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**加强沟通交流 推动建筑市场信息化建设**

----中国与阿拉伯国家建筑市场信息化建设论坛致辞

住房城乡建设部建筑市场监管司招投标监管处 处长 王玮

尊敬的刘理事长、各位中外嘉宾：上午好！

非常高兴参加中国土木工程学会建筑市场与招标投标研究分会主办的“中国与阿拉伯国家建筑市场信息化建设论坛”，对论坛的成功举办表示热烈的祝贺，相信今天的论坛对了解促进中阿国家相互交流，共同提高工程建设水平将起到重要的推动作用。

中国和阿拉伯国家有着传统友好合作，大家相互借鉴、平等互惠、共同发展。阿拉伯建筑市场是中国建筑企业走出国门开展对外工程承包的传统市场，2011年，中国企业对外承包额为1034亿美元，其中阿拉伯建筑市场占据了较大的份额。中国实施“走出去”的发展战略，今后中国建筑企业对外承包也将逐步从传统的建筑劳务承包向项目投融资、BOT、EPC等工程总承包发展模式转变，在这个转变过程中，无论是企业、行业组织或是城府部门都把信息化建设作为实现调整结构、转型升级的一个重要手段，我想这也是今天论坛主题的意义所在。

借此机会向各位朋友简要介绍一下我们的职能，建筑市场监管司作为住房城乡建设部的一个司，属于中央政府的建设行政主管部门，主要是研究拟定工程建设政策、法规，以及相关的发展战略，指导全国建筑活动，规范建筑市场。我国工程建设领域基本制度主要包括：项目法人责任制度、工程招标投标制度、施工许可或开工报告制度、企业和个人执业市场准入制度、建设监理制度、合同管理制度、工程质量监督制度、工程竣工验收制度和工程保险担保制度等。

近年来，中国建筑业持续保持平稳增长态势，主要表现在：市场规模不断扩大，行业素质不断提升，企业国际竞争力不断加强,建筑市场政策法规和行业技术标准规范不断完善，城市建设、住宅建设、重大基础设施建设取得了令人瞩目的成绩。与此同时，建筑市场监管也面临着巨大的挑战，保障性住房建设、城市轨道交通建设任务艰巨，建设市场环境依然严峻，过度竞争、不正当竞争、市场主体各种违法违规和不诚信行为依然扰乱建筑市场秩序，另外，工程建设领域的腐败问题也是各国都面临的一个难题。巨大的市场规模、庞大的企业和人员总量，使得政府建设行政主管部门无论在立法层面，还是在执法层面都在积极探索转变监管方式，建筑市场监管信息系统和诚信体系建设被认为是长效的治本之策，在加大行政处罚的同时，从建筑市场信用管理入手，从根本上解决诚信缺失问题。今天的议题就是这项工作的深入和延伸，我想通过大家的深入交流，无论从思路上还是做法上都会带来新的启示。让我们期待着大家的精彩发言。

谢谢大家！

**Enhance Exchanges and Promote Informatization Construction of the Construction Market**

----A Speech to Forum for Informatization Construction of China-Arab Construction Market

Department of Construction Market Supervision, Ministry of Housing and Urban-Rural Development WANG Wei, Chief of Bidding Supervision Section

Your Excellency Director-general LIU, Distinguished Guests from China and Foreign Countries Good morning! It is of great pleasure to attend the “Forum for Informatization Construction of China-Arab Construction Market” hosted by Construction Market and Tendering and Bidding Study Branch of China Civil Engineering Society. I wish to express congratulations on its successful convocation, and we are confident that today’s forum will play an important role in enhancing exchanges between China and Arabian countries and promoting common improvement on project construction level.

China and Arabian countries have established a traditional friendly cooperation relationship. By learning from each other and benefiting each other, we are aiming for a common development on an equal basis. The Arabian construction market is a traditional market for China’s construction enterprises to go abroad for foreign project contracting. In 2011, the foreign contracting of China’s enterprises amounted to 103,400 million dollars. Among them, that in the Arabian construction market accounted for a high percentage. China is implementing the development strategy of “going global”, while the foreign contracting of China’s construction enterprises will gradually shift from traditional labor contracting to project investment and financing, as well as general project contracting such as BOT and EPC. During the transition, enterprises, industrial organizations and government departments all take informatization construction as an essential means to facilitate restructuring, transformation and upgrading. In my view, that is the meaning of today’s forum theme.

Now I would like to give a brief overview of our functions. As a department of Ministry of Housing and Urban-Rural Development, the Department of Construction Market Supervision, is the administrative department of the construction industry under the central government. The department is mainly responsible for the researching and formulating of project construction policies, regulations, and relevant development strategies, instructing national construction activities and regulating the construction market. The basic systems in China’s project construction sector mainly include: responsibility system of enterprises as legal persons, project bid inviting and submitting system, construction permit or work commencement report system, enterprise and individual implement market admission system, construction supervision system, contract management system, project quality monitoring system, project completion acceptance system and engineering insurance and guarantee system.

In recent years, China’s construction industry has maintained continuous steady growth, which is mainly reflected in the following aspects: increasingly expanded market, constantly improved industrial level and continuously enhanced international competitiveness of enterprises. The construction market policies & regulations and industrial technical standards are being perfected, and amazing achievements have been made in urban construction, housing construction and major infrastructure. However, in regulating the construction market, we are also facing great challenges: arduous tasks in construction of affordable housing and urban rail traffic, grave construction market environment, excessive competition, malfeasant competition, illegal practices and dishonest behaviors conducted by market entities that continue disrupting the construction market. Besides, the corruption in the project construction sector is also a difficulty encountered in all countries. In the face of so many personnel and enterprises in the vast market, the governmental authorities on construction are compelled to actively explore for shifts in supervision methods in the facets of both law making and enforcement. The establishing of a construction market supervision information system and a credit system has been regarded as a radical solution with enduring effect. To start with the management of construction market credit, by intensifying administrative punishment can the lack of honesty be solved fundamentally. Today’s topic is just the extension of such work in width and depth. I think our in-depth exchanges will bring about enlightenments in both theory and practice. We await an excellent address from you!

Thank you!

**中国与阿拉伯国家建筑市场信息化建设**

**论坛致辞**

中国土木工程学会建筑市场与招标投标研究分会 理事长 刘哲

尊敬的各位中外嘉宾、女士们、先生们：

大家上午好！

首先，非常欢迎来自阿拉伯国家的各位官员、专家以及驻华使节，同时也代表本次会议的主办单位中国土木工程学会建筑市场与招标投标研究分会对论坛的成功举办表示热烈的祝贺。中国和阿拉伯国家同属发展中国家，在建筑市场信息化建设方面，我们有很多相同的感受和需求，通过我们双方的研讨交流，进一步促进彼此间的合作交流，对我们两国建筑市场的健全和发展将会产生有益的作用，加强相互了解，相互借鉴。

中国改革开放后，阿拉伯国家是中国最早开展对外承包工程与劳务合作的地区，在互惠互利、共同发展原则的指导下，中阿双方互相投资，合资兴建联合项目。此次阿拉伯国家与中国建筑领域的代表进行交流，有利于国家间的友好合作，共同发展。

自2001年，把实施“走出去”战略作为一条重要建议被写入中国《“十五”计划纲要》以来，对外承包工程市场进入快速发展时期。一是业务规模实现跨越式增长。中国对外工程承包和设计咨询业务规模持续快速扩大，截至2010年底，我国对外承包工程累计完成营业额4356亿美元，签订合同额6994亿美元。

二是工程承包企业快速成长。伴随着近年来中国对外承包规模迅速扩大，企业经营规模不断增大。2010年，新签合同金额在5000万美元以上的项目有488个（上年同期440个），合计1069亿美元，占新签合同总额的79.5%。其中，上亿美元的项目有261个，较上年同期增加21个，通过所签订的合同金额可以看出，中国工程承包企业缩小了与世界最大的国际承包商在业务规模上的距离。工程规模的迅速扩大，意味着中国对外工程承包整体实力的增强。

三是国际地位显著提升。按2009年业绩排名进入《工程新闻记录》杂志世界最大225家国际承包商的中国内地企业多达51家，企业数量首次超越美国居世界第一。同年，进入《财富》杂志世界500强的43家中国内地企业当中，中国铁道建筑、中铁股份、中建、中交建设、中冶科工和华为技术6家是工程承包企业；进入联合国《世界投资报告2010》发展中国家跨国公司100强的中国工程承包企业也有4家。

四是跨行业综合发展。中国对外工程承包的产业结构发生了根本性变化。近年来，中国对外工程承包业务量以30%的速度增长，与此同时，产业领域迅速向高技术含量的石油化工、工业生产、电力工程、矿山建设、通信、环保、航空航天等领域拓展。在一些新开拓的行业市场上，中国承包商成绩斐然，体现出中国承包商对外工程承包发展的多元化。在全球总营业额上，突破100亿美元的中国公司有5家。

五是业务结构逐渐走出产业链低端。为了推动业务升级，顺应国际工程市场产业内分工的要求，中国政府主管部门先后批准100多家工程设计院所进入国际工程设计市场，并取得了一定的成效，实现了业务的第二次升级，成功进入国际工程设计咨询领域，带动了中国企业在工程承包全产业链分工地位的变化，承揽的业务环节逐渐向业务链的上游移动。目前，已有越来越多的中国企业涉足项目规划、勘探、设计、管理等领域，通过开展高端业务进一步带动全行业的发展。工程承包的模式也随之发生重大变化，中国承包商正在实现向EPC总承包模式的全面升级。

二、中国国内建筑市场规模持续保持高速增长

2011年，全国建筑业总产值11.8万亿元，建筑业总产值每年平均增长20%左右。2011年全国建筑业企业完成竣工产值62024亿元，比去年同期增加4917亿元，增长8.6%；房屋建筑施工面积为84.62亿平方米，比去年同期增加13.82亿平方米，增长19.5%；签订合同额208532亿元，比去年同期增加35928亿元，增长20.8%。建筑业总产值占固定资产总值的比重平均都在35%左右，建筑业在国民经济中占有很重要的地位。

2011年我们完成了1000万套保障性住房的开工建设任务，2012年计划新开工建设保障房700万套以上，同时要求今年基本建成500万套以上。从轨道交通建设情况来看，据国务院批准，全国28个城市近期规划建设轨道交通建设线路120条，总里程达3400多公里，总投资1万多亿元，分布在4个直辖市和18个省、市、自治区。全国25个城市共有在建轨道交通里程1500多公里，比2005年多5倍。此外，还有大量的体育场馆、医院、学校等涉及公共利益的建设工程开工建设，市场监管任务仍然很重。

三、不断改革创新监管方式，推行电子招投标

一是建立公开的招标投标交易场所，即有形建筑市场。上世纪九十年代初，我国在工程建设领域逐步培育和发展有形建筑市场，作为工程招标投标交易平台，据2010年有关部门调研统计，在全国524个省级和地市级有形市场中，工程交易中心375个，占71.6%，其中房屋市政工程交易中心229个，房屋市政、交通、水利等各类建设工程统一进场的综合性工程交易中心114个。有形建筑市场汇集了场地、人员、计算机信息管理系统等丰富的资源，有效减少了投标报名、资格审查、开标评标等关键环节中的人为因素，实现了“工程建设信息平台、市场主体交易和服务平台、政府监管平台”三大基本功能。

二是推行电子招标投标。在我国今年颁布的《招标投标法实施条例》提出“国家鼓励利用信息网络进行电子招标投标”，明确了电子招标投标的发展方向。各地在实际工作中积极探索电子招投标的具体操作方法，本着“科学、安全、高效、透明”的原则，在健全完善电子招标投标系统的同时，逐步实现与行业注册人员、企业和房屋市政工程项目等数据库对接，探索实行工程建设实施阶段的过程监管。

三是组建评标专家库，建立专家后评估制度。目前，全国大部分省级住房城乡建设主管部门均已建立了房屋建筑和市政工程项目评标专家库。按照《招标投标法实施条例》要求，我们拟于2012年底前建立全国房屋市政工程项目综合评标专家库，重点是建立全国资深专家库和稀缺专业专家库。各省级住房城乡建设主管部门在2013年6月底前将本地区的评标专家库与全国房屋市政工程项目综合评标专家库对接，逐步实现评标专家资源共享和异地远程评标。同时，各地要积极探索评标后评估制度，推选一批“品德正、业务精、经验足、信誉好”的资深评标专家，对评标委员会评标报告和评审情况进行抽查和后评估，查找存在的突出问题，强化评标专家管理。

四是推进诚信体系建设，构建良好的市场环境。工程招投标作为建筑市场监管第一道关口，维护诚信守法的交易规则，构建诚信有益、失信必惩的市场环境尤为重要。因此我们正在加快推进建筑市场信用体系建设工作，努力实现“四个统一”，即统一的信用信息平台、统一的信用评价标准、统一的诚信法规体系、统一的奖惩机制。

各位嘉宾，各位代表，建筑市场与信息化建设与国民的生活密切相关，涉及到国家基本建设和经济可持续发展，是公众利益与国家利益最为集中、社会反映最为强烈的行业及环节。这个环节对整个工程建设质量安全的健康运行影响很大。我们要站在国家经济协调持续发展、人民安居乐业、社会和谐进步的高度，立足本职，坚定信心，统筹做好各项工作。

谢谢大家！

**A speech to Forum for Informatization Construction of China-Arab Construction Market**

Liu Zhe, Director-general of Construction Market and Tendering and Bidding Study Branch of China Civil Engineering Society

Distinguished foreign guests, ladies and gentlemen:

Good morning!

Firstly, I would like to welcome officers, experts and envoys from Arabic countries, and express my warm congratulations for the success of the forum on behalf of the sponsor of the meeting -- Construction Market and Tendering and Bidding Study Branch of China Civil Engineering Society. Both China and Arabic countries are developing countries, and we have lots of same feelings and desires in respect of Informatization construction of construction market, and our discussions and exchanges will further improve our cooperation and communication, benefit the completion and development of our construction market and enhance mutual understanding and learning.

After opening and reform of China, Arabic countries became the first region to carry out foreign contracted projects and labor service cooperation with China, and we invested in each other and established joint projects with joint venture under the guidance of mutual benefit and common development principles. And this exchange between representatives of Arabic countries and China in construction field will promote our friendly cooperation and common development.

Since “Go Global” strategy was listed in the “The Outline of the Eleventh Five-year Plan” in 2001, the market of foreign contracted projects has entered into a period of rapid development. Firstly, business scale has achieved leapfrog growth. Business scale of foreign project contracting and design consultation service increases continuously. By the end of 2010, we have completed foreign contracted projects accumulatively with turnover of 435.6 billion U.S. dollars and signed contracts amount to 699.4 billion U.S. dollars.

Secondly, the number of projects contracting enterprises grows rapidly. With the rapid extension of foreign contracted project in recent years, business scale of enterprises increases continuously. In 2010, the number of newly signed projects with contract capital amount of more than 50 million U.S. dollars reached 488 (440 at the same period last year), totaling 106.9 billion U.S. dollars, accounting for 79.5% of newly signed contracts. Among these projects, the number of projects with over 100 million U.S. dollar investment reached 261, increasing 21 comparing to the same period last year. It can be seen from contract amount that project contracting enterprises of China have shortened their distance with the largest international contractor on business scale. Rapid expansion of project scale means the enhancing of China’s overall strength on foreign project contracting.

Thirdly, international status has increased significantly. According to the performance ranking in 2009, the number of enterprises of Mainland China ranking top 225 international contractors selected by “Engineering News-Record” magazine up to 51, ranking the first in the world and surpassing the United States for the first time. In the same year, 6 in 43 enterprises of Mainland China, **China** Railway Construction Corporation, China Railway Group Limited, China State Construction, China Communications Construction Company Ltd., China Metallurgical Group Corporation and Huawei Technology ranked top 500 selected by “Fortune” magazine are project contracting enterprises; and the number of multinational enterprises of developing countries ranking top 100 according to United Nations’ “World Investment Report 2010” reached 4.

