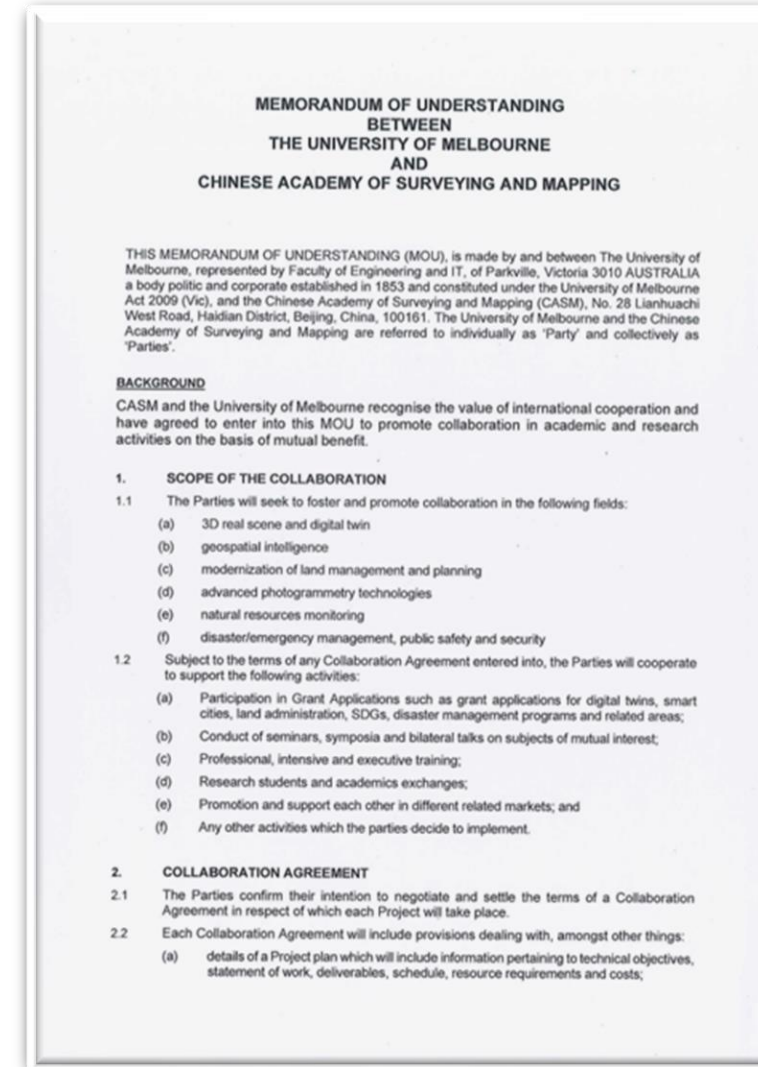Started from 2023,
- Chinese Academy of Surveying and Mapping Sciences (**CASM**),
- Center for Spatial Data Infrastructures and Land Administration (**CSDILA**), the University of Melbourne
- Qingdao Surveying and Mapping Institute (**QSMI**),

have signed a **Memorandum of Understanding (MoU)**, and an **Action Plan** for cooperation in research on Digital Twins and Smart City Technologies.

从2023年起，中国测绘科学研究院联合墨尔本大学空间数据基础设施与土地管理中心、青岛市勘察测绘研究院签署合作备忘录、数字孪生与智慧城市技术研究合作行动计划等合作协议。

Technology Research Cooperation Action Plan on Digital Twin and Smart City

数字孪生和智慧城市技术研究合作行动计划

Centre for Spatial Data Infrastructures and Land Administration, the University of Melbourne
墨尔本大学空间数据基础设施和土地管理中心
Chinese Academy of Surveying and Mapping
中国测绘科学研究院
Qingdao Surveying and Mapping Institute
青岛市勘察测绘研究院

MEMORANDUM OF UNDERSTANDING
BETWEEN
THE UNIVERSITY OF MELBOURNE
AND
CHINESE ACADEMY OF SURVEYING AND MAPPING

THIS MEMORANDUM OF UNDERSTANDING (MOU), is made by and between The University of Melbourne, represented by Faculty of Engineering and IT, of Parkville, Victoria 3010 AUSTRALIA a body politic and corporate established in 1853 and constituted under the University of Melbourne Act 2009 (Vic), and the Chinese Academy of Surveying and Mapping (CASM), No. 28 Lianhuachi West Road, Haidian District, Beijing, China, 100161. The University of Melbourne and the Chinese Academy of Surveying and Mapping are referred to individually as 'Party' and collectively as 'Parties'.

