

1_ | Introduction

In 2020, the Olympic will be held in Tokyo. We must equip various instistution and infrastructure. In current scheme, we will have 36 stadiums in Tokyo Metropolitan area for Olympic game, and 13 stadium of them are already we have. They aim at compact and sustainable Olympic for mature society.

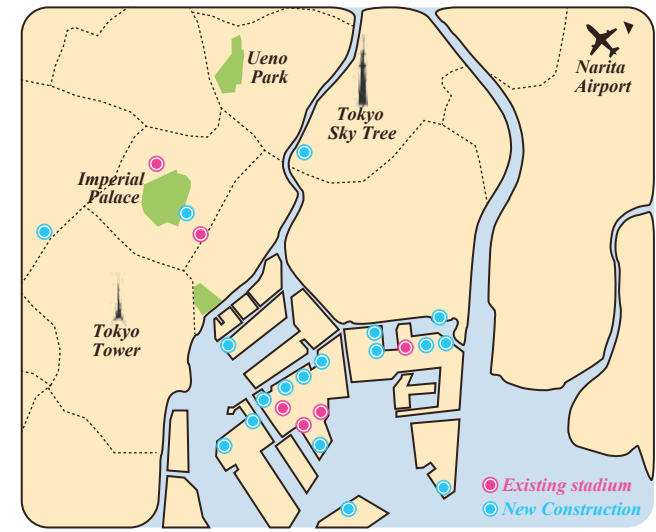


Fig. 1 | Tokyo Olympic 2020 stadium layout, current scheme

2-1_ | Situation in Japan 1 - A consensus of scheme

Tokyo Olympic 2020's main stadium is very controversial. In those argument, a point is not architectural design, the important things are goverment premise 80,000 seating capacity, and design competisition process was blackbox.

These argument reveals Japanese Top-Down administration problems. Our society must learn Bottom-Up citizen consensus.

2-2_ | Situation in Japan 2 - Ageing Popuration

Japan is one of most ageing society in the world. In 2035, 33.4% of japanese are 65 years old and over. We must rethink our society and propose health and welfare-oriented urbanism.



Chronological conversion

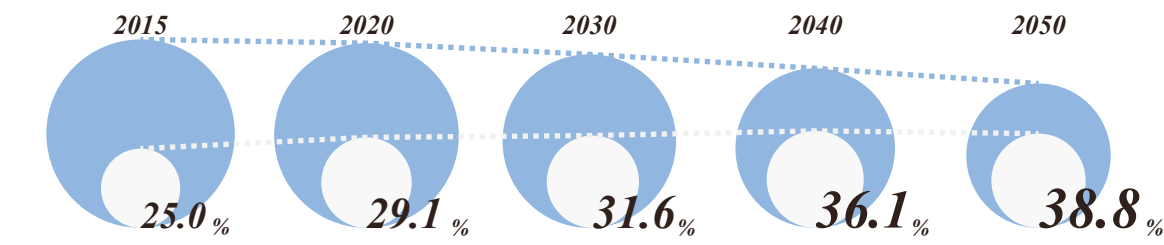


Fig. 2 | Japanese ageing population rate 2015 to 2050.

3-1_ | Proposal - Walkalizing City

So we propose "Walkalizing City". This city will be ageing with people, and transform suit to them.

With the end of Olympic games, this city will transform to health and welfare-oriented city that is handicapped and old people friendly.

3-2_ | Proposal - Cloud data based construction & transforming

The construction & transforming are cloud data based that platform is BIM. The city has cloud server which can use Designer, constructor, administrator, and inhabitants. When the city construct, a design schemes upload server. And Inhabitants check and comment that is necessary or not. This clearness of the scheme, ensure a consensus. And when the city transform, these information will be used.

