



華東師範大學  
EAST CHINA NORMAL  
UNIVERSITY



江南大學  
JIANGNAN UNIVERSITY

Fifteenth International Academic Conference  
'Foresight and Science, Technology and  
Innovation Policy'

# Globalizing Educational Futures: Regional Practices and Foresight in China's Futures School Initiatives

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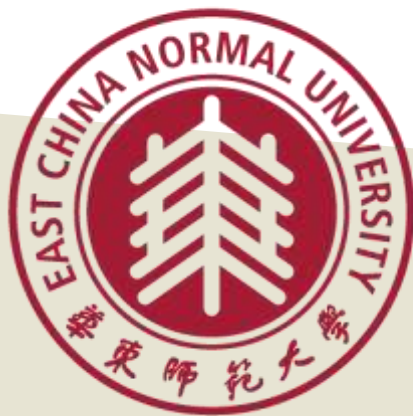
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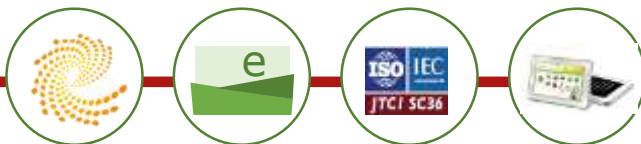
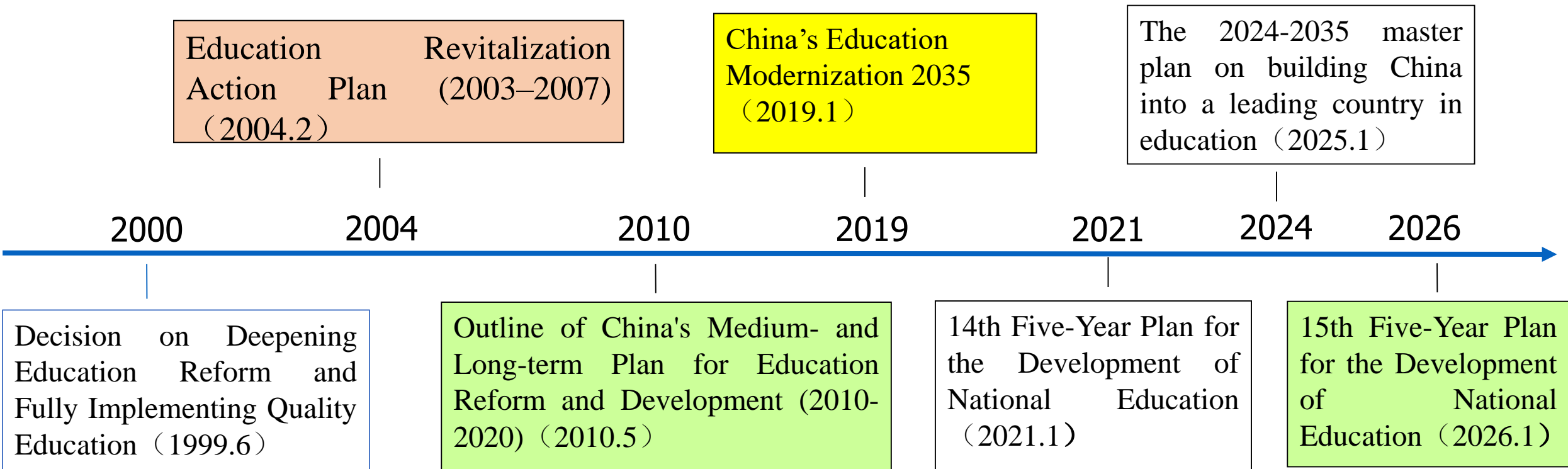
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Part **1**

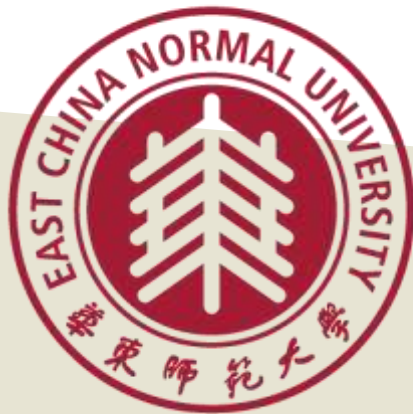
# Foresight for China's Educational Development Policies

Since the dawn of the new millennium, the Chinese government has adopted a foresight approach to planning and preparing for the future, setting goals and visions through five-year, ten-year, and fifteen-year timeframes.....



- ① Intelligent, digital, and networked;
- ② Interdisciplinary, Project-Based Learning, Core Competencies, Integration of Moral, Intellectual, Physical, Aesthetic, and Labor Education;
- ③ Science Education and Climate Education;
- ④ The school integrates with the community and harmonizes with nature, blending the tangible and intangible;
- ⑤ The High Cost of School Construction and the New Round of Teacher Professional Development.

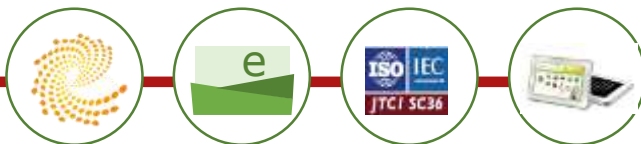
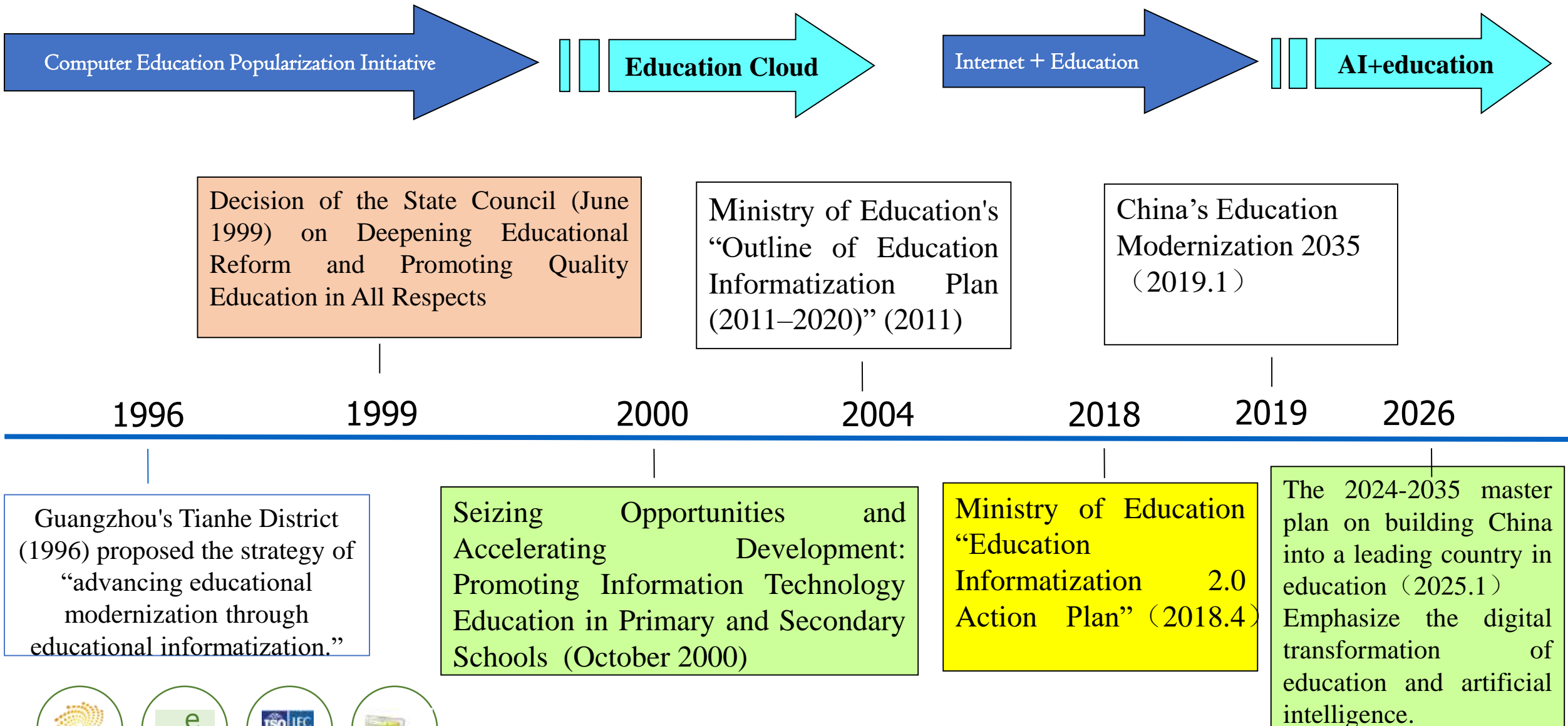


