



UNGEONOW 2024
首届联合国地信周



地理信息技术引领社会数字化转型

Digital Transformation of Society Led by Geospatial Information Technology

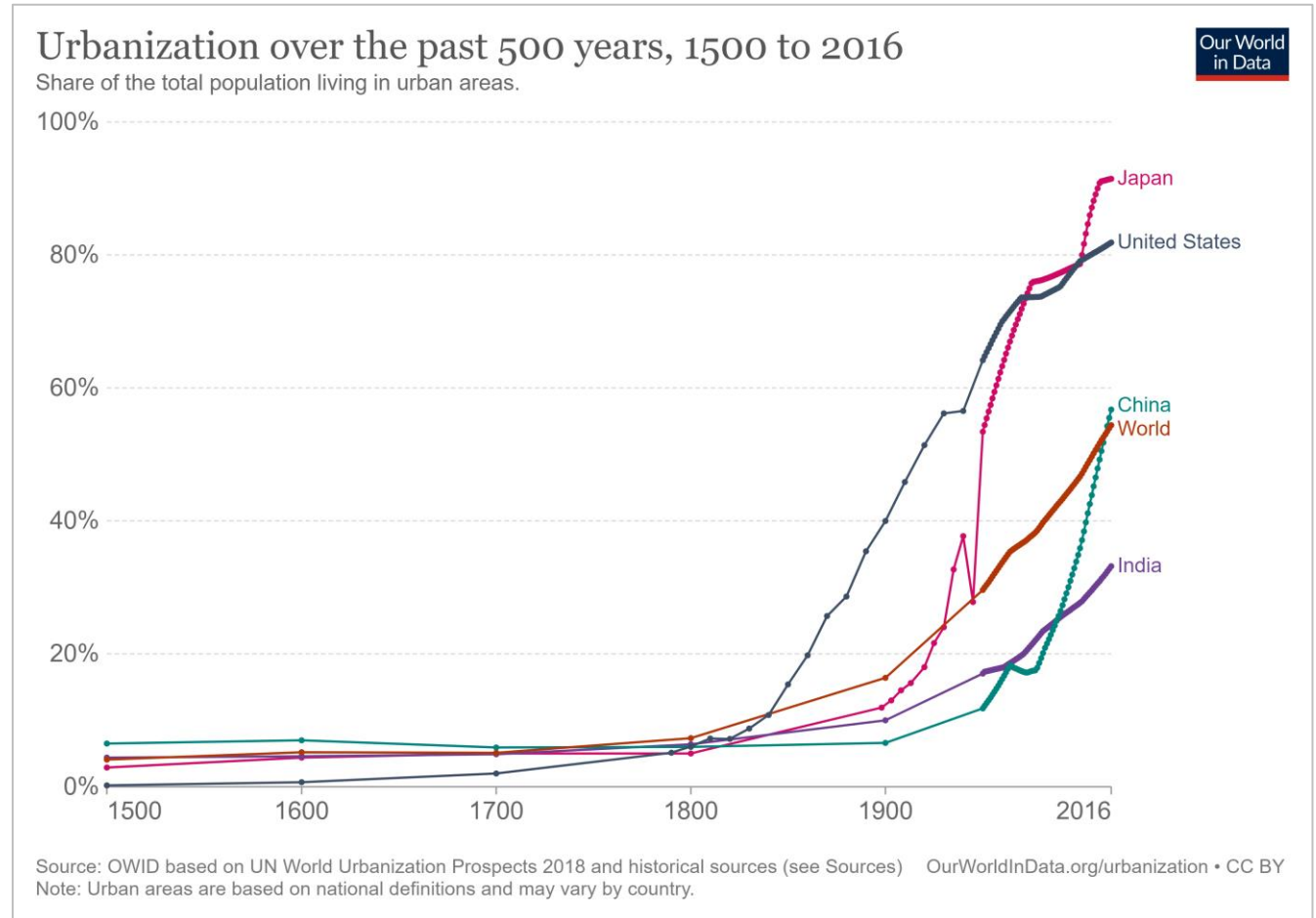
深圳大学 智慧城市研究院 郭仁忠
Renzhong Guo
Research Institute for Smart Cities,
Shenzhen University

Oct 2024, Deqing

全球城市化在加速

Accelerated global urbanization

- **1900: 城市人口 2亿, 总人口的1/8**
200 million urban dwellers
(1/8 of world population)
- **2009: 世界城市人口超过农村人口**
Urban population exceeds rural
- **2018: 城市人口 42亿, 55%**
4.2 billion live in urban
(55% of world population)
- **2050: 66%(2016,UN)**
68%(2018,UN)