The fourth point is the cross-industry comprehensive development. The industrial structure of China foreign project contracting has changed fundamentally. In recent years, the business volume of China foreign project contracting has increased by 30%, at the same time, the industry has expanded to the industries of high technology content quickly, such as petrochemical industry, industrial production, power engineering, mine construction, communication, environmental protection, and aeronautics and astronautics. In some new emerging industrial markets, Chinese contractors have made great achievements, indicating their diversified development of foreign contracted projects. There are 5 Chinese companies breaking through the global total business volume of 10 billion dollars.

The fifth point is that the business structure has gradually got out of the low end of industry chain. In order to promote business upgrade, and adapt to the requirements of labor division for the international project market industry, the administrative departments of Chinese government has approved more than 100 engineering design institutes in succession to enter the international engineering design market, and has obtained certain achievements, which realized the second business upgrade, successfully entered the field of international engineering design and consultation, promoted the labor division position change of Chinese enterprises in the whole industry chain of project contracting and their undertaken business phases have gradually moved to the upstream of the industry chain. At present, an increasing number of Chinese enterprises have engaged in the fields of project planning, exploration, design and management, and further promoted the development of the whole industry by developing the high end business. The pattern of project contracting also has changed significantly, and Chinese contractors are realizing the overall upgrade of EPC general contracting pattern.

II. The scale of domestic construction market maintains the rapid increase continuously

In 2011, the gross output value of the construction industry of the whole country was 11.8 trillion yuan and the gross output value of construction industry increased by about 20% averagely for each year. In 2011, the construction enterprises of the whole country had the completed value of 6,202.4 billion yuan, an increase of 491.7 billion yuan and 8.6% compared with the same period of last year; the area of housing construction of 8.462 billion m2, an increase of 1.382 billion m2 and 19.5% compared with that of last year; the signed contract value of 20, 853.2 billion yuan, an increase of 3,592.8 billion yuan and 20.8% compared with that of last year. The proportion of the gross output value of construction industry accounting for the total value of fixed assets is about 35% averagely, and the construction industry plays an important role in national economy.

In 2011, we finished the construction task of 10 million affordable houses, in 2012, we plan to construct more than 7 million affordable houses and, at the same time, more than 5 million affordable houses are required to complete basically in this year. From the status of track traffic construction, approved by the State Council, 28 cities of the whole country recently plan to construct 120 lines of railway transportation, with the total mileage of over 3,400 kilometers, total investment of over 1,000 billion yuan, distributing in 4 municipalities, and 18 provinces, cities and autonomous regions. 25 cities of the whole country have the track traffic under construction with the mileage of more than 1,500 kilometers, 5 times more than that of 2005. In addition, there are a large number of stadiums, hospitals, schools and other construction projects involved in public interests to be constructed, therefore, the market supervision task is still arduous.

III. Continuously reform and innovate supervision mode, and implement electronic tendering and bidding

First, establish a public tendering and bidding market place, that is, a tangible construction market. In the early 1990s, China gradually cultivated and developed tangible construction market in the construction field, as the project tendering and bidding trading platform. According to 2010 research statistics of relevant departments, in the 524 provincial and municipal tangible markets, there are 375 engineering trading centers, accounting for 71.6%, including 229 housing municipal engineering trading centers, and 114 comprehensive engineering trading centers covering municipal housing projects, transportation, water conservancy and other types of construction projects. The tangible construction market brings together rich resources of space, personnel, computer information management system, and effectively reduces human factors of the tender registration, qualification evaluation, bid opening and evaluation and other key links, achieving three basic functions of “platform for project construction information, market subjects trading and service, and government regulation”. **Second, implement electronic tendering and bidding.** “Enforcement Regulations on the Tendering and Bidding Law of the People’s Republic of China” promulgated this year proposed that “the country encourages using information network for electronic tendering and bidding”, making ​​clearly the direction for the development of the electronic tendering and bidding. In the practical work, each region shall actively explore specific methods of the electronic tendering and bidding operation, complying with the principles of “scientific, safe, efficient and transparent”, while improving and perfecting electronic tendering and bidding system, gradually achieve database docking of industry registrants, enterprises and municipal housing projects, to explore the practice of the supervision of project construction implementation process.

Third, form bid evaluation expert database, set up an expert post-evaluation system. At present, most competent departments of provincial housing urban and rural construction have established the bid evaluation expert database of housing construction and municipal projects. In accordance with the requirements of “Enforcement Regulations on the Tendering and Bidding Law of the People’s Republic of China”, till the end of 2012 we intend to establish a comprehensive bid evaluation expert database of the national municipal housing engineering projects, focusing on the establishment of the senior expert database and the most-needed professional expert database. Before the end of June 2013, various competent departments of provincial housing urban and rural construction shall join the regional bid evaluation expert database with the national comprehensive bid evaluation experts database for municipal housing engineering projects, progressively realizing the bid evaluation expert resource sharing and off-site remote bid evaluation. At the same time, each region should actively explore the post assessment system for bid evaluation, select a number of “moral, proficient, experienced, reputed” senior bid evaluation experts, to carry out the random inspection and post-evaluation of the bid evaluation report and results of the bid evaluation committee, review the existing conspicuous problems and strengthen the management of bid evaluation experts.

Fourth, promote the credit system construction and build a sound market environment. Project tendering and bidding as the first pass of the construction market supervision is particularly important to maintain the credible and law-abiding rules of the trading, and to build a credible and beneficial market environment with an effective punishment mechanism. Therefore we are accelerating the building of construction market credit system, and striving to achieve the “four unifications” objective which indicates unified credit information platform, unified credit evaluation criteria, unified regulatory system of integrity and unified reward and punishment mechanism.

Distinguished guests and representatives, the Informatization construction of construction market is closely related to people’s life, and related to the national infrastructures and sustainable economic development. It is the industry that concentrates the most interests of the public and the nation and attracts the most attention. This industry has a great impact on the sound operation of the construction quality safety of the whole project. We aim to achieve the coordinated and sustainable development of our national economy, the happy life and work of people and the social harmonious progress. Based on our own business, let’s enhance the confidence, and do all the work well.

Thank you!

**建筑行业信息化发展交流**

广联达软件股份有限公司 副总裁 刘谦

女士们，先生们，各位朋友：

大家上午好，欢迎大家参加中国与阿拉伯国家建筑市场与信息化建设论坛，作为一个为建设领域提供信息化服务的软件企业，能够受邀参加本届论坛，感到非常荣幸。再次对大家的到来表示热烈的欢迎。

本次交流的主要内容是建筑市场与信息化建设，作为一个古老而又传统的行业，建筑业已经伴随人类存在了几千上万年，而信息化产业的发展相对建筑领域来说，是属于新兴产业了。但是信息产业却呈现出了前所未有的迅猛发展态势，在较短的时间内，融入到人们生活的每一部分。

今天和各位朋友交流的内容有以下四部分：

1. 信息化产业发展分析
2. 建筑业发展分析
3. 信息化产业与建筑业
4. 建筑领域信息化展望

作为一个IT信息企业，我首先还是谈一下信息产业的发展，2011年，全球信息化及相关技术的支出达到4.1万亿美元，全球有超过5.5亿个网站，而仅仅2011年一年时间就新增了3亿个，全球有1.5亿个博客，而face book拥有9亿注册用户，在全球排名前10的超级计算机运算速度都在千万亿次以上，全球的互联网用户达到了21亿人。

这些数据告诉我们，在我们这一代信息化已经是遍及你身边的各个行业，在未来一代人的生活也许会因为信息化的高速发展而与我们现在截然不同。

信息化在中国也呈现出高速发展的态势，截止2010年，IPv4数量达到2.78亿，截止2011年，在中国有4.85亿网民，手机普及率达到73.6部/百人，计算机普及率达到70台/百户，电子信息产业的进出口总额超过1万亿美元，而软件产业贡献达到了20%。

在信息化产业高速发展的时候，传统的建筑产业又是一个什么样的态势呢？

截止2011年建筑业全球的产值规模达到7.2万亿美元，预计到2020年建筑业的产值规模将达到12万亿美元，增幅达到67%。这种增长得到了中国和印度两大新兴的超级大国和美国建筑业反弹的支持。到2020年，中国、美国、印度、印度尼西亚、加拿大、澳大利亚和俄罗斯这七个国家将在全球建筑业增长中占据三分之二的份额。未来10年全球建筑业累积产值将达到97.7万亿美元。传统的建筑业仍然具有很高的活力，其增长幅度远远超过GDP增长幅度。

2011年中国的建筑业产值达到11.77万亿人民币，到2020年将达到2.5万亿美元的规模，在2011年建筑业总产值占GDP的比重达到了6.79%；中国建筑业的发展保持了20%以上的增长速度，2011年是2000年总产值的9.4倍；但是，我们也客观的看到，建筑业的产值利润还不及工业产值利润的一半，而建筑业仍然是劳动密集型产业，在中国有上亿的建筑工人劳作在各个建设项目上。

2011年中国建筑业对外承包达到1034亿美元，对外承包主要以亚洲和非洲为主，对欧美等发达国家的对外承包份额较少。

前面，简单和大家交流了信息化产业和建筑业两个领域，我们都知道信息化已经渗透到社会的各个领域，信息化既是一个独立的领域，同时也是其它领域发展不可或缺的领域，信息化和其它领域的交融越来越紧密。建筑业就更不能例外。

发达国家在建筑领域信息化投入为0.3%，中国目前的投入大约在0.03%左右，中国正在加大专业领域信息化的建设工作，针对施工企业的资质登记认证中，已经加入信息化内容的考核。而信息化产业领域的企业也纷纷进入建筑领域，从新产品、新工艺到节能建筑、绿色建筑。从建设全过程：设计、施工、运维各个阶段都引入了信息化技术，特别是在设计阶段的信息化水平已经走到整个建筑行业前面。目前建设领域信息化研究的热点有：仿真；数据库；CAD；神经元网络；决策支持；基因算法；因特网；程序设计。建设领域被研究的信息技术的应用领域：不限具体专业领域的研究占绝大多数，达52％；建筑工程居其次，占16%；道路再其次，占10％。被研究的信息技术的应用阶段：施工阶段的占绝大多数，达56％；分析与设计阶段居其次，占19 ％。

未来建筑领域信息化发展趋势：

1. 信息化工作模式趋于更加有效
2. 信息化工作组织机构趋于更加健全
3. 信息化标准趋于完备
4. 管理信息系统覆盖的管理范围扩大、功能增强
5. 专业应用软件对专业工作的覆盖面扩大，功能趋于深入，易用性增强

下面为大家介绍一下信息化技术在建筑领域的实际应用案例，首先，我们来看一个BIM技术的应用案例。BIM技术是目前建筑领域信息化研究的热点内容之一，就是通过建筑信息模型对建筑物的全生命周期进行管理。下面介绍的项目是：广联达信息大厦。

在设计阶段，我们知道一个项目成本的70%在设计阶段就已经确定了，设计的合理与否对项目成本的影响是很大，同时，设计是否合理也对后续的运维产生切实的影响，会对建筑面积的有效利用产生影响，会对建筑的能耗产生影响，也会对建筑物应对灾害和突发事件产生实际的影响。

广联达信息大厦，在设计之初就引入BIM技术，对设计的合理性进行分析。在竞标阶段，设计机构给出了不同的设计方案，对不同设计方案进行分析评估，从中选择了最合理的设计方案，通过调整确定了优化后的设计方案，再对设计方案通过3D仿真技术，对建筑物的不同立面，不同构造内容进行优化，选出中标方案的最终优化设计方案。

设计方案已经选定，那这个设计方案能满足疏散、环境、交通、节能的要求吗？通过BIM技术可以对建筑物进行负荷测试，对采暖空调逐月模拟，测试能耗数据。同时对建筑物内部不同季节的通风情况进行模拟，对自然风等进行模拟实现，对设计的不同楼层，根据louder地理位置和附近建筑无的影响等各种因素，模拟采光情况，对不同时段的采光数据进行模拟。获得这些数据以后，可以对建筑物进一步进行优化，使其能够满足实际办公的需要。在内部结构设计好以后，对建筑物进行消防模拟，可以看出在有突发事件的时候，人员逃生通道是否畅顺，是否能够满足办公的同时满足安全生产的需要。同时对建筑物垂直运输设备进行模拟，模拟不同时段的运输量，能够获得在不同时段对运输设备的需求量，通过对运输设备进行优化调试，以满足在建筑物交付运行以后，保障实际办公的正常需要。对地下停车场进行模拟运行，可以保障停车位利用率最优的情况下，保障车辆和人员的安全通行。

对建筑物的设计不是单一的功能设计或结构受力设计，需要考虑各个专业，多个方面，如何保障各专业设计的一致性，是对设计机构很大的考验，也是设计人员在设计过程中沟通较多的一个方面。利用BIM技术，在完成各个单元的设计以后，将各个单元的内容仿真模拟，最后将各单元内容进行组合，形成以后仿真的实体建筑物，这时候我们就可以发现其中有问题的地方，利用计算机技术可以快速的判断出从在的问题，为设计人员修改设计方案提供最直观的参考。

进入施工阶段以后，如何保障施工是按照设计意图完成的，保障施工效率最高同时又能够及时的校验施工的实际结果，通过5D模型算量软件，可以对建筑物的实际消耗量进行计算，得出各种建设需要的数据，材料、人工、设备等等。在实际施工的时候，可以将各种数据录入到仿真系统中，同时利用激光技术，对施工的结果进行扫描，通过对设计情况和实际施工情况的对比，可以直观的发现施工中的实际问题，对改进是施工管理，优化施工方案，都具有重大的意义。

下面再为大家介绍一个为政府投资项目交易提供服务的管理系统，系统综合了政府项目交易的业务需求，将各个业务系统整合在一个大系统中运行，保障了数据的统一，在此基础上建立了4个平台，9大系统。有交易管理系统，专家管理系统，诚信管理系统，交易监管系统，数据分析系统，信息发布系统和完成实际业务招投标过程的招标、投标、开标、评标系统。系统部署完成以后，将能满足政府项目建设工程交易的全过程网络化，能够实现政府招投标项目的公开、公平、公正的原则。我们已经和全国很多省市交易服务机构建立了合作关系，为推动政府部门的信息化建设贡献一份力量。目前，在异地远程评标方面各地还在探索具体的操作方式，广联达公司已经有了完整的异地远程评标系统，包括开展业务的远程评标系统，专家管理系统，远程视频监控技术也取得了突破，可以实时监控评委的评标过程，而异地远程评标的实现，将真正促进行业资源整合，促进市场的良性发展，同时保障政府投资的有效利用，远程评标也是下一阶段的重点研究课题内容。希望我们能够有更多的合作机会。

随着社会的不断进步，人们对安全的认识不断提高，公民对安全的要求不断提高，政府对各领域的安全越来越重视，如果有效的监管建筑领域的安全情况，成为政府部门不可回避的责任之一。针对政府项目的监管要求，我们也完成了一套基于安全管理的系统。系统通过网络、视频、信号等信息化手段，对建筑物建设过程中的人员、设备等进行有效管理和监督，确保在实际施工过程中及时排除各种安全隐患。

人员管理：实现对建筑物涉及人员的信息管理和对施工现场重点区域的作业人员的监控，通过考勤系统，自动记录人员进出情况阻止无关人员进入，通过对敏感区域/危险区域人员监控最大程度的降低安全事故的发生率。