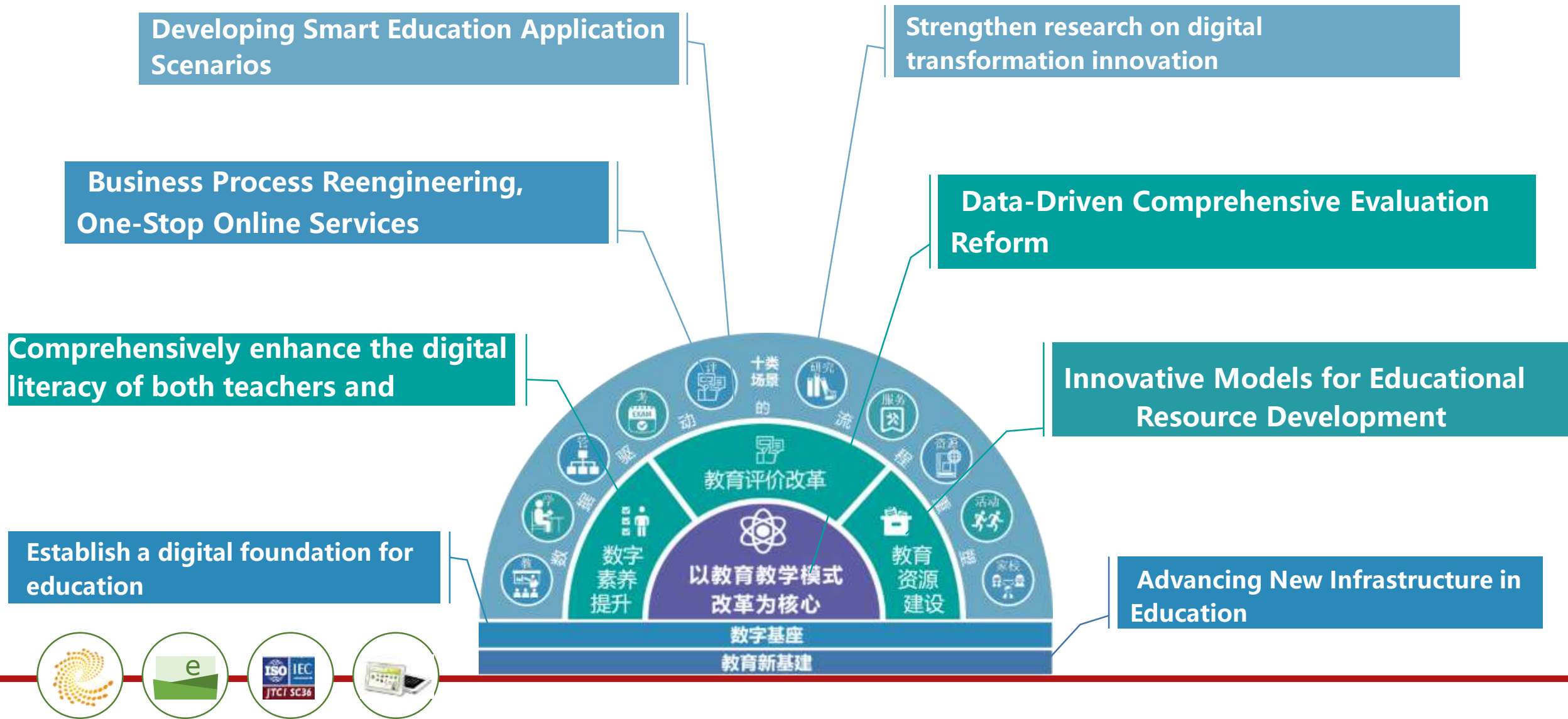


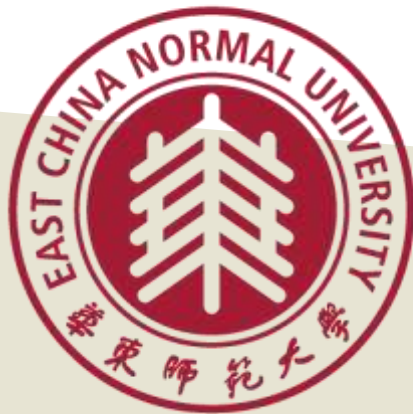
Part **2**

# The Intelligent Age and Futures Education

# I. Roadmap for the Development of Educational Informatization in China



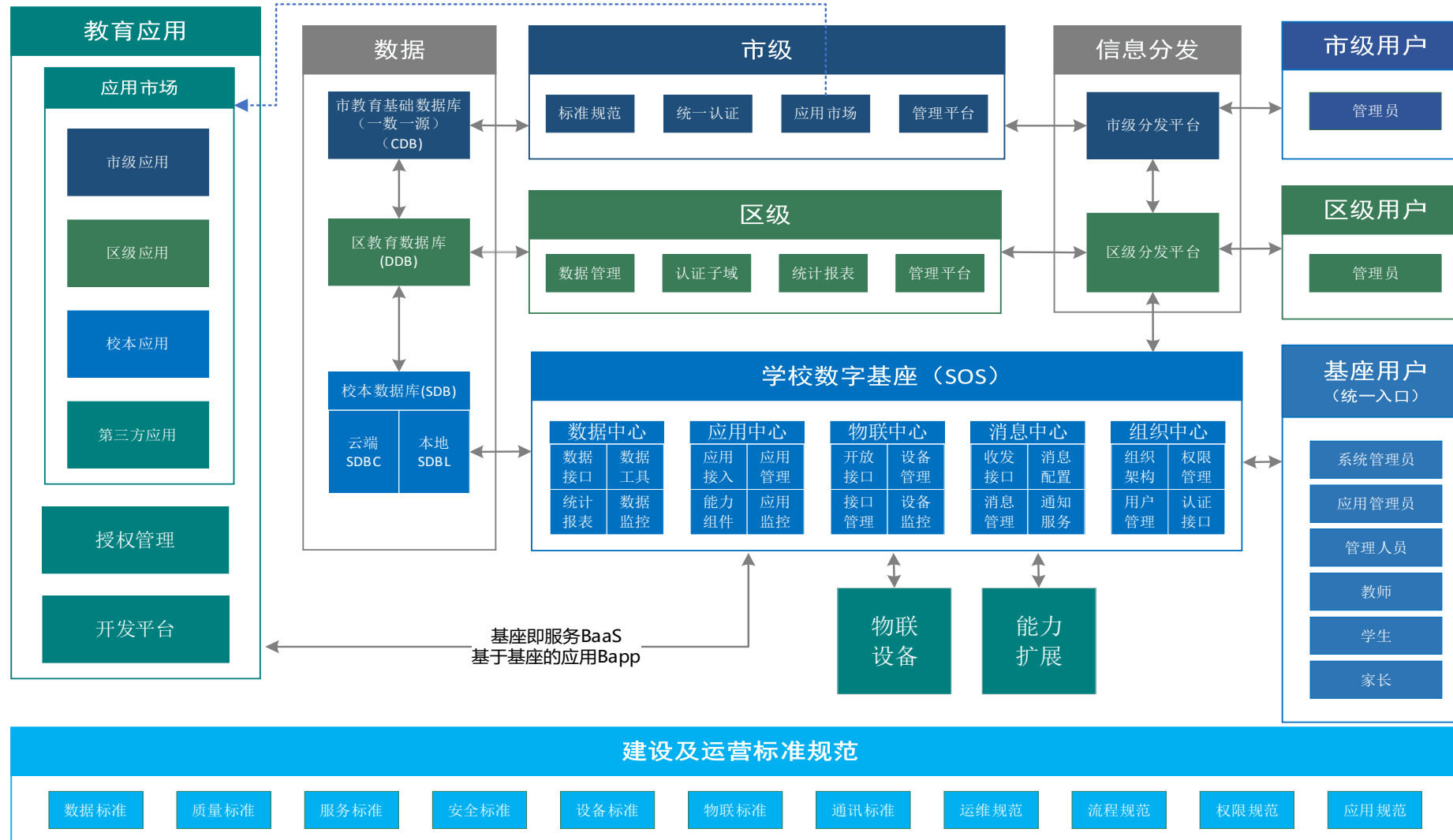




Part **3**

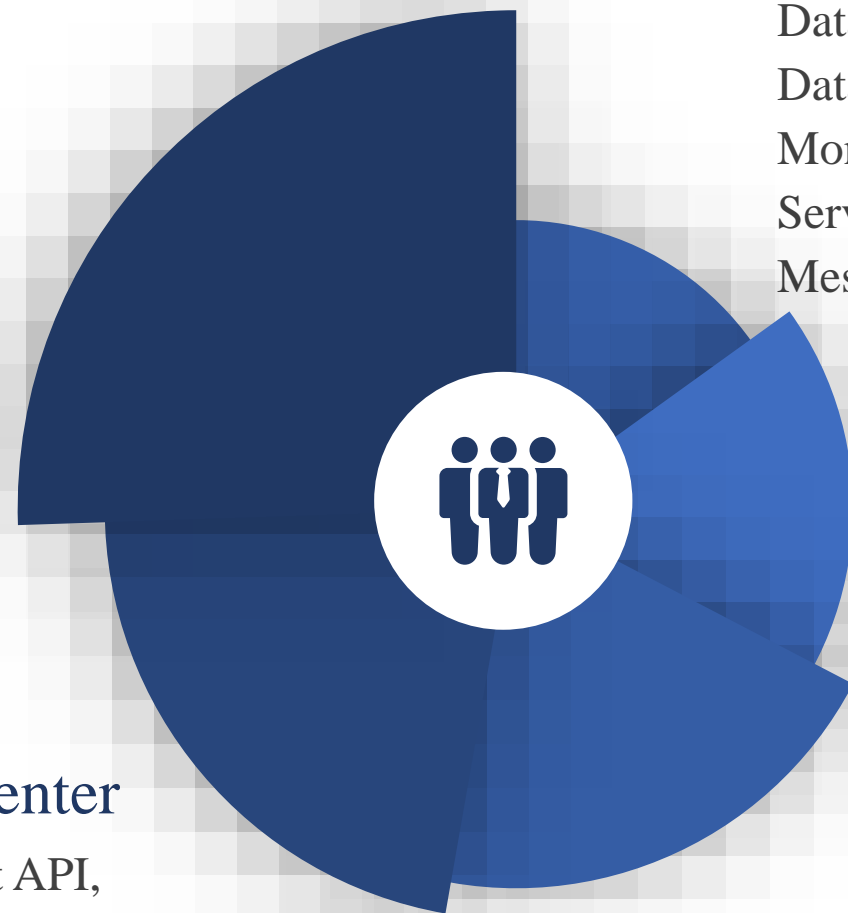
# A Typical Case Study of Digital Education in Shanghai

# I. Construction of the Digital Foundation for Education



School Digital Infrastructure Requirements and Construction Standards (Trial): October 2021





## 1. Data Center

Data Source Management API,  
Data Integration API, Task  
Monitoring Management API,  
Service Integration API,  
Message Integration API, etc.

## 2. Application Center

Query application details API, etc.

## 3. Internet of Things Center

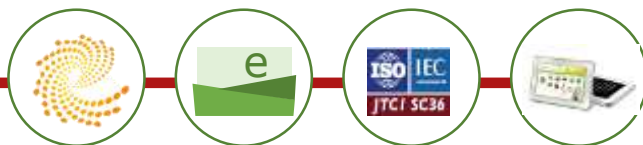
Use Case API, Interface Details API, etc.

## 4. Organizational Center

Organization Management API,  
User Management API, etc.