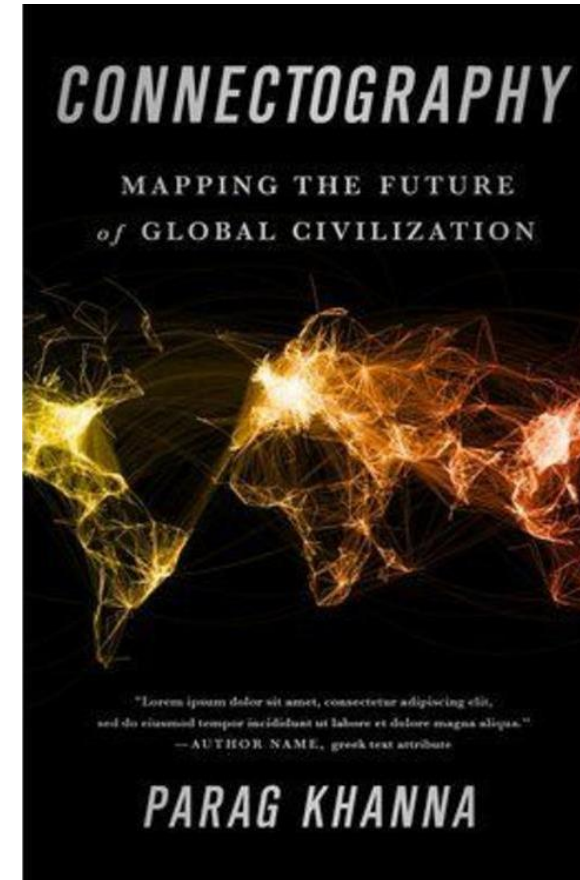
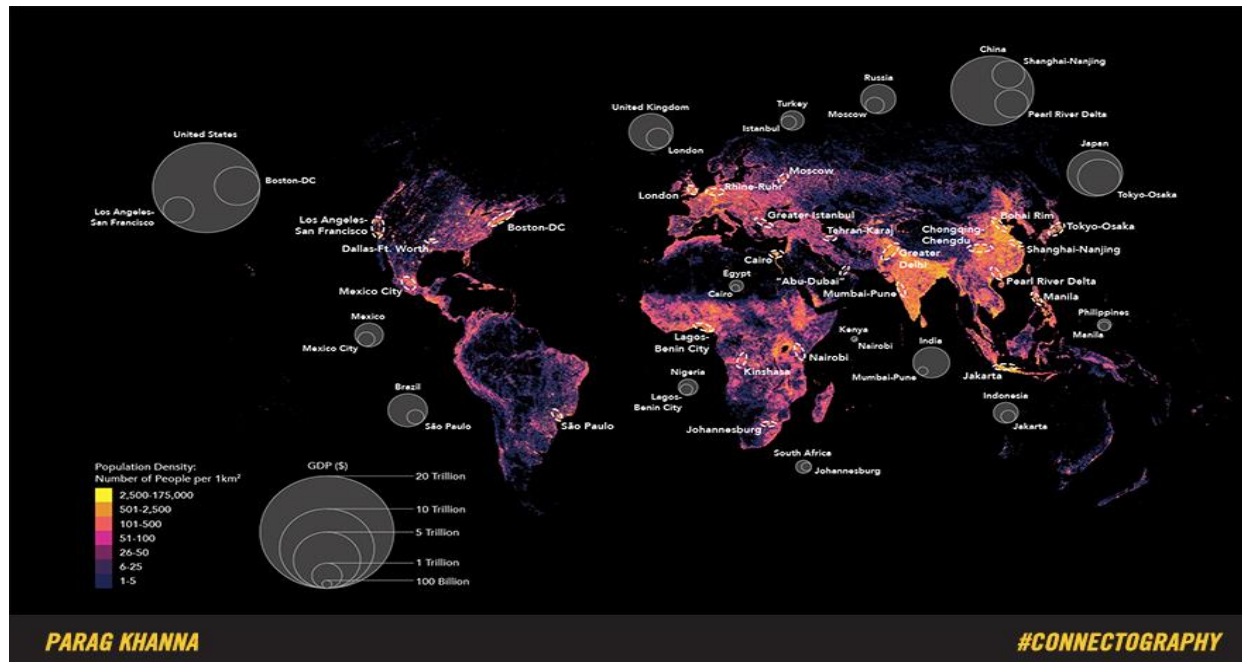
[Source: <https://ourworldindata.org/grapher/urbanization-last-500-years>]

过去相隔上百公里的城市现在已融合成巨型城市群

Cities once separated by hundreds of kilometers have now merged into vast urban archipelagos

