over 20%. Unicons has continued to grow and now is regarded as the contractor of choice when it comes to industrial projects.

They continue to deliver outstanding support to their local and international clients through project management, innovation, value engineering and unbeatable access to construction resources.

Unicons is highly experienced in obtaining LEED and Green Building certification for clients.

FCC

COTECCONS' OWNERSHIP
42.4%
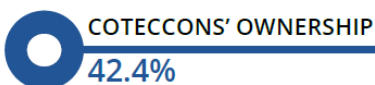
USD **12** million
Charter capital

FCC's main business field is to build infrastructure, civil and industrial works, road construction, and public utility.

From 2014, the FCC started to implement an investment project to build the National Highway 1 section which avoids Phu Ly City and reinforced the road surface section Km215 + 775 ÷ Km235 + 885, Ha Nam province in the form of BOT contract worth more than USD86 million. The project has been conducted ahead of schedule, put into operation and started toll collection from November 2016. Although this is just a medium scale project, the capacity in infrastructure construction of Coteccons, in particular, and that of the FCC, in general, has initially been built and confirmed. This project is a stable launch platform for Coteccons to participate in more and more infrastructure projects in the future. Currently, FCC is proactively looking for researching and developing other critical infrastructure projects, contributing to promoting economic development changing the country's outlook as well as responding to the whole Group's sustainable development goals.

COVESTCONS

COTECCONS' OWNERSHIP
100%
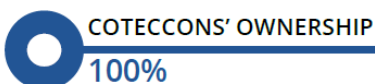
USD **85** million
Total assets

USD **84** million
Owner's equity

Covestcons was officially established on 31 March 2017 with the mission of providing support to our clients by delivering tailored investment and financing solutions, since Coteccons is a trusted partner of clients. Covestcons is also seeking investment in construction-related sectors, such as real estate consultancy and real estate business.