BACKGROUND
CASM and the University of Melbourne recognise the value of international cooperation and have agreed to enter into this MOU to promote collaboration in academic and research activities on the basis of mutual benefit.

1.   **SCOPE OF THE COLLABORATION**
1.1   The Parties will seek to foster and promote collaboration in the following fields:
(a)   3D real scene and digital twin
(b)   geospatial intelligence
(c)   modernization of land management and planning
(d)   advanced photogrammetry technologies
(e)   natural resources monitoring
(f)   disaster/emergency management, public safety and security

1.2   Subject to the terms of any Collaboration Agreement entered into, the Parties will cooperate to support the following activities:
(a)   Participation in Grant Applications such as grant applications for digital twins, smart cities, land administration, SDGs, disaster management programs and related areas;
(b)   Conduct of seminars, symposia and bilateral talks on subjects of mutual interest;
(c)   Professional, intensive and executive training;
(d)   Research students and academics exchanges;
(e)   Promotion and support each other in different related markets; and
(f)   Any other activities which the parties decide to implement.

2.   **COLLABORATION AGREEMENT**
2.1   The Parties confirm their intention to negotiate and settle the terms of a Collaboration Agreement in respect of which each Project will take place.
2.2   Each Collaboration Agreement will include provisions dealing with, amongst other things:
(a)   details of a Project plan which will include information pertaining to technical objectives, statement of work, deliverables, schedule, resource requirements and costs;

CASM and CSDILA the University of Melbourne Signed a MoU

International Symposium on "3D Real Scene and Smart City Construction"

Workshop on GeoAI for Sustainable Development: Governance, Innovation and Application
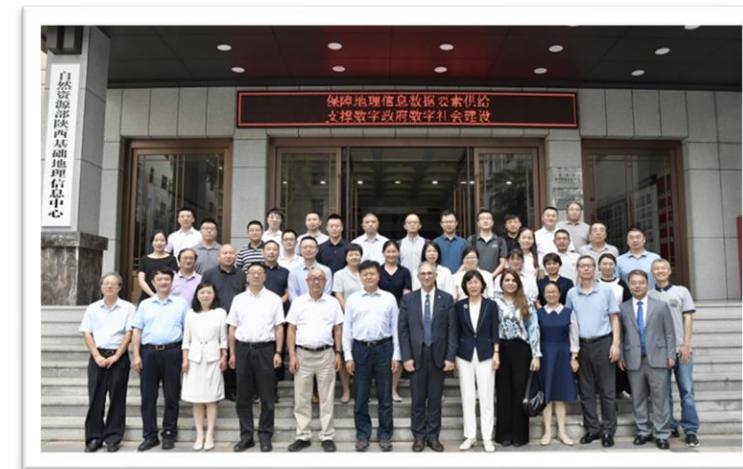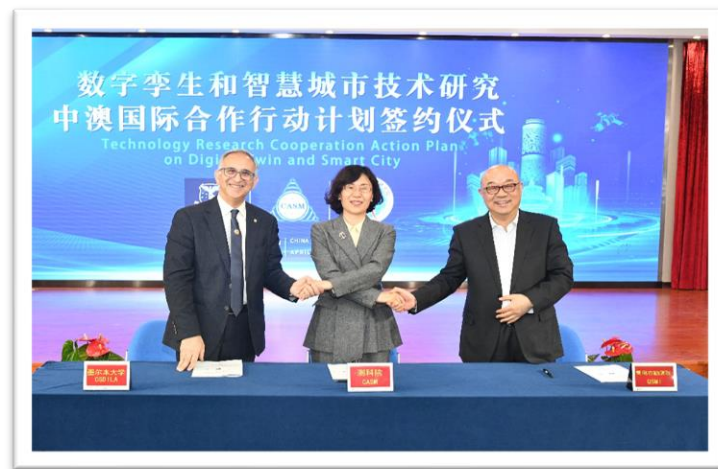
2023.10
Melbourne, 墨尔本