大城市群主导世界经济

Mega-city clusters dominate the world economy



城市化推进发展，亦带来问题 Rapid urbanization triggers urban problems



城市快速扩张给社会和自然资源带来压力

Rapid urban expansion puts pressure on society and natural resources

“全球约56%的人口——44亿居民——居住在城市。这一趋势预计将持续下去，到2050年，城市人口将是目前的两倍多，届时近七成的人口将生活在城市。”【世界银行 2023.04.03】

About 56% of the world's population – 4.4 billion inhabitants – live in cities. This trend is expected to continue, with the urban population more than doubling its current size by 2050, at which point nearly 7 of 10 people will live in cities. [World Bank, Apr 03, 2023]



增加交通和通勤的负担

Increasing traffic and commuting burdens

Image source:
Internet

资源环境压力
Resource and
environmental pressure
空气和水质污染
Air and water pollution
废物处理
Waste disposal



城市发展中的不平等和不均衡问题 Inequality and imbalance in urban development



城市绿色低碳可持续发展问题

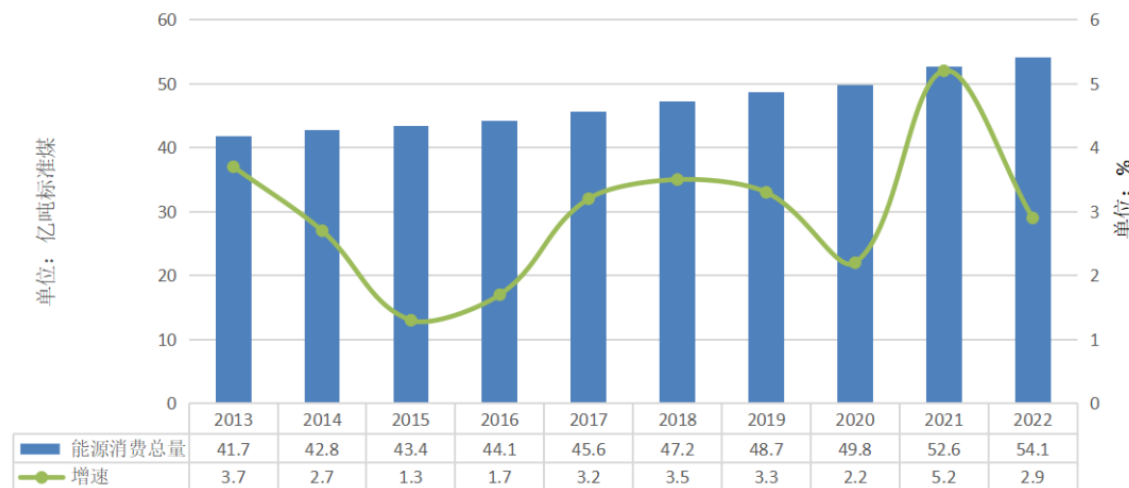
Urban green, low-carbon, and sustainable development issues

城市占全球能源消耗和相关温室气体排放的70%以上。【联合国人居署数据 2022】

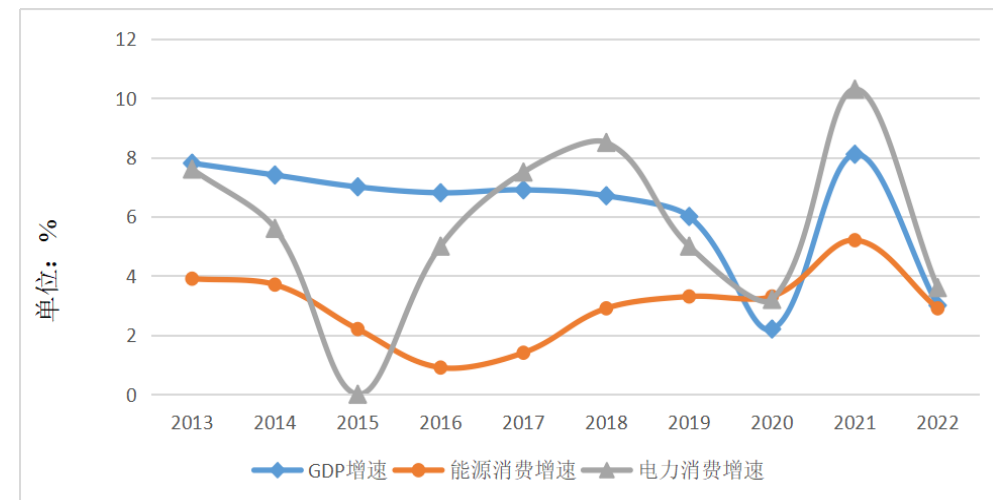
Cities are responsible for more than 70 per cent of global energy consumption and associated greenhouse gas emissions. [UN Habitat 2022]

