

Research on Project Cost Control

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Abstract: In recent years, with the vigorous development of China's economic construction, project cost control has become one of the topic. In the socialist market economy environment, people are more and more strict control of project cost, means to gradually diversity, how to make the project cost reduction and profit maximization maximize the interests of the entire project will be the control points related industries. But the project cost control is a dynamic process, with project cost management practices, describes the project cost control principle, the use of value engineering and technical economic theory, namely, decision-making on the project, design, bidding, construction and the completed project cost control of all key stages of the paper analyzes the proposed real estate development company specific cost control measures.

1. Introduction

1.1 Potential Huge Market Expansion Backed by Effective Marketing Strategy

The 2019 annual report clearly proposes the potential application of intelligent manufacturing and Lot, which will serve the smart city and smart industry. There are 41 industrial categories, including surface treatment, assembly, inspection, packaging, handling, logistics and other production links that relative with the machine vision and storage, whose market volume is 5 times of Surveillance Industry. Hikvision already transferred its focus on them since 2015 with effective marketing strategy when seeing the limited market volume of Surveillance Industry. The official website of Hikvision disclosed 7 industries and about 80 sales schemes, fuels 44.95% sales margin growth during 2016-2018. Each solution fits the user's needs and integrates the product line for sales. We believe its sales schemes helps driving a 14.85 CAGR in sales 2017A-2023F while expanding margins.

1.2 Leading Position and Competitive Advantages Fuel Long Term Growth

Being the largest surveillance provider in the world, Hikvision has scale advantage in terms of its: (1) sales force and distribution network, (2) R&D team and spending, (3) economies of scale in SG&A, (4) pricing power with its suppliers, and (5) data sets. These scale advantages reflect in its above-average gross margin and industry leading net margin among Chinese surveillance companies. As we move towards an AI-centric world, scale advantage has gained an incremental aspect of interpretation-data-which is critical for training deep learning algorithms, in our view.

1.3 Efficient Cost Control and Strong Balance Sheet

Hikvision is focusing on improving the effectiveness of operation. While this puts tension on EBITDA margin, it positively affects EBIT and the overall profitability of the company. The growth rate of overall management costs have been dropped by 6.93% during 2016-2018, we estimated a 5.32% CAGR in 2017A-2023F.

2. Business Description

Hikvision was founded in 2001 by the 52nd Research Institute of China Electronics Technology Group Corporation, focusing on video surveillance. After years of development and innovation, Hikvision has become a video-centric smart IoT solution and big data service provider, focusing on security, big data and business print smart. Hikvision has become a pioneer in the world of video

surveillance.

2.1 Leader in the China Video Surveillance Industry

The Company win its position in video industry consistently mainly by its Front-end equipment (such as cameras, access cards, video intercom and burglary alarm products), Back-end equipment (i. e. Video Recorders, cloud storage system products, SD memory card, Solid State Disk and transmission products), Central control equipment (such as multi-function video center, large screens and controlling keyboards) and innovative businesses (like Smart home business and Robotic business). Around 50% income was from Front-end equipment and remain stable over last 4 years. b) innovative business grows fast as a speed of 58.23% YoY change rate. And we estimate that the innovative business will keep growing, but at a relative lower rapid over few years and become the driver of the Company's profit.

2.2 Geographic Segments

HIKVISION mainly focus on domestic market (China) and also actively develop business overseas by investing in subsidiaries in Los Angeles, Hong Kong, Amsterdam, Mumbai, St. Petersburg and Dubai.

2.3 Ownership Structure

The greatest shareholder of HIKVISION is China Electronics Technology Group Corporation (CETC), with 62% of the stocks. Jiahong Gong takes the 21% of shares as an individual investor as well as the second greatest investor of HIKVISION. 8% is owned by Hong Kong Securities Clearing Company Ltd. (HKSCC).

3. Market Strategy

As a science and technology enterprise, science and technology innovation is always the main business method and driving force of sustainable development. In the external environment, the company will maintain its intelligent, stable, professional and sustainable management philosophy, and give full play to the power of scientific and technological innovation.

3.1 Strong Competitiveness in R&D

Since its inception, Hikvision has built a leading hardware research, development, production and sales system and create a company's competitive advantage at the product and product level. At present, Hikvision's hardware product system covers video recording, transmission, storage, centralized analysis, big data server, mobile streaming, alarm, display control, video intercom, access control, conference board and other types.

In addition, the company continues to invest in research and development in the field of sensors and detectors, which lays the foundation for the comprehensive use of multidimensional sensing technology at the hardware product level; long-term continuous investment in core technology, common technology and core technology are the foundation of the company's long-term continuous technological innovation.