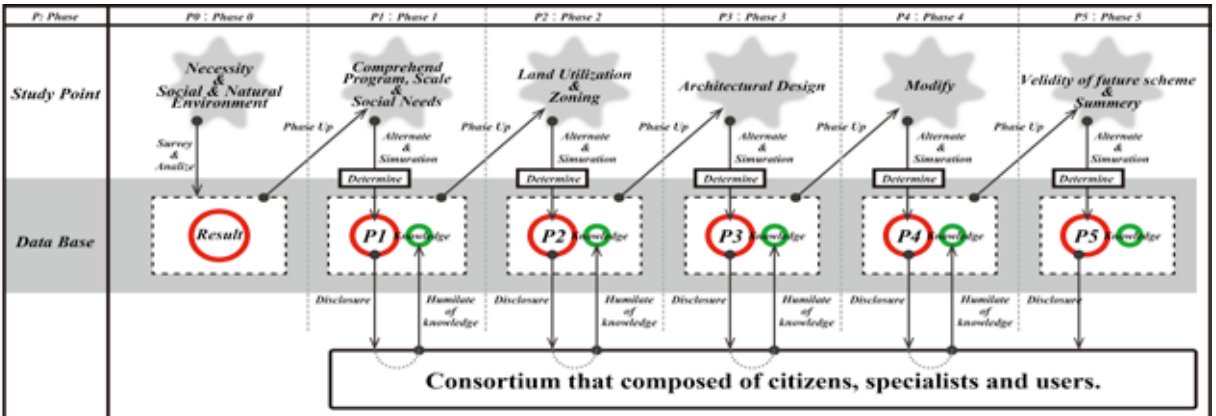


Fig. 3 | Web cloud system is used in this city



4_ | Scheme - LRT =Traffic & Athletic & Ventilation

We propose LRT (Light Rail Traffic) system. LRT is keystone; this has 3 function in this scheme.

First is traffic function. While the Olympic games are held, the Shin-kiba Sta. will very crowded. We propose LRT as a new transportation. This is Olympic main transportation. After the Olympic games have finished, LRT used as community transportation.

Second is healthy function. This city encourage people to walk. Walking yourself have various good effects for health.



Fig. 4 | LRT layout in our scheme.

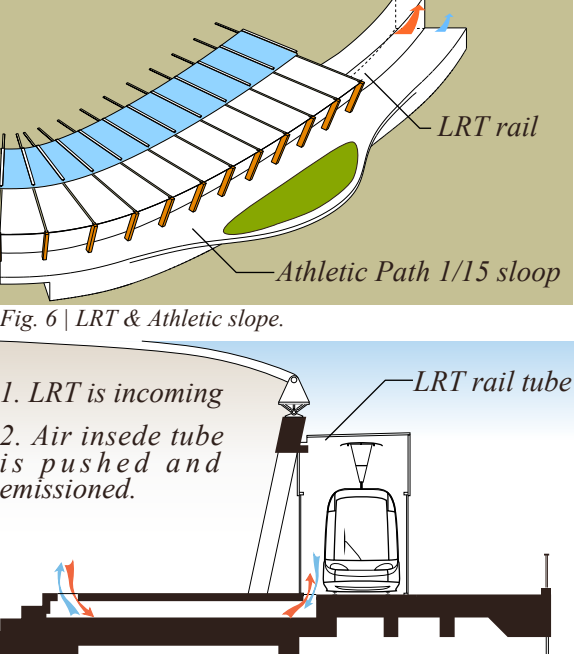


Fig. 6 | LRT & Athletic slope.



5_ | Stadium Planning - Wearable Devices | Geo-Fencing system

We use the wearable devices in this city. When enormous people rush into the stadium, people will be crowded. For comfortable spectation, geo-fencing system must be used. This system is GPS based. Ticket, money, map, information, etc will provide through it. And also handicapped people are guided by it.

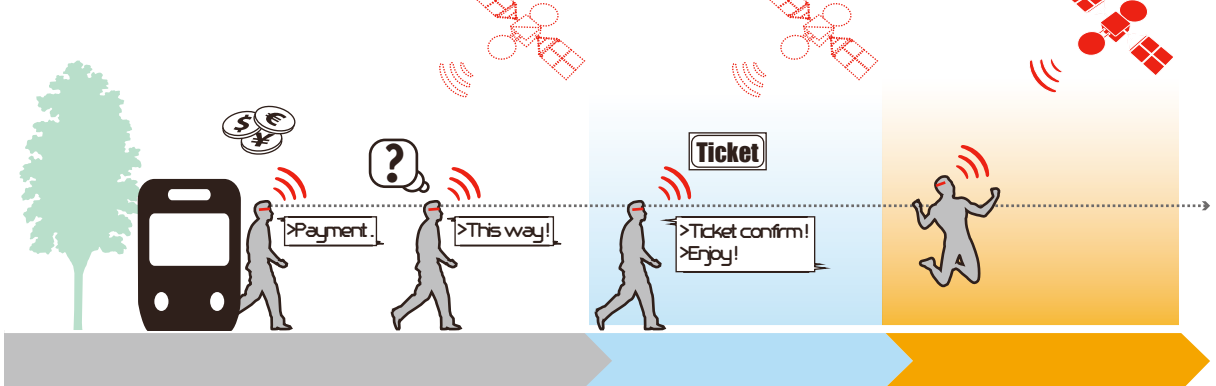


Fig. 8 | Geo-fencing system.