城市交通产生约40亿吨的二氧化碳排放量，占交通部门总排放量的40%以上。【国际能源署数据 2021】

Urban transport alone accounts for the equivalent of 4 billion tons of CO2 emissions, more than 40% of the transport sector's total emissions. [International Energy Agency, 2021]



Total energy consumption and growth rate from 2013 to 2022



Comparison of GDP growth rate, energy consumption growth rate, and electricity consumption growth rate from 2013 to 2022

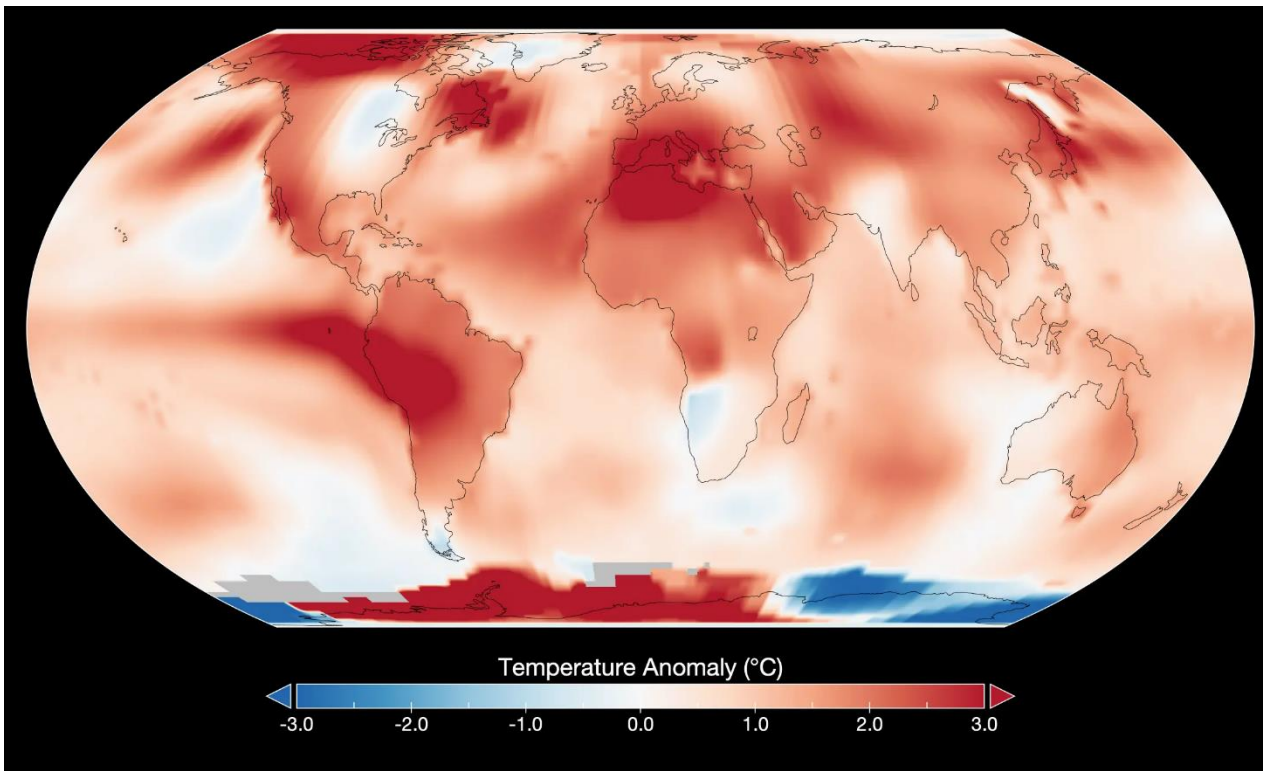
全球温度异常，城市首当其冲

Abnormal global temperatures, cities bear the brunt.

“2023年7月是自1880年全球有气温记录以来最热的一个月” 【NASA 2023.08.14】

NASA Clocks July 2023 as Hottest Month on Record Ever Since 1880. [2023.08.14]

