

IMA（第十五届）校园管理会计案例大赛

区域决赛案例

双语版

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立达信的抉择：传统照明与智能物联网的转型之路

LEEDARSON's Choice: The Transformation Path from Traditional Lighting to Smart IoT

第四幕：关于物联网技术与应用的讨论

Act IV Discussion on IoT Technology and Applications

2024年3月某晚，随着智能物联技术从传统“边-管-端-云-用”架构向“通感智值”新一代升级，技术部申请追加2024年的研究预算，而物联网业务部的主管们却承担着增收节支的目标，就如何平衡技术投入与企业价值的关系，物联网事业部展开了一场关于物联网技术与应用的讨论（背景资料见附录六）¹。

In March 2024, as intelligent IoT technology was upgrading from the traditional “Edge–Network–Device–Cloud–Application” architecture to the new-generation “Integrated Connectivity, Sensing, Intelligence, and Value” model, the Technology Department applied for an increase in the 2024 R&D budget. Meanwhile, the IoT Business Division was under pressure to increase revenue and reduce costs. To address how to balance technological investment with corporate value, the IoT Division initiated a discussion on IoT technology and its applications (see Appendix VI for background information).

物联网业务一部黎总率先发难：“目前海外端侧出货还是在稳定贡献现金；国内智慧校园再热闹，账面营收不高，研发却吃掉55%预算。这故事怎么跟资本市场讲？”

Mr. Li from IoT Division I, spoke first: “Currently, overseas device-side shipments are still generating stable cash flow. However, no matter how active the domestic smart campus market appears, its recorded revenue remains limited, while R&D consumes 55% of the budget. How do we explain this story to the capital market?”

物联网业务二部主管刘总，把电脑转向大家，点开地图：“要看增速不看占比！我们校园样板扩大1000所学校，单校合同额在增加，除了当前的方案收入，后续年年还有运维收入，明年就能贡献30%现金流。”

Mr. Liu from IoT Division II, turned his laptop toward the group and opened a map: “We should focus on growth rate, not current proportion! Our smart campus pilot projects have expanded to 1,000 schools, and the contract value per school is increasing. Beyond the current solution revenue, there will be recurring annual maintenance income. By next year, this segment can contribute 30% of cash flow.”

技术总监温总，调出通感智值架构图：“AITO的技术在升级，端侧红利在衰减。人工智能融合感知设备，决策权向消费侧转移。智能物联2.0的‘通感智值’要求传感、通信、算力、价值四位一体，芯片+模型+场景同时迭代。现在不投入，27%毛利会掉到15%。”

Technical Director Mr. Wen displayed the architecture diagram of the “Integrated Connectivity–Sensing–Intelligence–Value” system: “AITO technology is upgrading, and the device-side dividend is diminishing. Artificial intelligence is integrating with sensing devices, and decision-making power is shifting toward the consumption side. IoT 2.0 requires the integration of sensing, communication, computing power, and value creation—chips, models, and application scenarios must iterate simultaneously. If we do not invest now, the 27% gross margin will drop to 15%.”

¹ 情景对话为虚构，背景资料取自公开资料

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财务总监夏总：“我不管技术名词，只盯 ROI。2023 年智慧校园研发支出上亿，回款只有几百万，净现金是负数；若 2024 年再追投 0.8 亿做通感智值，现金流缺口谁补？利润增长谁来保？黎总你那边端侧能再‘献多少血’？”

CFO Mr. Xia stated: “I’m not concerned about technical terminology; I focus on ROI. In 2023, R&D expenditure on smart campuses exceeded 100 million RMB, while collections were only several million, resulting in negative net cash flow. If we invest another 80 million RMB in 2024 for this upgrade, who will fill the cash flow gap? Who will ensure profit growth? Mr. Li, how much more can your device-side business ‘bleed’?”

黎总耸肩：“海外市场波动性大，代工价格血拼，再抽血就要命了。”

Mr. Li shrugged: “The overseas market is highly volatile, and OEM pricing competition is fierce. Further extraction would be fatal.”