吊塔安监系统：吊重超限告警、风速超限告警、塔吊群碰撞告警、小车位置告警；

环境数据实时采集：仓库温度信号采集、工地周边噪音信号采集、风速信号采集、工地易燃，高危环境的实时感知

视频监控系统：总览型–高变焦摄像头、固定型–传统枪机、移动型– 3G摄像头

通过上面几个案例可以看出，信息化技术在建筑领域的应用越来越广泛，发挥的作用也越来越大，信息化技术高度集成的建筑业将会迎来新的发展机遇。

到2020年世界建筑业规模12万亿美元，建筑领域信息化规模将达到360亿美元；中国的建筑规模将达到2.5万亿美元，信息化投入将达到：75亿美元。中华人民共和国住房和城乡建设部印发《2011-2015年建筑业信息化发展纲要》，在“十二五”期间，基本实现建筑企业信息系统的普及应用，加快建筑信息模型（BIM）、基于网络的协同工作等新技术在工程中的应用，推动信息化标准建设；

设计领域的信息化建设已经有了一定的基础，施工领域信息化建设是“十二五”期间信息化发展的主要方向；政府建设主管部门信息化建设力度加强，在项目备案、招投标、施工监管、工程验收各个阶段引入信息化管理模式；随着信息化产业和建筑产业的高速发展，二者的结合将会为两个领域带来全新的挑战和机遇。

作为一个以“引领建设工程领域信息化服务产业的发展，为推动社会的进步与繁荣做出杰出贡献。”为使命的软件企业，能够在两个领域都高速发展的时期参与其中，让企业的每一位成员都感到其工作是非常有意义的。同时也感受到所承担的责任是非常艰巨的。信息化缩短了世界各国之间的距离，也加剧了企业之间的相互竞争，未来的建筑业不仅仅是高科技建筑物，不仅仅是节能设计、绿色建筑，而应该是全生命周期的智慧建造。每一个企业都将为能参与其中而感到骄傲，广联达公司亦不例外，我们将竭尽所能，为人类的发展贡献自己的一份力量，成就一个百年企业的同时，为智慧建造努力奋斗。

谢谢大家。

**Exchanges for Informatization Development of Construction Industry**

Liu Qian, Vice President of Glodon Software Company Limited

Ladies and gentlemen, dear Chinese leaders and dear leaders of the Arab League,

Good morning, welcome to attend the Forum For Informatization Construction of China-Arab Construction Market. Being invited to participate in this forum as a software company providing informatization service for the construction industry, we feel greatly honored.The main content of this communication is about construction market and informatization. As an old and traditional industry, construction industry has existed for several thousand years, and compared to construction industry, information industry is an emerging industry, because of its relatively short history. However, the information industry has boasted an unprecedentedly rapid development trend and, has merged into every part of people's lives in a short period of time.Here I would like to share the following contents with all friends present:1. Analysis of development of information industry2. Analysis of development of construction industry3. Information industry and construction industry4. Outlook of informatization in construction industryAs an insider of IT industry, I would like to firstly talk about the development of information industry. In 2011, the global spending on information technology reached $ 4.1 trillion and over 550 million websites existed in the world, of which 300 million websites emerged in 2011. At the same time, there were 150 million blogs in the world, and Face Book owned 900 million registered users. The global top 10 supercomputers were all peta-scale supercomputers, and the number of global Internet users reached 2.1 billion.

These data tells us that in our generation, information technology has been spread to each industry around you, and in the next generation, people’s lives may be entirely different from ours because of the rapid development of information technology.In China, information technology also shows a trend of rapid development; by the end of 2010, the number of IPv4 has reached 278 million; by the end of 2011, there have been 485 million Internet users in China; the penetration rate of mobile phone has reached 73.6/100 people, the penetration rate of computer has reached 70/100 households; the total import and export volume of electronic and information industry has been over $ 1 trillion, to which the software industry has contributed a portion of 20%.During the rapid development of information industry, what kind of situation does the traditional construction industry show?By 2011, the output value of global construction industry has reached $ 7.2 trillion, and it is expected to reach $ 12 trillion by 2020, which is increased by 67%. This growth has been supported by the rebound of construction industry in China and India, the two emerging superpowers, as well as the U.S.A. By 2020, the seven countries including China, U.S.A., India, Indonesia, Canada, Australia and Russia will account for two-thirds share of the global construction industry growth. In the next 10 years, the cumulative output value of global construction industry will reach $ 97.7 trillion. Therefore, the traditional construction industry is still energetic, and its growth rate is far higher than that of GDP.In 2011, China's construction industry output value reached 11.77 trillion RMB, accounting for 6.79% of the GDP of that year, and it will reach $ 2.5 trillion by 2020; China's construction industry maintains a growth rate of over 20%, the total output value of 2011 is 9.4 times more than that of 2000. However, we also see objectively that, the profit rate of construction industry is less than half of that of the industry, and the construction industry is still a labor-intensive industry in China with hundreds of millions of construction workers working in various construction projects.China’s construction projects contracted by foreign contractors reached $ 103.4 billion in 2011, with the majority of these contractors from Asia and Africa, but only a small part from Europe, U.S.A. and other developed countries.After simply sharing the information about construction industry and information industry, we should know that information technology has penetrated into all spheres of society. Information industry is not only an independent industry, but also an essential one for the development of other industries. The blend of information technology into other fields is becoming more and more close and tight, let alone the construction industry.In developed countries, the investment in informatization of construction industry accounts for 0.3% of the total, but China's current investment accounts for only approximately 0.03%. So China’s relevant authorities are driving the application of information technology in construction industry, and in the registration and certificate for the qualification of construction enterprises, the assessment of information technology has been added in. At the same time, many enterprises in the information industry are entering the field of construction in terms of new products, new processes, energy-efficient buildings and green buildings. Information technology has been introduced into the whole process of construction including the stages of design, construction, operation and maintenance, especially the design, where the application of information technology has come to the front of the entire construction industry. At present, there are many hot spots of research in information technology in the field of construction, such as simulation, database, CAD, neuron network, decision-making support, genetic algorithm, Internet and programming. Regarding the construction fields in which researched IT is applied, the research not limited to specific fields accounts for 52%; in construction projects accounts for 16%; in road construction accounts for 10%. Regarding the phases in which researched IT is applied, construction phase accounts for 56%, and analysis and design phase accounts for 19%.In the future, the development of information technology in construction industry shows the following trends:

1. Information-based modes of operation tend to be more effective

2. Information-based organizations of operation tend to be more robust

3. Information technology standards tend to be more complete

4. The coverage of management information system will be expanded, and their functions will be enhanced

5. The coverage of specialized application software for professional work will be expanded and the functions will be more in-depth and the ease of use will be enhancedHere I would like to introduce two practical application cases of information technology in the construction field, and the first one is the case of BIM (building information modeling） application. BIM technology is one of the hot researches in information technology applied in the field of construction, and the essence of BIM is to manage the full life cycle of a building through building information modeling. Below, I am going to introduce the project of Glodon Information Building.As far as we know, 70% cost of a project is determined at the design stage, the rationality of a design has a great impact on the project cost, as well as a tangible impact on the subsequent operation and maintenance, the effective use of building area, the building's energy consumption, and its ability to respond to disasters and emergencies.As for Glodon Information Building, its BIM technology was introduced at the beginning of the design stage to analyze the rationality of the design. In the bidding stage, the design institutions provide various schemes. After analyzing and evaluating these programs, we chose the most reasonable one, and determine the optimized design, and then optimize different facades and structures of the building by applying 3D simulation technology on the scheme, so the final optimized design scheme is chosen from the winning schemes.Can this design scheme meet the requirements of **evacuation, environment, transportation and energy saving**? Adopting the BIM technology, we carried out a load testing of the building, and made a monthly simulation of the heating and air conditioning system to test the energy consumption data. We also simulated the ventilation situations of the building (including natural wind situation) in different seasons, and simulated the lighting situations of different floors according to the location of the building and the impact of nearby buildings as well as other factors to collect the lighting data of different time intervals. These data allows the design of the building to be further optimized to meet the needs of the actual use. After the design of internal structure was completed, we carried out a fire simulation of the building to test whether personnel escape routes are expedite when an emergency occurs, and whether they can meet the needs of safe production and the business at the same time. We also simulated the operation of the vertical transportation equipment in the building to obtain the amount of required transportation equipment at different time intervals through simulating the transportation capacities at different time intervals. Then we optimized and debugged the transportation equipment to meet the actual needs of normal operation after the acceptance of the building. We also simulated the running situation of the underground car park to check the safe passage of vehicles and personnel under the optimal utilization of the parking spaces.The design of a building is not just about a single function or structural, and various disciplines and aspects need to be taken into account. How to ensure the consistency of various disciplines in a design is a big challenge for design instructions and also a major issue which designers most communicate about during the design process. Using BIM technology, we carried out the simulation of the contents of each unit after their design, and formed the simulated model of the actual building by combining every unit. Then we could quickly find the problems. Using computer technology, we can quickly identify the problems and provide the most intuitive reference for designers to modify the design.How can we ensure that the construction is completed in accordance with the design intent in the construction phase and ensure the highest efficiency of construction along with the timely verification of actual results? We calculated the actual consumption of the building with 5D model quantity calculation software to obtain the data, materials, labors, and equipment needed in a variety of construction projects. During the actual construction, we input the data into the simulation system, and used laser technology to scan the construction results, and then compared the design situation with the actual construction situation to visually find the actual problems of construction, so we can say this software is instrumental in improving construction management and optimizing the construction program.Here I introduce a transaction management system serving government investment projects. This system integrates various business sub-systems according to all business needs of government projects to ensure the consistency of data, and on this basis, we have established 4 platforms and 9 sub-systems, including transaction management system, expert management system, integrity management system, transaction monitoring system, data analysis system, information distribution system as well as actual business management systems of invitation for tender, submission of tender, bid opening and bid evaluation. The complete deployment of the system will enable the networking during the whole transaction process of government construction projects, and make the government bidding projects operated in an open, fair and impartial manner. Now our company has established cooperative relationship with transaction service agencies in many provinces and cities in China, and is playing an important role in promoting the informatization of government departments. Currently, while other enterprises are still exploring the specific operation mode of off-site remote bid evaluation, Glodon Software company has already developed a complete off-site remote bid evaluation system, including remote bid evaluation system and expert management system. In addition, we have made a breakthrough in remote video monitoring technology which is able to implement real-time monitoring of the evaluation process of the judges. The implementation of off-site remote bid evaluation will truly promote the integration of industry resources and the sound development of the market, as well as guarantee the effective use of government investments, thus remote bid evaluation technology is the key research subject to be covered in the next stage. We hope we have more opportunities for cooperation.As the society keeps developing, people's safety awareness and demands are constantly increasing, and the government is giving more and more attention to the security. How to effectively monitor the security situation in the construction field has become government authorities’ unavoidable responsibilities. To meet the regulatory requirements for government projects, our company has also developed a safety management system, which can effectively manage and supervise personnel and equipment in the process of building construction through network, video, signals and informational means, to ensure that various safety hazards in actual construction process can be removed timely.Personnel Management System: It implements the information management for the people involved in the construction of buildings, monitors the workers in key areas of construction sites, automatically records the situation of personnel access with attendance subsystem to keep unrelated people out, and reduces the incidence of safety accidents to the maximum extent through monitoring the personnel in sensitive areas / hazardous areas.Tower Crane Monitoring System: It includes crane overrun alarm, wind speed overrun alarm, crane collision alarm, crab position alarm;Environmental Data Real-time Collection System: It enables collection of warehouse temperature signals, collection of noise signals around sites, collection of wind speed signals, real-time perception of flammable, high-risk environment within sites Video Surveillance System: overview type - high-zoom camera, fixed type - traditional camera, mobile type - 3G cameraThrough the above several cases, it can be seen that the application of information technology in construction field is more and more extensive, and the role it plays is becoming more and more significant. So the construction industry with highly integrated information technology will usher in a new development opportunity.By 2020, the investment scale of the world's construction industry will reach $ 12 trillion and, the investment scale of informatization in construction industry will reach $ 36 billion. The investment scale of China’s construction industry will reach $ 2.5 trillion and the investment scale of the informatization will reach $ 7.5 billion. The People's Republic of China Ministry of Housing and Urban has issued the *2011-2015 Development Program of Informatization of Construction Industry*, which points out that in the period of the "12th Five-Year Plan", the universal application of the construction enterprise information systems should be basically achieved; the application of building information modeling (BIM) and Internet-based collaborative work and other new technologies in engineering work should be speeded up; and the construction of information technology standards should be promoted;The informatization in building design has already been promoted to a certain extent. The development of the informatization in construction is the major direction for the development of informatization in the “12th Five-Year Plan”;The building authorities are intensifying their efforts to achieve the construction informatization, and have introduced an information management mode to various stages such as project registering, tendering and bidding, construction supervision and project acceptance;With the rapid development of information industry and construction industry, their combination will bring new challenges and opportunities for both industries.As a software company, our mission is to "lead the development of information technology service industry in construction field, and make an outstanding contribution to promoting social progress and prosperity". Being involved in the high-speed development of both industries, every member of our company feels that their work is very meaningful and their liability is enormous. Information technology shortens the distance between each country, but also intensifies the competition between enterprises, so future buildings are not only high-tech, energy-saving and green buildings, but also intelligent buildings with full life cycle. Every enterprise will be proud of being able to participate in the construction process, so will Glodon. We will do whatever we can to make contribution to the development of humankind and strive to achieve intelligent construction while make ourselves a long-lived enterprise.Thank you.

**电子化招标投标开启北京有形建筑市场**

**信息化建设新篇章**

北京是建设工程发包承包交易中心部长 马占祯

尊敬的各位来宾，女士们、先生们：

 大家好！

“有朋自远方来不亦乐乎”。首先，我代表北京市建设工程发包承包交易中心全体人员欢迎远道而来的朋友们！祝贺“中阿建筑市场信息化建设论坛”圆满召开！也非常荣幸在这里和各位共同探讨“建筑市场信息化建设”问题。下面，我就北京有形建筑市场的发展和信息化建设情况向大家做以下汇报。

**一、有形建筑市场的主要功能**

有形建筑市场是经政府授权的建设行政主管部门批准建立，以为建设工程承发包交易活动提供服务为主，具备相应的场所、设施、人员、技术、信息等条件，依法成立的服务性法人实体。

有形建筑市场应具备以下基本功能：

（一）收集、处理、存贮、发布工程建设项目、承包商和中介机构的状况、材料价格、政策法规等信息；

（二）提供满足开标、评标、定标、合同签定等交易活动需要的交易场所；

（三）办理从工程项目报建、建设单位项目管理机构资质审查、工程监理、招标投标监督、合同审查、质量与安全监督、工程造价管理、施工许可证签发等建筑市场管理的手续；

（四）为工程承发包和工程建设提供经济、技术、政策法规等咨询服务。

当前，我国关于开展工程建设领域突出问题专项治理工作正在深入进行，按规定必须招标的工程建设项目要实行统一入场、集中交易、行业监管、行政监察，对有形建筑市场的发展提出了更高的要求——为工程交易提供场所、为交易各方提供服务、为信息发布提供平台、为政府监管提供条件。

**二、有形建筑市场信息化建设的发展阶段**

随着信息化技术的不断发展，电子化招标作为一种高效、透明、环保的操作模式，已在美国、欧盟、澳大利亚等国家政府取得很好的效果。北京有形建筑市场结合自身实际，进行了长期深入的探索实践，不断创新，在信息化建设中经历了以下五个发展阶段。

**（一）起步阶段——纸质基础上的简易电子化**

上世纪90年代末，北京市开发“建设工程招标投标系统”，启动了有形建筑市场信息化建设。

招标人或招标代理机构（以下统称招标人）携带纸质资料到有形建筑市场，由工作人员统一录入项目入场登记信息并对相关资料进行核验，各投标人持投标IC卡到有形建筑市场通过系统终端实现投标报名。

