

# GROUP 1

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Co-creation among students and companies  
for smart city innovation

# 1. Current situation analysis

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CHOOSE **RESOURCES** TO IMPROVE AND **ISSUES** TO SOLVE.

# 1. Current situation analysis

**Tab. 1:** SWOT analysis, Toyohashi (to attract through smart solutions)

Internal origin (attributes of organization)	<ul style="list-style-type: none"> <li>▪ formulation of city's vision (incl. urban redevelopment projects) still ongoing → shape smart vision</li> <li>▪ <b>university area cooperation:</b> (1) Toyohashi University of Technology, (2) Aichi University, (3) Toyohashi Sozo College</li> <li>▪ <b>area management organization:</b> 3 unis, ~ 10 companies, government supervision</li> <li>▪ <b>strong tertiary sector</b> (service industry) &amp; <b>secondary sector</b> (esp. automobile)</li> <li>▪ city aims to combine innovative manufacturing tech &amp; agriculture</li> <li>▪ <b>won municipalism SDGs investigation 2020</b> → sustainable city branding</li> <li>▪ financial support for smart city &amp; healthcare</li> <li>▪ "many" festivals</li> </ul> <p>Strengths</p>	<ul style="list-style-type: none"> <li>▪ weak tourism (but new hotels for businesspeople are emerging)</li> <li>▪ budget problems</li> <li>▪ questionnaire on people's lifestyle only focuses on city center</li> <li>▪ not enough city center spaces to come together and interact *</li> <li>▪ many vacant houses and parking lots in the city center*</li> <li>▪ not enough appealing companies to work for after graduation (→ change to S?!)</li> </ul> <p>Weaknesses</p>
	<ul style="list-style-type: none"> <li>▪ <b>major transportation hub</b></li> <li>▪ one company being responsible for entire city's public transport</li> <li>▪ ~ 5% foreigners (→ <b>asset multiculturalism</b>), &lt; than 10% locals at Toyohashi Tech</li> <li>▪ (mixed-use residential city is emerging)</li> <li>▪ <b>different natural landscapes</b> (sea, bay, rivers, mountains)</li> </ul> <p>Opportunities</p>	<ul style="list-style-type: none"> <li>▪ difficult to make the entire city(lifestyle) smarter in the same way due to various city landscapes (→ focus on specific lifestyle)</li> <li>▪ [competitiveness build on the city's history and culture is not more special than other areas along Tokaido]</li> <li>▪ depopulation</li> <li>▪ aging society</li> </ul> <p>Threats</p>

# 1. Current situation analysis

**Tab. 2:** Pick up from Tab.1

Internal origin (attributes of organization)	<ul style="list-style-type: none"><li>▪ <b>university area cooperation:</b> (1) Toyohashi University of Technology, (2) Aichi University (3) Toyohashi Sozo College</li><li>▪ <b>strong tertiary sector</b> (service industry) &amp; <b>strong secondary sector</b> (esp. automobile)</li></ul> <div>Strengths</div>	<ul style="list-style-type: none"><li>▪ not enough city center spaces to come together and interact *</li><li>▪ not enough appealing companies to work for after graduation</li></ul> <div>Weaknesses</div>
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## 2. Target group and city dimension choice

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Chosen (attractiveness) factors for smart city development in Toyohashi: **Smart Economy** and Smart People