智慧校园产品经理章总，切屏到“校园 AI 平台”：“给各位看实时数据：AI 自动标注让训练时间从 7 天缩到 4 小时，一人可管 200 路摄像机，单校年省人工成本 18 万。本地 AI 告警替代保安巡逻，单校年省人工 16 万；如果把“智能节电算法”再用上，消费端的成本节约可观。不过，我们的收费方式要调整，不能只管卖设备，要看订阅。用户享受的是智能服务结果，而不是物料。如果按 SaaS 收费，按 50 所学校测算，年订阅收入 2100 万，现金流立刻转正。”

Mr. Zhang from Product Manager for Smart Campus, switched to the “Campus AI Platform” screen: “Let me show you real-time data. AI auto-labeling has reduced training time from seven days to four hours. One person can now manage 200 camera feeds, saving 180,000 RMB per school annually in labor costs. Local AI alerts can replace security patrols, saving another 160,000 RMB per school per year. If we also implement intelligent energy-saving algorithms, cost reductions on the consumer side would be significant. However, our pricing model must change. We cannot rely solely on hardware sales; we need subscription-based revenue. Customers value intelligent service outcomes, not physical equipment. If we adopt a SaaS model and calculate based on 50 schools, annual subscription revenue would reach 21 million RMB, immediately turning cash flow positive.”

算法工程师叶工：“‘智能服务订阅’模式是持续性的，传统一次性交易变成长尾收入，通过技术不断复利。同时个性化的数据资产，在隐私安全合规的前提下也能让用户生态壁垒更加牢固。另外，模型一次训练投入虽然大，但是可以多校复制，边际成本 ≈ 0 ，后续现金延续不断，躺着也能数钱。而且我们的技术也可以支持黎总的硬件升级。”

Algorithm Engineer Mr. Ye added: “The ‘intelligent service subscription’ model is continuous in nature. Traditional one-time transactions become long-tail revenue streams, compounding through ongoing technological upgrades. Meanwhile, personalized data assets—under privacy and compliance requirements—can strengthen ecosystem barriers. Although model training requires substantial initial investment, it can be replicated across multiple schools with near-zero marginal cost, generating continuous cash inflows. Moreover, our technology can also support hardware upgrades in Mr. Li’s division.”

战略部周总：“技术升级，产业链就会重构。技术必须绑定商业模式。建议‘硬件一次性+SaaS 订阅+数据增值’三层收费：多层次多方式扩展收入，确保研发市场化转化率。”

Mr. Zhou from Strategy stated: “When technology upgrades, the industrial chain is restructured. Technology must be integrated with the business model. I propose a three-tier revenue model: ‘One-time hardware sales + SaaS subscription + data value-added services.’ This multi-layered approach expands revenue streams and ensures the commercialization

conversion rate of R&D.”

财务小张现场打开 Excel，投到白板：“如果方案增加应用到百所学校，预测结果是：硬件收入 4.8 亿（毛利 27%），SaaS 0.9 亿（毛利 65%），数据增值 0.15 亿（毛利 80%），合计 5.85 亿，研发摊销 0.7 亿，净现金流入增加上亿，投资回报符合目标！”

Finance Analyst Mr. Zhang projected an Excel model onto the screen: “If the solution is implemented in 100 schools, the forecast shows: hardware revenue of 480 million RMB (27% gross margin), SaaS revenue of 90 million RMB (65% gross margin), and data value-added revenue of 15 million RMB (80% gross margin), totaling 585 million RMB. After amortizing 70 million RMB of R&D costs, net cash inflow increases by over 100 million RMB, meeting our target return on investment.”

夏总松了口气：“只要国内订阅模式跑通，海外端侧继续供血，数据增值服务能跟上，我同意追加研发于通感智值。但要求——算法必须可复用到智能家居，摊薄研发。”

Mr. Xia exhaled in relief: “As long as the domestic subscription model works, overseas device-side business continues generating cash, and data value-added services scale accordingly, I agree to increase R&D investment in the new architecture. However, the algorithms must be reusable in the smart home sector to dilute R&D costs.”

周总：“那就定案——三层收费+共用算法，百校复制，边投边回。下月启动升级工作。”

Mr. Zhou concluded: “Then it is decided—three-tier pricing plus shared algorithms, replicate across 100 schools, invest while generating returns. We will initiate the upgrade next month.”

问题 | Questions:

- 1 智能技术如何驱动立达信物联网业务的发展，AI 技术创造了哪些增量价值？
1. How does intelligent technology drive the development of LEEDARSON's IoT business, and what incremental value does AI technology create?
- 2 物联网技术升级，引发产业链重构，商业模式如何调整以促进技术变现？
2. As IoT technology upgrades and restructures the industrial chain, how should the business model be adjusted to facilitate technology monetization?
- 3 教育细分市场应用场景中，“硬件+AI 服务”模式是否还可以优化以增加价值？是否可复制到其他垂直领域(如医疗、办公)？需要具备哪些条件？
3. Within the education sector application scenario, can the “hardware + AI service” model be further optimized to increase value? Can it be replicated in other vertical industries (such as healthcare and office environments)? What conditions are required for replication?

- 结束 -

- End -