当时，尽管招投标过程中所有文件全部为纸质文件，评标采用全人工方式，但北京有形建市场在信息化建设方面迈出了坚实的一步。

**（二）攻坚阶段——不断创新，多措并举**

2005年基于工作流的招标投标平台正式上线，完成了招标投标信息全部由工作人员填报到由招标人通过平台填报，工作人员核对的交互式工作方式的跨

越。实现了招标公告在北京有形建筑市场网站和国家指定媒介的同时公开发布，投标人可以使用投标IC卡通过互联网进行远程报名。

全过程音视频监控系统、评标专家自动抽取和语音通知系统、指纹识别系统和封闭评标区在北京有形建筑市场相继建立，整个市场的信息化建设迈上了一个新的台阶。

**（三）突破阶段——启用计算机辅助评标**

经过近两年的调研、研发、测试，2009年北京有形建筑市场较早在全国实施“建设工程计算机辅助评标系统”（以下简称计算机辅助评标系统），标志着有形建筑市场的信息化建设从此翻开了崭新的一页。

计算机辅助评标系统由电子招标文件制作系统、电子投标文件制作系统、电子开标系统、电子清单比对系统和电子评标系统五个部分组成。该系统实现了标书文件电子化、标书格式统一化、电子标书合法化、专家评标规范化、评审过程自动化、检查系统智能化、数据备份实时化、招标投标流程标准化。

**（四）拓展阶段——全程电子化、无纸化**

2011年北京市建设工程招标投标交易与监管平台（以下称有形市场交易平台）正式启用，实现了从项目入场登记到合同备案招标投标全流程电子化、无纸化，具备了“身份数字认证、网上文件流转、在线备案审批、电子辅助评标、全程电子监察、信息互联共享”的特点，并在应用的广度和深度方面都有了规模性的拓展。

广度方面对市级三个市场的电子化招标投标系统进行了整合，涵盖了施工总承包、监理、专业承包、专业分包、材料设备等各类工程项目。

深度方面，不断适应招标投标管理办法的变化，将监管部门的管理过程和监

管需求融于有形市场交易平台中，在加强招标投标监管的同时为交易主体提供更加便捷的服务。

**（五）未来阶段——互联互通、共建共享**

按照国家《十二五规划》“全面提高信息化水平”的要求，我们确定了现阶段“有形建筑市场交易全面信息化”的建设新目标，并制定了“一个平台、交易专网、大数据库”的有形建筑市场五年发展规划。

“一个平台”，就是以建设工程项目交易为主线，建设能够包容各行业工程建设项目及材料设备交易的信息化平台；“交易专网”，就是以北京有形建筑市场交易场所、“一站式”办理大厅为基础，建设一个“交易专网”、“电子政务网”与“互联网”三网有机结合的数据信息通道；“大数据库”，就是建设一个以发改委立项审批信息、规划委规划审批信息为源头，以工商部门企业营业审批信息为基础，以建设行政主管部门市场行为信息、企业资质及人员执业资格审批管理信息为核心，以纪检监察廉政风险防控为保障，集成各工程建设行业交易数据的“大数据库”，突破“信息孤岛”，充分发挥建设工程“全生命周期”招标投标阶段信息集散功能及其数据资源优势，为政府决策提供支持，为企业发展提供资讯，为工程建设项目市场化交易提供服务。

按照五年规划，再经过三年努力，把北京有形建筑市场逐步建设成为泛华北（环渤海）地区的核心市场和信息集散地。同时与全国各大城市有形建筑市场或公共资源交易中心保持数据电文的互联互通、共建共享，在实现资深专家异地评标等方面发挥积极的推动作用，为实现有形建筑市场全行业信息化发挥重要作用，为逐步形成全国统一规范的建筑市场体系打下坚实基础。

**三、信息化建设在招标投标中的作用**

有形建筑市场的全面信息化建设，规范了招投标流程，加大了电子化评标力度，实现了招标投标“公开、公平、公正”的阳光采购，遏制了招标投标活动中可能发生违纪违法行为，同时降低了各环节的工作成本，全面提高企业规模效益与竞争力，在整个招标投标过程中发挥着至关重要的作用，主要表现在以下几点：

**（一）信息传播广泛、公开、透明，便于监督**

有形建筑市场已经成为促进工程招标投标活动公开、公平、公正进行的重要平台。有形建筑市场作为各省市建筑市场管理的载体，通过信息化建设在信息服务、市场准入、业绩积累、评价机制等市场服务与管理方面具有很好的优势。

统一进场、行业各自监管、行政监察是有形市场交易平台效能不可或缺的组成部分。有形市场交易平台通过交易专网与各行业、各职能部门无缝对接，实现了与纪检监察部门的联动。为招标人、纪检监察部门电子监察提供条件，防止工程建设领域不公平竞争现象。经授权进入有形建筑市场信息化交易平台后可追溯各方主体行为历史记录、可调用重点工程项目交易原始资料、实时查看开标评标过程音视频和调阅历史音视频信息，并为投诉处理、重点抽查和案件办理提供原始信息资料。

**（二）融监管于平台，减少人为干扰**

有形建筑市场建立了封闭评标区，全过程监控系统、评标专家自动抽取系统、计算机辅助评标系统等，有效减少了投标报名、资格审查、开标评标等关键环节中的人为因素，保证了招标投标过程的公开。

通过信息技术，强化招标人制定竞标规则的公平度；把政府调控监管市场的制度固化于有形市场交易平台，约束投标人行为，最大限度地防止围标串标等不正当竞争行为；细化电子辅助评标暗标模块化评审技术机制，保证评标结果的客

观公正；长期保留监管人、服务人的行为记录，保证其依法办事、行为自律。 **（三）节省大量人力，提高评审质量**

计算机辅助评标系统中的辅助评审子系统具备文件查阅、数据检验、算术检查、自动比对、自动计算等多项先进功能，在保留原有评审流程的基础上，利用计算机强大功能将评标过程中所有的检查和计算工作完全实现，并如实的呈现给评标专家，供专家评审时参考，使专家从以前繁琐的工作中解脱出来，能够专心的对投标人技术方案、设计能力、管理能力等方面进行评审，大大提高了评标质量。同时，专家利用系统的对比检查功能很容易发现投标单位的问题，使评标工作更加细致、严谨、公正，这也促使投标单位的围标、串标行为减少。

**（四）节约资源，交易信息便于共享**

北京有形建筑市场全程电子化，所有文件采用网上流转，在开标现场，投标人只需携带数字身份认证锁，以往那种肩扛、车推投标资料的壮观场景一去不复返。仅此一项，北京市有形建筑市场在招标投标方面节省的纸张、能源达数千万人民币，而由此为参与招标投标企业带来的资料管理习惯的变迁，产生的经济效益更是巨大。尤其为日益加重的环境问题更是交出一份绿色环保的答卷。

加强有形建筑市场区域合作，可以通过招标信息共享，为建筑市场主体提供跨地区的信息服务；可以通过交易信息共享，为属地建设行政主管部门和企业隶属主管部门提供跨地区的交易数据信息和市场业绩信息，加快利用资质管理手段优化企业结构、净化市场竞争环境目标的实现。

**四、结束语**

经过十多年发展实践，北京有形建筑市场在学习借鉴国际和国内成熟、先进经验的基础上，开拓创新、积极探索符合北京有形建筑市场的运行管理模式，正在形成以市级市场为基础、区县市场为“窗口”的区域性核心市场。

各位同仁，让我们把握机遇、应对挑战、互联互通、共建互享，为有形建筑市场持续健康发展而努力！

谢谢大家！

**Electronic Bidding Opens a New Chapter in Informatization Construction of Beijing Tangible Construction Market**

MA Zhanzhen Beijing Construction Procuring & Contracting Trade Center

Dear guests, ladies and gentlemen,

At first, I want to cite a saying from Confucius: "It is always good to have a friend coming from afar." On behalf of all staff members of the Beijing Construction Procuring & Contracting Trade Center, I express my warm welcome and gracious greetings to our distinguished guests coming from afar. Here, I sincerely congratulate the successful opening of the China-Arab Building Market Informatization Forum! And also I am very honored together with all guests to discuss the construction of the Building Market Informatization. Next, I’ll make a report to all on development and information construction of the Beijing tangible building market.

**Ⅰ. Main Functions of Tangible Building Market**

The tangible building market is established and approved by the construction administration departments authorized by the Government. It is a service legal entity who has corresponding location, facilities, members, technology and information mainly by providing services for execution contract activities of the building projects.

The tangible building market has the following basic functions:

(1).Collect, handle, store and release information about construction projects, contractors and intermediary organs, material price, and policies and regulations;

(2).Provide the trading places needed for the trading activities such as bid opening, bid evaluation, bid award and contract signing;

(3) Deal with all procedures of the building market management in application and construction of projects, examination of qualification of project management bodies of the units undertaking projects, construction supervision, tendering and bidding supervision, contraction examination, quality and safety supervision, project pricing management, issuing and signing of builders’ license.

(4). Provide the consulting services such as economy, technology, and policies and regulations for execution and construction of project contracting.

Currently, aiming at prominent or outstanding issues in project construction field, China is being engaged inconducting the special governance in all-around way. It shall exercise a uniform market entryance, centrialized trading, trade supervision and administrative supervision for the construction projects which shall invite tenders as prescribed, and brings forward the higher demands for the tangible building market, so as to provide locations for project trading, services for interested parties, platforms for information issue, and conditions for the governments’ supervision.

**Ⅱ．Stages of Development for the Tangible Building Market Information**

With continuous development of information technology, good results have been achieved for the electronic tendering in the governments in the United States, European Union and Australia as a high-efficiency, transparent and environment-friendly operational mode. We have conducted the long-term and deep exploration and practice for the tangible building market in Beijing. In constant innovation, we go through the following five stages in information construction.

**(1)Beginning stage: Simple paper-based electronization**

In the end of the 1990s, Beijing Municipal Government developed the Construct Project Tendering & Bidding System, and started the tangible building market information construction.

The tenderees or tender agencies (hereinafter referred to as the “Tenderees”) should take the paper materials to the tangible building markets. The market entry registration for their projects should be input uniformly, and their relevant data should be examined by the working personnel. All bidders should take IC to the tangible building market and complete the bidding applications in the system terminals.

By that time, the Beijing Tangible Building Market had made an important step forward in information construction though all documents were paper materials and completed by manual in bidding and evaluation of bid.

**(2) Crucial stage: Constant innovation and more measures taken**

With the tendering & bidding platform starting officially based on workflow in 2005, the tendering & bidding information could be completed in the platform by the tenderees instead of the working personnel, and checked by the working personnel in an interactive mode. In addition, the bidding announcements are released in public simultaneously in Beijing Tangible Building Market Network and media designated by the State. The bidders may submit the remote applications on the Internet by the bidding IC.

Overall-process video-audio monitoring system, auto drawing and call system for bid evaluation experts, fingerprint identification system and closed bid evaluation area were established successively in the Beijing Tangible Building Market. The entire market information construction moved up a new step.

**(3) Breakthrough stage: Starting CAT bid evaluation**

Through two-year investigation, development and test, the Beijing Tangible Building Market first applied the construction project computer-aided bid evaluation system (hereinafter referred to as computer-aided bid evaluation system) nationwide in 2009, which demonstrated the information construction of the tangible building market started a brand-new page since then.

The computer-aided bid evaluation system consists of five parts: electronic bid document making system, electronic tendering document making system, electronic bid opening system, electronic list contrast system and electronic bid evaluation system. In this system, the followings are realized: electronic bid document, uniform format of bid document, legal electronic bid document, standard expert bid evaluation, automatic review, intelligent checking system, real-time data backup, and standard tendering and bidding flow.

**(4) Expanding stage: Electronic and paperless in the whole course**

In 2011, the Beijing Construction Project Tendering & Bidding Trading Supervision Platform (hereinafter referred to as the “Tangible Market Trading Platform) was put into operation. So the electronic and paperless tendering and bidding flow was realized from registration of the project entry to the contract filing, and it has the following features: digital authentication of identity, online document transmitting, online filling and approval, electronic aided bidding evaluation, electronic supervision in the whole course, and information interconnection and sharing. Furthermore, the platform was expanded in width and depth of utilization of information.

In width, the electronic tendering and bidding systems in the municipal markets were integrated, including all kinds of construction projects, such as overall contract of construction, supervision, professional contract, professional sub-contract, materials and equipment, etc.

In depth, we adapted to the changes of the tendering and bidding management methods constantly, and blended the management and supervision of supervising departments into the tangible market trading platform, and provided the convenient and fast services for the dealing subjects at the same of the tendering and bidding supervision and control.

**(5) Future stage: Interconnection, and communal building and sharing**

According to requirements of “overall improvement of information level” in the National 12th Five Years’ Plan, we have determined the new target in the current stage—construction of the “tangible building market trading overall informatization”, and worked out the Five Year Development Plan of the Tangible Building Market with “one platform, special trading network, and big database”.

The “one platform” means building the information platform which includes construction project and materials & equipment trading by construction project trading. The “trading special network” means establishing one data information channel in combination of the trading special network, E-government affairs network and the Internet based on the Beijing tangible building market trading locations and “one-stop” transaction hall. The “big database” means establishing the one integrating the trading data of all engineering construction industries by the sources of information on project approvals of the NDRC’s projects and National Resources Planning Commission’s planning based on approval information of enterprise operation by the industrial and commercial departments. Meanwhile, the big database is built in the core of the market behavior information of the construction administration departments and management information of professional qualification approval of the enterprise qualification and personnel, under the guarantee of preventing and controlling risk by discipline inspection and supervision division. It breaks through the “Information Island”, and gives full play of information gathering and data resource superiority for the whole processes of the construction projects in the tendering and bidding stage. In addition, it also provides the supports for decision making of the governments at levels, information for enterprises’ development, and services in market trading of the construction projects.

According to the five-year plan, we will build Beijing Tangible Building Market as a core market and information gathering area in the pan-North China (Bohai Gulf) Region step by step by efforts in another three years. Meanwhile, we will keep interconnection and jointly establishing and sharing of the data and messages with tangible building markets or public resource trading centers in big cities nationwide, and play an active driving role in bidding evaluation of senior experts in different places. Moreover, we also play an important part in the tangible building market informatization in the overall industry, and lay solid foundation for the uniform standard building market system nationwide.

**Ⅲ. Roles of Information Construction in Tendering and Bidding**

With overall information construction of the tangible building markets, the tendering and bidding flow is regulated, and the electronic bidding evaluation is promoted greatly. By this way, purchases for fair, open and equitable tendering and bidding are available, and possible unlawful acts are restrained in the tendering and bidding activities. Moreover, the work cost in tendering and bidding operation decreases greatly, and the scale merits and competitiveness of the enterprises are improved in all round way. It plays a crucial role in the entire tendering and bidding process, and major roles are stated as follows:

**(1)Extensive, open and transparent information spread, and easy supervision**

The tangible building market has become an important platform for open, fair and equitable tendering and bidding activities. As a carrier for management of provincial and urban markets, the tangible building market has good advantages in the market management and services such as information service, market entry, performance accumulation, evaluation mechanism, etc.

Uniform market entry, supervisions of industries and administrative supervision, all are indispensable parts of the tangible market trading platform in efficiency. The platform realizes a linkage with discipline inspection and control by the “seamless joint” of a trading special network with all industries and functional departments. It can provide conditions for electronic monitoring of the tenderees and discipline inspection and control departments, so as to prevent unfair competition in construction building field. In the tangible building market, the closed bidding evaluation area is established, where overall-process monitoring system, bidding-evaluation experts auto drawing system and computer-aided bidding evaluation system can reduce the man-made factors in some key links such as bidding applications, qualification examination, bid opening and bid evaluation, so as to guarantee open and equitable tendering and bidding.

Enhance the tenderees to work out competitive bidding rules in fairness by information technology. Strengthen the system of market regulating and control by government for the tangible market trading platform, so as to restrain the bidders’ acts and prevent unfair competitive acts such as together-conspired biding to the hilt. Refine the modularization review technology mechanism in electronic aided bidding evaluation and closed bid, so as to ensure objective and fair bidding evaluation results keep the records of acts of superintendents and service people for a long term so as to ensure they can act by law and organize their activities by themselves.