2024.04
Qingdao, 青岛

2024.09
Xi'an, 西安

中国测绘科学研究院与墨尔本大学签署合作备忘录
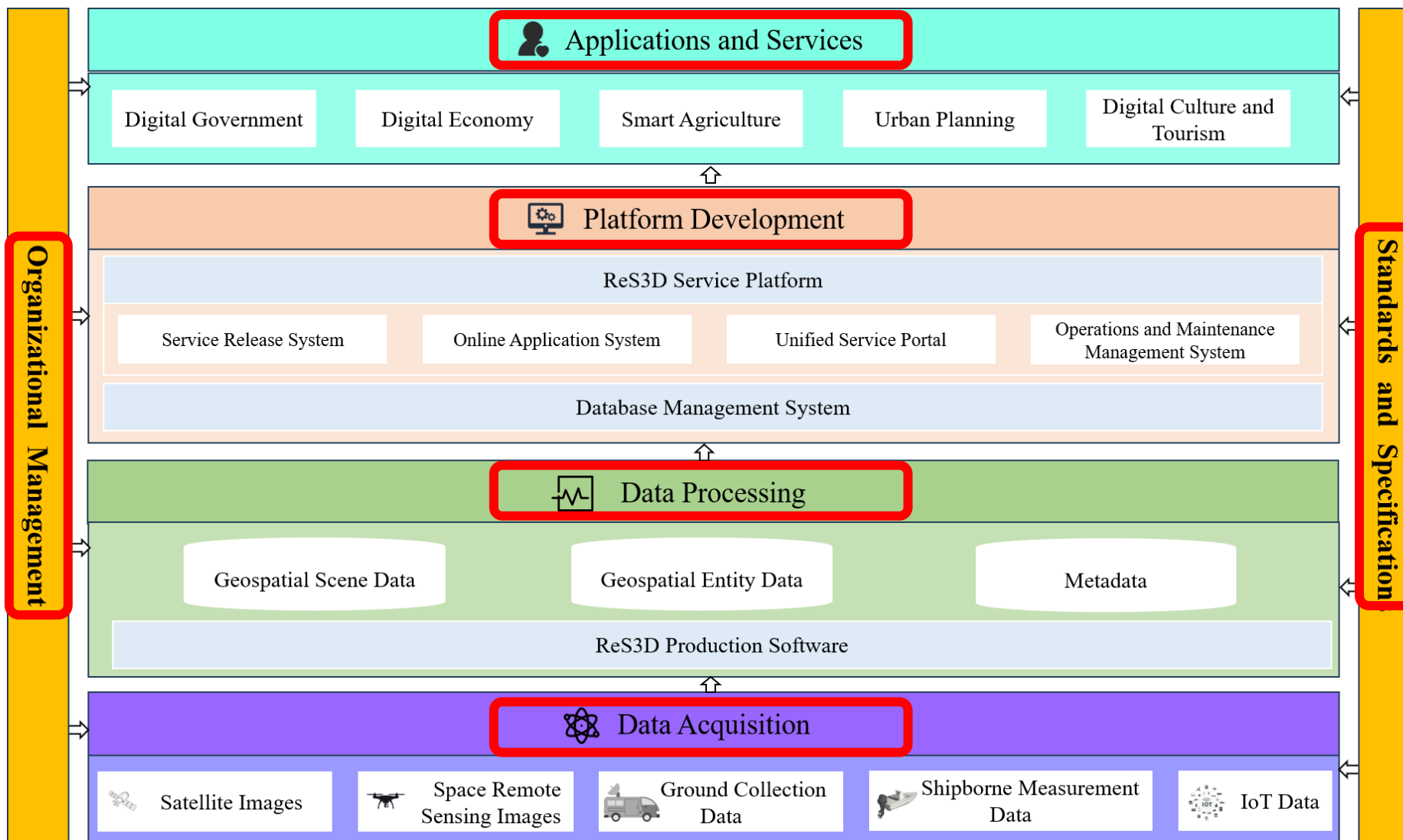
"实景三维与智慧城市建设" 国际科技合作与发展研讨会