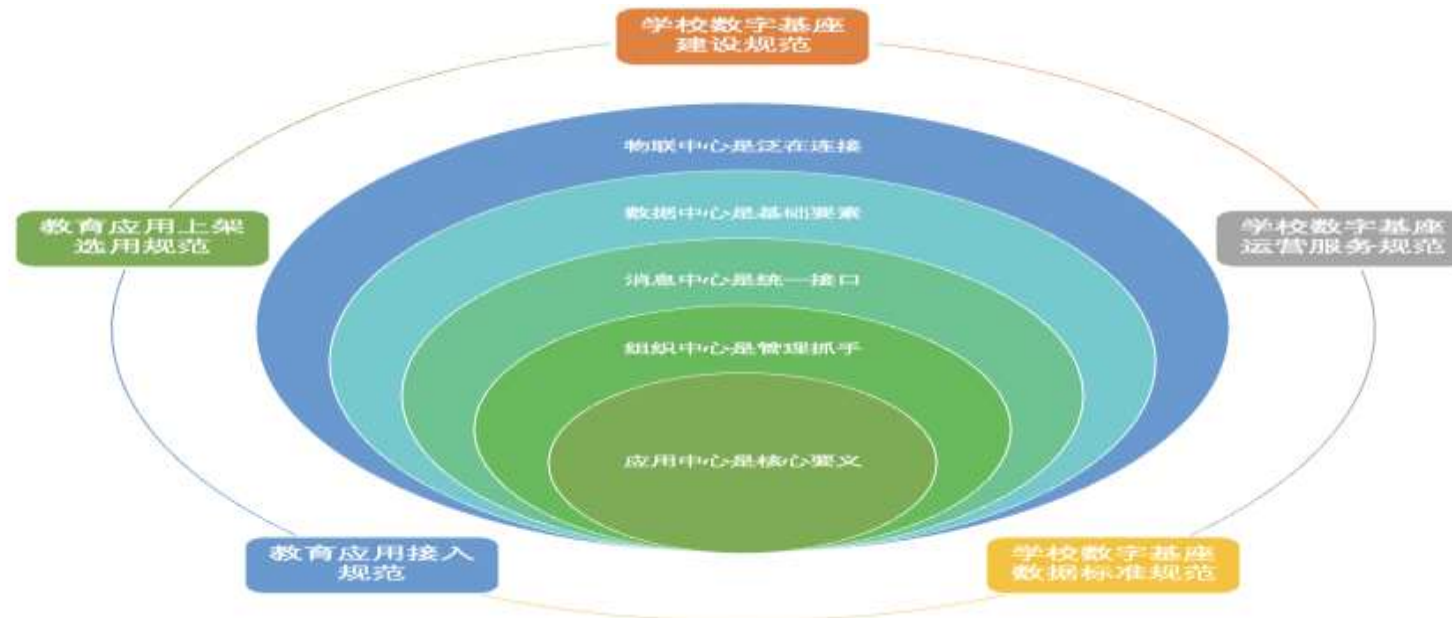
## 5. Notification Center

Use Case API, Interface  
Details API, etc.

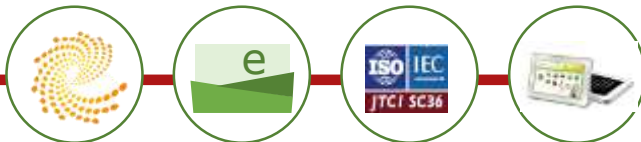


## Data Center (Data Service Capabilities)

On-demand services, nearby access



Addressing interoperability across five key areas: devices, personnel, data, messaging, and applications.



## (I) I Education Informatization Operating System

**用户空间** 提供web+移动端的工作台服务，实现统一应用访问和信息获取

**应用中心** 提供统一的接入能力和标准，支撑学校快速完成应用接入和选用

**组织中心** 对身份数据和认证统一管理，实现一次登录访问所有应用系统

**数据中心** 建设学校数据中心，辅助学校盘清数据家底以及探索数据价值应用

**物联中心** 支撑学校智能化设备的统一接入以及设备运行情况统一管理

**消息中心** 面向通知、待办等场景建立统一的短信、邮件、微信等发送消息渠道

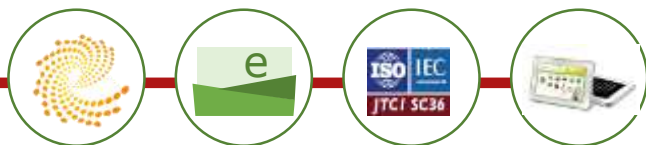
**低代码开发平台** 支撑学校参与到应用开发中，快速搭建适合学校个性化应用

## (2) Built-in Educational Scenario Applications

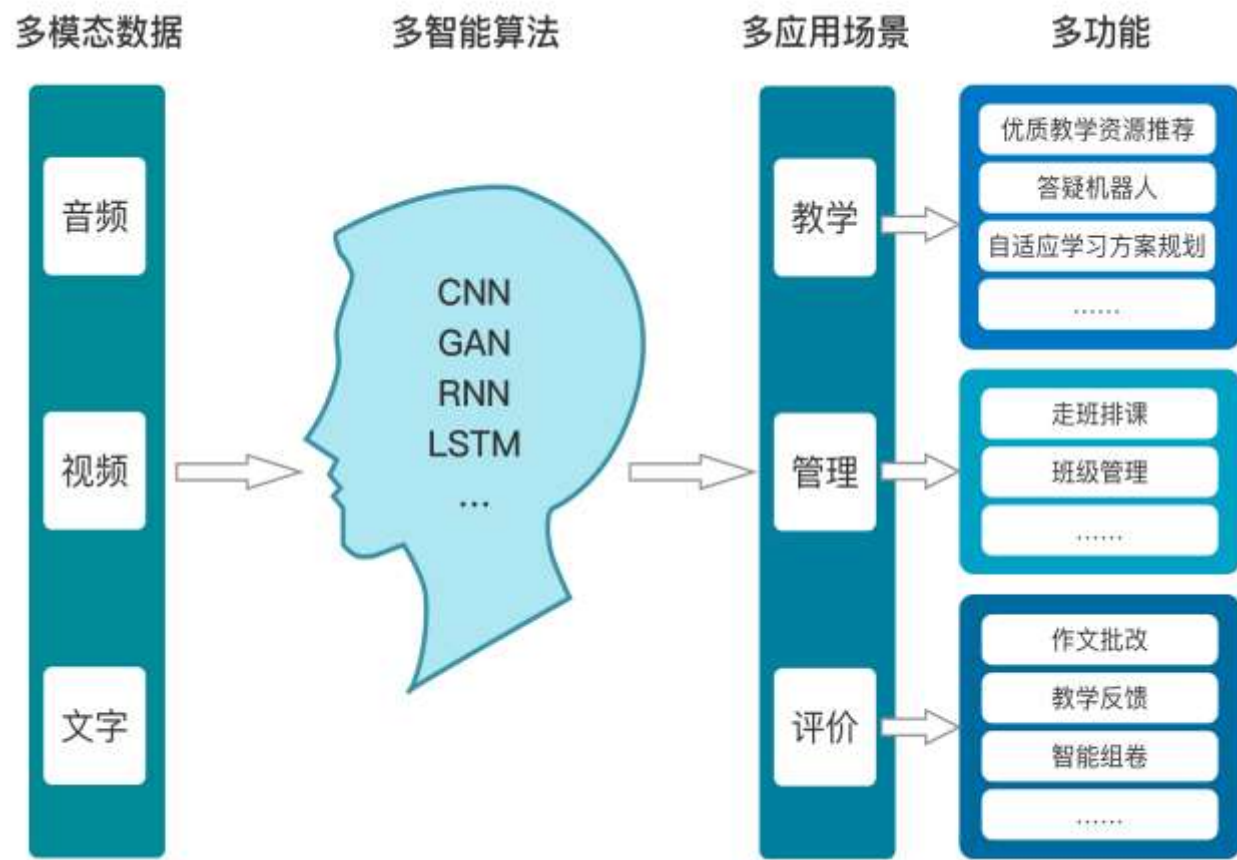
### 生态共建



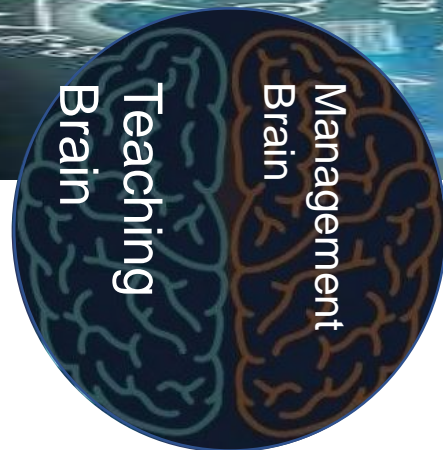
To ensure the rapid operation of the platform, Changning initially prioritized selecting premium applications as built-in features to facilitate early adoption by schools. The ecosystem capabilities developed on this platform have since continuously integrated other high-quality ecosystem applications.