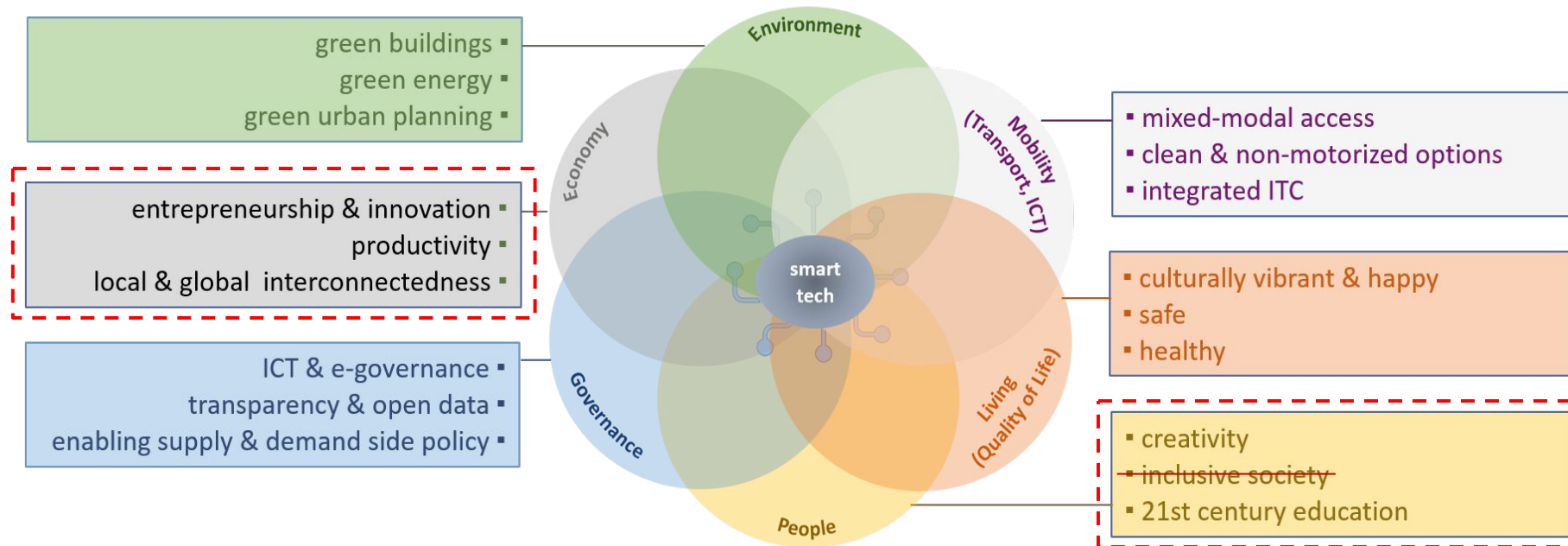
Tab. 3: City attractiveness indicators (listed for target groups)

Business Representatives	Residents	Visitors
<ul style="list-style-type: none"><li>▪ labor force/market (quality, size)</li><li>▪ local taxes, legal requirements</li><li>▪ residential environment quality</li><li>▪ acceptable land prices (location)</li><li>▪ good accessibility</li></ul>	<ul style="list-style-type: none"><li>▪ clean and safe environment</li><li>▪ balanced social structure</li><li>▪ good access to public services</li><li>▪ fulfilled needs of all family members (e.g., jobs, education, health care, leisure facilities)</li></ul>	<ul style="list-style-type: none"><li>▪ cost and type of accommodation</li><li>▪ diversity of cultural activities and similar factors</li><li>▪ good accessibility</li><li>▪ other amenities and comfort</li></ul>
<ul style="list-style-type: none"><li>▪ good transportation system</li><li>▪ accessibility and mobility</li><li>▪ access to public services and amenities</li><li>▪ natural and physical environment</li><li>▪ rich cultural sector</li></ul>		

## 2. Target group and city dimension choice

Chosen (attractiveness) factors for smart city development in Toyohashi: **Smart Economy** and Smart People

Fig. 2: City attractiveness indicators (listed for smart city dimensions)



## 2. Target group and city dimension choice

### Target group choice:

1. Residents  
→ (on-going) **professionals: students**  
→ **professionals**
2. **Business representatives**  
→ in tertiary and secondary sector

link to target group

### City dimension choice: **Smart Economy**

- partly linked to „People“ and „Quality of Life“
- *as labor force market = indicator for business rep.*
- *„creative and talented people associate city attractiveness with the quality of place“ (s. 3)*

- enhance characteristics of knowledge-based economy, which emphasizes: **qualification and R&D centers**
  - already existing R&D foundation due to university area cooperation
- city development aims to attract businesses anyway
- our aim create business opportunities through new innovations, connectedness, clustering, and a smarter economy will **need more R&D, entrepreneurship, and productivity**
- existing advantages (transportation hub, strong secondary & tertiary economic sector, *relative acceptable land prices\**)
  - good accessibility and land prices: attractiveness indicators for business representatives (Tab. 3)
- existing report on settlement reasons of Toyohashi students

link to knowledge-based economy



# 3. Smart small-scale solution

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Co-creation among **students** and **companies** for smart city innovation