"地理空间人工智能促进可持续发展：治理，创新和应用" 地理空间知识交流研讨会
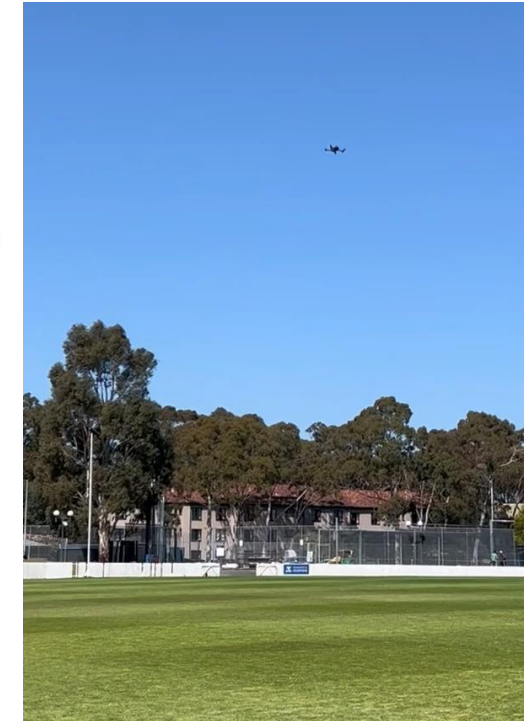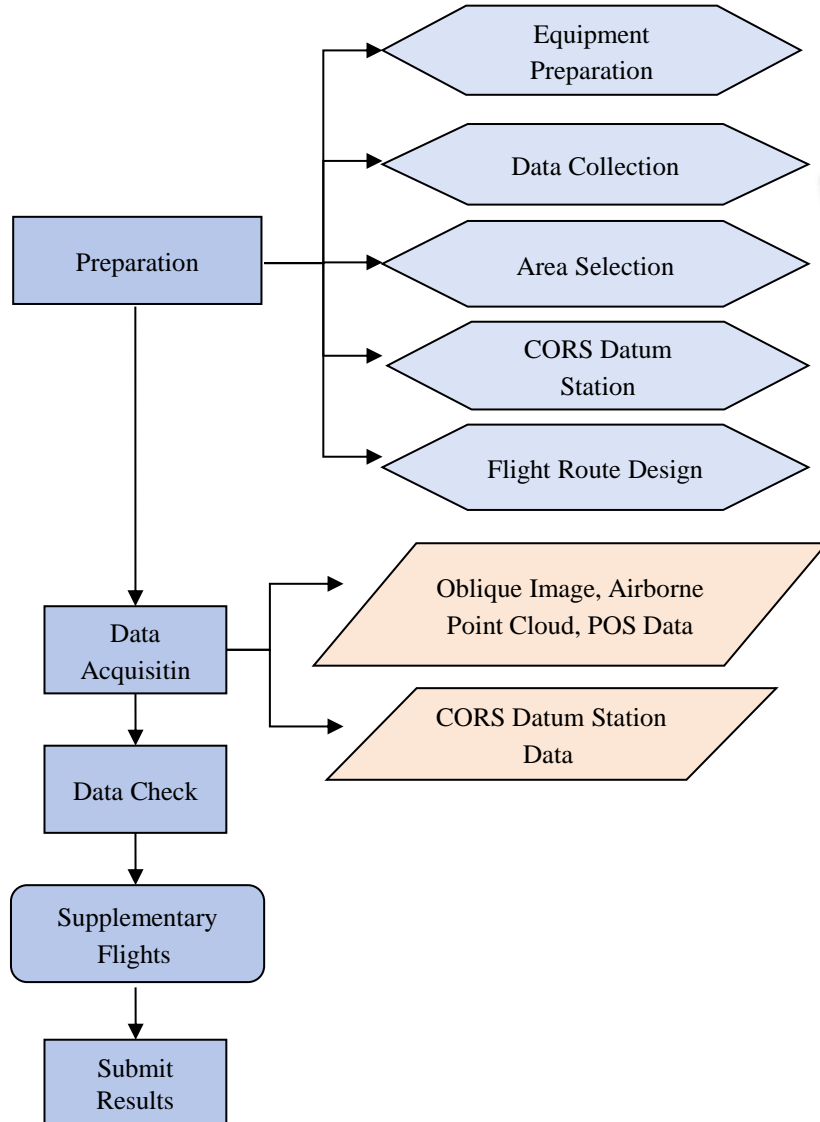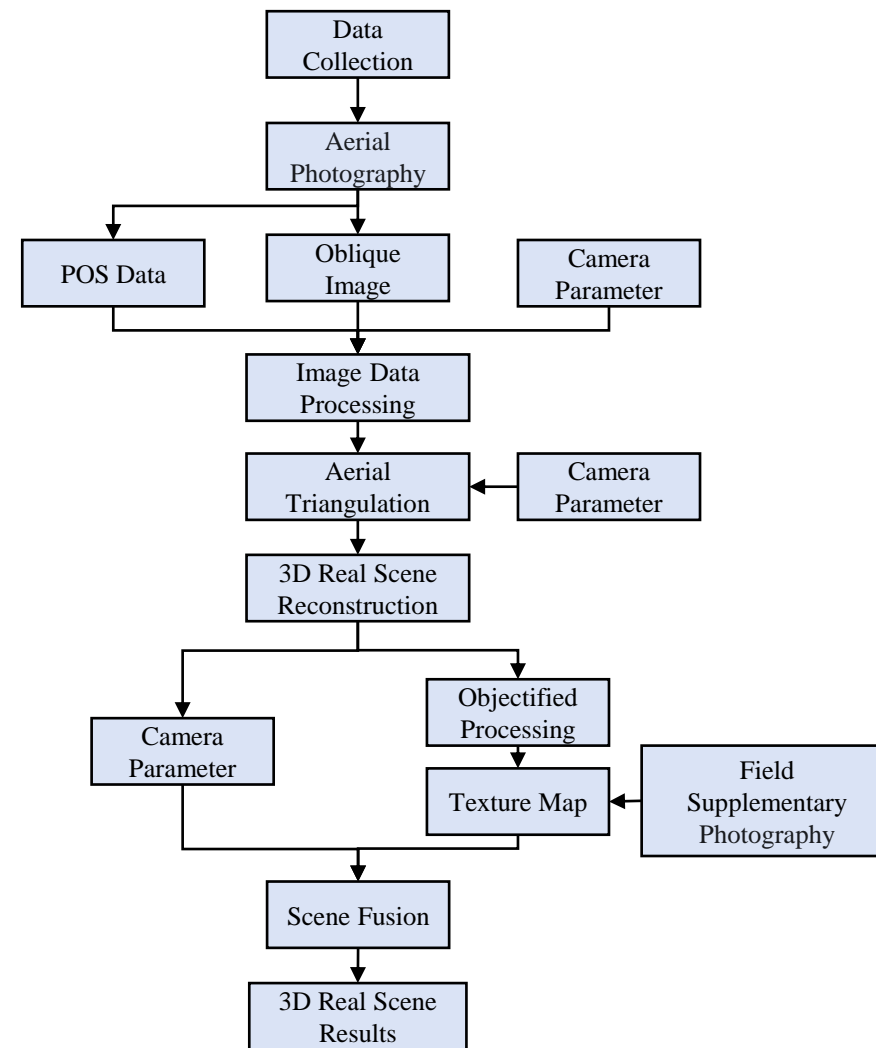
3D Real Scene Technology Solution