**(2) Saving a great deal manpower and improving review quality**

The aided review sub-system in the computer-aided bidding evaluation system has more advanced functions such as file reference, data checkout, arithmetic checking, automatic contrast and automatic calculation. On the basis of reserving original review flow, all checks and calculation tasks can be available making use of strong functions of the computers, and are presented to the bidding evaluation experts for reference. By this way, the experts can get rid of the previous heavy work, so that they can review the bidders’ technical schemes, design capacity and management ability with high quality of bidding evaluation. In addition, the experts can find out quickly issues of the bidding units by contrast audit function of the system, so as to ensure the bidding evaluation is more meticulous, rigid and fair. This also prohibits illegal acts of bidders to some extent such as together-conspired bidding occurring.

**(3)Saving resources and easily sharing the trading information**

The Beijing Tangible Building Market is E-enabled in the entire operation, and its all documents are transmitted on line. On the bid opening site, the bidders only take the digital identity authentication lock. The previous grand scene pick packing and car carrying bidding data has gone forever. Only for this, Beijing Tangible Building Market can save dozens of million yuan of paper and energy in tendering and bidding. The more enormous economic benefit is available because of changes of habits for data management for the tendering and bidding firms. Particularly, this is a satisfying action for increasing environment problems

The regional cooperation of the tangible building markets can bring the cross-region information service for the building market by sharing bidding information. With the trading information shared, the administrative department for the local construction and competent department for enterprises are provided with the cross-regional trading data information and market performance information, so as to speed up realization of optimizing enterprise structure and purifying market competitive environment by means of qualification management.

**Ⅳ. Conclusions**

Over more than ten years of development and practice, Beijing Tangible Building Market develops and explores actively the modes of operation management mode satisfying Beijing Tangible Building Market by borrowing mature and advanced experience abroad and at home, and is becoming a regional core market which is taking municipal market as the foundation and district-county market as a window.

Dear guests, ladies and gentlemen, let us seize opportunities, address challenges, and strive for sustainable and healthy development of the tangible building market by interconnection, jointly establishment and sharing.

Thanks to all!

**依托信息平台 转变监管理念**

**全面提升上海市建设工程招投标监管工作水平**

上海市建筑建材业市场管理总站 副站长 马燕

各位领导、各位嘉宾：

大家好！

很高兴参加今天的大会，和大家交流经验、深化沟通，探索进一步完善建设工程招投标监管工作的有效举措。按照会议议程，下面，我就上海市建设工程招投标监管工作的一些基本情况向大家作个简要的介绍。

一、上海市建设工程招投标监管工作主要情况

**（一）上海建筑市场概况**

近年来，上海进入了城市建设的高速发展期，建设市场规模持续增长。“十一五”期间，本市建筑业产值逐年上升，2010年达到了4298亿元，比“十一五”期初增长了88%。近3年，建筑市场报建项目年均5000个左右，总投资额年均4200多亿元，施工招标中标价或交易价年均1500多亿元。目前，全市有近6000个在建工地，大量工程全面开花；工程规模体量越来越大，如虹桥商务区核心区面积就达到了13平方公里。

同时，在沪各类建设工程企业和从业人员数量始终保持在较高水平。目前，全市共有施工企业10500家左右，勘察设计企业1400家左右，监理企业320家左右，造价咨询企业170家左右，招标代理企业170家左右。建筑业各类从业人员常年保持在50～60万人左右，最高峰时达到80万人，其中各类执业资

格注册人员10万多人。

**（二）上海建设工程招投标监管工作特点**

近几年，上海建设工程招投标监管工作不断规范、不断完善、不断创新，形成了专业全覆盖、监管全覆盖、信息系统全覆盖的特色：

**1、专业全覆盖**

目前，上海全市范围内的房屋建筑、市政基础设施、公路、水利、港口、民航、铁路、工业等项目都纳入到了统一的有形建筑市场进行交易和监管，建立起了既有统一、又有专业特色的全覆盖监管体系。

**2、监管全覆盖**

上海市建设工程招投标实施市、区县两级监督管理，全市17个区县均设有招投标监管部门，另有7个市政府规章委托和2个专业局的招投标监管部门，负责各自区域内的招投标监督管理，业务上受上海市建筑建材业市场管理总站（对外挂上海市建设工程招标投标管理办公室牌子）指导。这样，对全市建设工程招投标活动实行了全覆盖监管。

同时，上海对建设工程各类专业的评标专家通过政府指导和专家自律相结合的管理模式，由政府主管部门和资深专家代表组成上海市建设工程评标专家管理委员会，对评标专家进行指导性和自律性管理，做到对评标专家既重使用、又重管理，实现了全覆盖的监管。此外，我市还利用国家统一专家编码，为今后与各省市专家互通打下基础。

**3、信息系统全覆盖**

目前，上海各级各类招投标监管部门全部实现联网，利用计算机辅助管理平台，监管人员均在网上操作，形成了覆盖全市的统一的建设工程项目信息管理系

统。项目报建、发包资格审查、施工图设计文件审查、合同备案、项目报监、施工许可、竣工验收备案等各环节必须通过信息管理系统来实现，增加了管理的透明度，提高了管理的效率和水平。

随着上海建设工程招投标监管体系不断完善，施工项目公开招标率始终保持在较高水平：2009年为98.17%，2010年为99.62%，2011年达到了99.89%。

二、主要工作措施

上海市这几年在招投标监管中主要做了以下几方面工作：

**（一）以制度建设为根本，完善政策体系**

加快建章立制的步伐，起草了《关于本市建设工程监理招投标管理的若干规定》、《上海市建设工程施工分包管理办法》等规范性文件。这些政策文件主要为规范监理招投标和分包市场，对监理的招标内容、投标条件和评标办法，分包备案的管理部门、备案条件、备案流程，以及禁止非法分包、转包等作了明确规定。

同时，今年还分别就招标公告的发布、招标文件的规范、监理费的收费标准、投标单位的承诺等方面出台了有关规定，进一步完善了招投标监管程序。

**（二）以信息科技为支撑，完善诚信体系**

健全网上招投标体系，逐步实现所有公开招标项目的网上公开发布招标信息、网上投标报名、招标人、投标人及潜在投标人通过使用“单位数字证书”作为身份识别，登陆网站，进行网上“公开招标信息发布”、“投标报名”、“招标文件（工程量清单）上传和下载”、“回标分析”等环节的网上办理。

在评标专家管理方面，引入计算机辅助系统，搭建专家管理平台，该平台除了3000余名评标专家的基本信息外，还有三个子系统：一是语音通知系统。该系统按照计算机随机抽取专家、语音系统自动拨打专家电话、短信平台发出确认信息等既定流程，取代了以往靠人工拨打电话通知专家参加评标的模式。二是诚信管理系统。把日常监管的一些重要环节加以系统化整合，形成所有评标专家的档案，提高管理的精度。三是信息服务系统，通过互联网为评标专家们提供更多信息服务，并通过这些服务，整合了宣传、引导、反馈等多项功能。

另外，配合相关部门，加强对企业诚信的动态记录和披露，完善网上违法行为记录公告，进一步优化网上“曝光台”和“长三角区域建筑市场通用信息”查询系统，准确及时对社会公开建筑市场主体违法违规记录，并逐步形成互联互通的建设工程诚信体系。

**（三）以关键环节为重点，完善监管体系**

**一是实行投标人代表管理制度**。依托现有的企业、人员数据库，对参加开、评标的投标人代表提出要求。规定投标单位参加开、评标活动的必须是经审核的、在数据库中已有的注册人员或有职称人员，如发现投标单位出借资质和注册人员出借执业资格的，依法追究法律责任，并列入不诚信名单予以公示。以此，进一步遏制串通投标、挂靠资质等现象。

**二是大力推行工程量清单招标。**上海从2003年开始推行工程量清单招标。推行国家标准《计价规范》上海地区应用导则（12位编码）。将清单编码由原来的9位编码统一扩展到12位编码，使清单项目特征精确定位，提高工程量清单回标分析的效率和质量。通过计算机辅助系统对清单项目的自动比对，有效解决清单报价的基准问题、专家评审的依据问题和建设工程综合价格指标不全问题，使评标委员会在评标过程中能够快速精准地对投标文件中报价不合理的问题进行查找、判别，有效甄别异常报价，为实行网上评标奠定基础。工程量清单招标的实施增加了招标投标的透明度，提高了评标的公正性，提高了投标人串通投标的难度，遏制了围标串标现象的蔓延。

**三是加强招标代理行为监管。**开展建设工程招标代理活动专项检查，采取抽查资料和管理信息数据比对等方式，重点对有信访投诉、自查问题零申报以及发生过安全质量事故的项目（标段）进行抽查，边检查、边督促整改。对在专项检查中发现有违法违规、隐瞒不报、弄虚作假或整改不力的，由监管部门进行约谈，或移送相关建设行政管理部门查处，被行政处罚的记入单位诚信手册，并向社会公示。

**四是强化市场监督检查。**健全市场、现场联动机制，通过加强现场执法检查，加大对在招投标活动中违法违规行为的查处力度，并在招投标监管过程中对市场主体是否有违法违规行为设置了相关审查环节。同时，加强对承发包合同的备案管理，并定期开展检查，如发现有实际分包单位和合同备案信息不符合等违法违规情况的，一律依法处罚，并按规定重新办理备案手续。通过市场、现场的联动，进一步完善了全覆盖、全过程的招投标监管体系。

三、下一步工作思考

虽然上海在建设工程招投标监管中作了一定的探索，但是规范建筑市场秩序，维护招投标公开、公平、公正，始终是各级领导关心、社会各方关注的热点，在工程建设招投标领域也会不断出现新情况、新问题，上海招投标监管工作仍任重而道远。

面对新形势和新问题，我们在招投标监管工作的指导思想上要努力实现以下“三个转变”：

一是监管对象上，从对所有项目采用普遍监管的方式向分类监管和重点监管转变。公开招标项目将进行全过程、全环节的严格监管，邀请招标项目实行关键环节监管，其他环节采用事后备案的方式。将有限的监管力量聚焦中重点项目。

二是监管方式上，从过去以较为粗放的程序监管向各监管环节互通互联的监管方式转变。过去相对只注重程序监管，程序合法就认定为结果合法。今后将“重点环节”监管和程序监管有机结合，将各监管环节的信息实现互联互通，如实行竣工结算备案制度，让招投标价格回归合理竞争价格，遏制建设工程造价计价“阴阳”合同，有效提高监管水平。

三是监管手段上，从过去管理部门闭门监管向公开、透明、诚信的监管手段转变。通过在评标会前将投标人受到的行政处罚记录向评委提示，通过在资格预审等环节使用投标人信用产品，通过扩大中标结果公示信息内容等手段，提高信息透明度，接受社会监督。

以上是我对上海市建设工程招投标监管工作情况所作的简要介绍，不妥之处希望大家指正。我认为，这次学会给我们提供了一个很好的彼此交流、共同探索的平台，刚才大家的交流发言也让我受益匪浅，感谢大家的传经送宝。最后，预祝这次大会圆满成功，并祝我们的学会蓬勃发展。

谢谢大家！

**Relying on Information Platform, Change Ways of Regulation to Improve Shanghai’s Construction Project Bidding Regulation Comprehensively**

MA Yan, Vice master of Shanghai Construction and Building Material Industry Market Management Center

Distinguished guests:

I am very glad to attend today's conference, and to facilitate the exchange of experience, deepen communication, explore the effective measures of the construction project bidding supervision. According to the agenda of the conference, in the following, let me give you a brief introduction of Shanghai municipal construction project bidding supervision.

**1 Main conditions of Shanghai municipal construction project bidding supervision**

**1.1 The survey of Shanghai construction market**

In recent years, Shanghai has entered a period of rapid development of city construction. The scale of construction market increased continuously. During "Eleven Five-year" period, the city construction industry output increased year by year and reached 429.8 billion yuan in 2010 which was 88% more than the output at the beginning of "Eleven Five-year". There were around 5000 construction projects being built annually in nearly 3 years. The total investment was about 420 billion yuan per year. Construction bidding price or transaction price was about 150 billion yuan per year. At present, the city has nearly 6000 construction sites. Lots of projects have carried out. The scale of the projects also becomes larger and larger, such as the Hongqiao business district whose core area has reached 13 square kilometers.

At the same time, various types of construction enterprises and the number of employees in Shanghai have always been maintained at a high level. At present, there are about 10500 construction enterprises, 1400 reconnaissance and design enterprises, 320 supervision enterprises, 170 cost consulting enterprises, 170 bidding agencies in Shanghai. The number of various types of practitioners including 100000 all types of registered qualification personnel in construction industry maintains at the level of 500000~600000 which peaks at 800000.

**1.2 The characteristics of Shanghai municipal construction project bidding supervision**

In recent years, Shanghai municipal construction project bidding supervision work has been continuously standardized, improved, innovated which has formed the full coverage features of profession, supervision and information system.

**1.2.1 Profession full coverage**

Housing construction, municipal infrastructure, highway, water conservancy, port, aviation, railway, industrial and other projects in Shanghai are all incorporated into the unified market to trade and supervise by now.

**1.2.2 Supervision full coverage**

Two-stage supervision of municipal and district has been applied by Shanghai municipal construction project bidding. There are 17 bidding supervision and administration departments in different districts, 7 supervision and administration departments accredited by municipal regulations, 2 bidding supervision and administration departments of professional bureau. These departments are responsible for their respective regions of the bidding management and directed by Shanghai Municipal Construction and Construction Materials Industry Administration Department (or called Shanghai Municipal Construction Project Bidding Administration Office). Then we realize supervision full coverage of the construction project bidding activities.

Meanwhile the management mode of evaluation experts is based on the integration of government guidance and expert self-discipline. The expert management committee of Shanghai municipal construction project bidding evaluation is composed of government departments and senior experts. The committee is responsible for the guidance and self-discipline of experts. Both use and management are realized by the committee. In addition, we also use nationally unified expert code to build the foundation of the exchanges with other provinces and cities.

**1.2.3 Information system full coverage**

All bidding supervision departments in Shanghai have been connected by network. All staff can log on the net and operate on the computer management platform. We have established the construction project information management system. Project building, qualification examination, examination of construction drawing design documents, contracts recording, project approval, construction permits, completion and acceptance and other aspects must be handled through the information management system which has increased the transparency of management and improved management efficiency and level.

With the improvement of Shanghai municipal construction project bidding supervision system, the rate of public bidding of construction projects has been kept at a high level of 98.17% in 2009, 99.62% in 2010 and 99.89% in 2011.

**2 Main measures**

**2.1 Perfecting policy system on the base of system construction**

To accelerate the establishment of regulations, we have drafted "Regulations on Shanghai municipal construction project supervision bidding”, “Shanghai municipal construction project subcontracting management approaches” etc. These policies are conducive to normalize the supervision bidding and subcontracting market. They specify the contents of supervision bidding, tender conditions and evaluation methods. They also define management departments of subcontract recording, recording conditions, recording procedure and the prohibition of illegal subcontracting.

At the same time, we have also enacted regulations on the tender notice issuing, normalization of bidding files, supervision fee and commitment of bidding enterprise which have further improved the bidding supervision procedures.

**2.2 Perfecting credit system on the base of information technology**

Perfecting the online bidding system. We should gradually realize the opening of all public bidding project information including bidding information. The bidders can sign up online. All tenderees, bidders and potential bidders can log on the net by digital certificate. They can deal with information publication of public bidding, bid registration, uploading and downloading bidding files (Bill of quantity) and bidding analysis.