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# 3.1 Concept

## Co-creation among students and companies for smart city innovation

- **A multi-stakeholder incubation hub** for building, experimenting, and implementing new smart city technologies and ideas
- **Creating a new leisure and tourism area** based on futuristic technologies/city concepts

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Tab. 2: Pick up from Tab.1

## 3.2 Expected Activities and Target Users

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	Target groups	Activities
1	high school/university students	join research/experience R&D
2	companies	provide research and job opportunities to youth
3	younger students	play/learn programming, robotics, etc.
4	inner/outer visitors	use/enjoy innovative facilities, like science musiums

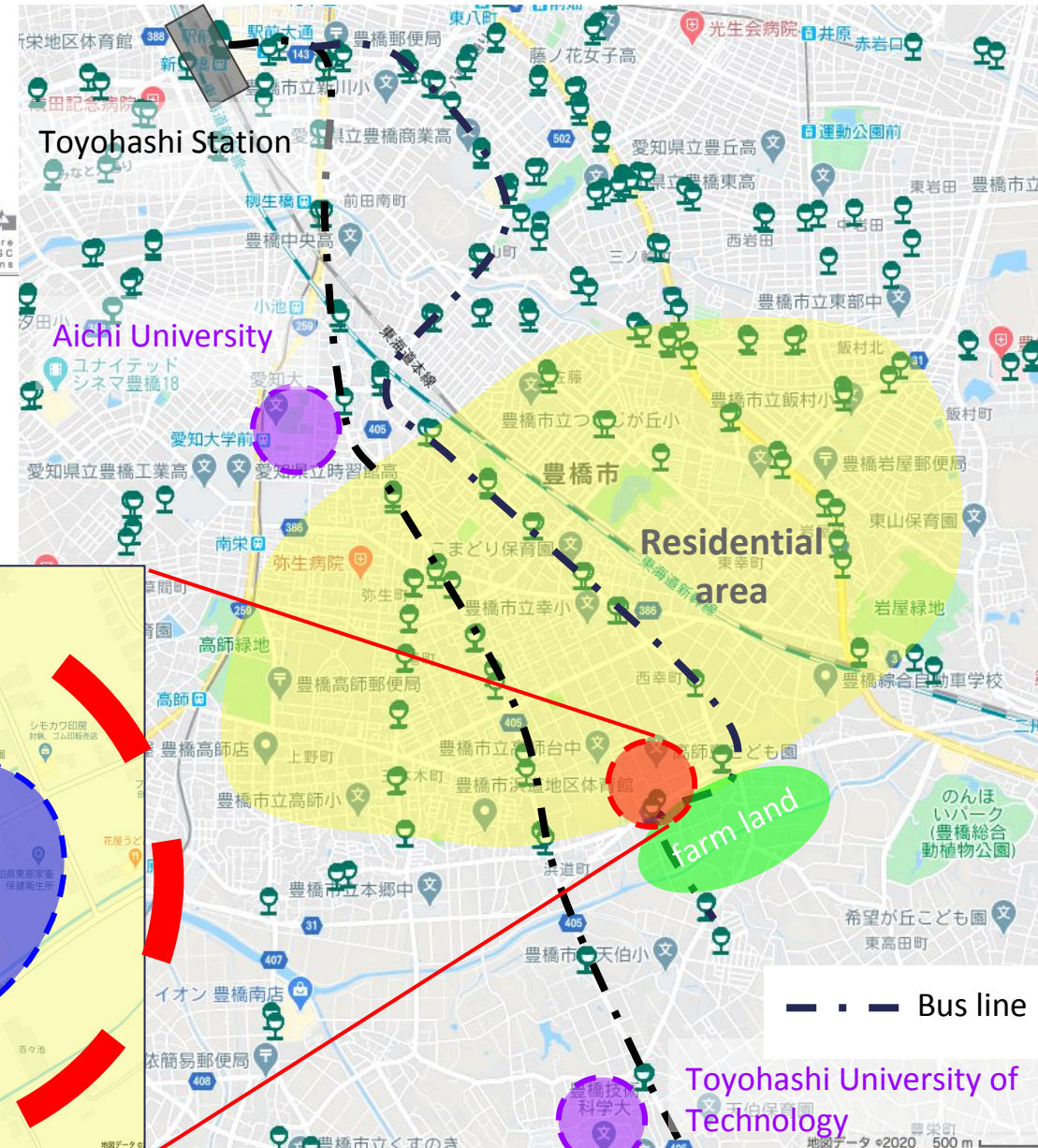
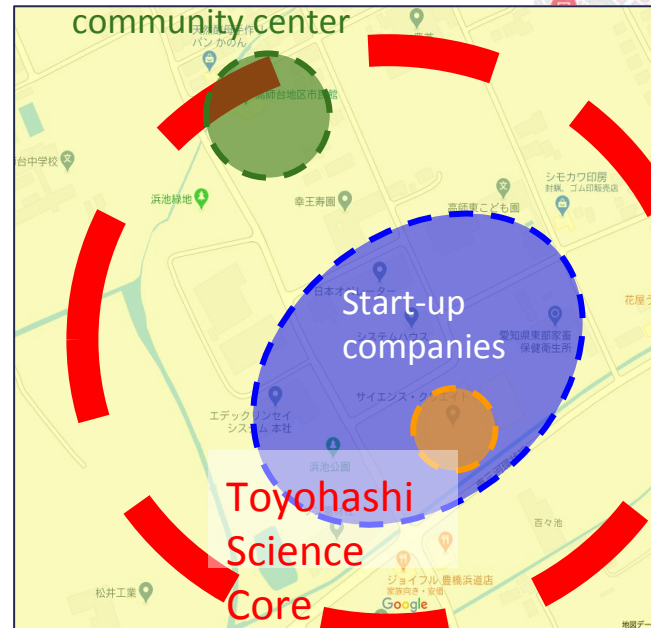
# 3.3 Proposal Site