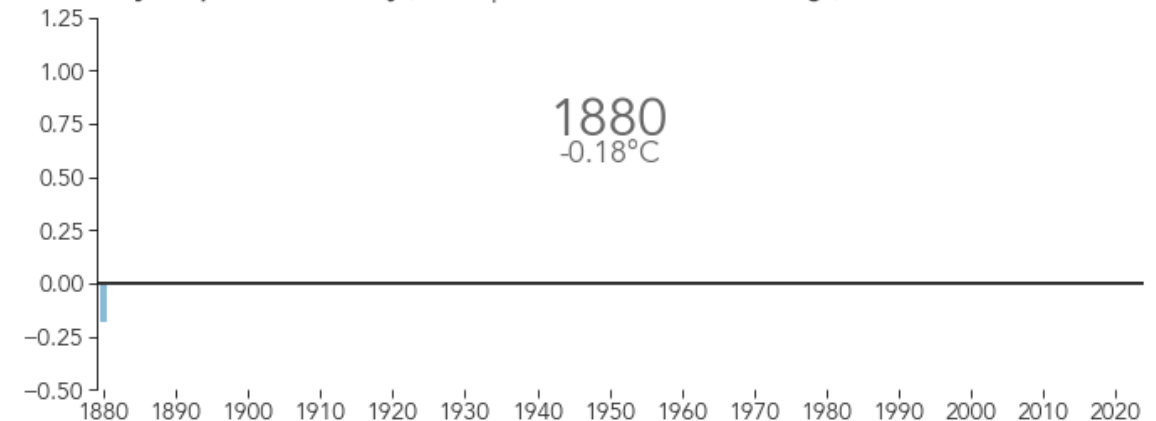
Global temperature anomalies for July 2023



2023年7月全球温度异常图 (左)
19世纪80年代以来每年7月全球异常温度图 (右)
(以1951-1980年平均温度为基线)
(图片来自NASA戈达德空间研究所)

July 2023 Was the Hottest Month on Record

Global July Temperature Anomaly (°C compared to the 1951-1980 average)



极端天气：引发城市暴雨内涝、滑坡、塌方等自然灾害

Extreme weather causes rainstorms, urban flooding, landslides, mudslides, and other natural disasters

深圳滑坡
Landslide in
Shenzhen
2015.12.20



舟曲泥石流
Mud-rock flow
in Zhouqu
2010.08.07



郑州暴雨
Rainstorm in
Zhengzhou
2021.07.20



北京暴雨
Rainstorm in
Beijing
2023.07.29-
08.02





贯彻政策落实

Implementing governmental policies



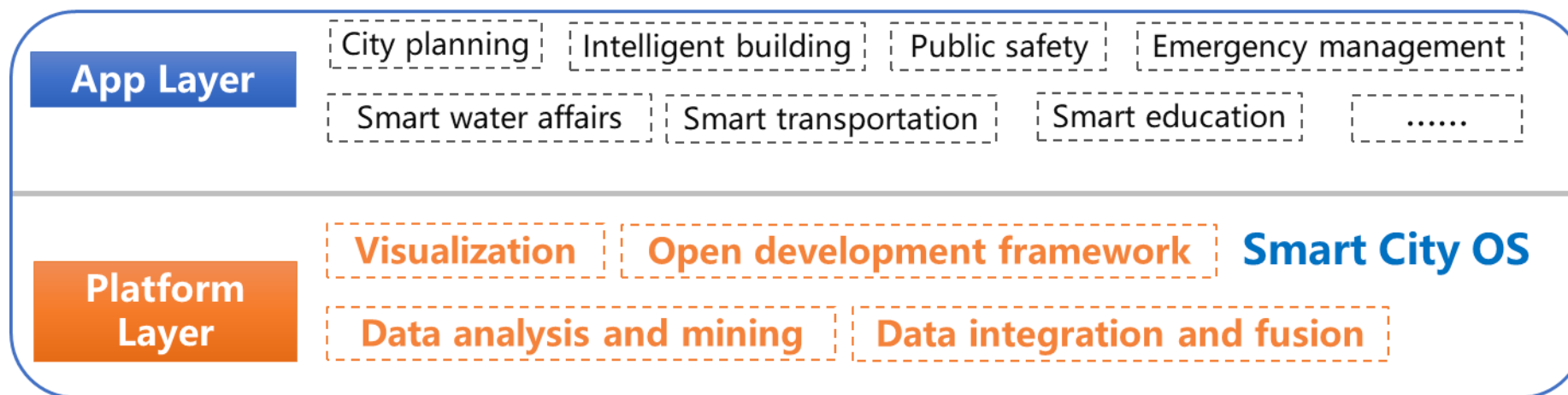
实现可持续发展目标

Fulfilling SDG requirements



增进人类福祉

Improving human well-being

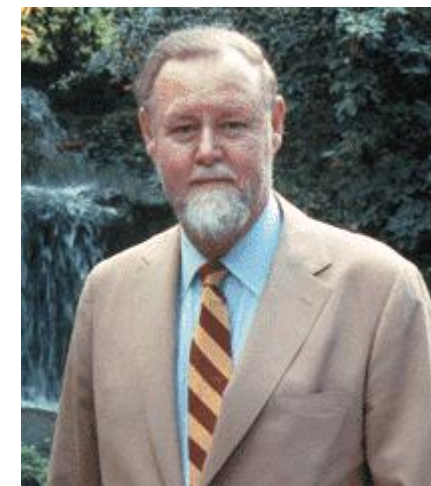


智慧城市操作系统

我们将看到更多的国家有相关的国家政策，GIS将成为中央政府讨论的重要内容。我希望训练有素的地理学家将参与国家决策过程。

We will see more countries adopting national policies, and GIS will be an important part of cabinet-level discussions. I hope that trained geographers will become a part of national decision-making processes.