ReS3D V1.0

实景三维技术解决方案

Preparation
- Equipment Preparation
- Data Collection
- Area Selection
- CORS Datum Station
- Flight Route Design

Data Acquisitin
- Oblique Image, Airborne Point Cloud, POS Data
- CORS Datum Station Data

Data Check

Supplementary Flights

Submit Results
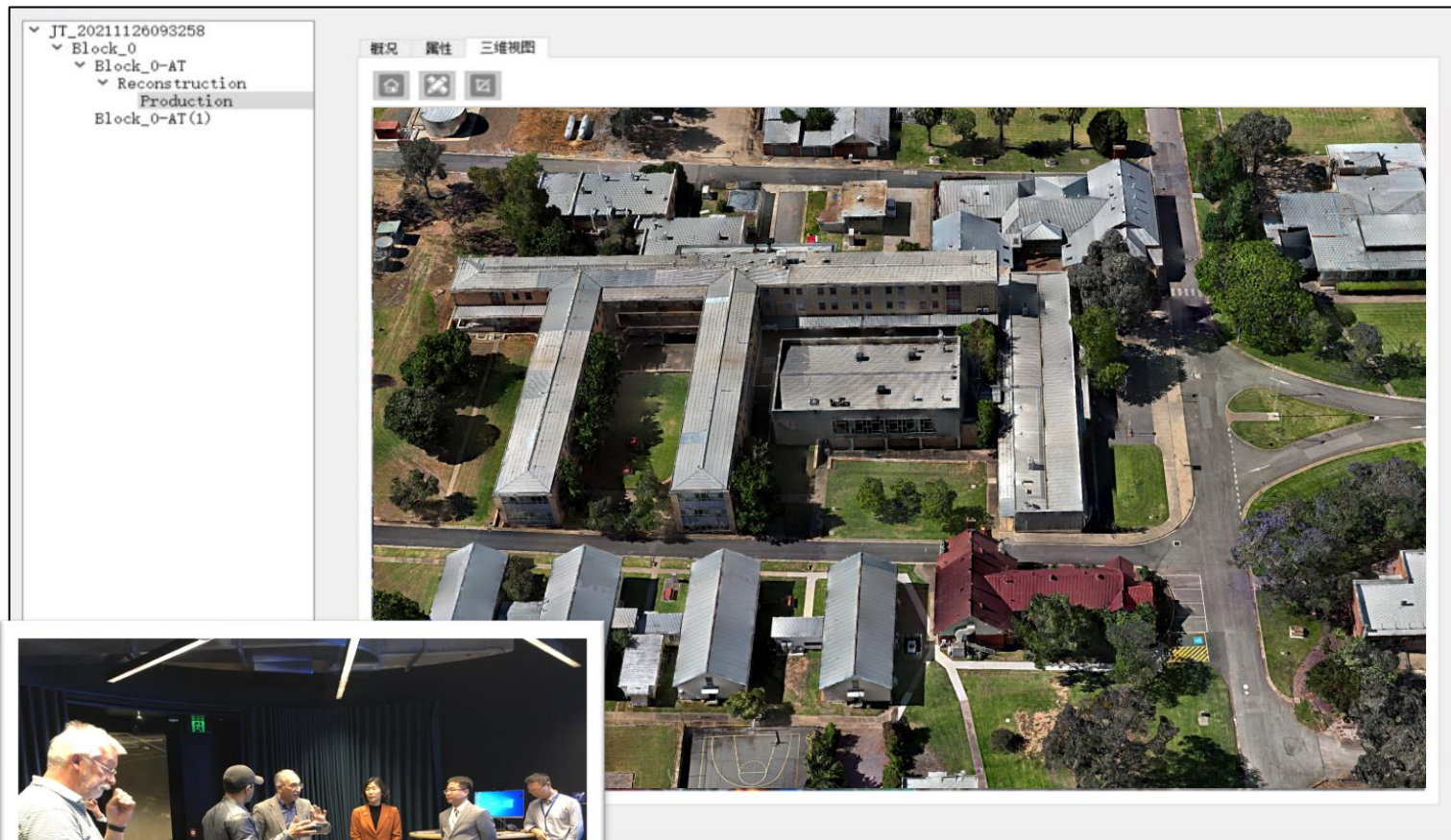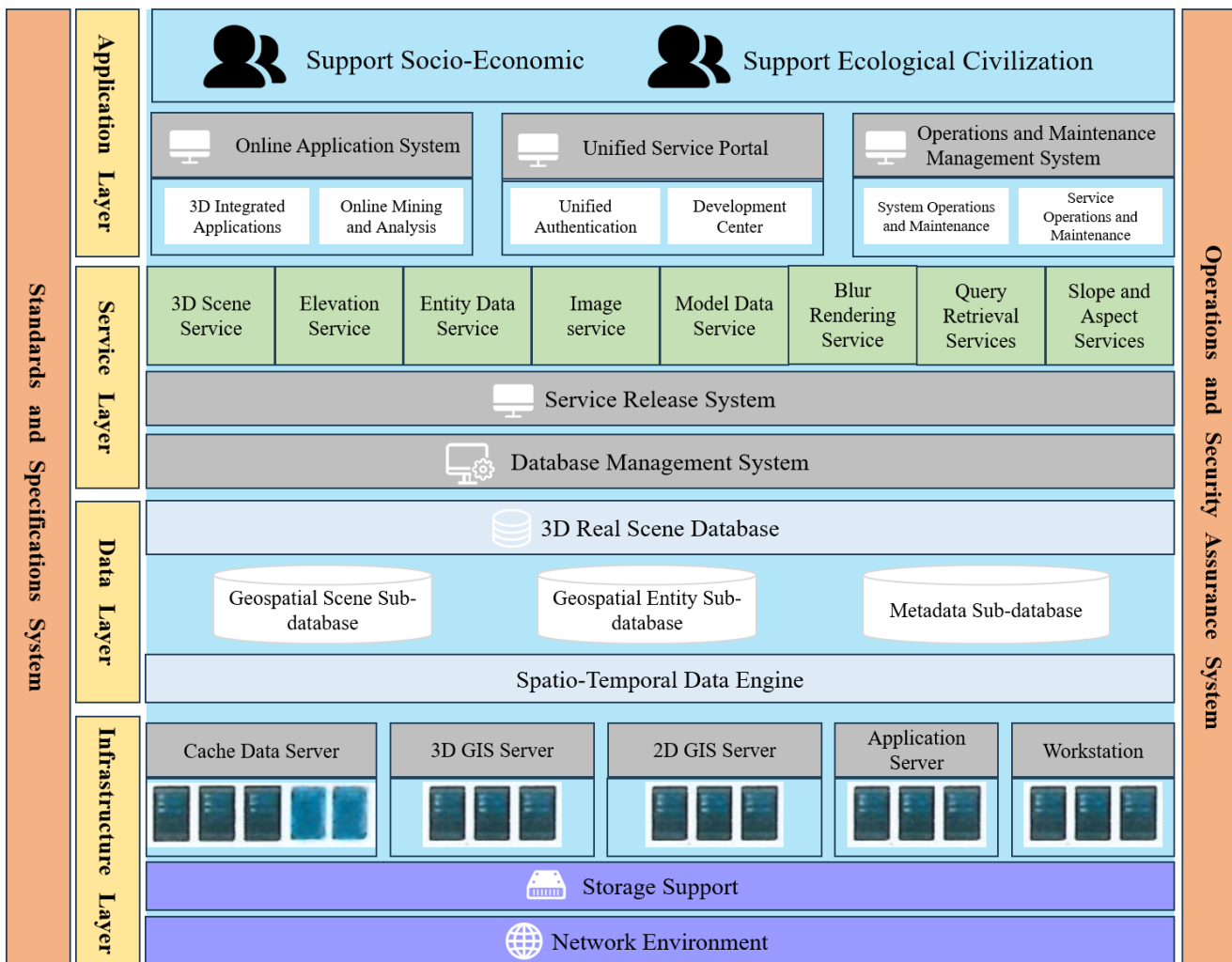
To achieve online services for large-scale, high-precision 3D Real Scene, the platform has been developed upon the ReS3D solution, focusing on data fusion, integration, and application on one spatial base layer.