## 2. Research on Artificial Intelligence Education Brain



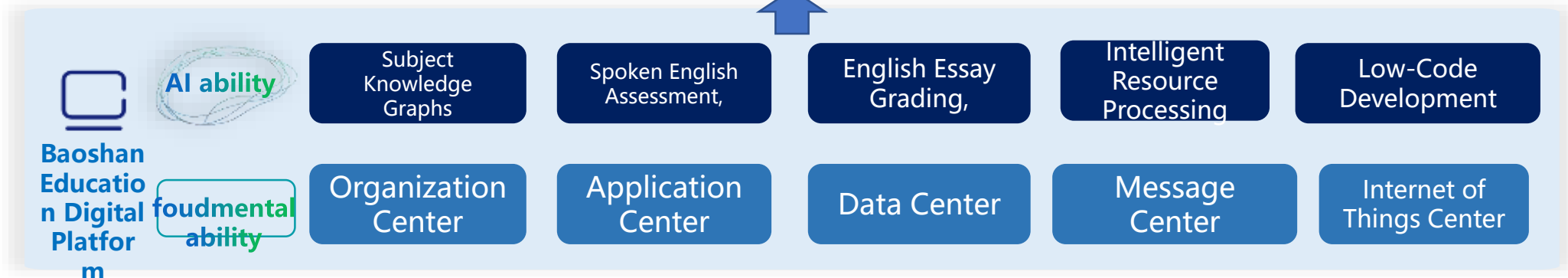
Explore the construction of brain-inspired neural networks connecting people, objects, and systems. Aggregate multi-source, multi-dimensional, and multi-modal educational big data to build an AI algorithm suite. Leveraging powerful computing capabilities, these elements combine to form the Baoshan Education Brain. Like the human brain, the **Education Brain possesses robust capabilities in understanding, interaction, emotion, computation, and decision-making, empowering diverse educational applications.**