A Conversation with Dr. Roger F. Tomlinson,
[2009 interview in Esri's ArcWatch magazine](#)




中国政府网

**中华人民共和国自然资源部**

Ministry of Natural Resources of the People's Republic of China

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联合国全球地理信息知识与创新中心成立



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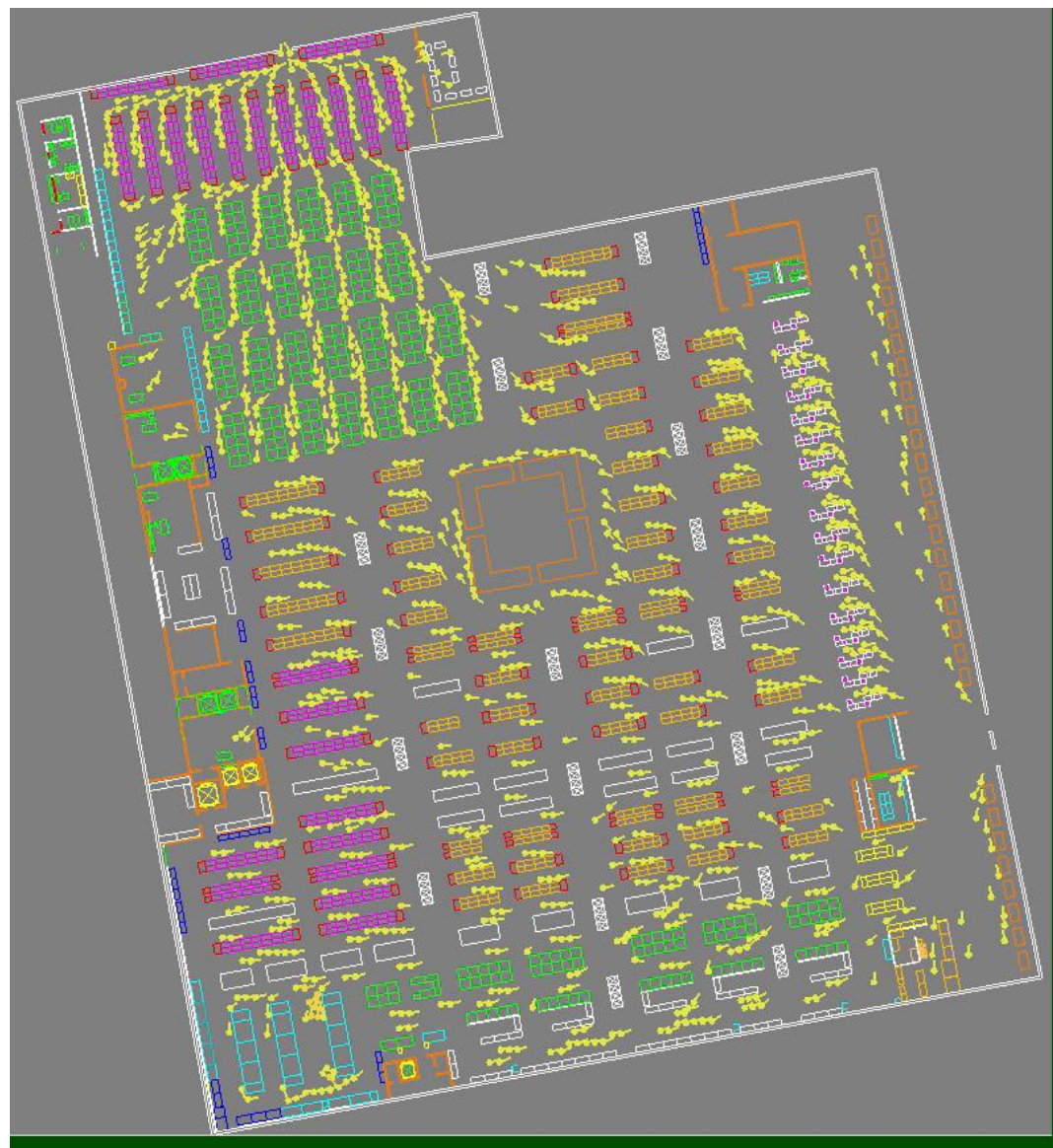


地理信息技术被寄予厚望!