In the administration of bid evaluation experts, we have built the expert management platform with computer aided system. The platform contains the information of more than 3000 experts. It consists of three sub system. The first is voice notification system. According to the result of computer random selection of experts, the voice notification system calls automatically to the experts and sends a confirmation message by SMS platform. It has replaced the previous model of manual call to experts to participate in the bid evaluation. The second is credit management system. Some important links of daily supervision have integrated into the system which forms the expert files to elevate the level of management. The third is information service system. The system can provide more services to experts by internet. It can also integrate the function of publicity, guidance, feedback and other functions.

In addition, together with relevant departments, we strengthen the dynamic recording and disclosure of enterprise credit, improve the online announcement of records of illegal behaviors, further optimize the online "exposure stage" and "the Yangtze River Delta regional construction market general information" inquiry system, accurately and timely announce construction market illegal records to the public, and gradually form the interconnected credibility system of construction.

**2.3 Perfecting regulation system on the base of key point control**

**2.3.1 Implementation the management system of the representative of the bidder**

Based on the existing enterprises and personnel database, we demand the representative of the bidder participating in the bid evaluation activities must be audited and registered in the database. If we find that the tendering enterprise ever lends its qualification to other enterprise or the registered one lend his certificate to others, they will all be published on the list of bad faith. The legal responsibilities shall be investigated according to law. Thus, we can further prevent the phenomenon such as colluding in the bidding and affiliated qualification etc.

**2.3.2 Vigorously carrying out tendering of bill of quantity**

From 2003 Shanghai began to carry out tendering of bill of quantity. We promote the “Application Guide of Shanghai (12-bit code)” for “Code of Valuation with Bill Quantity of Construction Works”. In the Guide the code has extended from 9-bit to 12-bit which helps the precise positioning of item characteristics and improves the efficiency and quality of bidding analysis. Through computer aided system we finish the automatic alignment of items. It effectively solves the benchmark problems of priced bill of quantity, evaluation basis for expert and incompleteness of construction engineering price index. In the evaluation process, the bid evaluation committee can quickly and accurately search and judge unreasonable problems of bidding files. It is an effective way to judge unusually priced bill of quantity which smoothes the path to online evaluation. The implementation of tendering of bill of quantity increases the bidding transparency, improves the justice of evaluation, elevates the difficulty of bidders colluding with the bid and curbs the spread of the phenomenon of together-conspired bidding and collusion.

**2.3.3 Strengthening bidding agencies behavior supervision**

We should carry out the special inspection to the activities of construction project bidding agencies and check the information of agencies with the data of management information. We should focus on projects with letters of complaints, zero declares of self-examination and safety & quality accident. If there is something wrong in the process of check, we should urge them to rectify. If there are behaviors like breaking laws, concealment, resorting to deceit or ineffective rectification, the agency should be interviewed by supervision departments or investigated by construction administrative departments. If administrative sanction happens, it will be recorded into credit handbook of the agency and showed to the public.

**2.3.4 Strengthening market supervision and inspection**

We should improve the linkage mechanism of market and site, strengthen site inspection, increase punishment to illegal behavior in the bidding activities and examine the bidding supervision process to judge whether the main body violates the law or not. Meanwhile, we should strengthen recording management of contracts and carry out inspection timely. If the information of actual subcontractors is not consistent with the information of contract recording, it will be punished according to laws. The recording formalities should be handled again. We can further improve the bidding supervision system of full coverage and whole process by the linkage of market and site.

**3 The work ponder of next step**

Although we have done some research work in construction project bidding supervision. Normalizing the order of construction market and maintaining the openness, fairness and justness of bidding are always the hot spot of leaders of all levels and all sectors of the community. New case and new issue will ceaselessly appear in construction project bidding areas. We still have a long way to go.

Facing the new situation and new problems, we should strive to achieve the following “three changes” in the bidding supervision:

**3.1 On supervision object, we should change from universal supervision of all projects to supervision of classification and supervision of key points.**

Strict supervision will be carried out to public bidding projects during the whole process. Supervision of key links and post recording of other links will be carried out to invite bidding projects. So we can put our limited power into more important projects.

**3.2 On supervision method, we should change from extensive supervision of procedures to supervision of Interconnection of all links.**

In past we emphasized on supervision of procedures. If the procedure was legal, the result was also legal. In the next we will combine supervision of key links with supervision of procedures, realize the information connection between all supervision divisions. We will implement the system of completion settlement recording to let the bidding price back to reasonable level and curb fake contract of construction cost valuation.

**3.3 On supervision means, we should change from closed supervision to open, transparent and honest supervision.**

The information of the administrative punishments of bidders will show to the judges before evaluation meeting. Credit evaluating results of credit rating agencies are used in the processes like prequalification etc. The contents of publicity information are increased after the result of bidding is announced. These are all the ways to improve the transparency of information and accept social supervision.

The above is the brief introduction of Shanghai construction project bidding supervision. If there is something wrong, please don’t hesitate to tell me. The institute gives us good opportunities to communicate with each other. I benefit a lot from the views of other presentations.

Finally, I wish this conference a complete success and the institute to be more prosperous. Thanks!

**中阿建筑市场信息化建设论坛—发言稿**

天津市工程建设交易服务中心副主任 王斌

为实现建立国际化港口大都市的目标，营造公开、公平、公正市场竞争环境，天津市有形建筑市场以强化进场交易、网络监管为重点，以信息化、网络化为技术手段，在建设工程招标投标监督管理体制方面做出了不断探索创新。

**一、强化进场、上网交易**

天津市自1996年在全国率先建立了有形建筑市场，规定国有投资建设项目必须在有形建筑市场招标交易。2009年天津市建筑市场监管与信用信息平台建立，实现了建设工程交易从头到尾全过程的网络化办公模式，所有建设工程项目交易手续全部通过网络平台办理。通过网络平台对所有建设项目实行全市统一编号，项目报建、招标文件备案、发布招标公告、投标报名、开评标场所使用、评标专家选取、中标公示及备案、中标通知书发放、施工许可证发放、合同备案等环节全部实现了业务网上办理。

目前，天津市的房屋建筑、市政基础设施、公路、港口、机场和轨道交通等各类专业工程全部实行进场、上网交易。

**二、提升信息化水平和软硬件建设**

在完善场所硬件建设上，实行“三分离”，建立“四系统”。

三分离，即将开标区与评标区分离，业主评委与专家评委评标分离，专家评委与本系统招标活动分离，有效防控人为因素的干扰。

四系统，即建立身份识别系统、评标专家计算机自动选取系统、自动语音通知系统和电子声像监视系统，使公开招标全过程都纳入内部监督和社会监督员的视线范围。

同时，实行计算机辅助开评标。从2010年开始，天津市着力打造建设工程开评标的计算机化、网络化平台，本着降低企业成本、降低自然资源占用率、提升工作效率的目的，经过不懈的努力和尝试，建设工程计算机辅助开评标系统基本建立，并开始推广使用。该系统进一步完善和规范了建设工程交易的核心环节。

**三、坚持“五公开”和“六统一”制度**

五公开。即每个招标项目必须向社会公开招标项目信息、投标要求和准入条件、评标办法及标准、中标结果、监督举报方式，使招标投标全过程都能够接受行政主管部门、纪检监察和社会各界的监督。

六统一。通过制定《天津市有形建筑市场建设标准》，使各区县在网络建设、招标备案、信息发布、专家抽取、规范程序、监督管理等方面做到“六统一”，实现对各区县工程建设招投标运行监管的全面覆盖。

**四、构建网络监管平台**

2010年，天津市有形建筑市场开发完成了全市统一的建设工程网络监控平台，即网控工程。通过信息互联、互通共享，将原有的建筑市场孤岛监管方式，转变为以信息化为依托的联动监管模式，为建筑市场提供一体化的管理服务。通过搭建技术完备、功能完善、资源共享、安全可靠的信息监管平台，实现了“一控四管 ”，即：网络控制、项目监管、企业监管、人员监管、信用监管。实现了“企业前台应用、区县后台管理、市级监管维护”的网络监管模式，做到全部监管“一网打尽”。

**五**、**运用现代化手段，着力推进建筑企业信用体系建设**

天津市有形建筑市场通过网络定期采集、发布各建筑企业的信用信息，并通过计算机数学模型进行客观评价，及时公布各建筑业企业信用评价结果。招标人可在招标文件中对投标企业信用等级提出要求，在评标过程中通过企业信用信息系统查询投标企业资信并打分，有效引导和规范了投标人经营行为，使优秀企业、诚信企业大有作为。

 “本着对历史负责、对人民负责的态度，努力建设百年精品工程”我们坚信，只要不断钻研，不断创新就能保证建筑市场公开、公平、公正之树常青，就一定能够让阳光始终照亮建筑市场！

**A Speech to Forum for Informatization Construction of China-Arab Construction Market**

 WANG Bin，Deputy Director of Tianjin Engineering Construction Trade CenterIn order to fulfill the objective of building up an international harbor city and creating an open, fair and honest market competitive environment, the tangible construction market in Tianjin, focusing on the enhancement of floor trading and network supervision, and taking informatization and netwoking as technical means, has conducted continuous exploration and innovation on supervision system of construction tendering and bidding.

**I. Enhance floor and online trading**

Tianjin took the lead in building up tangible construction market nationwide in 1996, specifying that the state-invested projects shall be within the bidding of tangible construction market. In 2009, Tianjin information platform for the supervision and credit of construction market was established, which achieved the network-based office mode during the whole trading process of construction projects and that the trading procedures of all construction projects are transacted on the network platform. Through the network platform, all construction projects can be numbered unifiedly all over the city, and such links of the business as project application, bidding document filing, announcement of public bidding, bidding application, places for bid opening and evaluation, selection of experts for bid evaluation, bid-winning announcement and filing, issue of bid-winning notice, issue of construction license, contract filing, etc. can be transacted on line.

Currently, all special construction projects, such as construction of houses, municipal infrastructures, roads, harbors, airports, rail traffic, etc., are implemented by floor and online trading.

**II. Improve information level and software & hardware construction**

Based on the improvement of hardware construction on site, “three separations” and “four systems” are established.

Three separations, namely, separation of bid opening zone and bid evaluation zone, separation of bid evaluation of owner judges and expert judges and separation of bidding activities of expert judges and this system, can control the interferences of human factors effectively.

Four systems, namely, identification system, computer-automatic selection system of bid evaluation experts, automatic voice announcement system and electronic audio-visual monitoring system, bring the whole bidding process into the vision of internal supervision and social supervisors.

Meanwhile, the bid evaluation aided by computers is performed. Since 2010, Tianjin has begun to exert efforts to establish the computerized and network-based platform for bid opening and evaluation of construction projects. Adhering to the objective to reduce business cost and natural resource occupancy and improve work efficiency, through constant efforts and trials, it has basically established the computer aided system for bid opening and evaluation of construction projects and begun to promote and use it. This system has further improved and standardized the core links of construction project bidding.

**III. Adhere to the system of “five opennesses” and “six unifications”**

Five opennesses. It means that the bidding information, bidding requirements and access conditions, evaluation methods and standards, bid winner, supervision and reporting methods concerning bidding projects shall be open to the public so as to make the whole process of bidding and tendering supervised by administrative department, discipline inspection and supervision department as well as all circles of the society.

Six Unifications. Through formulating “Construction Standards for Tangible Construction Market of Tianjin” to carry out “Six Unifications” in respect of network construction, bidding filing, information publicity, expert selection, standardized procedures, supervision and management at each district and county so as to fully cover the operation and supervision for the bidding and tendering of project construction at all districts and counties.

**IV. Establish network supervising platform**

Tianjin’s unified network supervising platform for construction projects, namely, the network control engineering, was developed and completed by Tianjin tangible construction market in 2010. It transfers the original isolated supervision mode for construction market into joint supervision mode through exchanges and share of information, providing an integrated management service for the construction market. The “one control and four supervisions”, namely, network control, project supervision, enterprise supervision, personnel supervision and credit supervision, has been achieved by establishing information supervising platform with complete technology, improved function, share of resources as well as safety and reliability. The network supervising mode of “applied by enterprise in front, managed by districts and counties at the backstage, supervised and maintained by cities” has also been realized with a “clean sweep” by the whole supervision.

**V. Adopt modern methods to promote the credit system construction of construction enterprises**

Tianjin tangible construction market regularly collects and publicizes credit information of each construction enterprise through network, gives an objective evaluation through computer mathematical model, and publicizes credit evaluation results in time. The tenderee may put forward requirements for credit rating of enterprises participating in bidding in the tender documents, inquiring their credit rating through the enterprise credit information system and scoring for them in the process of evaluation, which effectively guide and regulate the business behaviors of the bidders and brings more achievements to excellent enterprises and credible enterprises.

 “Based on the attitude of being responsible for the history and the mass to strive to construct hundred-year excellent projects”, we firmly believe that the construction market will always be prosperous with openness, fairness and honesty through continuous exploration and innovation.

**积极推行工程交易全程电子化**

**促进市场规范管理和阳光运行**

重庆市工程建设招标投标交易中心 主任 夏太凤

女士们、先生们：

中国的工程建设招标投标有形市场自90年代初成立以来，一直在积极探索以“制度+科技”的手段规范市场管理、实现工程交易的公开、公正、公平。重庆市工程建设招标投标交易中心于98年成立，经过14年的探索和积累，在建立起一套科学完整的制度体系的基础上，实现了工程建设招投标全过程的电子化，以先进的信息技术手段，规范和创新市场管理，保证了市场的阳光运行。目前，交易中心的年工程交易个数达到2500个，年工程交易金额达1150亿人民币。14年来，交易中心没有发生一起违法违纪案件，没有收到一起针对服务的有效投诉。先后获得了“全国文明单位”、“全国青年文明号”、“全国建筑市场管理先进单位”等荣誉称号。下面，我将交易中心推行工程交易全程电子化的情况向各位作个简要介绍：

1. **以交易流程管理为主线，多个信息系统服务工程交易的全过程**

重庆市工程建设招标投标交易中心是重庆市的市级工程建设招标投标集中交易平台，交易范围涉及重庆12个政府相关部门主管的房屋、市政、交通、水利、能源、国土等15大类工程的多种招投标交易活动。为此，中心以《重庆市工程建设招标投交易流程》为主线，建立了“门户网站”、“工程信息管理系统”、“保证金管理系统”、“专家抽取系统”、“电子开评和评标系统”、“专家指纹识别系统”、“评标远程答疑系统”、“电子监控系统”等10余个信息系统。这些系统相互支持、相互配合，贯彻交易流程的始终。其主要功能：一是能实现工程招标信息的公开发布、电子标书的自由下载、投标人网上质疑、招标人网上答疑；二是能将是工程报建、招标公告、招标备案、开标信息、中标公示、合同备案等招投标过程进行电子化、信息化和网络化的管理，实现信息公开、共享和网上办公；三是能对投标人提交的投标保证金进行集中、保密的管理和及时、准确的退还；四是能实现对评标专家身份的指纹管理，实现评标专家由电脑随机抽取，语音自动通知以及“利益关联单位”专家的自动回避；五是能实现开标和评标过程的电子化、智能化；六是能将全部交易过程进行电子监控记录，确保阳光透明。

**二、以规范市场管理为目标，创新管理和技术遏止围标串标等常见问题**

重庆市工程建设招标投标交易中心实现工程交易全程电子化的一个重要目的，是为了最大限度地减少招投标交易过程中人为因素的干扰，特别是对围标串标等常见问题进行有效遏止，达到规范市场管理的效果。为此，这套系统在管理和技术上实现了三个重要创新：

**一是取消投标报名，标书自由下载，保证金集中管理，完全实现“背靠背”投标。**交易中心通过门户网站完全公开工程招标信息，并提供招标文件供潜在投标人无限自由下载，若潜在投标人对招标文件有质疑，可在网上质疑后，由招标人在网上进行统一答疑或补遗。同时，中心对投标保证金进行集中管理和返还，确保潜在投标人的数量、名单在开标前始终处于完全保密状态，监督部门、交易中心、业主、投标人等均无法获知投标人或其他投标人的资料信息，截断了围标串标者相互沟通串联的途径，实现了完全的“背靠背”投标。特别是其中的投标保证金管理，我们实行的是基本帐户进出、多家银行参与、细分帐号管理、专网专线联接、开标时同步公开的模式，进一步增加围标串标的难度。

