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Overview

DVN is a leading provider of comprehensive digital broadcasting platforms that deliver content, services and applications to end-users, in particular cable TV subscribers.

CATV operators use DVN's platforms to improve the transmission efficiency, quality and types of content and services broadcast over their networks. As a result of improved content quality and breadth of services, the CATV operator is able to better utilize its cable bandwidth and increase its revenue sources. Subscribers in return for paying higher subscription fees enjoy a broad range of content in digital quality reception as well as multimedia services, which include real time news, weather and financial information as well as personalized broadcasts. Eventually the subscriber will be able to use the television set as a point of sales device trading stocks and buying items over the TV.

DVN's platform enables digital broadcast transmissions over a variety of networks, including satellite, cable, LAN, PSTN, IP and power lines. The platform provides video, data and audio encoding, decoding and multiplexing for distribution over broadband networks. It comes with DVN's own conditional access ("CA") system as well as supports CA systems from other vendors. The total solution platform is inclusive of DVN designed receivers that are both cost effective and supportive of multiple networks.

概覽

天地數碼在綜合數碼廣播平台市場中佔有領導地位，為終端用戶(尤其是有線電視用戶)提供全方位節目、服務及應用解決方案。

有線電視營運商可利用天地數碼的平台提高其網絡的傳輸效率、節目與廣播服務質量並增加服務範疇。因之節目素質改善，服務範疇擴大，有線電視營運商可更有效地利用有線寬頻資源，增加收入來源。用戶雖然要支付較高的用戶費，但可享用多種高質量數碼收視節目及多媒體服務，包括實時新聞、天氣、財經資訊及個人化廣播。最終，用戶更可將電視機作為終端交易裝置進行股票買賣及購物。

天地數碼平台可透過各種網絡(包括衛星、有線網絡、局域網、公共交換電話網、IP網及電力線)進行數碼廣播傳輸。該平台提供視頻、數據及音頻加密、解密及多路復用，以供透過寬帶網絡傳輸。該平台與天地數碼本身的有條件接收(ICA)系統相容，並支持其他供應商的有條件接收系統。全方位解決方案平台包括天地數碼設計的接收器(不僅具成本效益而且支持多路網絡)。



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DVN either leases or sells its platform to cable TV providers. In the leasing model, DVN leases the platform to the CATV, and receives a percentage of the incremental revenues generated. In the sales model, DVN sells the platform outright, and will receive, in addition to sales revenue from the platform, further revenue from the sales of its set top boxes on an ongoing basis. Digital TV services offered over DVN's platform are provided at a range of affordable subscription fees which include digital channel rebroadcasts from around China, near video on demand, on-line information, interactive advertising, T-commerce etc.

Total solution provider at affordable prices

DVN's platform is inclusive of the hardware, software and applications needed by the CATV operator to run a digital broadcasting business, the digital set top box required by the subscriber to receive the digital broadcasts and content and services to be broadcast over the platform. CATV operators, instead of using multiple vendors to piece together a digital broadcasting system, benefit significantly from using DVN's end-to-end turnkey solution. CATV operators save significant costs, such as in manpower, time, software royalties and logistics, from using a totally integrated, turnkey solution, designed and owned by DVN. These significant savings and a short construction period allow the CATV operators to offer digital TV services quickly and at prices affordable to the Chinese today.

Flexible system that allows for change and growth

DVN's platform, which runs on both existing analog networks and new generation broadband networks, precludes the necessity for CATV operators to upgrade its network further for digital broadcasts. The DVN platform is a scalable, open system that not only accommodates numerous income-generating services but also supports multiple hardware devices, such as personal computers and telephones. DVN provides to the CATV operators continuous technical upgrades in order to insure that the platform remains at the cutting edge of digital technology, as well as the option to subscribers to upgrade their set top boxes. This is all supported by DVN's research and development efforts.

DVN now has a variety of set top boxes available, with the latest model being the "J-box". The J-Box turns a TV set into a network computer, revolutionizing the way cable operators perceive and the end-users utilize set top boxes. The new J-box, operating in a personal Java environment, enables computer like functions and supports online games without the necessity for a large hard drive and CPU within the set top box. DVN's platform supports the J-box and DVN envisages that such a digital receiver will be the trend of the future.

Equipped with Conditional Access System

DVN's platform is equipped with its own CA system but also supports CA systems from outside vendors. DVN's in-house designed CA system is one of six government-approved domestic systems for usage by CATV operators in China. DVN's CA system provides CATV operators with an automatic fee collection system linked to local banks that not only improves the cash flow of the CATV operators but also provides a viable payment method for T-commerce transacted over the system. Combined with DVN's highly complex encryption system, the CATV operator is able to offer its end-user a secure environment in which to do on-line transactions.

天地數碼向有線電視供應商租賃或出售平台。就租賃模式而言，天地數碼出租平台予有線電視供應商，收取一定比例的增值收入。就銷售模式而言，天地數碼直接銷售平台，除平台的銷售收入外，還可透過銷售機頂盒持續獲得收入。透過天地數碼平台可提供中國地方數碼頻道轉播、視頻點播、網上資訊、互動廣告及電視商貿等一系列數碼電視服務，收費廣能夠為客戶接受。

以合理價格提供全方位解決方案

天地數碼平台集有線電視營運商經營數碼廣播業務所需的硬件、軟件及應用程式於一體，並提供用戶接收數碼廣播的數碼機頂盒及透過平台播放的節目及服務。有線電視營運商使用天地數碼端對端一攬子解決方案來代替使用多個供應商產品組裝一個數碼廣播系統，好處多多。使用天地數碼的設計及擁有綜合一體化的一攬子解決方案，有線電視營運商可以大大節約成本，如人力、時間、軟件使用費及物流開支。由於節約大量成本及建設期較短，有線電視營運商可在短期內以目前國內居民可接受的價格提供數碼電視服務。

CATV operators save significant costs, such as in manpower, time, software royalties and logistics, from using a totally integrated, turnkey solution, designed and owned by DVN

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系統可靈活改動及升級

天地數碼平台可在現有模擬網絡及新一代寬頻網絡上運行，有線電視營運商無須將網絡升級即可進行數碼廣播。天地數碼平台為可升級的開放系統，不僅能提供多種產生收入的服務，而且支持多種硬件裝置，如個人電腦及電話。天地數碼向有線電視營運商連續提供技術升級服務，以確保平台應用尖端數碼技術，用戶亦可選擇升級機頂盒。上述技術支持服務均由天地數碼的研發人員提供。

天地數碼出售多種機頂盒，最新型號為「J-Box」。J-Box將電視機變為網絡電腦，是機頂盒概念及使用方式的一次革命。新型Box在個人Java環境下運行，提供類似電腦的功能並支持網上游戲，而毋須在機頂盒內配備大型硬驅及中央處理器。天地數碼平台支持Box，天地數碼預期該數碼接收器將主導未來的潮流。

裝備有條件接收系統

天地數碼平台裝備本身的有條件接收系統，同時亦支持其他供應商的有條件接收系統。天地數碼自行設計的有條件接收系統是經政府批准可由有線電視營運商在中國使用的六個國內系統之一。天地數碼的有條件接收系統為有線電視營運商提供與地方銀行連接的自動收費系統，不僅改善有線電視營運商的現金流量，而且為透過該系統交易的電視商務提供一種可行付款方式。結合天地數碼精密複雜的加密系統，有線電視營運商可為終端用戶提供一個安全網上交易環境。



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DVN's CA system allows for different services to be offered over the one platform and to be received by only subscribers that have paid for the particular service. A range of digital services may be offered at varying subscription fees and targeted at particular end users and interest groups. The CA system enables services such as satellite received foreign broadcasts for foreign passport holders only, video on demand, stock quotes and T-commerce transactions and on-line games.

Technology is certified by the appropriate regulatory authorities

DVN's technology received top-level accreditation from China's MST encouraging cable operators to use DVN's technology and eliminating the requirement to attain a license for digital broadcasts. Under China's "863 State Hi-Tech Plan" as put forth by the MST in 1986, which serves as a blueprint for the development of its technology related industries, the Chinese Academy of Science is responsible for the development of some communication technologies, including digital broadcasting.

The MST has given DVN the highest rating within the communication category of the 863 State Hi-Tech Plan, and has recommended that it should be promoted and distributed throughout China as soon as practical. Such a recommendation has given guidance to Chinese cable operators that they should upgrade their broadcasting equipment using DVN's technology and platform.

In addition, DVN is one of only three companies to receive a network access license from SARFT. This license allows DVN to sell its set top boxes in China.

International Financial Data Provider

DVN through its group company, Dynamic Network Limited also disseminates real time international financial market information and selective real time consumer data to end users in the PRC, Malaysia, Singapore, Taiwan and Hong Kong. The type of content provided includes equity, commodities and foreign exchange real time data.

天地數碼的有條件接收系統可透過一個平台提供不同的服務及僅由已支付特定服務費的用戶接收服務，並可以不同的用戶費提供多種數碼服務，定位於不同特定終端用戶及興趣群體。有條件接收系統可提供使用衛星收視的外國廣播（面向持外國護照者）、視頻點播、網上股票買賣、電視商貿交易及在線遊戲等服務。

技術經權威監管機構認證

天地數碼之技術已通過科技部進行的國內最高級別認證，有線電視營運商可放心使用天地數碼的技術，同時無須費盡週折申請數碼廣播牌照。根據科技部於一九八六年公佈的高科技行業發展藍圖—「國家高技術研究發展計劃(863計劃)」，中國科學院負責發展若干通訊技術，包括數碼廣播。

科技部不僅授予天地數碼863計劃通訊類別的最高評級，而且建議在切實可行的情況下儘快在全中國推廣天地數碼的技術。該建議指引中國有線電視營運商使用天地數碼的技術及平台升級廣播設備。

此外，天地數碼是僅有的獲廣播總局頒發進網許可證的三家公司之一，該牌照令天地數碼可在中國銷售機頂盒。

國際財經資料供應商

天地數碼亦透過其集團公司Dynamic Network Limited向中國、馬來西亞、新加坡、台灣及香港的終端用戶廣播實時國際金融市場資訊及精選實時消費者資料。提供的節目類型包括股票、商品及外匯實時資料。

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Digital TV Services

Tiered digital services for different target audiences

Broadcasts over DVN's platform offer subscribers a range of services, which include basic digital services, premium digital services for domestic audiences and foreign expatriate audiences and data services. The basic digital services are at the lowest price point and serve as an introduction to digital technology and its capabilities. Premium services are targeted at more technology savvy consumers who want a more interactive experience. Premium services for expatriates are satellite broadcasts that are restricted to foreigners only. DVN and its CATV partners plan to use basic digital services as a stepping-stone to higher value added premium Pay TV as subscribers become more familiar and comfortable with digital TV services.