6_ | Stadium Planning - Structure

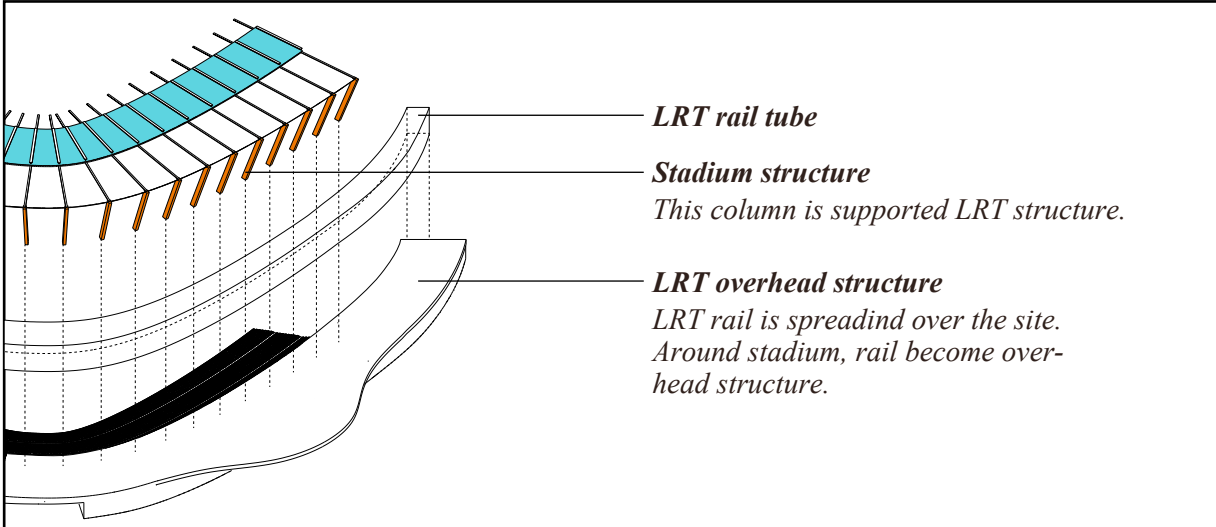
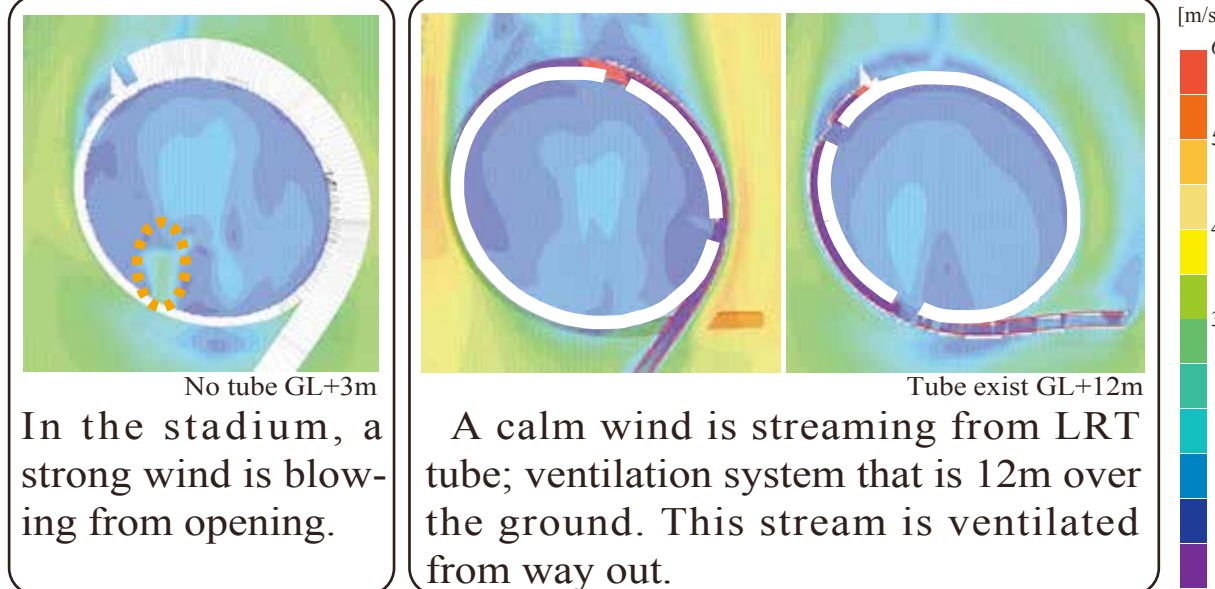