**二是将评标专家和评标过程纳入电子化管理，确保专家客观公正地评标。**评标是工程交易最关键的环节，为此，交易中心对评标专家实行统一的指纹识别管理，评标专家只在开标前3小时由专家管理系统随机抽取，并由语音自动通知，确保了专家抽取信息的保密。在评标过程中，交易中心对专家的通信工具进行统一管理，截断专家对外交流途径；同时，评标专家与投标人之间的质疑与答疑也采取了相互“隐身”的远程答疑系统，避免了借机“勾兑”，保证专家独立客观地评标。此外，交易中心开发了电子评标系统，不仅固化了专家评标的流程和标准，减少了专家评标的自由裁量权、提高了评标质量，还能借助计算机硬件代码提取技术和数据雷同分析技术，辅助识别一些围标串标行为。

**三是将见证服务与电子监察相结合，进一步维护市场公正。**为进一步维护市场公正，交易中心推行了“一对一”的跟标服务制度，在服务的同时，对交易的过程以电子文档进行见证记录。这是以一种旁站式、记录式的服务来对招投标监管部门现场监督工作的有效补充，从而提升了市场各方主体暗箱操作的门槛，堵住了监管漏洞，被称为维护公正的“第三只眼”。同时被称为“第三只眼”的还有交易中心的电子监察系统。这个系统对市场内工程交易的各个环节进行了全过程、全方位的监控，所有音像资料均被实时传送到纪检监察部门接受同步监察，同时系统也自动记录，保存电子档案，以备今后相关监督部门调阅。

**三、以市场积累的数据库作支撑，用诚信体系建设引导市场发挥对资源的基础性配置作用**

工程交易的全程电子化，使交易中心积累了丰富的与工程相关的企业、人员和项目的数据信息。交易中心为此建立了企业、人员和项目的三大基础数据库，并实现了数据信息的互联互通。以三大数据库为支撑，交易中心又配合市城乡建委，建立了建筑施工企业诚信综合评价体系。这套体系，由交易中心开发相应的信息管理系统，相关部门按照公正、公开、公平的原则，对建筑施工企业的市场业绩、获奖、纳税等情况以及中标后施工过程中的质量、安全、合同履约管理等情况进行量化评分和排名，最后由交易中心每天动态发布。诚信评价的结果，占市场招投标综合评分的10-20%，使不诚信的企业难以中标。这套体系与电子开评标系统进行了有机整合，不仅有效实现了招投标交易市场与中标后施工现场的“两场联动”，而且直接促进行政监督由定性向定量转变、由粗放型向精细化和标准化转变；促进企业提升自我约束力，从只重招投标过程向重施工全过程转变；有利于充分发挥市场对资源配置的基础性作用，体现优胜劣汰的市场法则。可以说，这套系统的建立，是一次构建市场新秩序、创新监管新手段的重大改革，为从源头上治理围标串标、转包挂靠、标后管理薄弱，以及工程质量、安全管理责任不落实等突出问题找到了有效途径，直接推动建筑业改革发展和工程建设水平的提高。

1. **以服务对象满意为宗旨，不断提升中心的服务效率和服务水平**

工程交易的全程电子化，直接体现了交易中心服务的科学化、专业化、精细化和人性化，也使中心的服务效率和水平得到不断提升。比如：交易全程电子化与传统的交易方式相比，更加节能环保；同时相关技术人员和评标专家从传统厚重的纸质投标文件中解放出来，利用计算机高速处理能力，快速对投标文件中的异同点进行定位和分析，提高了评标质量和效率。此外，工程交易的全程电子化，更加方便了工程数据的采集、积累、联动和挖掘分析，其成果能为各类用户的科学决策提供有效依据。最重要的，工程交易的全程电子化，带动了市场诚信体系的建立，为规范市场管理、保障阳光交易、促进市场配置资源找到了一条治本之策。公开、公平的市场竞争结果，导致了投资成本的大量节约。据统计，经过中心公开招投标的项目，投资节约率一般可达10%。这些节约的投资反应到建筑终端产品，实际是间接惠顾及了民生，因此也赢得了服务对象的满意和好评。

目前，重庆市工程建设招标投标交易中心正在对工程交易的全程电子化的运行总结经验，不断完善。下一步，交易中心将努力在提升和完善系统功能、挖掘分析相关数据、提升服务质量和水平上下功夫，努力把中心建成一个集中统一的平台，一个阳光诚信的平台，一个信息权威的平台、一个科技智能的平台、一个服务民生的平台。

谢谢大家。

Actively Promote the Electronization During the Whole Process and Facilitate the Standardized Administration and Smooth Operation

 XIA Taifeng，Director of Chongqing Engineering Construction Trade Center

Ladies and gentlemen, 

Since the establishment of China’s tangible market of tendering and bidding for engineering construction at the beginning of 1990s, ways with the combination of “rules + technology” have been actively explored to standardize market management for open, just and fair project trading. Chongqing Project Construction Bidding And Tendering Service Center was set up in 1998. Based on a complete set of scientific rules and regulations and 14-year-long accumulation and exploration, it has realized the electronic project trading process to regulate and innovate market management and guarantee the transparent market operation by applying advanced information technology. Currently, there are 2,500 project trading deals annually worth 115 billion Yuan in the Center. Over the past 14 years, neither one illegal case nor one effective complaint on service has been raised. Furthermore, the Center has been awarded “National Civilized Unit”, “National Youth Civilization” and “National Advanced Unit in Construction Market Management” and etc. Now, I will brief you on the development of the electronization process.

1. **The whole trading system focuses on the process management and is supported by multiple information systems.**

Chongqing Project Construction Bidding And Tendering Service Center is a municipal centralized transaction platform for tendering and bidding activities in 15 categories like housing, municipal engineering, transportation, water conservancy, energy and homeland under the jurisdiction of 12 Chongqing government departments. Therefore, the Center has launched Chongqing Project Construction Bidding And Tendering Service Center as the main line while opened over 10 information systems such as “Web Portal”, “Engineering Information Management System”, “Margin Management System”, “Expert Selection System”, “Electronic Evaluation Opening and Evaluation System”, “Expert Fingerprint Recognition System”, “Remote Answering System for Bid Evaluation”, and “Electronic Monitoring System”. These systems coordinate with each other to help the whole trading process and their major function are as follows: 1. Posting project bidding information, Offering downloadable electronic bidding document and on-line querying for the bidder, and answering questions on-line; 2. Managing project application procedures, bidding announcement, recording, bidding opening information, public notification of bidding result, and contract recording assisted by internet and information technology so as to realize information disclosure, information sharing and on-line work. 3. Offering centralized and confidential management of margin submitted by the bidder as well as timely and adequate return. 4. Offering fingerprint management for evaluation expert identity, and realizing random selection of evaluation expert, automatic voice notice and automatic avoidance of expert from units at stake. 6. Offering electronic monitoring for the whole process to guarantee the transparency.

1. **To innovate management and technology and block common problems like conspired bidding for regulated market management.**

One important goal of pursuing electronic project trading process is to minimize the interference of human factors during the bidding process, especially to effectively hold back common problems like conspired bidding in order to regulate market management. In a word, the set of system is innovative in 3 aspects in terms of both management and technology.

**a.No more bidding registration, free download of bidding document, centralized margin management and “back-to-back” bidding**. The Center publicizes all bidding information on the Web Portal and posts bidding document for potential bidders to download freely. If the potential bidder has any question about the document, he/she may point it out on line and the tenderee will answer it or make supplement on line. Meanwhile, the Center offers centralized bidding margin management and return and ensures the confidentiality of the number and the name of potential bidders. It also prevents relevant departments, trading centers, project owners and bidders from knowing the profile, blocks the interconnected channels among bidding conspirers and realizes “back-to-back” bidding process. The margin management is worth special attention because the Center is engaged in basic account activity, multiple banks’ participation, assorted account number management, private network connection and synchronized publicity on bid opening to make conspired bidding much more difficult.

**b.Electronic management of evaluation experts and evaluation process to guarantee the objectiveness and fairness**. Considering the paramount importance of bid evaluation for the trading, the Center adopts the finger recognition management system so evaluation experts will be selected randomly just 3 hours before the bid opening and they will receive automatic voice notice to make sure the information stays confidential. During the evaluation, the Center will collect the telecommunication tools of experts to cut their contact from outside. At the same time, the Q & A between evaluation experts and bidders will also be completed through a mutually “invisible” remote system to avoid improper communication and guarantee objectiveness. Moreover, the Center has developed an electronic evaluation system which has not only consolidated the evaluation procedure and standard, but also reduced experts’ discretion and improved the evaluation quality. Thanks to the extract technology of computer hardware code and analytical technology of similar data, some conspired bidding activities can be identified.

**c.The combination of service and electronic monitoring to safeguard market fairness.** To safeguard market fairness, the Center adopts a “one to one” tracking service system which means that the process will be recorded electronically during the service provision. By effectively supplementing the work of bidding supervisory department, the recording-based service has made back-case work more impossible and removed supervisory loophole, so it is called “The Third Eye” for fairness. The reputation is also applied to the electronic monitoring system of the Center. The system conducts non-stop and over-all monitoring on all links of project trading. All the video profile will be transferred real-time to the discipline inspection and supervision department and recorded electronically and automatically for future retrieval.

1. **Based on the accumulated database, the market will be promoted by the integrity development to play a fundamental role in resources distribution**.

The electronization of project trading propels the Center to pool data information about engineering-related enterprises, personnel and projects. As a result, the Center has built up three basic databases of the abovementioned elements respectively and achieved mutual connection among the information. Supported by the databases, the Center has coordinated with Chongqing Municipal Commission of Urban-Rural Development to found the building corporations integrity evaluation institution, under which there are relevant information management systems, and relevant departments will act according to the principal of fairness, transparency and justice to conduct quantitative scoring and make a ranking for the building enterprises in terms of market performance, award, tax as well as the quality, safety, and contract compliance after they win the bid. Finally, there will be a daily dynamic publishing made by the Center. The result of integrity evaluation result accounts for 10-20% of the comprehensive scoring, minimizing the chance of non-integral enterprises to win. The combination of the institution and the electronic bid evaluation opening system makes the “interaction” between bid trading market and construction site after winning the bid a reality. It has also upgraded the administrative supervision to be more intensive and standardized; boosted enterprises to be more self-disciplinary and more devoted to the whole construction process instead of only to the bid process; been conducive for the market to play a full role in resources distribution so as to implement the market norm of survival of the fittest. It is fair to say that the launch of the system represents a significant reform in forming a new market order and innovating supervisory methods, because it can effectively address the issue of conspired bidding, subcontracting, affiliation, weak management after winning the bid, insufficient engineering quality and security management at the source, which will directly better the reform and the development of the building industry and the project construction quality.

1. **To improve the service efficiency and quality of the Center with the satisfaction of the service recipient as the ultimate goal.**

The electronization of project trading unambiguously demonstrates the scientific, professional, intensive and human service of the Center and it also advances the service efficiency and quality. For example, compared with the traditional trading mode, the electronic one is more energy-saving and eco-friendly; relevant technicians and evaluation experts can identify and analyze the similarity and difference of bidding document quickly depending on the rapid processing capacity of the computer instead of working on traditional and heavy paper bidding document, so the evaluation quality and efficiency becomes higher. Additionally, the electronic process has also facilitated the collection, accumulation, interaction and analysis of engineering data as a more effective reference for the scientific decision-making of all kinds of clients. What matters most is that it drives the establishment of a market integrity system and finds an essential way to regulate market management, guarantee transparent trading and encourages market resources allocation. Open and fair market competition will result in a huge drop of investment cost. It is estimated that projects through the Center’s open bidding process can save 10% of the investment cost which will be used later on end products of the building, an indirect benefit to people. Thus, clients will be satisfied.

At present, Chongqing Project Construction Bidding And Tendering Service Center is summarizing the operation of the electronic trading process for further improvement. Next, the Center will do its utmost to upgrade and perfect the systematic function, data analysis, service quality to make itself a centralized and integrated platform, a transparent and honest platform, an information authority platform, a scientific and intelligent platform, a people-oriented platform.

Thank you.

**在“中阿建筑市场信息化建设论坛”**

**上的发言**

河北省建设工程招投标管理办公室主任 丁金堂

各位来自阿拉伯的朋友，住建部领导以及建筑市场与招标投标研究分会的同仁们，今天非常荣幸能与大家一起交流、学习建筑市场的先进管理经验，在招投标中推行信息化建设，一直是我省推进建筑市场管理的主要手段之一，下面我简要介绍我省在这方面的几点做法，供大家参考。

1. 我省工程信息网络系统发展历程

我省在招投标管理中推行信息化工作开展较早，1995年，根据交易中心开展信息化服务和招投标管理的需要，我省组织开发了“工程建设招标项目管理”、“招投标统计报表”、“招标代理机构管理”和“评标专家抽取”等系统。1998年4月至1999年7月，“河北建设工程信息网”网站初步建设完成，有关管理部门及市场主体等用户可通过网站进行信息收集、发布工作。1999年8月至2000年7月，随着有形建筑市场发展，我省全面启动了以省建设工程交易中心为枢纽的工程信息网络系统，实现了招投标系统网络化，投标企业可以采用网上投标报名，评标专家可以采用网上申报、审核、日常管理，监管人员可通过计算机随机抽取评标专家，建立了全省招标公告、中标公示统一发布机制。

2004年底，我省将各独立系统整合升级，形成“河北省建设工程招投标交易管理”与“河北省计算机辅助评标”两套系统，同时加强了“河北省建设工程信息网”的信息发布与媒体监督功能。“两套系统”以工程项目招投标监督管理为核心，以

计算机网络技术为手段，以“河北建设工程信息网”为信息发布平台，省、市、县三级统一应用，包含有工程项目、投标企业、从业人员三大数据库，覆盖工程项目招投标交易管理、投标企业及从业人员管理、招标代理机构及从业人员管理和评标专家管理等招投标监管主要工作，与省住建厅工程项目监督管理系统和部分市建筑市场办公系统进行数据交互，成为各方市场主体的服务平台、招投标管理部门的工作平台、行政监督部门的监督平台。

1. 我省建设工程信息网络系统现状

为保证数据集中、及时，我省建设工程信息网络系统基于BS构架建设，其中涵盖了招投标交易管理、计算机辅助评标、评标专家管理、投标企业信用手册管理、代理机构市场行为管理等业务系统。

工程项目招投标交易管理系统是整个系统的核心，可实现招标投标活动中的招标登记、招标公告发布、投标报名、电子标书发售、评标专家语音抽取、计算机辅助评标、中标公示发布、中标通知书发放、合同履约监督评价等工作。

计算机辅助评标系统与招投标交易管理系统使用同一套身份认证机制与基础数据，结合工程量清单招标与合理低价中标制度的推行，我省自行开发的电子招投标文件制作软件与评标系统，建立了快速、科学的辅助评标计算模型，为专家评标提供了各种方便快捷的标书浏览、清单对比功能，提高了评标工作的效率和质量。

评标专家管理系统，实现了评标专家网上申报、考试、审核，并对全省评标专家实行“一标一评一记录”，通过记录评价评标专家的评标业绩和评标表现，实现专家动态考评，实时清出。

投标企业信用手册管理系统，建立了河北省及外埠进冀投标企业的信用档

案，记录投标企业、项目经理中报业绩，并结合厅信用综合评价体系，对投标企业、项目经理、招标代理机构及其从业人员进行打分、排名，并将结果应用于建筑市场管理及招投标中。