Basic Digital Services

Basic digital services are generally satellite rebroadcasts from all over China and do not require a Pay TV license from SARFT. The service is also priced at around RMB25 per month to enable an inexpensive entry point to digital TV. Under the analog service, viewers are restricted to around 20 to 30 channels only, some of which are mandated by the government for communication purposes. By using digital technology to compress the broadcasts, the number of channels able to be transmitted over the cable network increases by up to six-fold.

Under the basic digital service, subscribers are able to receive over 70 channels increasing the range of content received as well as introducing flexibility in start times as different programs may be staggered over different channels. Channels included as part of this service include all the CCTV 11 channels and other popular provincial channels from Hunan, Jiangsu, Zhejiang, Guangdong and Sichuan Provinces to name a few.

The basic digital service varies from location to location as rules in different areas effect what is shown over the platform. In Zhongshan as it is part of Guangdong Province, the rules regarding broadcasts of foreign content over the cable network differ from the rest of China and as a result content from approved foreign channels are able to be distributed without having to first receive a Pay TV license. This is not the case in Suzhou where the content is largely domestically sourced. Variations of basic services have been launched in Zhongshan, Zhoushan and Yixing.

Basic digital services also includes an electronic program guide which allows the end user to easily see what programs are on at what times with database search functions.

Premium Pay TV Services

Pay TV services to domestic audiences that show licensed content, on which royalties are paid, require a license from the SARFT. Premium Pay TV services includes near video on demand and multiple channels with foreign video content.

數碼電視服務

向不同目標觀眾提供不同類別的數碼服務

透過天地數碼平台向用戶提供的系列廣播服務，包括基本數碼服務、面向國內和外籍觀眾的專業收費電視數碼服務以及數據服務。基本數碼服務收費低廉，作用在於推廣數碼技術及其功能。專業收費電視服務的對象為懂得一定技術常識，希望有多種互動體驗的消費者。面向外籍人士的專業服務透過衛星廣播，僅限於對外籍人士播放。鑑於用戶對數碼電視服務越來越熟悉和喜愛，天地數碼及其有線電視夥伴計劃利用基本數碼服務作為擴大高增值專業收費電視服務的跳板。

基本數碼服務

基本數碼服務一般指透過有線電視數碼頻道轉播中國其他地區的衛星頻道節目，不需要獲廣電總局簽發收費電視牌照。該項服務收費約為每月人民幣25元，為用戶提供低價使用數碼電視的切入點。使用模擬電視服務，觀眾只能收視二十至三十個頻道，且部份頻道是政府的專用通訊頻道。使用數碼技術進行壓縮，透過有線網絡傳輸的頻道數目最多可增加六倍。

使用基本數碼服務，用戶可以收視逾七十個頻道，不僅節目內容更豐富，不同節目可在不同頻道的不同時間播放，安排更為靈活。此項服務的部份頻道包括中央電視台的十一個頻道，以及湖南、江蘇、浙江、廣東及四川台廣受歡迎的頻道。

由於不同地區對透過平台播放節目的規定各不相同，因此不同地區的基本數碼服務不同。中山市位於廣東省，其透過有線網絡播放外國節目的規定與中國其他地區不同，因此，該市可播放外國頻道節目而無須事先申領收費電視牌照。蘇州的情況則不同，其節目內容主要來自國內。多樣化基本服務已在中山、舟山及宜興推出。

基本數碼廣播服務的收費通常低於專業收費電視的收費。基本數碼服務還包括一個類似數據檢索功能的電子節目指南，方便終端用戶查閱節目播放時間。

增值收費電視服務

收費電視服務面向國內觀眾，播放經授權的節目，須支付版權費及獲廣電總局簽發牌照。專業收費電視服務包括視頻點播，其多個頻道播放外國視像節目。



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Pay TV services for foreigners include but are not limited to satellite received broadcasts of CNN, HBO, ESPN, Channel V, Phoenix News and Movies as well as CNBC. An advance purchase of a set top box is also required. Such services for foreigners have been launched in Suzhou to the large expatriate community residing there.

The current premium Pay TV for domestic audiences is usually around twelve digital channels that show both Western and Hong Kong movies duly censored by the SARFT as well as locally produced movies, TV dramas, children's shows, sports and music. The channels run 24 hours a day with staggered start times on multiple channels. The service also includes a TV magazine that describes and promotes the service's content as well as provides commentary and background on the featured content. Under the current package, premium Pay TV services are provided inclusive of data services. Subscribers are also required to make an upfront purchase of a set top box.

Data Services

Data services refer to TV web, on-line stock quotes as well as real time news and financial information. In some locations data services are priced separately and in others it is part of the entire package to promote the service to subscribers. Unlike video content, data content does not require a license for broadcasting.

DVN's Business Model

DVN, in offering CATVs a total solution, derives revenue from two main lines of business: System integrator and Service provider.

System Integrator

DVN designs, integrates and installs platforms for CATV operators that will allow it to deliver digital Pay TV services to its subscribers. DVN provides all the system components at the operator level, which include the broadcast control system, conditional access system, subscriber management system and the hardware as well as the digital set top boxes at the subscriber level. DVN either sells the system outright or enters into leasing contracts with the CATV operator. If DVN sells the system outright, it receives an annual maintenance fee over the contractual period on top of the sales price of the platform. Under the leasing option, in consideration for the lease of its platform, continual platform maintenance and application software upgrades, DVN will receive a percentage of all subscription fees collected for digital broadcasts over the contractual period.

In general, the CATV operator will sell DVN's set top boxes to subscribers who wish to receive digital services. DVN usually receives sales revenue from the resale of its set top boxes.

面向外國觀眾的收費電視服務包括（但不限於）透過衛星播放CNN、HBO、ESPN、Channel V及鳳凰衛視的新聞、電影以及CNBC。用戶須預先購買機頂盒。專業收費電視服務已在蘇州市最大的外籍人士聚居區推出。

目前面向國內觀眾的專業收費電視通常約有十二個數碼頻道，播放經廣電總局審核的西方、香港電影及中國各地製作的電影，電視劇以及兒童、體育及音樂節目。這些頻道每天全天24小時在不同時段不同頻道播放節目。該項服務亦包括電視雜誌，介紹及推廣服務節目，同時提供主要節目的評論及背景資料。根據現行方案，向用戶提供專業收費電視服務，包括數據服務。此外，用戶須購買一個機頂盒。

數據服務

數據服務指電視網站、網上股市報價、實時新聞及金融資訊。在若干地區，數據服務單獨計費，但在另一些地區則作為整體服務項目的一部份，以向用戶推廣服務。與視頻節目不同，經營數據節目無須取得廣播牌照。

天地數碼之業務模式

天地數碼為有線電視台提供全方位解決方案，收入主要來自二大業務項目：數碼廣播系統集成及服務提供。

系統集成

天地數碼為有線電視營運商設計、整合及安裝平台，以便有線電視營運商向用戶提供數碼收費電視服務。天地數碼供應營運商層面所需的所有系統部件，包括廣播監控系統、有條件接收系統、用戶管理系統及硬件，以及用戶層面之數碼機頂盒。天地數碼向有線營運商整合出售該系統，或與其簽訂租賃合約。倘屬天地數碼出售之系統，則除平台銷售額外，天地數碼還收取合約期內之年度技術支持費。倘採用租賃形式，作為平台租賃、持續保養及應用軟件升級之代價，天地數碼將分享合約期內所有數碼廣播用戶費之分成比例。

一般而言，有線營運商會將天地數碼之機頂盒售予接受數碼服務的用戶。從而，天地數碼亦會從機頂盒轉售獲取收益。



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Value Added Service Provider

The number and type of applications in addition to normal video services that DVN's platform is able to support is limitless. This is due to the open architecture of the system as well as the installation of the Smart Card in each subscriber's set top box. Interactive services currently envisaged include video on demand, on-line trading, on-line shopping and home banking to name a few. Together with the use of the Subscriber Management System ("SMS"), the Smart Card provides not only a secure transaction environment but also a payment method. DVN believes that currently in China only first movers and technically advanced consumers in China are ready for interactive services and that numbers to support this sort of service will not be sufficient for several years to come. However, as interactive services become more common and acceptable, fees from these sorts of services will provide a more diversified revenue base to both DVN and its CATV partners.

China's Cable Industry

Largest Cable Television Market in the World

TV penetration in Chinese households is nearly 100% as compared to around 5% for personal computers. Additionally China currently has over 100 million cable TV subscriber households. This is greater than the 60 million subscribers in the United States, and the 50 million subscribers in Europe. In addition China's cable network is comprised of over 300,000 kilometers of laid cable.

Most CATV operators in China currently utilize analog broadcasting technology on a one-way network infrastructure. The analog transmissions are directly received by the end user's television set and do not require an analog set top box receiver. Analog technology, as compared to digital broadcasting technology, does not fully utilize the bandwidth and revenue generating capacity of the cable network and does not provide any encryption. Additionally, transmission is very susceptible to interference. Digital broadcasting, on the other hand, by using compression technology increases broadcasting transmissions by at least 6 times and allows the CATV operator to diversify and increase revenues by offering a broader range of content and new interactive services. Furthermore, digital signals may be encrypted under complicated methods making it very difficult and uneconomic to decode.