Application  
Manufacturer



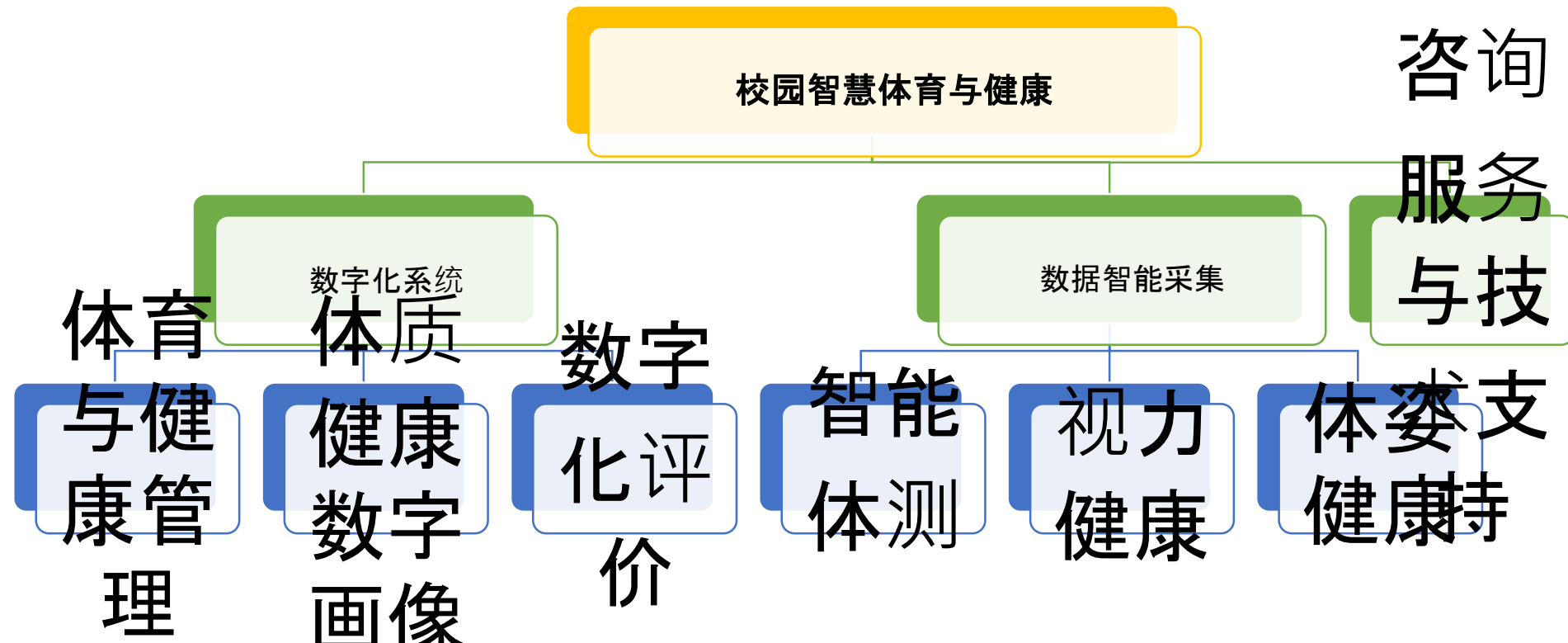
Industry expert

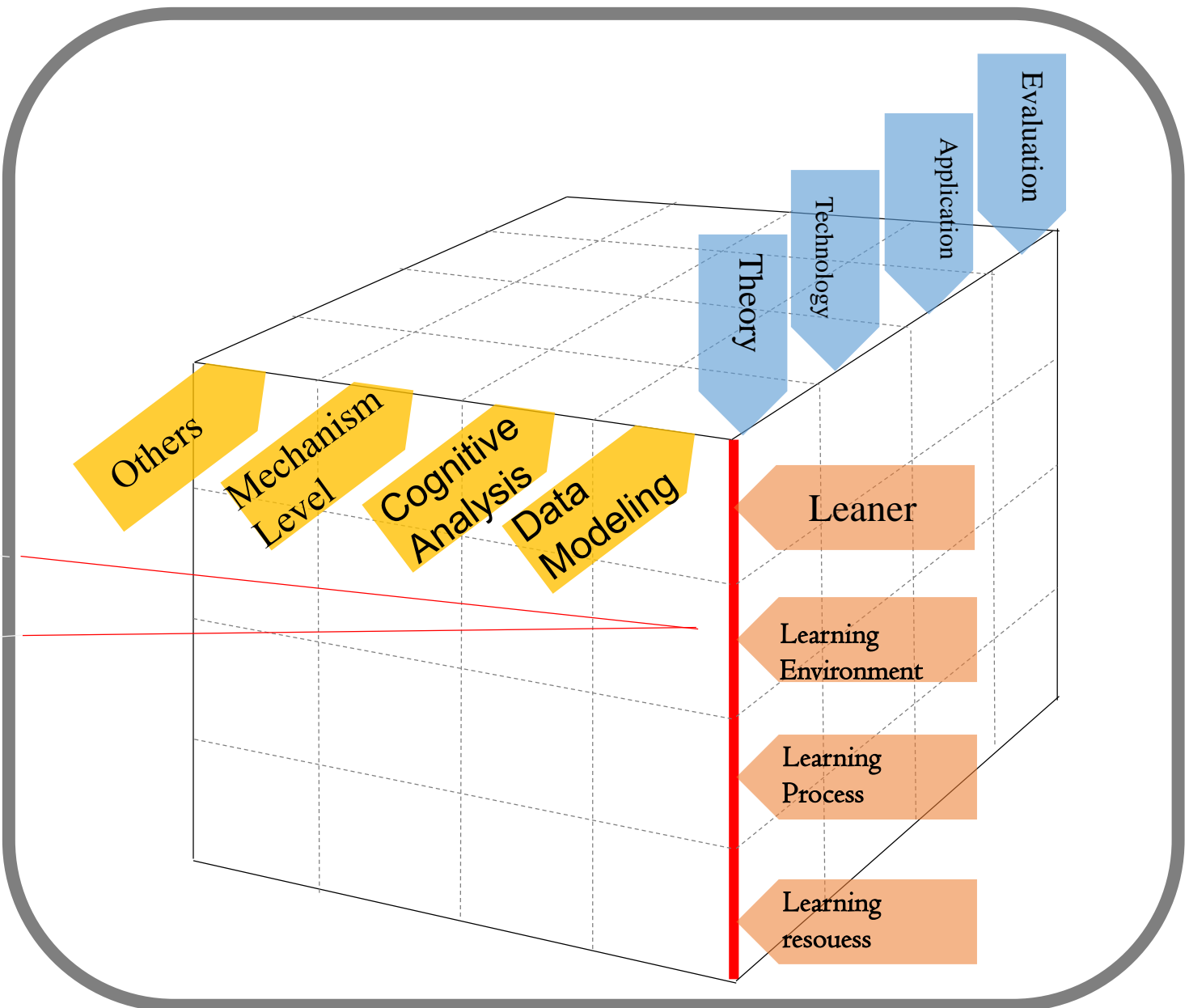
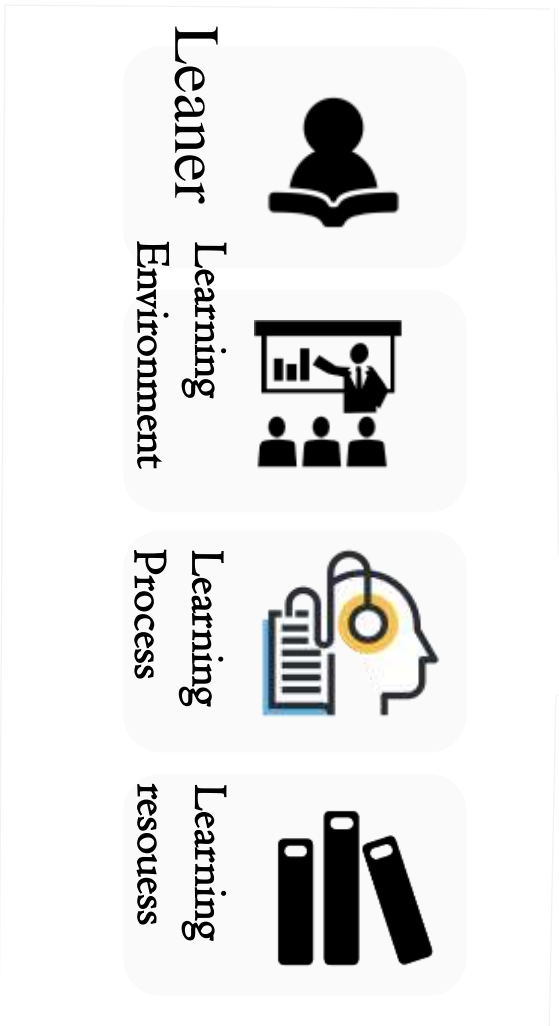


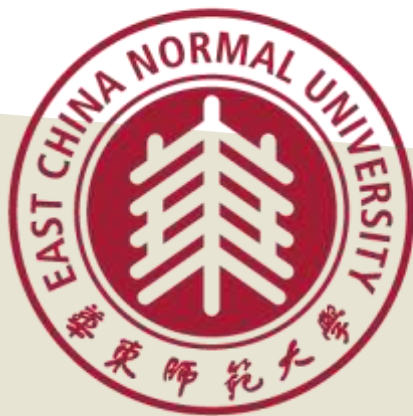
With the nation placing high priority on youth sports and health, Baoshan District is actively advancing physical education and wellness initiatives for primary and secondary school students. Through establishing four key components—a unified database, a unified image system, a unified platform, and a unified repository—the district is comprehensively implementing its smart sports project.



Smart Sports primarily encompasses two aspects: digital systems and intelligent data collection. Digital systems provide sports and health management, digital health profiles, and digital assessments. Intelligent data collection services utilize smart hardware and devices to gather data for all grade levels across the school, covering national physical fitness test items, vision health data, and posture health data (including scoliosis).







Part **4**

# Our Research Progress

# 1. Theoretical Framework: Established the “Ecological Integration” Theory for Futures School Development

## 1.1 Breakthrough in Theoretical Core: From “School Transformation” to “Ecological Reconstruction” .

- Firstly, the concept of “anticipatory future” is introduced as an analytical perspective, achieving a paradigm shift in school development theory—transitioning from an adaptive transformation “oriented toward the present” to an ecological reconstruction “oriented toward the future.”