3.2 Continuous Optimization and Improvement to Build Independent and Controllable Supply Capacity with Flexibility

Segmented market demand leads to a wide variety of product categories and models, small orders and high-volume orders, which creates huge challenges for product manufacturing. The ever-changing international environment also creates significant uncertainty in terms of the continuity and reliability of the supply of raw materials throughout the supply chain. A sustainable, stable and reliable supply chain has become a strategic resource for the sustainable development of the company's business.

3.3 Focusing on Business Changes and Improve Organizational Capabilities in Line with Business Development

In order to better meet the needs of our customers and increase the efficiency of our internal operations, since 2018 our PBG, EBG and SMBG business groups are dedicated to serving many stores and customers. . Each focuses on its own target market serving utility, large enterprise, and small business customers.

3.4 Continuous Optimization and Improvement on Enhancing Capabilities in Talent Development

Knowledge is an essential element of a company's competitiveness. The company maintains the working concept of “intelligence, grow together” to develop a dual task development method that includes administrative and special tasks, conducts competency and functional tests, and is designed to use different levels of training. Supporting the mechanism, it constantly invests in the integration and development of the backbone, as well as the redundancy and development of the company's backup technology.

4. Industry Overview and Competitive Positioning

Driven by the iterative updating of emerging technologies, intelligent security has become the mainstream in the security industry, and gradually extends to the manufacturing industry. 'the Belt and Road Initiative', 'Safe City', 'Smart City', 'Intelligent Transportation' and other major projects have greatly promoted the development of intelligent security industry. From 2013 to 2017, the domestic market scale of intelligent security industry increased from 110.05 billion yuan to 174.82 billion yuan with the total growth rate 12.3%.

5. Driving Factors: Technology Refresh and Emerging Demand to Propel the Intelligent Security

5.1 “Smart City” Facilitates the Application and Upgrading of Intelligent Security.

The construction of “Smart City” promotes the expansion and integration of security products in various application areas. The original security system is usually limited to certain fields for security protection. However, with the promotion of the concept of “Safe City”, the scope of security system has also expanded from the traditional “City Safety” module to the application module of “Smart Community”, “Intelligent Transportation”, “Intelligent Building”, and environmental monitoring” in an in-depth and comprehensive way.

5.2 The Intelligent Manufacturing Industry Has Much More Market Potential Than Traditional Security Industry.

In 2018, the revenue of the global market of surveillance industry has reached \$23.6 billion. According to the National Statistical Yearbook 2017, the GDP of industry (including 41 categories) in 2016 was 24.8 trillion yuan. On the one hand, the fixed assets investment of industry (the sum of mining and manufacturing industries disclosed in the Statistical Yearbook) is 19.8 trillion yuan, and it is estimated that 5% of it will be invested in informatization technology, around 991.4 billion yuan. On the other hand, there are 53.85 million employees in the industry (the sum of mining and manufacturing industries disclosed in the Statistical Yearbook), with a per capita salary of 60000 yuan. If technology procurement can optimize 30% of human resources (transform to other talents), the cost savings of 969.3 billion yuan can be obtained. The investment in intelligent manufacturing technology is less than 969.3 billion yuan. Both of the two methods above mean that the market space of intelligent manufacturing is 5 times that of security industry.

5.3 Multiple Links of Industrial Assembly Line Are Suitable for Security Giants to Participate in

41 industrial categories need multiple links of industrial assembly line such as precise alignment, detection, measurement, sensing, etc. There are 41 industrial categories, most of which include at least surface treatment, assembly, inspection, packaging, handling, logistics and other production links that consume a lot of manpower. Production automation needs machine vision, sensing, identification, code reading and other requirements.

6. Restraining Factors: the Growth of Emerging Technology Subjects to the Objective Conditions

6.1 The Limitation of the Storage Technology

Based on the characteristics of high concurrency and large capacity of the transportation and storage of monitoring data, intelligent security sets higher requirements for the capacity and speed of storage system. However, with the current technology, the limited data storage capacity and data delay will hinder the development of intelligent security industry.

6.2 High Cost of Operation and Maintenance

The intelligent security has a high proportion of cost for daily operation and maintenance. The major parts are equipment cost, failure cost, and labor cost.

6.3 Lack of Industry Standards for Technology Application

The application of big data technology provides an opportunity for the development of security industry, but it is still in its infancy. The lack of industry standards reduces the security of technology application. In security industry, the application of big data technology is very important for the storage and processing of massive security data and its level of maturity directly influences the efficiency of data retrieval, fast orientation, and prediction. As the products and tools of emerging technologies such as big data technology are still in its youth, the technology is not advanced enough to support the needs of intelligent security industry.