服務提供

天地數碼平台可支持各種各樣的應用軟件。目前設想中的應用軟件，包括視頻點播、網上交易、網上購物及家居銀行等。這是因為系統的開放式功能，以及在每名用戶的機頂盒內裝設智能卡，便可達到上述目標。連同天地數碼開發之用戶收費系統（「SMS」）一起併用，智能卡不單能提供安全可靠的交易環境，也能提供可靠的付款方法。天地數碼相信，目前在中國只有業界先行者及擁有高級技術的消費者才認可互動服務。預期隨後幾年，支持該類服務的人數未必是主流；然而，隨著互動服務日益普及並為大眾所接受，該類服務之收費將為天地數碼及其有線電視夥伴提供多元化的收益基礎。

中國有線工業

世界最大的有線電視市場

現時，電視在中國國內的家庭滲透率接近100%，而個人電腦的滲透率只有大概5%。目前，全中國共有超過一億有線電視家庭用戶。這個數字已超過美國的六千萬用戶及歐洲的五千萬有線電視家庭用戶。此外，已鋪設的中國有線網絡電纜長度超過三十萬公里。

China currently has over 100 million cable TV subscriber households. This is greater than the 60 million subscribers in the United States, and the 50 million subscribers in Europe

中國共有超過一億有線電視家庭用戶。這個數字已超過美國的六千萬用戶及歐洲的五千萬有線電視家庭用戶。

中國的有線電視目前大多採用基於單向網絡基礎設施之模擬廣播技術。模擬廣播由終端用戶的電視機直接接收，不需要安裝模擬機頂盒接收器。與數碼廣播技術相比，模擬技術未能完全利用有線網絡的頻寬以及增加收入的功能，而且傳輸容易受到干擾，也不具備加密功能。另一方面，由於數碼廣播技術使用壓縮技術，增加廣播傳輸容量至少六倍，因此有線營運商可藉此提供更廣泛節目及新增互動服務項目，從而擴大及增加收益。此外，加密方式十分複雜，破解密碼難度十分大且不經濟。



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As China's cable networks were recently installed and are relatively modern, most of the laid cable networks are fiber optic and hybrid fiber coaxial ("HFC"), providing broadband transmission speeds of over 38 megabytes per second ("mbps"). This is compared to that of personal computer modems of 56 kilobytes per second, Integrated Service Digital Networks ("ISDN") of 128 kilobytes per second and Asymmetric Digital Subscriber Lines ("ADSL") of between 1.5 mbps and 8 mbps only if within 5 kilometers of the telephone company's local exchange. Only ADSL networks come close to achieving similar transmission speeds to those of cable TV HFC but such ADSL network services are currently only on offer in a few locations and charges over these networks are very expensive. The size of these networks is also restricted due to the necessity for users to be within a 5 kilometer proximity of the telephone company. However, despite the modernity of China's cable network, most of the cable only provides for one-way transmission. As a result, interactive services such as VOD, T-commerce etc, require an outside return path or upgrading of the network to two-way transmission, which is very costly and time consuming. DVN technology enables interactive services over the TV on a one-way network by utilizing an outside return path such as a phone line, the Ethernet or IP network.

Unique cable industry structure

Largely as a result of the unique structure of China's cable industry, digital broadcasting offers a beneficial solution to both the service provider and the end user. Digital broadcasting allows CATV operators to maximize their profits by better utilizing their bandwidth and it provides end users with better quality and a broader range of content.

Cable industry as a government-run utility

China's current cable infrastructure was primarily put in place by the government as a tool through which it could communicate with its citizens and distribute its messages. Subscription fees that cable operators are able to charge for analog transmissions are fixed by the government at between RMB 8-12 per month. Subscription charges of RMB 8-12 per month are among the cheapest fees in the world. Furthermore, analog subscription fees are to cover the maintenance of the cable infrastructure and the transmission fees. Operators are unable to charge according to the quality and range of content shown over analog transmissions. Only by the cable operators offering an alternative to the analog service, may the cable operators charge substantially higher subscription fees and charge according to the content received by the subscriber.

Compounding the low subscription fee problem, subscription fees are collected manually, which results in high leakage and expensive collection costs. As a result, the CATV operators operate on very thin margins and rely heavily on advertising revenues to supplement their incomes. DVN's billing and payment system enables CATV operators to collect subscription fees electronically through a link up with the subscribers' banks eliminating the need for door-to-door fee collection.

由於有線網絡是近期裝設，相對而言較為先進，大部份已鋪設的有線網絡都是光纖及混合纖維同軸電纜（「HFC」），提供每秒超過38百萬位元組（「Mbps」）的寬頻傳輸速度。相比之下，個人電腦數據機的傳輸速度為每秒56千位元組，整合數碼網絡服務（「ISDN」）的速度為每秒128千位元組，而非對稱數位用戶回路（「ADSL」）在電話公司交換站五公里範圍內的輸送速度為每秒1.5至8百萬位元組。只有ADSL網絡的傳輸速度，接近使用HFC的有線電視傳輸速度。但ADSL網絡目前只在數個地區提供，費用昂貴。這些網絡的規模，也只局限於電話機樓方圓五公里範圍內的用戶。

儘管中國有線網絡日益先進，但大部份有線網絡只提供單向傳輸功能，而互動服務如視頻點播（「VOD」）、電視商貿等均要求外部回傳路徑或將網絡升級至雙向傳輸，後者極為昂貴且耗時。天地數碼技術通過採用一個外部回傳路徑，如電話線、乙太網或IP網絡，從而可使用單向網絡提供互動服務。

獨特的有線電視行業架構

鑑於中國有線電視行業架構獨特，數碼廣播同時向服務供應商及終端用戶提供雙方均可受惠的解決方案。借助數碼廣播，有線電視營運商可擴大頻寬利用率，最大限度地增加盈利，同時向終端用戶提供更優質、更豐富的節目。

有線電視業屬政府經營的公用事業

中國現有的有線基礎設施主要由政府鋪設，作為政府與廣大市民交流及傳播資訊的工具。有線營運商就模擬廣播收取的用戶費由政府規定，每月為8-12元人民幣。每月8-12元人民幣的用戶費屬全球最低有線收費之一。此外，模擬電視用戶費還包括有線電視基礎設施保養費及傳輸費。營運商無法按照模擬廣播的質量及節目類別進行收費。有線營運商只有透過提供模擬服務以外的服務項目，才可收取高額度之用戶費，及按用戶接收的節目收費。

除用戶費低廉外，用戶費還需人工收集，導致漏收費問題嚴重，收集成本高昂。結果導致有線電視營運商邊際利潤微薄，嚴重依賴廣告收益彌補收入。透過天地數碼的結算及付款系統，有線電視營運商可與用戶之銀行建立聯繫，採用電子化方式收取用戶費，替代挨門挨戶收取費用的方式。



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Excessive dependence on advertising fees in a very fragmented industry

Up until the introduction of the digital services, cable operators have been largely dependent on advertising revenues but these revenues are not large as advertisers only pay for the viewers in the cable operators' catchment areas. The cable industry in China is very fragmented with over 200 cable television operations in China. Each station is usually managed and financed autonomously by the local government, the local SARFT branch and the local communist Party committee. As a result of this structure, the actual numbers in each catchment area is not that large creating inefficient operations as well as limited economies of scale.

DVN's digital broadcasting system enables the CATV operators to offer alternative digital services to the current analog TV service, which increases the service providers recurring income and diversifies its revenue sources to new, higher value added interactive digital services.

Lack of high quality programming

Furthermore, because of their small size, most cable operators cannot afford to buy high quality programming and in general lack the economies of scale required to develop high quality programming. There is also no incentive to buy quality programming, as the cable operators are unable to get the investment back due to the fixed analog subscription fees as well as the low advertising revenues. Additionally, analog broadcasting does not enable targeted broadcasts to only households that are subscribing to the specific service and is unable to support encryption that inhibits unauthorized reception. DVN's digitization enables cable operators to broadcast significantly more channels offering end users choice and flexibility. The digital platform also enables a tiered range of services to be offered with different price points targeting different user groups while maximizing subscriber numbers, all in an encrypted environment.

Additionally, advertisers pay for airtime according to how many people are watching TV. Market surveys in China are not sophisticated enough to determine which programs the viewers are watching. As such, cable operators previously only cared about the number of people watching the programs but did not care about which programs were popular and which were not. DVN's platform, through its subscriber management database, is able to provide detailed information regarding subscribers' viewing habits. This information will help CATV operators in the future better target their services for certain audiences as well as choose the type of programs desired by their subscribers.

Limited access to foreign capital

China's broadcasting industry is largely closed to foreign involvement. Foreigners are restricted from operating or owning cable TV networks within China thus closing off sources of capital from outside of China. However, according to the head of China's SARFT, Mr. Xu Guang Chun, foreign firms are able to provide cable TV networks with infrastructure technology and value added services. Under DVN's current business model, DVN provides the technology and equipment required by the CATVs to run and operate digital Pay TV services.