- good accessibilities from the universities and companies
- enough space for R&D (relatively large)

## ➤ Toyohashi Science Core

### Current Situation

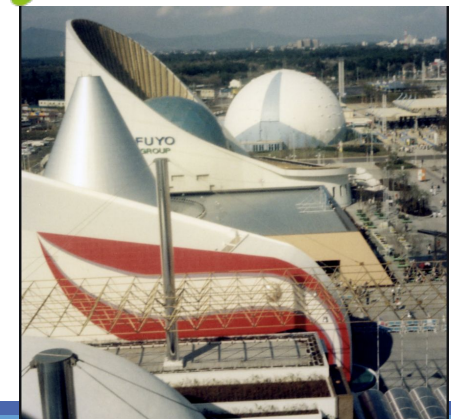
- rental offices & rooms
- **many start-up companies** around TSC
- near to community center
- near to residential areas



## 3.4 Long-term Vision

Science museum, Expand Toyohashi Science Core  
→ Attract business representatives  
→ Students think Toyohashi is worth to keep living

- **A multi-stakeholder incubation hub** for building, experimenting, and implementing new smart city technologies and ideas
- **Creating a new leisure and tourism area** based on futuristic technologies/city concepts





The map shows the Toyohashi area with several key locations highlighted. A red dotted line encloses a central area containing 'Junior high school', 'Community center', 'Kindergarden', and 'Science core'. Arrows point from these facilities towards the 'Science core'. A dashed pink line runs diagonally across the map. The map includes labels for streets, rivers, and various points of interest like restaurants and shops.

- [illegible]