7. Valuation

7.1 Revenues

We forecast Hikvision's revenue for each segment. We have compared our growth forecasts for key revenue drivers by segment. We believe that in the long term central control units and Smart Home/Business will make a key contribution to sales. Our estimates generally reflect a premium of 4-5% above the industry's expected growth.

As of 2019, 48% of Hikvision's revenues was from front-end products, i.e., cameras, access cards, video intercom and burglary alarm products. Over the past decade, front-end products have been the biggest revenue driver for Hikvision and overtaking back-end products as the largest revenue contributor in 2012. Along with technology upgrade from analog to digital and now to AI cameras, Hikvision expanded its market share and consolidated its dominance, supported by high quality products and time-to-market advantage. Going forward, we expect front-end products to continue to be a big revenue contributor and grow at a CAGR of -0.1% over 2019E-2023F.

Revenue from back-end products accounted for 16% of Hikvision's total revenue in 2019; these include storage products such as XVR (Hybrid Video Recorder), NVR (Network Video Recorder), CVR (Central Storage Video Recorder), cloud storage system products, SD memory card and SSD (Solid State Disk). Revenue growth for back-end products will be slower than front-end products, partly due to the small base of the latter, and partly due to relatively longer depreciable life of back-end products.

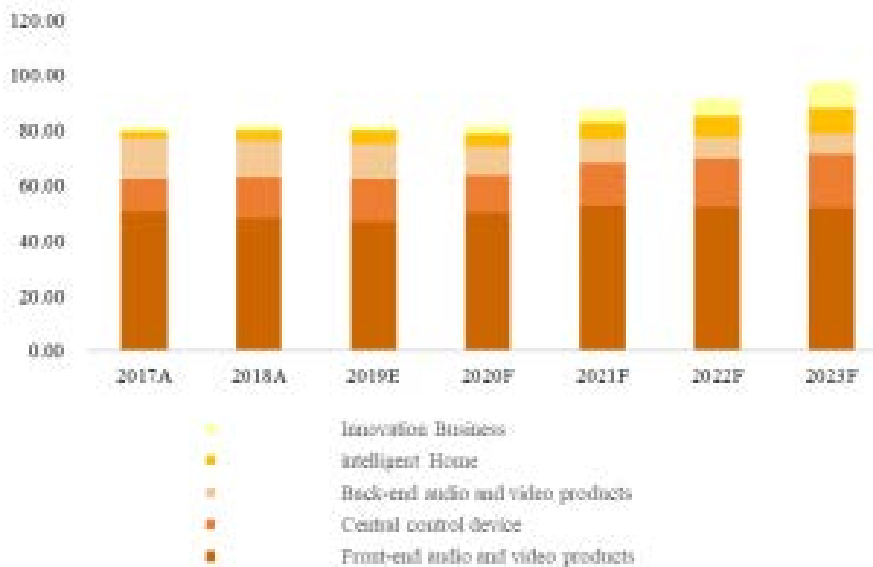


Fig.1 : Revenue Cotribution by Segment

Control center equipment revenue grew 69% yoy to account for 16% of total revenue in 2019. Products include servers, multi-function video center, large screens, controlling keyboards, other controller products and software. The strong revenue growth was mainly driven by server products with AI capabilities launched in 2017-2018 and big screens. For long term, we expect control center equipment to become the main revenue driver with its AI product suites, as the heaving lifting of data analysis will happen at the server side. We forecast 2019E-2023F revenue CAGR of 10.3%.

Revenue from Hikvision’s innovative businesses/home almost doubled from 2018-2019. Products are composed of EZVIZ, robotics, and automotive electronics, with the majority being EZVIZ, according to management. We forecast 2019E-2023F revenue CAGR of 28.3% gross margin to gradually improve as scale comes up.

7.2 Margins

We estimated Hikvision’s future profit margins to increase (GPM expansion by 23.77% bps 2018A-2023F.). The main driven factors are as follows: 1) COGS: During 2015 to 2019, gross margin increased from 40.1% to 45.99%, due to marketing effectiveness and cost control, it recovered from former competition and dilution from distribution channels. Small players’ margins have compressed significantly. Internally, Hikvision’s AI products contributed to higher margins, and management added the profit index into the company’s KPI system. Going forward, we expect Hikvision’s gross margin to continue to maintain at robust 44.1% 2020E to 2024E.

2)R&D: Hikvision’s R&D as a % of revenues grew from 6.82% in 2015 to 9.51% in 2016, indicating management’s increasing focus on technology leadership. Going forward, we expect the level to stay at 9.51% from 2017E to 2019E.