有線電視業群雄割據，過度倚賴廣告收入

直至推出數碼服務前，有線營運商過度倚賴廣告收入。但由於廣告商僅就有線營運商覆蓋地區內的觀眾支付廣告費，因此廣告收入並不可觀。中國的有線電視行業嚴重分散，共有逾2百家有線電視營運商。各電視台通常由當地政府、廣電總局當地分局及當地黨委機構自主管理及提供營運資金。有鑑於此架構，各覆蓋地區的實際用戶數量有限，導致行業經營效率低，經濟規模有限。

透過天地數碼之數碼廣播系統，有線電視營運商可提供數碼服務替代現有模擬電視服務，這將增加服務供應商的循環收入，並透過新增的高增值互動數碼服務豐富其收入來源。

缺乏優質節目

此外，由於經營規模小，大多數有線營運商無力購買優質節目，普遍缺乏開發優質節目的經濟實力。而且，由於模擬用戶費固定，廣告收益低，有線營運商難以收回投資，因此缺乏購買優質節目的動力。同時，模擬廣播無法保證僅向訂購其服務的用戶傳輸特定節目，也不具備禁止非法接收的加密能力。透過天地數碼之數碼化業務，有線營運商可大大增加播放的頻道，為終端用戶提供更多選擇以及靈活性。數碼平台可按加密方式以不同價格向不同用戶群提供不同類別的數碼服務，盡可能增加用戶數量。

另外，廣告商根據觀眾人數的多寡就播出廣告的時間支付費用。中國的市場調查不夠精確，不能夠判斷觀眾正在收視的節目。因此，有線營運商此前只關注收看節目的人數，並不注重節目的受歡迎程度。透過其用戶管理數據庫，天地數碼平台可根據用戶觀看習慣提供詳盡的資料。這些資料將有助於有線電視營運商在未來更好地定位其服務觀眾對象，以及選擇各自用戶喜歡的節目。

獲取外國資金的渠道有限

中國廣播業基本不允許外資參與。外商被禁止在中國經營或擁有有線電視網絡，從而封閉了國外資金來源渠道。然而，中國國家廣電總局局長徐光春曾表示，外商可向有線電視網絡提供基礎設施技術及增值服務。按照天地數碼現時的業務模式，天地數碼提供有線電視台經營數碼收費電視服務所需的技術，設備及服務。



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DVN, in return for installing its platforms under leasing contracts, receives a percentage of the subscription fees collected for digital TV services broadcast over its platform. DVN also receives sales revenue from the outright sales of its platforms and from the resale of its set top boxes to Pay TV subscribers. Under this structure, DVN is legally able to obtain exposure to China's potentially lucrative broadcasting industry without contravening Chinese laws and regulations while providing equipment to cable operators without a large upfront capital outlay.

Beneficial solution to CATV operators

Through the provision of digital services, the CATV operator is able to charge higher subscription fees and advertising charges as well as receive fee income from future T-commerce services. As such, DVN's digital broadcasting platform provides a beneficial solution to CATV operators in the PRC by providing multiple revenue generating sources, an electronic fee collection system and a highly complex encryption system that prohibits non-payers from viewing the contents as well as provides a secure on-line transaction environment.

Limited content under analog transmissions

Content is limited over analog transmissions as the government mandates that a certain number of CCTV channels and local news and events channels are transmitted, leaving limited network capacity for other channels. As a result, only by digitizing the transmission are the cable operators able to optimize their bandwidth by increasing the number of channels that are transmitted and thus maximize their profitability. By utilizing channel rebroadcasts from other parts of China, local cable operators are able to take advantage of the better quality programming from other parts of China without having to pay for it and include these channels as part of the digital service. The stations, whose channels are rebroadcast, without editing, are able to claim the viewer numbers and increase advertising revenues.

Due to city cable operators, before the current consolidation trend at the provincial level, being responsible for their own programming, certain provincial and municipal TV/cable stations became famous throughout China for their programming quality, i.e. the dramas and movies produced. It is from these stations that DVN and its partner cable companies are sourcing the channel rebroadcasts. Until the digital service was introduced, most Chinese living outside of Shanghai or Beijing had no way of receiving the Shanghai sports channel and Beijing movies and dramas. The digital service is attractive as it provides consumers variety and quality content and provides the cable operators incentive to improve the content quality and variety.

Broad range of content at inexpensive price point

According to published surveys, viewers want more choice and better quality content. By offering channel rebroadcasts that may have better programming than local programming or offer similar programs but at different times, the digital service provides convenience and variety with better reception. To date, DVN's increasing subscription numbers indicate that the digital service is satisfying consumer demands and needs in China.

根據租賃合約，天地數碼按合約比例分享透過其平台提供數碼電視服務廣播所徵收的用戶費，作為其安裝平台的回報。天地數碼亦從銷售整合平台及轉售預收費電視用戶的機頂盒產生銷售收入。按此架構，天地數碼在中國法規容許的情況下，毋須花費大筆資金便可合法地參與中國有巨大盈利能力的廣播事業。

令有線電視營運商受惠之解決方案

透過提供數碼服務，有線電視營運商可徵收較高的用戶費及廣告費，並可從日後的電視商貿服務獲取費用和收入。因此，天地數碼的數碼廣播平台為有線電視營運商開辟多種收入來源，提供電子收費系統，配備尖端加密系統以禁止未付費用戶繼續接收節目，同時提供安全可靠網上交易環境，為國內有線電視營運商提供高效益的解決方案。

模擬傳輸之節目有限

由於政府規定必須播放中央電視台各頻道節目及地方新聞及活動，導致有線網絡容量極為有限，模擬傳輸的節目受到限制。有線營運商只有使用數碼傳輸，才能有效利用頻寬，增加播放節目的頻道數量，從而最大限度地增強盈利能力。透過利用中國其他地區的頻道轉播，地方有線營運商可以利用中國其他地區的高質量電視節目，而毋須支付費用，並將其作為數碼服務的部份內容。電視台使用頻道轉播毋須編輯，可提高收視率及增加廣告收入。

在日前的省級電視台整合趨勢發生之前，由於城市有線營運商本身負責節目製作，若干省市電視/有線電視台因其高質量的節目制作（電視劇及電影）而馳名國內。天地數碼及其有線營運商夥伴從此類電視台尋求頻道轉播。在數碼服務推出前，上海及北京以外的大部份中國居民都無法收視上海的體育頻道及北京的電影及電視劇。數碼服務向消費者提供豐富多元化的優質節目，推動有線營運商提高節目質量，因此廣受歡迎。

節目豐富，收費不高

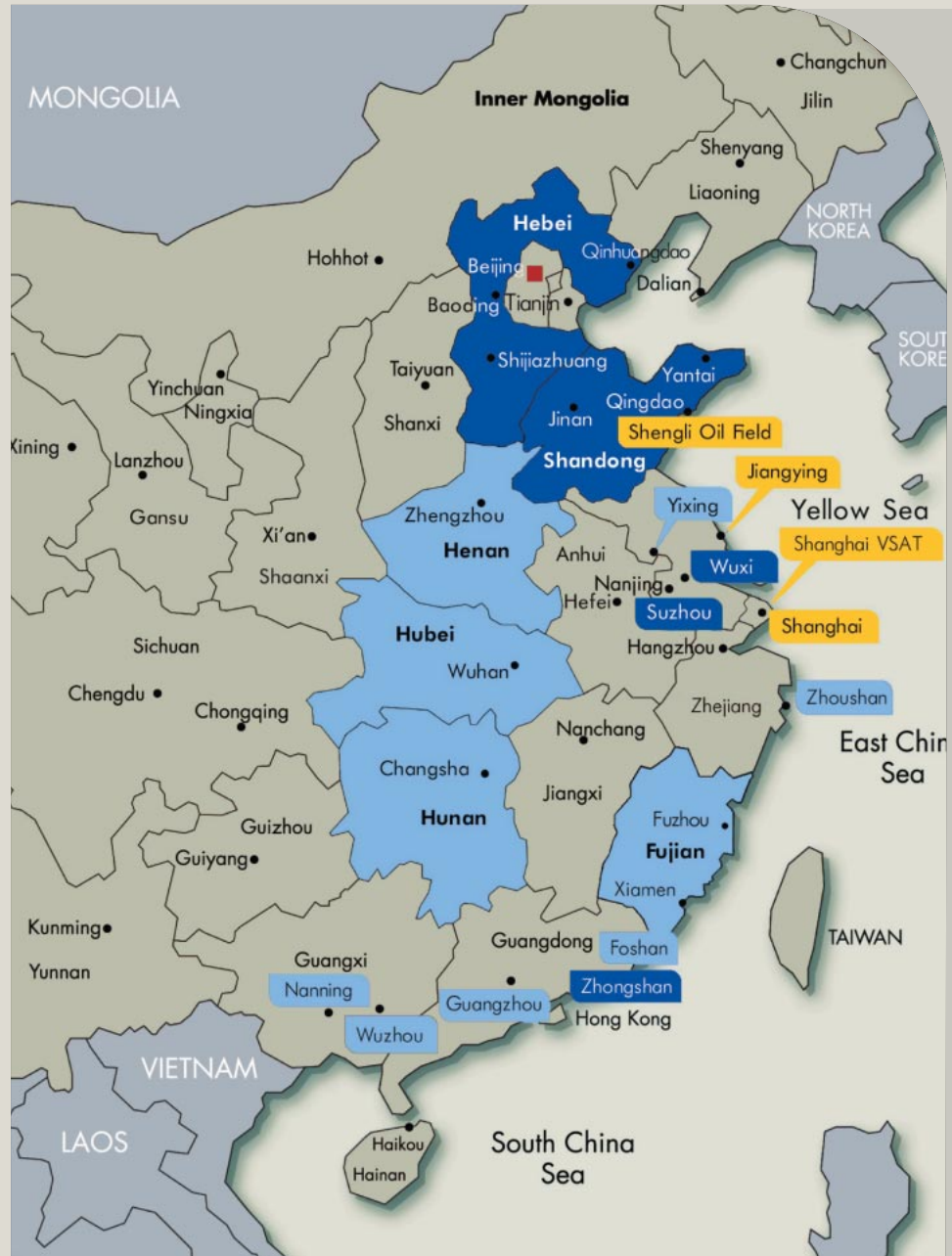
公開調查顯示，觀眾需求更多的選擇及高質量節目。頻道轉播的節目內容可能比當地的節目更精彩，或在不同時間播出類似的節目，因此數碼服務豐富了節目內容，帶來極大方便，容易為觀眾接受。迄今為止，天地數碼的用戶不斷增加，顯示數碼服務滿足中國消費者的需求。

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DVN Installed Systems

已安裝天地數碼系統的地區



Cable subscribers in DVN's Platform Installed Territories

天地數碼安裝平台覆蓋範圍內的有線用戶數目

Province/Municipality 省/市	Number of Cable Households (Millions) 有線家庭用戶數(百萬)	Sale or Lease 出售或租賃
Suzhou 蘇州	0.3	Lease 租賃
Shandong 山東	6.0	Lease 租賃
Hebei 河北	3.0	Lease 租賃
Zhongshan 中山	0.8	Lease 租賃
Wuxi 無錫	0.5	Lease 租賃
Shengli Oil Field 勝利油田	0.12	Sale 出售
Shanghai 上海	3.4	Sale 出售
Jiangying 江陰	0.2	Sale 出售
Fujian 福建	3.0	Combination 兩者結合
Yixing 宜興	0.18	Combination 兩者結合
Zhoushan 舟山	0.25	Combination 兩者結合
Foshan 佛山	0.6	Combination 兩者結合
Henan 河南	4.0	Combination 兩者結合
Hubei 湖北	4.5	Combination 兩者結合
Wuzhou 梧州	0.08	Combination 兩者結合
Hunan 湖南	3.8	Combination 兩者結合
Guangzhou 廣州	1.2	Combination 兩者結合
Total 總數	31.93	

Customers

Through the sale or lease of its platforms, DVN has access to over 30 million existing cable subscribers.