- This clarifies that the fundamental mission of futures school is to cultivate “future creators” capable of proactively shaping tomorrow.

## 2. Innovation in Analytical Framework: The “Four Quadrants” Model of Futures School Forms

- Based on futures studies methodology, an original “four-quadrant” analytical model has been constructed with dimensions of “development orientation” and “innovation focus.”
- This model systematizes strategic choices for futures school into four quadrants: “Endogenous Foundation-External Expansion & Integration” and “Technology Empowerment-Humanistic Care.” It provides a robust theoretical framework and analytical tool for understanding and creating diverse school models, fundamentally avoiding the pitfall of uniformity.



### 2050 年中国未来学校的四种发展场景

#### 场景 1——地方主导与层次治理的教育联盟集团

- 一、场景描述
  - (一) 背景与治理结构
  - (二) 主要特征
  - (三) 制度运行与关键挑战
- 二、场景故事
  - (一) 2050 年教师的一天
  - (二) 2050 年一位校长的学期工作

#### 场景 2——社会共治与多元协作的教育生态联合体

- 一、场景描述
  - (一) 背景与治理结构
  - (二) 主要特征
  - (三) 制度运行与关键挑战
- 二、场景故事
  - (一) 2050 年一位校长的学期工作

#### 场景 3——政府引导与市场协同的教育协同体

- 一、场景描述
  - (一) 背景与治理结构

#### 场景 3——政府引导与市场协同的教育协同体

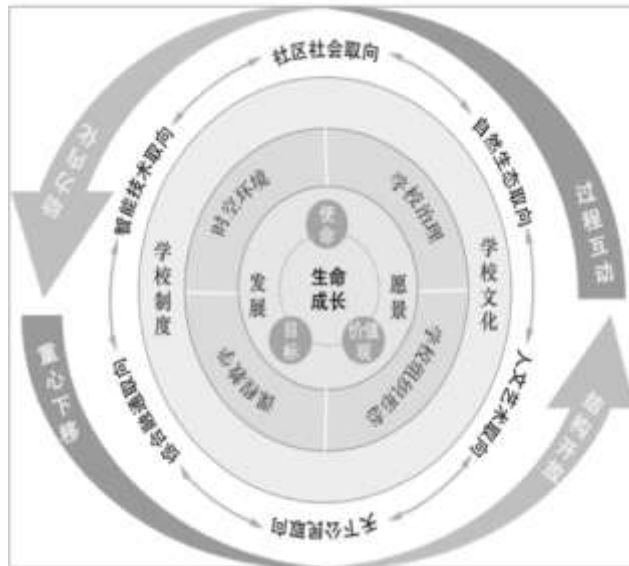
- 一、场景描述
  - (一) 背景与治理结构
  - (二) 主要特征
  - (三) 制度运行与关键挑战
- 二、场景故事
  - (一) 2050 年一位小学校长的一天生活