为实现大范围、高精度实景三维的在线服务，建设ReS3D实景三维平台，以数据融合、平台融合、应用融合为核心，搭建智慧城市信息化基础设施，支撑基础时空要素信息和业务信息在时空底板上的承载和应用

Focusing on the practice of **Qingdao**, we **first completed the digital space** support of "**mountains, seas, cities, islands and bays integration**", forming terrain-level and city-level multi-scale 3D Real Scene covering the entire **Qingdao**, with **730 km coastlines, 49 bays, and 46 islands** at the headquarters. It truly restores Qingdao's natural geographical pattern and urban style characteristics, **provides the city with the sole and authoritative 3D digital spatial foundation**.

聚焦青岛实践，率先完成"山、海、城、岛、湾一体"的数字空间底座，形成了覆盖青岛市全域地形级、城市级多尺度实景三维场景，涵盖730千米海岸线、49个海湾、46个海岛，真实还原了青岛的自然地理格局和城市风貌特色，为全市提供了唯一、权威的三维数字空间底座

Empowering Various Sectors in Qingdao: As the **Sole and Authoritative Digital Spatial Foundation of Qingdao, 3D Real Scene Qingdao** is open and shared across **40+ Sectors**, and provides geographic information public services for **100+ Digital Application Scenarios** in the city. With annual visits exceeding **100 million times**, it has established a **best practice for ReS3D in cities.**

赋能千行百业，作为青岛市唯一、权威的数字空间底座，成果对全市 40 多个领域开放共享，为全市百余个数字化应用场景提供地理信息公共服务，平台服务年访问量 1 亿次以上，打造了ReS3D应用实践最近范例城市。

服务智慧城市建设
Support Smart City Construction

服务智慧港口建设
Support Smart Port Construction

ReS3D V1.0 Best Practice in Cities

White Paper

On Promoting Qingdao's High-Quality Development

实 景 三 维 赋 能 青 岛 高 质 量 发 展 白 皮 书