DVN has installed headends that give DVN potential access to over 30 million existing cable subscribers. These headends have been installed using three basic business models: 1) the pure lease model in which DVN itself signs contracts and directly receives a percentage of the revenues; 2) the sales model in which DVN sells its equipment for cash, and does not receive a percentage of the revenues. However, DVN may receive revenues from the sale of set top boxes or from value added services; and 3) the "Combination" models in which DVN recognizes some revenues from the sales of headend equipment, but also receives some subscription revenues "indirectly" because DVN has made an investment in the digital rollout. DVN also receives revenues from the sale of set top boxes and from value added services. This model is attractive as it leverages on local expertise and capital to share the risk.

For the combination model, there are two models:

- Joint investment with a partner to establish a separate joint venture or business entity.
 - Joint venture or business entity purchases DVN digital platform.
 - The entity that is created then signs contract with the CATV.
 - Profits are shared proportionately.
 - DVN receives cash when it is dividend out.
- Part sale/part lease model with CATV.
 - CATV purchases some headend equipment.
 - DVN contributes some headend equipment.
 - DVN receives subscription revenues until it recovers its total capital investment costs. Afterwards, DVN receives a lower percentage of the subscription revenues.

Going forwards, DVN is likely to rely increasingly on the combination model as it enables DVN to reach more subscribers, while leveraging on the local expertise and capital of its partners.

Described below are the five areas in which DVN receives a percentage of subscription fees collected for digital TV services on offer.

Suzhou

In November of 2001, DVN in conjunction with its local CATV partner began offering 70 digital channels. The subscriber is also required to purchase a basic model set top box. As of December 31, 2002, around 5.8% of Suzhou's downtown catchment area population subscribed to digital TV services. DVN is working with its local partner to expand marketing and promotional efforts as well as create a more attractive channel mix to capture a larger base of subscribers.

客戶

透過出售或出租平台，天地數碼已覆蓋超過三千萬現有有線電視用戶。

天地數碼已安裝前端設備，因而具備覆蓋超過三千萬現有有線電視用戶的潛力。天地數碼透過三種基本商業模式安裝該等前端設備：1) 單純租賃模式，天地數碼本身簽訂合約並直接收取一定比例之收入；2) 出售模式，天地數碼出售其設備換取現金，但不收取一定比例的收入。但天地數碼可獲得機頂盒銷售收入或增值服務收入；3) 「兩者結合」模式，天地數碼從出售前端設備獲取部份收入，亦「間接」收取若干用戶費，因為天地數碼已在數碼業務上作出投資。天地數碼亦從出售機頂盒及提供增值服務獲得收入。該種模式可配合其他投資者的專長及資金去達到雙贏的局面，因而具有吸引力。

兩者結合模式可分為兩種模式：

- 與合夥人共同投資成立一間獨立合營公司或商業實體。
 - 合營公司或商業實體向天地數碼購買設備及軟件
 - 企業成立後與有線電視簽訂合約。
 - 利潤按比例分成
 - 天地數碼收取現金股息。
- 向有線電視台部份出售/部份租賃模式
 - 有線電視台購買前端設備。
 - 天地數碼提供前端設備。
 - 天地數碼收取用戶費，直至收回全部資本投資成本。此後天地數碼將收取較低比例之用戶費。

展望將來，天地數碼可能更倚重兩者結合模式，因其既可令天地數碼獲得更多用戶，亦可透過合夥人之參與配合其專長及資金去獲得雙贏的效益。

天地數碼在下述五個地區按提供的數碼電視服務收取用戶費分成。

蘇州

二零零一年十一月，天地數碼聯同當地之有線電視業務夥伴著手提供70條數碼頻道，用戶亦須購置基本型號之數碼機頂盒。截至二零零二年十二月三十一日，蘇州主要城區人口約5.8%已使用數碼電視服務。天地數碼正與當地業務夥伴合作，加強市場推廣及宣傳工作，並且製作更吸引之頻道組合，以擴大用戶基礎。

Going forwards, DVN is likely to rely increasingly on the combination model as it enables DVN to reach more subscribers, while leveraging on the local expertise and capital of its.

展望將來，天地數碼可能更倚重兩者結合模式，因其既可令天地數碼獲得更多用戶，亦可透過合夥人之參與配合其專長及資金去獲得雙贏的效益。



Operations Review

業務回顧

Wuxi

Unlike in Suzhou, where the entire range of analog channels were digitized enabling a larger number of digital channels to be broadcast, in Wuxi, the digital service offers only 20 new digital channels. As in Suzhou, Wuxi subscribers are required to purchase a basic model of the set top box. Digital services began in February 2002 and had achieved a 1% penetration rate of Wuxi's analog cable subscribers as of December 31, 2002. DVN is working with its local partner to modify the digital TV services to accelerate subscriber take up rates.

Zhongshan

In Zhongshan the business model is different. Instead of selling the set top boxes outright and charging a monthly subscription fee on top, set top boxes are subsidized and the monthly subscription fees are higher. This service, introduced in December has been relatively successful, having already achieved a penetration rate of 6% in the downtown area. The digital service in Zhongshan offers 29 digital channels.

Hebei and Shandong

The rollouts in Hebei and Shandong are still only in the trial stage. Take up of digital services in Hebei and Shandong has therefore been slow, but is expected to increase once full rollouts with extensive marketing campaigns begin in earnest in 2003. Even during the current trial stage, revamped channel mixes, improved and a broader range of content and increased promotional efforts have lead to increased subscription growth. Once DVN and its partners are satisfied that the service offered is optimal for the particular locations and at the right price levels, full rollouts of the digital TV services will commence throughout the provinces.

New joint ventures with Jiangsu Hongtu and Zoran enhance DVN's competitive advantages and further penetrate the China market

DVN in April entered into a 50:50 joint venture agreement with Jiangsu Hongtu High Technology Co., Ltd. ("Hongtu"), a Shanghai Stock Exchange listed company, in which Hongtu and DVN will each contribute RMB45 million in cash to be used for marketing of digital broadcast services and equipment and for the purchase of relevant equipment from DVN. The new company, called Jiangsu Hongtian Broad Communication Company Ltd., has already rolled out digital cable TV services in Guangzhou. The joint venture will also consider new markets where DVN has not yet installed its platforms.

This joint venture will provide DVN a new financial and strategic partner, which has strong marketing and production expertise as well as excellent government connections due to the large stakes of Hongtu owned by multiple government related entities. Furthermore, Hongtu's consumer electronic manufacturing excellence, just-in-time delivery schedules and high quality control throughput will result in superior set top boxes for the Chinese consumers at cost competitive levels.

無錫

蘇州全部模擬廣播頻道均已數碼化，提供大量可供廣播之數碼頻道，但無錫之情況與蘇州不同。在無錫數碼服務僅則提供包括20條新數碼頻道。與蘇州用戶一樣，無錫用戶須購置基本型號之數碼機頂盒。數碼服務於二零零二年二月開展，於十二月三十一日已佔無錫之模擬有線用戶之市場滲透率達1%。天地數碼正與當地業務夥伴合作進一步改良數碼電視服務，以加快用戶之增長速度。

中山

中山之業務模式則有所不同。在其他地方，一般在開始時向用戶銷售機頂盒，然後再按月收取用戶費，但在中山則補貼用戶，提供機頂盒，然後可獲分期租賃資助，而不是直接出售，因此每月收取較高的用戶費。服務於去年十二月推出，成績相對較為理想，至今已達到城區6%之市場滲透率。中山之數碼服務提供包括29條數碼頻道。

河北及山東

在河北及山東推出數碼服務仍在試驗階段，故用戶數目增長較其他地區緩慢，但預期於二零零三年透過大型市場推廣活動全面推銷數碼服務後，用戶將有所增加。儘管目前仍處於試驗階段，惟借助經過創新之頻道組合、經增加種類及加強節目內容，以及加強推廣工作，用戶數目正在增長。一俟天地數碼及其業務夥伴認為所提供服務完全切合有關地區之需要，且價格處於適中水平，將會在全省全面推廣數碼電視服務。

與江蘇宏圖及Zoran新建立合營公司增強天地數碼之競爭優勢，並進一步滲透中國市場

天地數碼已與上海股票交易所之上市公司江蘇宏圖高科技有限公司（「宏圖」）簽訂協議，建立雙方各佔50%權益的合營公司。宏圖及天地數碼將各自向該合營公司注入四千五百萬元人民幣之現金，用作數碼廣播服務及設備之市場推廣資金及從天地數碼購買有關設備。新公司擬定名稱為江蘇宏天廣頻視訊有限公司，首先在廣州推出數碼廣播服務。該合營公司亦計劃開發天地數碼尚未安裝數碼廣播平台的地區。

該合營公司將為天地數碼帶來新的財務及策略合夥人，彼等不但擁有雄厚的市場推廣及專業生產技術，同時又因多家具政府背景之企業擁有宏圖大部份股份而具有良好的政府關係。此外，宏圖在消費電子產品方面擁有一流的製造技術、及時供貨計劃及嚴格的質量控制，因此能夠生產出高質量、在中國市場上具成本競爭力的機頂盒。



Operations Review

業務回顧

The focus of the joint venture will be to expedite the rollouts of digital TV services in high potential locations where digital TV services have yet to commence operation leveraging the strengths of each partner, DVN's extensive network of installed digital broadcasting platforms and Hongtu's consumer electronic expertise. Furthermore, as Hongtu will manufacture all the set top boxes for the joint venture's territories, Hongtu will provide very favorable set top box financing terms to the joint venture. This arrangement allows DVN to further penetrate the Chinese market and broaden its geographic scope while limiting its downside exposure as well as cash requirements.