Fig.2 : R&D Expenses

8. WACC

We achieved a Hikvision WACC of 6.92%, and the cost of debt takes into account the average 2019 corporate bond issuance ratio and the cost of equity using a Cov-adjusted beta.

8.1 Terminal Growth Rate

The final growth assumption of 4.61% is based on China's long-term potential GDP growth rate (5.0%) and b) long-term global real GDP growth rate (3.62%), resulting in an inclusive market-weighted growth rate.

8.2 Relative Valuation

While Hikvision is already trading near the national average, we believe its relative multiple reflects its attractive value for HIKVISION, given its strong earnings growth and strong return on equity. We note that the company's PEG of 1.75 is below the overall peer average of 2.10, while HIKVISION (27.78 P/E) trades at a discount to its regional peers (average of 32.13).

The relative expected price target of CNY37.38 based on an overall average P/E ratio of 32.13 also confirms the DCF analysis.

9. Financial Analysis

9.1 Healthy Leverage Support Expansion

With a healthy balance sheet and strong cash flow, DNL believes it is well positioned for future expansion. Hikvision's low net D/E ratio of 0.1x 2018A indicates an insufficient capital structure that can easily support expansion.

9.2 Superior Profitability Margins Lead to Quality Shareholder Returns

Hikvision expects a solid EPS growth rate of 11.62% averaging 2019-2024 while maintaining net income despite potential tax issues and interest rate revisions. We believe that R&D initiatives and improved operational efficiencies will drive net margin growth, which will drive the average ROE to 23.6% in 2019A-2024F.

10. Investment Risks

Market Risk|Global COVID-19 Epidemic Risk (MR1):

As the COVID-19 pandemic spreads around the world and economic uncertainty increases, the company will adhere to its business strategy of sustainable and healthy development and pay attention to the impact of the pandemic. If the pandemic worsens the economy at home and abroad, the negative impact on the company's business will increase.

Market Risk|Global Business Risks (MR2):

The company's business covers more than 150 countries and regions. Potential risks such as epidemics, debt problems, political conflicts and fluctuations in foreign exchange rates in many countries around the world are difficult to eliminate and could negatively affect the company's overseas operations. Uncertainties in the geopolitical situation and escalating trade conflicts will further diversify the company's plans to supply key parts in 2019. Since joining the list of companies in October 2019, the company has quickly introduced replacement parts for most of its discontinued spare parts, or adopted new product designs to maintain stable product performance. We have a stock of materials to ensure stable delivery for a small number of products that are difficult to replace quickly. We will continue to strengthen risk management in our supply chain, continuously innovate new products, and strengthen research and development in key areas.

Technology Risk| Risk of Technology Upgrade (TR1):

Technologies such as artificial intelligence (AI), big data, cloud computing, and edge computing are rapidly advancing and among them the fastest growing technology adoption. Companies can adapt to the latest technological changes and quickly implement business innovations. In 2019, smart home sales were 2.59 billion yuan and robot sales were 814 million yuan, including sales of automotive electronics, Hikvision semiconductors, and Hikvision microelectronics.

Technology Risk| Risk of Cybersecurity (TR2):

Although the company has always focused on improving the effectiveness of the network security of its products and systems and has taken proactive measures, deliberate attacks such as computer viruses, malware, and hackers still exist in the Internet consumer environment. Or the product is causing network security issues.

Operational Risk | Risk of Internal Management (OR1):

The expansion of the business market, the increase in the number of new products and new enterprises, the continuous growth of all employees and the increase in the management team in a competitive environment have caused problems in the company's commercial activities and increased the demand for the company's management system. If the management layer cannot protect the expansion of the company's business, the sustainable development of the company will face certain risks.

Operational Risk| Risk of IP Rights (OR2):

The company has made significant technological milestones by continuing to invest relatively large amounts of R&D. At the same time, the company implements comprehensive measures to protect intellectual property. However, there is still the risk of intellectual property disputes and infringement of intellectual property.

Credit Risk| Capital Risk Arising from the Decline in Customers' Ability to Pay (CR):

The liquidity of various business segments is affected by economic conditions. Even if the company accumulates cash reserves due to stable operations and lower financing costs, increased liquidity risk will adversely affect the company's receivables.

10. Conclusion

Construction stage of cost control is a very complex and particularly important system work, directly related to the economic benefit and survival, so the construction enterprise should attach great importance to the, to have a unified thought, clear goal, practical and effective measures to control the construction production cost of various costs, timely prevention, discover and correct deviation, do advance plan precontrol, the process control, corrective control. To effectively strengthen the internal management, truly achieve strict management, scientific management, people-oriented management, to achieve the output, quality, efficiency of synchronous improvement, in the fierce market competition independently come out on top.

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