#### 场景 4——科技赋能与集中管理的个性化教育生态体

- 一、场景描述
  - (一) 背景与治理结构
  - (二) 主要特征
  - (三) 制度运行与关键挑战
- 二、场景故事
  - (一) 2050 年学生李永的一周
  - (二) 2050 年陈老师的一周
  - (三) 2050 年王校长的一周
  - (四) 2050 年王校长的一周

## 2. Standard System: Developed a future school construction tool that equally emphasizes “diagnosis and guidance.”

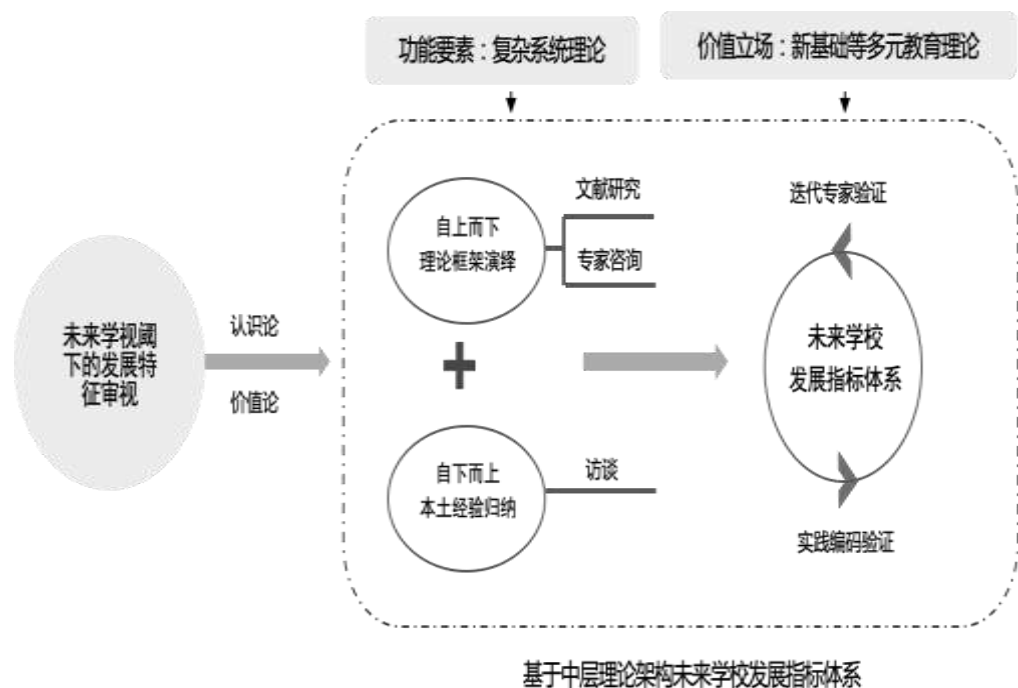
### 2.1 Developed a forward-looking development framework for China's future schools



维度 (7)	领域 (24)	核心聚焦 (48)
发展愿景	1-1 发展使命 1-2 发展价值观 1-3 学生发展 1-4 发展目标	从“国家使命-时代需求-个体潜能”三重尺度勾勒愿景与目标
时空环境	2-1 时间配置 2-2 空间配置 2-3 ICT配置	弹性课时 × 边界融通空间 · 兼顾绿色与 ICT 底板
学校治理	3-1 治理目标 3-2 治理策略 3-3 数据化循证	共治愿景、扁平策略与数据驱动决策三位一体
课程教学	4-1 课程设计 4-2 课堂教学 4-3 学习方式	素养导向课程、互动课堂与项目化学习深度融合
学校组织形态	5-1 组织理念 5-2 内部形态 5-3 外部形态	动力内化-结构开放-跨界协同的“三段式”形态重构
学校制度与文化	6-1 学校制度 6-2 学校文化	民主透明制度 + 和谐多元文化 · 形成制度-文化耦合
学校特色取向	7-1 智能技术取向 7-2 社区社会取向 7-3 自然生态取向 7-4 人文艺术取向 7-5 天下公民取向 7-6 综合融通取向	以六大特色赛道支撑区域与校本差异化办学

## 2. Standard System: Developed a futures school construction tool that equally emphasizes “diagnosis and guidance.”

2.2 Developed a foresight indicator system for China's futures school



Developed a foresight indicator system for China's futures school (partial examples)

维度	指标	指标要素
二、 时空 环境	2-1 时间配置	<ul style="list-style-type: none"> <li>学年配置：循年段之需，依据儿童年段特点和成长所需，在中小學生低、中、高配置入学、放学、作息、学习、作业等动态灵活的长短时间。顺四时之序，将儿童成长节奏与四季变化的自然节律相匹配，动态配置合理的入学、放学、学习、假期、旅行等。（2-1a）</li> <li>课时配置：增加弹性化时间，学校能根据课程多样性及学生发展需要，灵活弹性安排学习时间，促进课程多样化实施及学生的自主性发展。优化时间流程，通过教学流程重构与时间分配弹性优化，以适应不同学生的学习需求和学习节奏，满足学生个性化发展需要。（2-1b）</li> <li>多样配置：多进程时间支持，允许学生在特定时间段内选择自己感兴趣的课程或活动参与，方便学生进行多任务协同学习。拓展学习时空，为学生综合性学习与实践性学习提供多线时间支持，融合课内外时间，提供更多的时间选择。（2-1c）</li> </ul>
	2-2 空间配置	<ul style="list-style-type: none"> <li>边界融通：通过数字技术实现教师、学生、家长乃至社会之间的互联互通，促进不同教育主体间的协作。打破学校边界，融合多元教育场域与空间，为学生提供多样化的非正式学习场景。（2-2a）</li> <li>功能创新：学校通过设立多类型、可变换、可组合的弹性创新空间，满足学生深度创新的多样化需求。利用人工智能、物联网等技术，创设多场景实景体验，建构沉浸式互动空间，促进学生创新精神与实践能力的培养。（2-2b）</li> <li>文化彰显：学校空间环境体现中华优秀传统文化的美感和精神内涵，营造彰显学校特色的空间育人文化。在学校环境中融入绿色可持续发展理念，营造绿色、健康、优美的校园环境，尊重学生的文化差异，促进学生多元文化理解 and 交流。（2-2c）</li> </ul>

# 3. Developed a “dual-layer toolkit system” to support the school's continuous reform and future innovation.

- School Developmental Assessment Form (Diagnostic)
- Futures School Forward-Looking Development Framework and Indicator System (Guiding)