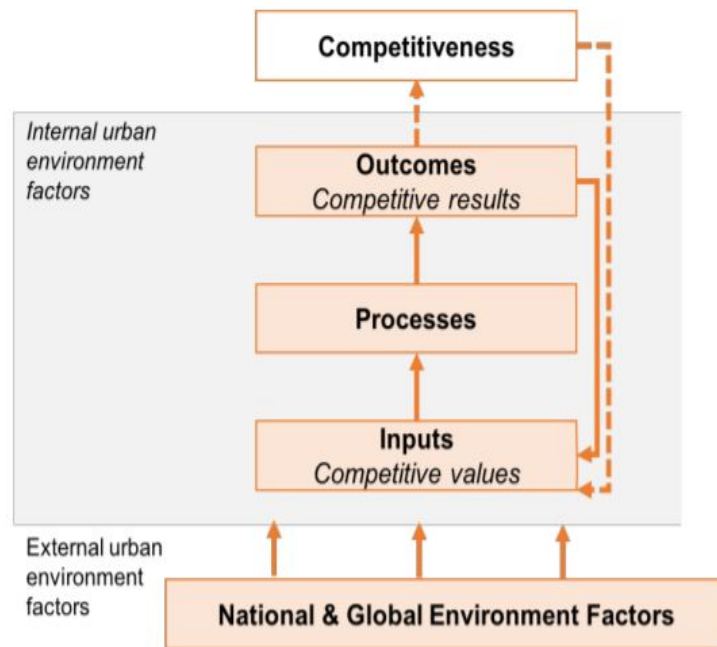




Questions?

# BACKUP SLIDE

## B. 1: Urban competitiveness model (simplified)



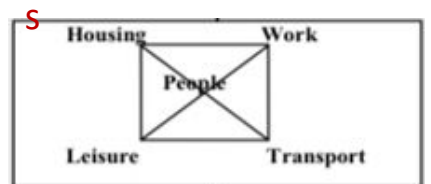
### Outcome

<b>S</b> <ul style="list-style-type: none"> <li>Productivity</li> <li>Value added/person</li> <li>Income/Purchasing power</li> <li>Corporate profit</li> <li>Inward investment</li> <li>Growth of work places</li> <li>Immigration</li> <li>Physical city growth</li> <li>City image/ attractiveness</li> <li>Ecological situation</li> </ul>
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### Input

<b>S</b> <b>Human factors</b> <ul style="list-style-type: none"> <li>Labour skills</li> <li>Training and education possibilities</li> <li>Local demographic situation</li> <li>Local leaders</li> <li>Innovativeness/ creativity/ talent of local people</li> <li>Tolerance / culture / traditions of local people</li> </ul>	<b>Institutional factors</b> <ul style="list-style-type: none"> <li>Local government effectiveness</li> <li>Institutions - leaders</li> <li>Institutional networks</li> <li>Urban facilities and amenities</li> <li>City development strategy</li> </ul>	<b>Physical factors</b> <ul style="list-style-type: none"> <li>City location and accessibility</li> <li>Urban infrastructure</li> <li>Natural resources of the city</li> </ul>	<b>Economic factors</b> <ul style="list-style-type: none"> <li>Economic structure</li> <li>High value-added activities</li> <li>Local tax system</li> <li>Local wages level</li> <li>Access to capital in the city</li> <li>Local institutions of scientific research and experimental development</li> <li>City industry clusters</li> </ul>
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### Processe



### External urban environment factors

<b>Political-legal factors</b> <ul style="list-style-type: none"> <li>Political and legal stability</li> <li>International agreements of higher authorities</li> <li>External security</li> <li>Activity of external interest groups</li> <li>Activity of external institutions</li> </ul>	<b>Technological factors</b> <ul style="list-style-type: none"> <li>Development of ICT</li> <li>Establishment of new industries</li> <li>development of production technologies</li> <li>Polity of technology development</li> </ul>	<b>Economic factors</b> <ul style="list-style-type: none"> <li>Macroeconomic situation</li> <li>Fiscal Policy</li> <li>Regulatory Policy</li> <li>Development of Scientific Research and Experimental Development</li> <li>Development of Communications</li> </ul>	<b>Social-cultural factors</b> <ul style="list-style-type: none"> <li>Demographics</li> <li>Gender equality</li> <li>Life style specifics</li> <li>Effectiveness of health care and educational systems</li> <li>External employment opportunities</li> <li>Income level</li> <li>Crime level</li> </ul>	<b>Ecological-environmental factors</b> <ul style="list-style-type: none"> <li>Climate</li> <li>Water resources</li> <li>Waste treatment systems</li> <li>Land and land use</li> <li>Biological assets</li> <li>Energy resources</li> <li>Natural disasters</li> </ul>
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# REFERENCE

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