DVN, in forming the JV with Hongtu, completes the set top box supply chain. DVN's joint venture with Hongtu will make it the first company that provides digital media services to tie up with a large consumer electronics manufacturing concern in China. This follows DVN's tie-up with Nasdaq-listed Zoran Corporation, a major chip supplier for consumer electronic products, in particular DVD players and digital cameras, through its HK\$39 million investment in DVN in March 2002. Together the three companies will create a total supply chain for digital set top boxes, with DVN providing the design and technology, Zoran the chip set and Hongtu the manufacturing. The collaboration of the three companies will provide to Chinese consumers high quality, tailor made, multi-functional set top boxes at cost competitive levels while also enabling fast response times to changes in the market and in consumers' taste and demands.

Hongtu is involved in the development, manufacturing and distribution of computers, software, network equipment, DVD players and other communication products and is one of DVN's OEM manufacturers of its set top boxes. Hongtu sells its products throughout China as well as worldwide, in particular the European, American, Australian and New Zealand markets. Hongtu had sales of RMB 2.2 billion in year 2002 and as of December 31, 2002, its total assets were RMB 2.9 billion.

Employees and Offices

As of March 31, 2003, DVN's digital business segment had 286 employees, including 94 in engineering and research and development. Of the 248 employees, 24 are stationed in Hong Kong and are responsible for corporate activities, capital management, research and development strategy and planning, financial control and policy, operational strategy, marketing direction and business development. DVN currently has offices in Beijing, Shanghai, Suzhou, Jinan, Zhongshan, Hangzhou and Shenzhen, Shijiazhuang, Baoding and Qinhuangdao, Hebei Province and in Wuxi, Jiangsu Province. Dynamic Network which is DVN's wholly-owned subsidiary in the business of providing of international financial market information and selective consumer data had 38 employees as of March 31, 2003.

憑藉各合夥人的雄厚實力，天地數碼已安裝數碼廣播平台的主要地區網路及宏圖在消費電子產品方面的生產技術，該合營公司將在尚未開展數碼電視服務但有巨大市場潛力的地區快速拓展市場。此外，由於該合營公司工作地區所需的全部機頂盒將由宏圖製造，宏圖會向該合營公司提供相當優惠的財務條款。該種安排既有利於天地數碼進一步拓展中國市場，擴大地理覆蓋範圍，又可控制風險，降低現金需求。

天地數碼藉與宏圖建立合營公司，成功建立一個完整的機頂盒供應鏈，並因此成為與中國大型電子製造公司結盟的首家數碼媒體服務供應商。此前，天地數碼已與納斯達克上市公司 Zoran Corporation 結盟。Zoran 是消費電子產品尤其是 DVD 影碟機及數碼相機等產品的主要晶片供應商，於二零零二年三月向天地數碼投資三千九百萬港元。三家公司共同組建一個完整的機頂盒供應鏈。分工方面，天地數碼提供設計及技術，Zoran 提供晶片，宏圖提供製造服務。三家公司聯合，將以具競爭力的成本為國內消費者提供高質量、度身定制的多功能機頂盒，同時對市場、客戶品味及需求之變化作出快速反應。

宏圖從事電腦、軟件、網絡設備、DVD 影碟機及其他通訊產品的開發、製造及銷售，是天地數碼機頂盒的原設備機製造商之一。宏圖的產品行銷中國及全球各地，尤其歐洲、美洲、澳洲及紐西蘭市場。宏圖二零零二年之銷售額為 22 億元人民幣。於二零零二年十二月三十一日，宏圖之總資產達 29 億元人民幣。

員工及辦事處

於二零零三年三月三十一日，天地數碼的數碼廣播業務共有 286 名員工，包括 94 名工程人員及研究開發人員。248 名員工中有 24 名常駐香港，負責企業活動、資金管理、研究開發、制定策略及計劃、財務管理及策略、制定營運及技術策略、市場推廣及業務發展。目前，天地數碼在北京、上海、蘇州、濟南、中山、杭州及深圳、河北省的石家莊、保定及秦皇島以及江蘇省的無錫設有辦事處。於同日天地數碼之全資附屬公司 Dynamic Network (該公司從事提供國際金融市場資訊及精選消費者數據業務) 則有 38 名員工。



Operations Review

業務回顧

Competitive Advantages

Most complete digital broadcasting system using advanced technologies at the lowest price

DVN's competitive advantages are numerous and as a result there are very few real competitors. DVN provides an end-to-end, totally integrated, Chinese language digital broadcasting platform. This platform includes a conditional access system, subscriber management system, a billing and payment system as well as the middleware applications. Additionally, DVN develops applications specifically tailored to the operations of the CATV operator so that each platform is unique to the characteristics of the local market.

Most competitors, whether domestic or international, provide only a part of the entire platform, either hardware or software. As a result, the cable operator must spend time and resources to source various parts of the platform from different vendors and then spend additional time and resources to integrate and manage the disparate parts. Additionally, most foreign competitors simply create a Chinese version of applications that have been developed for foreign markets and as a result do not address the unique characteristics of the Chinese market. DVN's fully integrated, end-to-end platform, as a result of using primarily in-house developed technology, is extremely cost effective and thus suitable for China's level of economic development.

Received all required government approvals

Additionally unlike DVN's set top boxes and technology, many competitors' set top boxes and/or technology have not received government approval for use by CATVs. DVN's set top boxes, conditional access technology and middleware applications are all in compliance with standards put forth by the Chinese government and have been certified.

On the ground, extensive local support and engineering teams

Additionally to be a real competitive force, a competitor needs critical mass to provide support services, both before and after installation. DVN offers support to the cable operators in terms of system integration, marketing and operational teams, technical support and content. Most foreign competitors do not have teams on the ground offering after sales support to the cable operators.

Pioneer of digital broadcast technology in China

DVN also has extensive experience in working with CATVs resulting in the creation of operating systems that are perfectly suited for the business environment faced by Chinese cable operators. DVN has tailor made its middleware system, billing and payment systems to suit the needs of Chinese CATVs. DVN was the first company in China to develop a complete CA system and has received all the government approvals for the deployment of its CA system throughout China. It was also the first developer of a middleware system in China using all its own technology as well as the first developer of a java-based set top box.

競爭優勢

完備的數碼廣播系統應用先進技術但價格低廉

天地數碼的競爭優勢不勝枚舉，真正的競爭對手很少。天地數碼提供端對端式綜合中文數碼廣播平台。該平台包括有條件接收系統、用戶管理系統、結算及付款系統、以及中介軟體應用程式。此外，天地數碼專為有線電視營運商之營運開發度身定制之應用程式，以令各平台符合當地市場要求。

由於國內及國外的競爭者僅提供整套平台的一部份硬件或者軟件，有線營運商不得不投入大量時間及資源，從不同供應商購買平台的各個部份，然後耗費相當時間及資源將各個部份組裝成一個整體。此外，多數外國競爭對手僅僅將其已為國外市場開發的應用程式製作一個中文版本，並未符合中國市場的特色。天地數碼的端對端綜合平台主要應用內部開發的技術，成本低，效益高，適合中國經濟發展水平。

獲發所有所需政府批文

天地數碼的機頂盒及技術已獲發所有必要的政府批文，可供有線電視台使用。而多家競爭者的機頂盒及/或技術尚未獲得政府批准，不可供有線電視台使用。天地數碼的機頂盒、有條件接收技術及中間軟體應用程式均符合中國政府制定的標準，並已通過認證。

強大的地方支援及工程隊伍

除需具備強大的競爭實力外，競爭者還需設立完備的執行隊伍，提供安裝系統之前及售後的支援服務。天地數碼在多個地區設有執行隊伍，向有線電視營運商提供有關系統集成、市場推廣及營運、技術支援及節目方面的支援服務。大多數國外競爭者在國內並無設立專為有線電視營運商提供售後支援的執行隊伍。

中國數碼廣播技術先驅

天地數碼與中國有線電視營運商廣泛合作，因而創製出完全配合中國有線營運商業務環境的操作系統。天地數碼按照中國有線電視營運商的需求為其度身定制中間軟件系統，結算及付款系統。天地數碼乃中國首家開發完整之有條件接收系統的企業，並已獲得在中國各地裝設其有條件接收系統所需的所有政府批文。同時，天地數碼也是中國首家利用本身技術開發中間設備的開發商，並是首家基於ava技術的機頂盒開發商。



Operations Review

業務回顧

Technology specifically designed for the China market

The barrier faced by most foreign competitors is that their technology while suitable for the European or American markets is not suitable for the Chinese market and is very expensive given the level of subscription fees that are acceptable to Chinese consumers. DVN maintains a strong research and development team within China that is developing technology and solutions specific to the China market and its unique structure and characteristics.

First Mover Advantage

Another major barrier to entry is that DVN has already installed 21 platforms in China's richest and most developed regions, some of which are under exclusive contracts for terms of 10 to 15 years. Digital services are already commercially operable in ten locations. There are very few other platforms installed outside of DVN's that are commercially operating in China.