Fig. 9 | structure

The LRT overhead structure is also stadium structure. This is intregation of Architecture and civil engineering.

6_ | Stadium Planning - CFD & People Movement Analysis

We use Building EXODUS for congestion reducing in the stadium. We could study relation of LRT course and Architectural form.



Study of LRT Stops & Congestion reducing

Cases	Simulation Result		
	Bulge (curve)	Bulge (square)	Bulge & wall
People Movement	22m 45s	22m 21s	19m 44s

7_ | Stadium Planning - Parametric study | Rhinoceros + Grasshopper

By using Rhinoceros + Grasshopper, we can study capacity-based volume study.

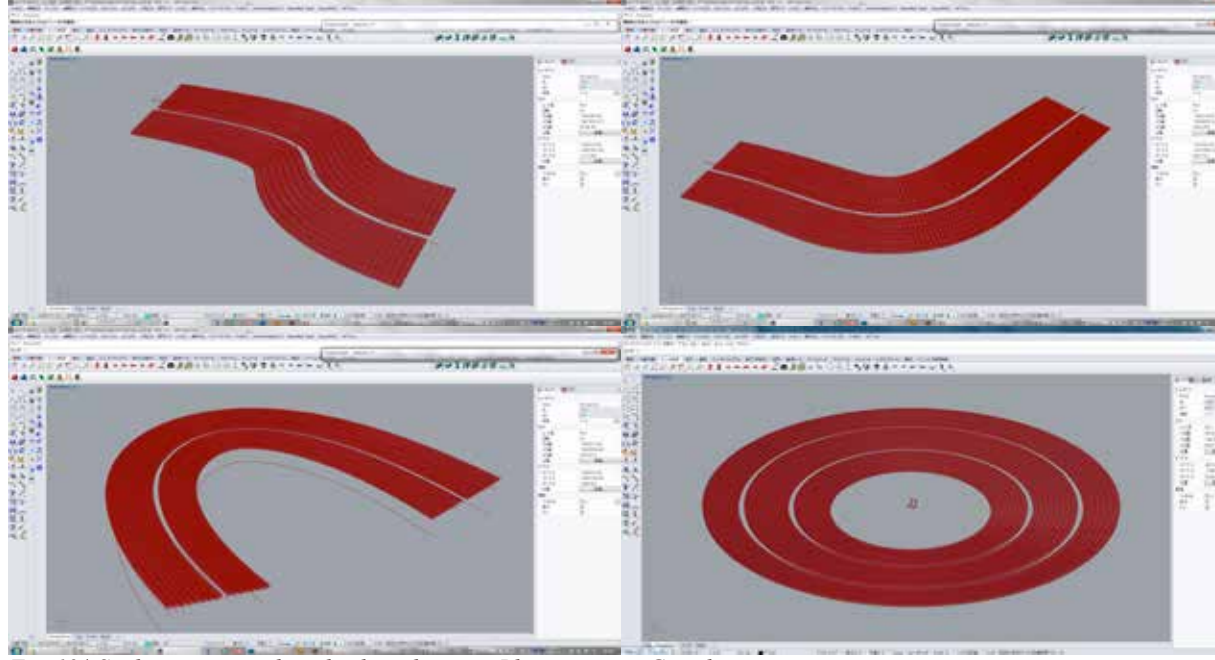


Fig. 12 | Studying capacity based volume by using Rhinoceros + Grasshopper