Geospatial information technology is highly anticipated!

GIS 不再仅是“地理”的

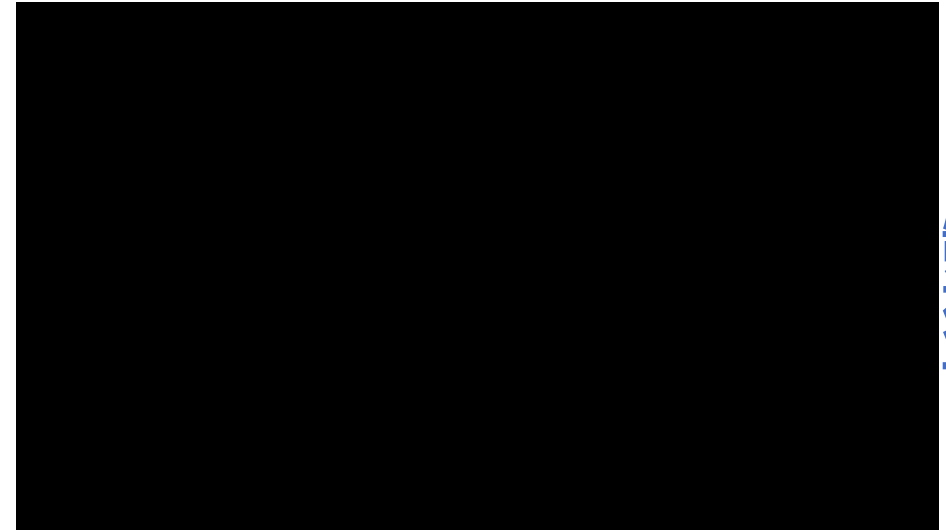
GIS is no longer "geographic"