DVN provides an end-to-end, totally integrated, Chinese language digital broadcasting platform.

DVN was the first company in China to develop a complete CA system and has received all the government approvals for the deployment of its CA system throughout China.

Prospects and Future Plans

Prospects

China's State Administration of Radio, Film and Television ("SARFT"), China's primary regulator for the cable TV industry, has announced that 2003 is to be the beginning of a major effort to create a more profitable Pay-TV business through the conversion of China's cable broadcasting system from analog to digital.

In December, SARFT held its annual technology conference in Suzhou, the site of China's and DVN's first digital TV rollout. At this meeting and in a number of subsequent announcements, SARFT stated its intention to migrate 30 million cable subscribers to digital by 2005. Recognizing that quality content will be crucial to attracting a Pay TV audience, SARFT also announced its intention to launch 30 new pay channels.

As the first company to have rolled out digital TV services in China, DVN is well positioned to take advantage of these new developments. Compared to the first quarter of 2002, the number of set top boxes sold in the first quarter of 2003 have increased over 30%, set top box revenues have increased over 40%, and subscription revenues have more than doubled. A strong first quarter order book suggests that DVN will be able to continue the increased sales rate. Moreover, set top box margins were significantly higher in the first quarter as new set top boxes were manufactured at a significantly reduced cost. DVN believes that cheaper set top boxes will accelerate the migration of subscribers from analog to digital.

DVN is currently in serious negotiations with five other localities to sell large headends. With the new SARFT directive to digitise, DVN expects additional significant orders by the end of 2003.

專為中國市場設計之技術

大多數國外競爭者面對的一大障礙是其擁有適合歐美市場技術，但卻不適合中國市場。此外，相對於現時中國消費者所付出之用戶費，國外競爭者的技術成本較高昂。天地數碼於中國之研發隊伍實力雄厚，專事開發適合中國市場及其獨特架構與特點的技術及解決方案。

先行後勢

競爭對手的另一個進入障礙是天地數碼已在中國最富庶、最發達的地區安裝21個平台，其中地區並簽立為期10至15年的獨家經營合約。數碼廣播服務已在十個地區開展商業運營，而其他同類形已安裝並已開展商業運營的平台卻為數不多。

天地數碼提供端對端綜合中文數碼廣播平台。

天地數碼是中國首家開發完整有條件接收系統的企業，已獲發所有政府批文，可在中國各地裝設有條件接收系統。

未來計劃及商機

前景

中國有線電視行業的主要監管機構中國廣播電影電視總局(「廣電總局」)公佈，透過將中國的有線廣播系統從模擬製式轉為數碼製式，二零零三年開始大規模建立利潤更高的收費電視業務。

The aggressive push by SARFT will lead to increased demand for digital broadcasting equipment.

廣電總局之積極推廣將令市場對數碼廣播設備的需求增加。

於十二月份，廣電總局在中國蘇州(天地數碼首個開展數碼電視服務的城市)舉行年度科技大會。在會議上及其後多次刊發的公告中，廣電總局表明到二零零五年，將三千萬有線電視用戶轉為數碼用戶。認識到優質節目乃吸引付費電視觀眾的關鍵，廣電總局亦宣佈其將新推出30個付費頻道。

作為國內首家推廣數碼電視服務的公司，天地數碼已校準定位，充分利用最新的科技進展。與二零零二年第一季度相比，二零零三年第一季度銷售的機頂盒數目已上升超過30%，機頂盒收入上升超過40%，用戶費收入更是翻一倍有多。第一季度訂單增長強勁意味著天地數碼可繼續提高銷售額。此外，由於新機頂盒的製造成本大幅下降，第一季度的機頂盒銷售利潤繼而上升。天地數碼相信，較便宜的機頂盒將加速模擬製式用戶轉為數碼製式。

天地數碼現在其他五個地區進行重大磋商，以銷售大型前端設備。由於廣電總局發出指令進行數碼化，天地數碼預計於二零零三年年底將接獲額外訂單。



Operations Review

業務回顧

Maintain first mover advantage and achieve rapid penetration

The favorable response to the introduction of basic digital services in Suzhou and variations of basic digital services in other locations indicates that DVN's model to penetrate the Chinese market is correct. Chinese consumers want a low priced, broad range of content digital service. DVN will expand upon its success in Suzhou and elsewhere, introducing basic digital services in locations where its platforms are already installed. It will also work with its cable partners to establish extensive points of sales networks to rapidly penetrate the targeted locations. DVN believes that converting as rapidly as possible analog subscribers to digital using DVN's standards and set top boxes will maintain its first mover advantage as well as further strengthen the already existing barriers to entry.

Increase efforts in new rollout areas.

Guangzhou and Fujian are expected to make major contributions in 2003 as both locations have started formal rollouts. Guangzhou and Fujian are among the wealthiest regions in China, and are expected to be major buyers of set top boxes. In addition, DVN anticipates supplying set top boxes to Shanghai, which began its rollout at the end of 2002. Given all the new rollouts, DVN anticipates that sales of set top boxes will be substantially higher in 2003 as indicated by its current large order book.

Establish relationships with other domestic and international partners.

DVN is looking to work together with other local and foreign strategic partners to facilitate its rollouts. DVN realizes that it cannot finance the rollouts in all of China, but must work with partners that can provide capital. DVN expects that it will provide the headend equipment, software, and expertise, while the partner will provide the capital and local expertise to facilitate the rollout. DVN will also look to setting up other strategic alliances with foreign companies which may be interested in participating in China's cable television market.

Provide excellent, broad ranged support and services to CATV operators to maintain and protect relationships

As CATV operators have a monopolistic position within their territories controlling the last mile access, it is important that DVN maintains good relationships with them. DVN provides technical, after sales and marketing support through on the ground, local offices staffed by DVN employees. DVN will further strengthen its local offices to better monitor and evaluate the effectiveness of market promotions and market strategy. DVN's offices will be responsible for further customer research and feedback to ascertain product mix and pricing and to make recommendations.

保持先行優勢，快速擴大市場滲透率

在蘇州推出的基本數碼服務及於其他地區推出的多樣化基本數碼服務反應良好，證明此為天地數碼滲透中國市場的正確模式。在此階段，中國消費者要求收費低廉、節目豐富的數碼服務。天地數碼將推廣其於蘇州及其他地區的成功業務模式，在已安裝其平台的地區推出基本數碼服務。此外，天地數碼將與有線營運商夥伴合作，建立廣泛的銷售網點，快速滲透目標市場。天地數碼相信，使用天地數碼技術標準及機頂盒，儘可能快速推動模擬電視用戶轉為數碼電視用戶，將有利於天地數碼保持先行優勢，進一步加防備競爭者進入市場。

加大力度拓展其他地區市場

因廣州及福建兩地已正式開始市場拓展，預計二零零三年這兩個地區將是主要輸入來源地。廣州及福建是中國最富有的地區，預期將成為機頂盒的主要銷售區。此外，天地數碼將向於二零零二年年底開展業務的上海供應機頂盒。儘管該等地區剛剛開展業務，但從天地數碼日前的機頂盒訂單來看，預期二零零三年機頂盒的銷售將大幅提高。

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與國內及國際夥伴建立關係

天地數碼正尋求與國內及國際其他策略夥伴建立聯繫，以促進市場拓展。天地數碼認為只有與能提供資金的夥伴合作方能獲得充足資金在中國各地區拓展市場。天地數碼將提供前端設備、軟件及技術，而合夥方將提供開展業務所需的資金及地方優勢。天地數碼亦尋求與有興趣進入中國有線電視市場的外國公司結成策略聯盟。

為有線電視營運商提供多項完善的支援及服務，以保持良好關係

鑑於有線電視營運商在其所屬地區佔據壟斷地位，控制地方廣播業，因此天地數碼與其保持良好關係極為重要。天地數碼在各地設立辦事處，其專業人員負責提供技術、售後服務以及市場推廣支援。天地數碼將進一步增強地方辦事處，以妥善監管及評估市場推廣及市場策略之有效性。天地數碼辦事處將負責收集顧客調查資料及回應，以確定產品組合及定價的合理性並提出建議。



Operations Review

業務回顧

Focus on channel mix and pricing

Currently in China, most viewers are interested in movies and drama content. Cultural, history, scientific and other entertainment categories have more specific target audiences that are able to accept different price points. DVN going forward will emphasize movie and drama channels to drive subscriber numbers while targeting specific end user groups with more specialized offerings. DVN will also focus on enhancing the range of movie and drama content shown on the various channels to ensure viewer satisfaction and superiority to analog content.

Lastly DVN will further promote its on-line stock and financial news services through further education of consumers as well as price competitiveness over PC based services.

Build upon existing basic digital services base to upgrade subscribers to higher value added services

By offering basic digital services to subscribers at a low price entry point, there is minimal resistance to upgrading to digital TV from analog. Once subscribers feel more comfortable with the digital technology and its capabilities, basic services may be used as a springboard to upgrade subscribers to higher value added services that are more profitable to the CATV operator and thus DVN. Such services will include VOD, distance learning, on-line gaming, on-line stock trading, home banking, interactive advertising that enables instant audience response, direct-to-home market research and other T-commerce applications, to name a few.

Maintain DVN's technical advantage and cost competitiveness

DVN will continue to offer technically advanced systems at very low prices by taking advantage of China's low cost, but highly educated labor force as well as its two new strategic partners, Zoran and Hongtu to further strengthen DVN's competitive advantages as well as ensure the creation of broadcasting technology and digital receivers that are uniquely tailored for the China market. DVN currently has approximately 100 full time employees committed to engineering and product development largely in China as well as some in Hong Kong.

Leverage off relationship with Hongtu and local CATV operators to further penetrate the China market

DVN's recently formed joint venture with Hongtu will provide DVN with a strong local partner with substantial sales and marketing expertise. Hongtu already has well established local distribution networks that may be used to distribute DVN's set top boxes as well as collect information regarding likes and dislikes of Chinese consumers so that the digital services offered meet consumer demands. This alliance is in addition to the network of relationships DVN has already established with both the city and provincial level CATV operators. DVN will continue to focus on providing on the ground support to CATV operators in order to penetrate local markets quickly and expeditiously.