Table 1 School Formative Assessment Checklist

一级维度	二级指标	关键描述要点	等级说明 ( A/B/C)
一、学校治理	校长领导力	能清晰阐释改革愿景·具备引领学校发展的战略能力	A：引领性突出；B：较为清晰；C：一般
	组织建设	结构扁平化、协同运行机制完善	A：高效协同；B：较为顺畅；C：待优化
二、教师发展	教研文化	团队具备持续研究性·教研与课堂改进紧密结合	A：主动研究；B：定期研讨；C：零散活动
三、课堂教学	课堂生成	教师能基于学生经验组织学习·课堂生成性突出	A：生成显著；B：部分体现；C：欠缺生成
四、学生成长	班级生态	班级制度民主共治·学生自主管理能力提升	A：形成文化；B：初步建立；C：依赖教师

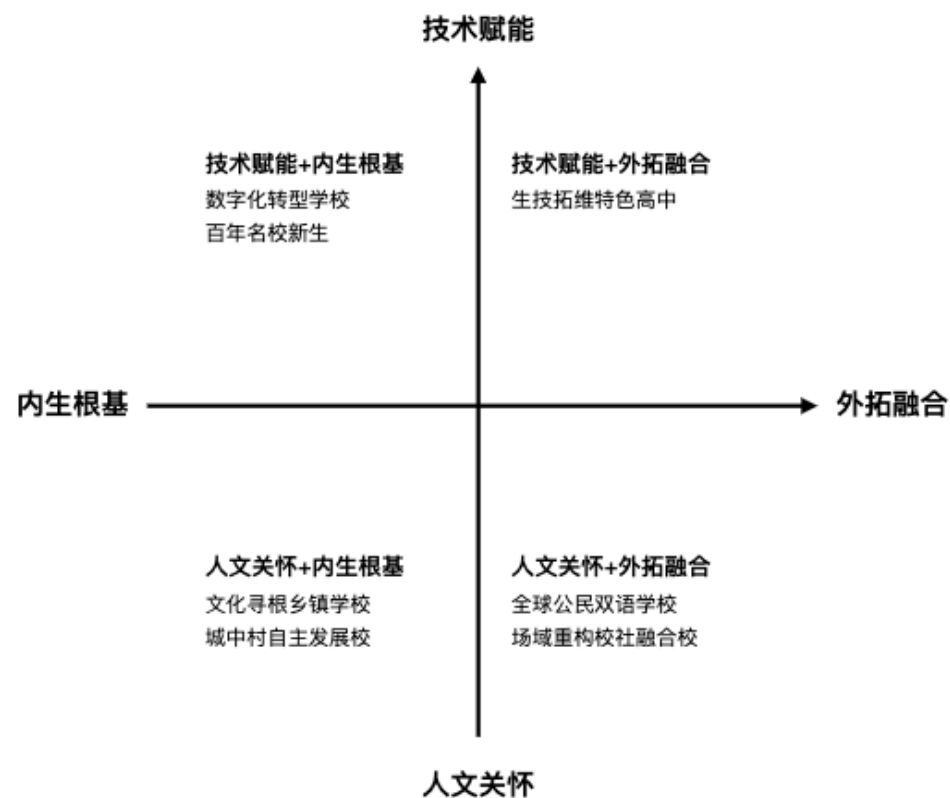
Table 2: Framework of Forward-Looking Development Indicators for Future Schools (Excerpt)

一级维度	二级指标 (示例)	指标要点 (观测点)
发展愿景	育人使命与路线图	● 育人目标与区域战略一致；阶段性目标与监测点清晰；利益相关者共识化
课程教学	学习方式与评价	● 项目化/跨学科；证据为本评价与Rubric；生成性学习档案
学校治理	共治机制与透明度	● 校长负责+民主参与；数据公开与问责；学生/家长议题参与
组织形态	扁平协同与网络化	● 中层赋权；跨学科团队常态化；临时项目型组织运行
制度与文化	发展性制度与生成文化	● 激励导向制度；反思—改进闭环；“失败可讲述”的创新文化
时空结构	学习时段与场域重构	● 块状时段/项目周；校内外学习场地开放与预约机制；15分钟学习生活圈
数智支持	智能平台与数据伦理	● 学习分析与精准支持；教学/治理一体平台；隐私保护与数据治理规范
特色取向	学校品牌与场景创新	● 围绕地方资源与学校禀赋形成可持续特色（如生态科技、数智课堂、社区枢纽）；可展示、可迁移

### (3) Practical Outcomes: Established a “multicultural symbiosis” model for future schools.

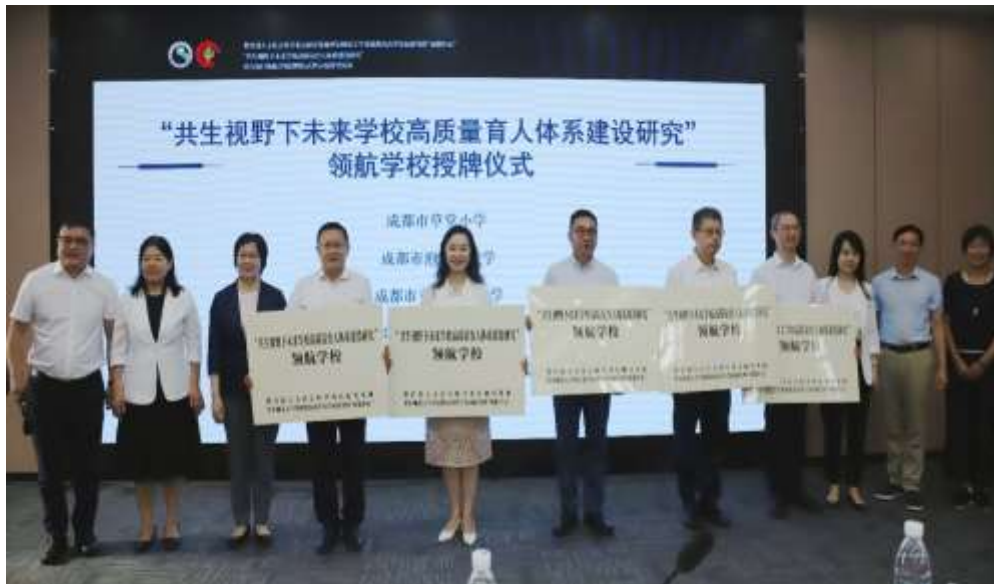
Based on the theoretical model, ten distinctive futures school have been successfully cultivated, comprehensively covering the “four-quadrant” model and forming a complete practical spectrum.

All manifestations validate the practical pathway of deeply integrating “life growth (intrinsic value) – ecological integration (systemic structure) – digital intelligence empowerment (innovative momentum),” signifying the emergence of a holistic new ecosystem for nurturing talent.



# Chengdu Qingyang District: Research on High-Quality Education in Futures School

- Partner Schools: Shanghai, Wuxi, Chengdu, et al, **over 20 others**
- Cooperation Areas: Bao'an District and Guangming District, Shenzhen; Nanhai District, Foshan; Qingyang District, Chengdu; Minhang District, Shanghai;



# Chengdu Caotang Primary School: Building a Museum-Style School



# Hangzhou Caihe No. 2 Primary School: Building Schools Within Communities, Communities Within Schools



# Shanghai New World Experimental Primary School: Technology Empowers Student Learning



# NO.2 High School of Shanghai Normal University: Cultivating Eco-Guardians



# Wuxi United International School: The World as Curriculum, Exploration as Path