GIS 进入经济领域 GIS steps into industries



建造业
Construction



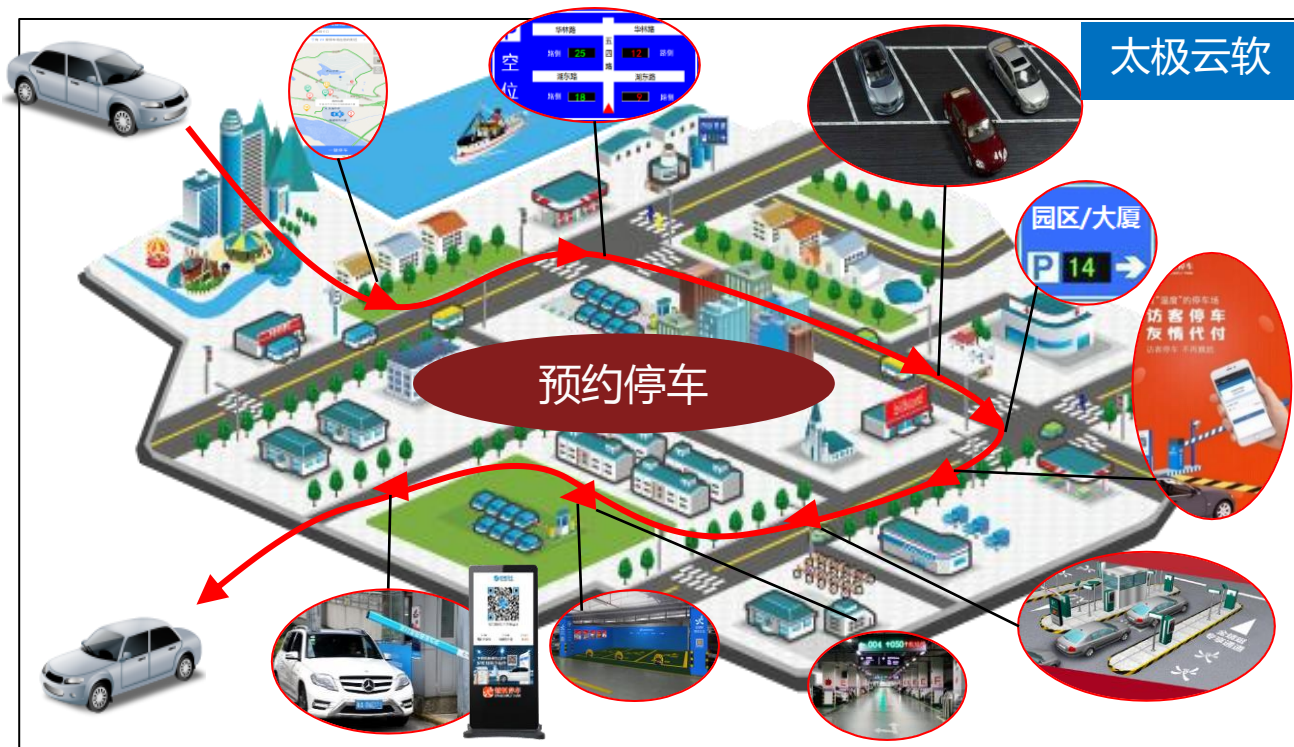
制造业
Manufacture



商业
Commerce

GIS 进入社会生活

GIS steps into social life



智慧出行
Smart travels

【Taiji Software Co., Ltd】



旅游
Tourism



数字博物馆
Digital library

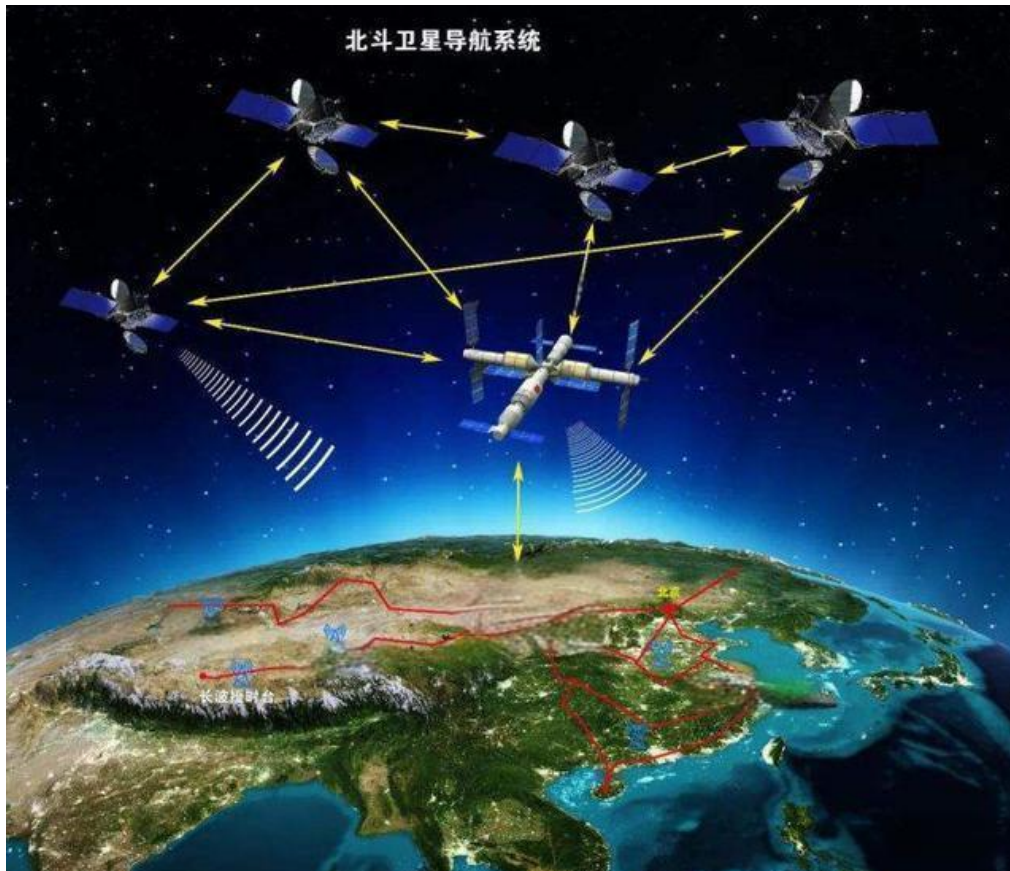
当我们享受现代物流带来的便利时，还想到什么？

What else comes to mind when enjoy the convenience of today logistics?



没有导航定位，没有电子地图，就没有现代物流！

Without navigation and GPS, without digital maps, modern logistics would **NOT** exist!



没有孪生平台，就不可能实现规划的数字化转型！

Without digital twin platforms, the digital planning would **NOT** be possible!



没有实景三维，就没有数智文旅！

Without real-3D scenes, there would be **NO** smart tourism!



被寄予厚望的低空经济，没有时空大数据和三维GIS开放应用，能行吗？

How can we expect the low-altitude economy to thrive without spatiotemporal big data and 3D GIS applications?





大建设时代历史性谢幕，大治理时代大幕开启，智慧城市是当前最大风口，助力科技创新与经济发展，地理信息技术迎来空前的机遇，引领社会数字化转型。

Rapid urban development has given way to **advanced governance and management**.

Smart cities as engines drive scientific innovation and economic growth.

Geospatial information technology leads the digital transformation of our society.



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THANK YOU