側重節目播放組合及定價

目前，大多數中國觀眾對電影及電視劇節目興趣濃厚。文化、歷史、科技以及其他娛樂節目擁有不同類別的觀眾，可接受不同檔次的收費。天地數碼將繼續側重電影及電視劇等娛樂性節目，以吸引更多用戶，並就特定終端用戶群提供更具針對性的節目。同時，天地數碼將擴充不同頻道節目的範疇，以確保觀眾滿意度，並鞏固數碼電視節目的優勢。

最後，天地數碼將加大宣傳力度，利用數碼電視比個人電腦優勝的價格優勢，進一步推廣在線股票及財經新聞服務。

利用現有基本數碼服務之基礎，促使用戶使用高增值服務

透過以較低價格作為進入點向用戶提供基本數碼服務，儘可能減少從模擬廣播轉為數碼廣播的阻力。待用戶體驗到數碼技術及其功能的優勢後，可將基本服務作為跳板，提升用戶使用高增值服務，從而為有線電視營運商及本公司帶來更大收益。該等服務將包括視頻點播、遠程教育、網上游戲、網上股票買賣、家居銀行、可即時收集觀眾反應之互動廣告、直接到戶市場調研及其他電視商貿應用等。

保持天地數碼的技術優勢及成本優勢

天地數碼將繼續利用中國的高質素但成本低廉的員工隊伍以及新增的兩個策略夥伴Zoran與宏圖，以較低價格提供具有尖端技術的系統，進一步加強天地數碼的競爭優勢，確保研製針對中國市場特色度身定制的廣播技術及數碼接收器。天地數碼擁有近100名全職僱員專事工程設計及產品開發。該等人員大部份常駐中國大陸，部份在香港。

透過與宏圖及當地有線電視營運商之關係，進一步滲透中國市場

天地數碼近期與宏圖建立合營公司。宏圖乃實力雄厚的當地夥伴，擅長市場推廣，銷售額可觀。宏圖已建立穩固的地方分銷網絡，可用於分銷天地數碼的機頂盒，收集有關中國消費者的資料及愛好，以便提供之數碼服務滿足消費者需求。除該等聯盟外，天地數碼已與省市級有線電視營運商建立關係網絡。天地數碼將持續側重向有線電視營運商提供基礎支援，以期能迅速地滲透當地市場。



Operations Review

業務回顧

Additional international opportunities

DVN's technology is not only applicable to China, but to other regions of the world, particularly to those regions looking for cost effective digital broadcasting solutions. DVN is therefore currently under negotiations to sell or lease its platform in South Korea, Taiwan, Indonesia, and India. DVN has already sold one community system in South Korea. In addition, DVN has been working on a number of international contracts, one of which it anticipates signing by the first half of 2003. DVN is also pursuing overseas markets for the distribution of its high quality, low cost set top box.

DVN provides technical, after sales and marketing support through on the ground, local offices staffed by DVN employees.

Risk Management

DVN's exposure to China's broadcasting industry, which by using digital technology merges interactive data, video and audio, brings about a degree of uncertainty with unlimited potential. Due to the newness of digital broadcasting technology and its multi-faceted capabilities, the broadcasting industry's structure, services and regulations are evolving. DVN has positioned itself to take advantage of this potential while minimizing its risks. It has implemented a flexible business model that permits and rewards both proactive initiative as well as defensive maneuvers to take into account changes in the industry as it matures as well as changes in preferences of Chinese consumers. DVN also does not rely on owning the cable infrastructure for its business model to be successful but instead focuses on allying itself with the owner of the last mile. DVN will closely monitor changes in the market and will adopt a prudent and adaptive approach in order to maximize shareholders' value while providing shareholders the ability to participate in the immensely interesting and potentially lucrative digital broadcasting revolution.

Due to the newness of digital broadcasting technology and its capabilities, China's regulatory environment and the broadcasting industry's structure and services are evolving. It is possible that future policy changes could impede DVN's operations and the enforcement of its contracts.

DVN has structured its involvement in China to fall within the rules and regulations regarding foreign involvement in the broadcasting industry. DVN is primarily a technology provider and data and service content provider. DVN's primary business is in the upgrading of broadcasting facilities to enable digital broadcasting, an area that the Chinese government has explicitly stated that Hong Kong based companies can get involved in. The trend in China, as promoted by the SARFT, is to upgrade China's broadcasting industry from analogue to digital and DVN's technology supports this switch. In addition, two of DVN's leasing contracts and their related payment terms have been vetted by the SARFT under Hebei Provincial CATV's and Shandong Provincial CATV's license applications.

開拓國際市場之商機

天地數碼之技術不僅適用於中國，也適用於世界其他地區，尤其是尋求低成本數碼廣播解決方案的地區。近期，天地數碼正在韓國、台灣、印度尼西亞及印度洽商。至今，天地數碼已出售一套前端小區系統給南韓。此外，天地數碼一直在洽商多份國際合約，預期其中一份可於二零零三年上半年簽立。天地數碼同時尋求在海外市場低價分銷其高質量的機頂盒。

天地數碼在各地設立辦事處，其專業人員負責提供技術、售後服務以及市場推廣支援。

風險管理

鑑於數碼技術相容互動數據、視頻及音頻，天地數碼參與中國具無限潛力的廣播業伴隨著相當程度的不確定因素。數碼廣播技術及各項功能發展日新月異，廣播業之發展結構、服務及管理規則亦在不斷演變之中。天地數碼已校準定位，充分利用這種潛力，同時最大限度地降低風險。天地數碼採用靈活的業務模式，兼用積極和保守措施，以適應日後行業逐漸飽和及國內顧客需求之變化。而且，天地數碼之業務模式的成功並非依賴擁有有線網絡基礎設施，反而側重與控制實際運營者建立聯盟。無論如何，天地數碼將密切關注市場變化，並以審慎、靈活的策略為股東帶來最大收益，同時，股東亦得以參與有巨大發展潛力及盈利能力的數碼廣播革命。

數碼廣播技術及各項功能發展日新月異，中國管理環境、廣播業之發展結構及服務亦在不斷演變之中，可能對天地數碼的業務營運及合約履行產生不利影響。

天地數碼已重整其國內業務模式，以求符合外商參與廣播事業的法規及法例。天地數碼主要是技術、數據及服務節目供應商。天地數碼之主要業務為升級廣播設施、發展數碼廣播，中國政府已明確表示，香港公司可以參與以上廣播事業之領域。廣電總局日前在國內全力推動的潮流，是從模擬廣播升級至數碼廣播。天地數碼之技術順應此潮流。此外，於河北省及山東省有線電視申請牌照之時，天地數碼與其簽訂的兩份租賃合約及其相關付款條款已獲廣電總局批核。



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As new technologies are involved, there may be delays in the implementation and roll out of the digital broadcast services.

DVN's system has been fully tested and is now operational in ten locations throughout China. As such even though there may be minor installation difficulties in other locations, DVN does not expect any major obstacles.

Due to the infancy of the digital broadcasting industry and its related services, new technologies may be developed that could replace that of DVN

DVN has put in place a multi-pronged approach to ensure its technology remains at the forefront of international technical developments as well as meets the demands and requirements of Chinese consumers and service providers. DVN has focused and will continue to focus on forging strategic alliances with the world's leaders in digital technology and consumer electronic products. DVN also maintains a strong research and development focus with over one-third of its staff committed to research, product development and engineering. Lastly, DVN maintains close working relationships with multiple divisions within and at different working levels of China's SARFT. This ensures that DVN is aware of the technical direction in China, the requirements of the various involved government authorities as well as the technical standards currently existing and expected to be enacted. Such a multi-pronged approach allows DVN to be proactive and not reactive providing a system that is not only suitable to the unique characteristics of the China market but also technically advanced and at the forefront of technical developments.

There is no guarantee that subscribers will subscribe to the new digital services

Chinese incomes are significantly lower than in the more developed countries. Therefore, there may be resistance by many subscribers to paying for the set top box and to higher subscriber fees in order to receive digital services.

However, there is clear evidence that Chinese are willing to pay for expanded entertainment options. In Suzhou, 5.8% of the downtown area that DVN has offered its services to is now subscribing to DVN's digital services. This is a takeup rate that is comparable to the experience of more developed markets where set top boxes were leased out.

由於涉及高新技術，可能延遲實施及開展數碼廣播服務。

天地數碼之系統已通過全面測試，目前已在中國十個地區運營。因此，即使在其他地區可能出現少許安裝困難，天地數碼預期不會出現任何重大障礙。

由於數碼廣播業及有關服務處於起步階段，天地數碼之技術有可能為新興技術取代

天地數碼已採取多方位策略，確保其技術水平走在世界尖端，同時又能滿足中國消費者及服務供應商的多方索求。天地數碼已成功地並將繼續致力尋求與全球數碼技術及消費電子產品翹楚結成聯盟。天地數碼亦堅持不懈地維持強大的研發力量，從事研究、產品開發及設計員工逾總人數三分之一。而且，天地數碼與中國廣電總局多個部門積極維持各種層次的工作關係，此舉有利於天地數碼及時瞭解中國技術發展趨勢、各級有關政府部門的要求以及現有及預計將頒佈的技術標準。該等多方位策略令天地數碼搶佔先機，先行一步，提供適應中國市場特點並與最新技術保持同步的尖端發展步伐。

不能保證用戶將使用新推出的數碼服務

中國的居民收入遠低於其他發達國家。因此，很多用戶可能拒絕就使用數碼服務購買機頂盒，或支付較高的用戶費。

然而，事實表明，中國消費者願意為獲得更多娛樂項目支付費用。在天地數碼提供服務之蘇州地區內，有5.8%的城區用戶正在使用天地數碼的數碼服務。該佔有率與出租機頂盒的發達地區市場相若。