作为代理机构市场行为管理的工作平台，以及为代理比选工作提供数据参考，我们在招标代理机构管理系统中建立了招标代理机构的诚信档案，包括人员、业绩、市场行为等内容。

2005年以来，全省共有61748个项目使用“两套系统”进行招标，发布招标公告54860条。记录了5041家投标企业、491家代理机构、5950名评标专家的信息和市场行为。

1. 通过信息化建设规范招投标监管

多年来我省一直致力于坚持以信息化建设为手段，招投标管理规范化为目标，不断完善和细化建设工程信息网络系统平台，积极推行电子招投标，逐步实现招投标管理电子化、规范化、交易服务标准化、人性化。

首先，信息化建设规范了监管程序和监管行为。我省以招投标交易管理系统为载体，将招投标监管标准化与行政权力公开透明有机结合起来。通过在全省推行评标专家抽取语音通知系统，实现专家抽取自动语音通知、手机短消息确认，减少了人为干扰因素，进一步提升了评标专家抽取工作保密性。通过对代理机构承接业务后的行为进行跟踪管理，规范了招标代理机构从业行为。通过对已中标项目经理进行锁定，并禁止其在所负责项目完工前再次参加投标，实现了一个项目经理只能担任一个项目的负责人的要求。通过网上投诉平台，受理、督办、反馈投诉处理情况，完善了招投标工作社会监督机制。

其次，信息化建设催生了建筑业企业信用综合评价体系。建立信用评价体系，

是我省加强建筑市场监管的一项重要举措，对于加强建筑市场和施工现场联动，引导企业遵守法律、法规、规章、安全文明施工、切实加强质量管理和合同管理等都具有十分重要的意义。2011年以来，按照省住建厅“统一政策法规、统一规划设计、统一信用平台和统一信用认定、评价、使用标准”的基本原则，我省已开发出河北省建筑业企业中标业绩收集系统、施工合同履约监督评价管理系统、诚实守信招标投标单位申报系统、行业自律承诺企业信息管理系统等信用总额和评价体系配套子系统，与厅信用综合评价平台进行对接，并在河北建设工程信息网信用综合评价专栏进行公示。

 第三，信息化建设推动了电子评标的进一步发展。2004年，为配合工程量清单招标和合理低价中标工作的推广，我省开发应用了计算机辅助评标系统。标书电子化和网上评标，不仅降低了交易成本，提高了专家评标质量和效率，同时强化了过程监控，减少了人为干预，保证了评标科学性和公正性。通过积极探索异地远程评标和技术手段辅助电子甄别虚假招投标行为的实现模式，有效规范企业投标行为，减少围标、串标等违法违纪现象。

多年来，我省不断深入招投标交易信息化建设工作，为各方用户的工作带来了便利，得到了广泛社会认同。中国建设报多次对我省信息网络建设成果进行了报道，2007年6月以《信息化助阵招投标监管》为题，对信息化辅助招投标监管的“制度+科技”模式进行了肯定；2012年3月以《推进诚信体系建设 打造招投标交易大平台》为题，介绍了以信用综合评价体系为核心，实现建筑市场与施工现场联动的市场管理机制。

1. 信息网络系统建设进程将进一步加快

2012年，我省将进一步加大信息化建设力度，一是深入开展信用综合评价

业务系统建设，积极探索在政府投资占主导地位的工程项目招标资格审查和评标中应用信用评价结果；二是升级各业务系统，完善专业项目进场交易的功能，推动招投标交易大平台建设；三是完善电子招投标文件制作软件，与计算机辅助评标系统，利用技术手段辅助虚假招标投标行为认定；四是调整评标专家专业设置，深化专家动态管理。

实践证明，信息化作为目前招投标管理的主要手段，大幅度提高了管理水平、工作效率和各项工作的透明度。近年来我省在招投标交易信息化建设方面做了一些有益的尝试，取得了一些成绩，但和一些先进地区和省市，以及招投标市场快速发展的要求相比仍有一定差距，下一步我们将继续深化信息化建设，推动招投标交易管理工作再上新台阶。

**Speech at the “Forum for Informationization Construction of China-Arab Construction Market”**

DING Jintang，Director of Hebei Construction Project Bidding Management Office

Ladies and Gentlemen,

Good morning.

It’s an honor for me to participate in this *Informationization Construction Forum for China-Arab* and to take this chance to study and communicate building market management experience with you. One of the important methods to push in the building market management is to informationize the bid project. The following main ways in our province are for your reference

1.The Development of Project Information System in our province

We process Informationization in bid project at early time, in year 1995, according the need for information service and bid management of trade center, we organized and developed *The Management of Project Building Bid*, *Bid Stastical Returns,* *The Management of Bid Agency* and *The Pickup of Bid Evaluation Expert*  etc. From April 1998 to June 1999, *Hebei Building Project Information Website* was finished, relative management department and main market players can collect information and display work on this website. From August 1999 to July 2000, with the development of the tangible building market, we established the Project Information System with Project Trade Center as the hinge and realize the networking for bid system. Tender company can sign up for tender through the internet; bid evaluation expert can declare, verify and manage via the internet; supervisor can draw bid evaluation expert at random; set up integrate tender announcement, bid winning declaration in our province.

At the end of year 2004, our province integrates and updates all the independent system, and form *Trade Management for Building Project Bid in Hebei Province* and *Computer-assist Bid Evaluation System in Hebei Province.* Meanwhile, we reinforce the information-display and media-supervise function of *Hebei Province Building Project Information Network*. *Two Systems ,* the core of which is management of bid, the technology of which is computer network, the information-display platform of which is *Hebei Province Building Project Information Network,* are applied unitedly through Province, City and County. It includes project item, tender company and practitioner t, these three databases, covering the work for management of project bid, management of tender company and practitioner, management of bid agency and practitioner and management of bid evaluation experts. Our target is to be a service, bid management, administrative platform.

2. The proceed of Building Project Information Network’s Construction

order to get concentrative and timely information, we based the Project Information Network’s Construction on BS construction which includes bid trade management, computer-assist bid evaluation, management of bid evaluation experts, management of bid company’s credit and management of bid agency etc

The core of this system is the management of building project bid trade system ,it realizes bid registration, bid notice, signing up, -bidding documents’ selling, picking up of bid evaluation experts, computer-assist bid evaluation, bid winner’s announcement, bid winner announcement’s grant and contract supervisor’s evaluation etc

Computer-assist bid evaluation system and bid trade management system are based on the same ID authentication mechanism and basic data, with the proceed of projects list bid and winning bid at lower price, we developed electronic bid document making and bid evaluation system, we also build up a high speed and scientific computer-assist model which is convenient for bid evaluation expert to browse bid documents and to compare bid list, it really increases the efficiency and quality of did evaluation.

In terms of bid evaluation experts management system, it realizes that application, exam and verifying can be done through the internet, and the standard for all the experts in our province is one bid, one evaluation and one record, it will record the achievement and behavior of the experts and will evaluate the experts themselves, getting out of the disqualified in time.

Tender company credit management system builds a credit archive for all the bid company in our province or company coming into our province, records the bid company and achievement of project manager. We use this system to mark and rank the bid company, project manager, bid agency and practitioner with a credit evaluation system. And the results will be used into the building market and bid management.

As a work platform for agency marketing behavior management and a data reference for agency comparison work. We build a credit archive for bid agency in bid agency management system which includes people, achievement and market behavior etc

There are 61,748 projects using Two System to invite a bid announcing 54,860 pieces of statement, recording 5,041 tender companies, 491 agencies, information of 5950 bid evaluation experts since year 2005

3. Develop standard bid supervisor system via information construction

We have been insisting in information construction, and our goal is to standardize bid management, and make the building project information system more perfect and more detailed. With the proceeding of electronic bid method, we will realize individually bid management electronically, standardly personnally.

First, information construction makes the supervisor process and behavior more standard. Based on the bid trade management, our province united the supervisor standardization and the right transparency. The picking up of experts is done thorough automatic voice and message confirmation based on the bid evaluation experts picking up voice system. It reduces the affects of human behavior, up lever the confidentiality of picking up. We make the agency’s behavior more standard by tracking their behavior after carrying the project. The project managers are not allowed to take a second bid before his project is finished according to the one manager, one project. And we also make the bid social supervisor system more perfect by accepting, supervising, giving feedback of the case through complaint net platform. Second, information construction pushed the establishment of building company credit composite evaluation system. It is a important measure for our province to strengthen the building market supervisor. It plays a very significant role in strengthening the linkage of building market and project scene, leading company to comply with the laws and regulations, rules and safe&civilized construction,. According rule United law, united design, united credit platform and united credit evaluation , we developed Hebei Province Building Company Bid Achievement Collecting System, Construction Contract Supervisor Evaluation Management System, Honest and Faithful Bid Company Applying System and Industry Self-Promise Information Management Total Credit and Evaluation System. United with the credit evaluation platform, we will make announcements in evaluation column of Hebei Building Projects Information Network. Third, information construction pushes the development for electric evaluation. In order to extend properly the projects list and bid winning at lower price, we established the computer-assist evaluation system. The electric bid documents and evaluation through internet not only lower the trading cost , but also increases the evaluation quality and efficiency . Meanwhile, it strengthen the supervisor for the process and reduce the affects of human behavior, ensuring the fairness and scientificalness. We standardize the company bid behavior and reduce together-conspired bidding and colluding in bidding by exploring the long-distance bid evaluation from different places. We have made our bid trade information construction more and much deeper for many years, and it brings convenience to user. China Construction News Paper reports the result of our information network construction for many times, in June, 2007, its title for the report is Information helps bid supervisor, and this report fully supports the mode of info-assist+technology; in March,2012, Push Credit System Construction, Build Bid Trade Platform introduces that the linkage of building market and construction scene’s core is credit composite credit evaluation system

4. The construction of information network is getting quicker and quicker

In year 2012, we strengthen the information construction. First, construct the credit evaluation system deeply and explore the credit evaluation results of government projects Secondly, upgrade the system make the professional project trade function more perfect and push the bid trading platform; Thirdly, make the electric bid document’s making software and computer-assist evaluation system perfect and make out the fake bid by technology. Lastly, make adjustment to the experts’ picking up and make the management more properly.

According to our experience, informationiziton as a main method in bid management increases the management level and efficiency and transparency a lot. We have got some good results from some attempts in information construction. But we still have gaps with advanced district provinces and cities. We need to push the bid trade management to a new stage for the next step to deeper the information construction.

Lastly, we wish a perfect and successful trip to China for all our Arab friends

**应用现代信息科技技术 提高招投标工作整体水平**

——山东省建设工程招投标监管信息系统简介

山东省建设工程招标投标办公室副主任 闫 民

从2010年开始，山东省按照建立健全惩治和预防腐败体系的要求，以推进建设工程招投标工作的规范化、标准化和信息化为重点，统一规划、分级建设、分步实施，建立了以招投标监管系统为中心，横向连接异地评标系统、招标代理管理系统、评标专家管理系统，纵向连接全省17城市，集建设工程招标投标工作、服务、监管、监察等为一体的全省统一的建设工程招投标监管信息系统。

一、系统架构

整个系统采用智能客户端和瘦客户端结合,对于复杂而又繁琐的操作主要采用智能客户端进行本地处理，调用Web服务进行业务提交。对于查询,显示等不包含逻辑的功能采用瘦客户端方式，即普通IE方式进行查看、下载。

数据采用分布式存储，集中式管理。各个地区保持各自独立的子系统，它存储本地区的业务数据，本地区的上报数据通过调用Web服务存储到省服务器。省服务端可以快速查看各个地区的上报数据以进行统计分析。这种数据管理的优点是整个系统的数据是分布部署的,减轻了服务器的压力，新增加的地区可以很容易整合到整个系统中，地区的数量对整个系统的数据压力不会造成大的影响，保证了整个系统的高效稳定运行。

招投标智能客户端是山东省建设工程招标投标管理网络的重要组成部分,是招投标各方主体单位办理招投标业务的办公软件（以下简称客户端）。 客户端充分利用本地计算机资源, 调用Web服务进行业务数据提交,提高系统反应速度,提供更好的人机交互和在线交流，提高工作效率。

在异地评标应用中,客户端实现了无地域差异、无纸化电子评标。通过远程视频图像、语音监控，实现异地评标。全流程无纸化网上招标、投标、评标；全过程电子化网上留痕、可溯、可查；全方位规范化网上备案、监管、监察。

二、系统特点

1、支持离线操作，在线提交。充分利用本地计算机资源进行信息显示和数据处理，实现即时保存功能,提高系统响应速度。

2、支持消息盒子功能。热点消息广播，离线消息推送，支持好友在线状态查询，提供招投标工作负责人在线交流和离线留言功能。当鼠标移动到闪动的托盘图标上时，出现消息盒子，可以点击其中某条消息，直接打开与发消息人的会话窗口，与其对话。

3、灵活的查询功能，让信息在指尖流动。客户端提供相关事项查询功能，例如点击工程名称,即可查看同类工程项目办理情况,点击建设单位可以查看该单位的其他项目情况,为用户提供充分的业务参考。

4、精确审批。支持审批事项逐条目锁定与解锁。招投标监管机构详细标注未通过申批的事项，便于招标人和招标代理单位及时修正，快速完善申请内容，提高申请审批效率。

5、云模式同步。客户端使用先进的同步机制，通过比较本地数据库与云端数据库版本判断数据同步的必要性,以最小的数据传输量实现两端数据的一致。系统支持智能升级，实现系统程序、业务流程、界面配置信息的同步更新。

三、客户端在电子评标中的应用

客户端异地评标系统利用山东省建设工程评标专家管理系统抽取本地和异地专家，组成联合评标委员会，利用网络通信技术、计算机技术和安全保障技术，评标专家在其所在地交易中心分会场的远程评标终端(客户端)，进行远程身份认证，技术标、商务标书阅读浏览，并进行远程评标。彻底解决异地评委与本地评委平等权。

一个招标文件或投标文件，可以包含多个标段，一次性导入即可评审多个标段。系统根据标段编号自动匹配招标文件与投标文件，节省标书导入时间。评审时多个标段可同时进行，提高评标专家的评标效率。

技术标编号推广使用乱序编号模式是指全部打乱编号，各项评分内容编号和单位编号都是随机的，该模式可提高评标专家对投标单位识别难度。

四、系统流程

1、招标公告审批

招标人或招标代理单位可以利用客户端办理公告审批业务,并进行审批要件上传。客户端支持业务流程和业务模板的定制，并且可以针对不同地区定制独立的办公流程和业务数据模板；客户端支持资格预审、后审、网上审查多种模式；客户端提供审批日志，可以记录每个审批步骤的审批结果和审批意见。

2、招标文件审批

依据招标模板，实现招标文件模板化，可以针对招标文件局部进行审批。招标人或招标代理单位根据模板填写相关内容，完成招标文件的制作、提交。招投标监管机构对提交的招标文件进行审查，可以针对模板文件进行局部内容的退回操作。招标人或招标代理能准确、动态快速地定位到问题点，进行修正。

3、网上报名

针对预审、网上审查模式，投标单位需要进行网上报名，系统自动将审查投标人资质\资格以及投标业绩信息。

4、答疑

网上答疑作为投标人信息保密的重要手段，系统支持投标单位匿名登陆，动态申请企业登录账号密码，无痕登录。

5、日程安排管理

客户端提供包含法定节假日在内的标准日历，代理单位可以向经办人申请在有效工作日内开标时间、地点。

6、保证金管理

通过接口与银行数据同步，提供保证金管理。

7、电子投标文件提交

引入CA认证服务，实现电子文件的电子签名和电子签章，充分完备网络交易安全的四大要素即：信息传输的保密性、数据交换的完整性、发送信息的不可否认性、交易者身份的确定性。同时电子签章技术作为电子签名的一种具体表现形式，实现了电子文件的身份验证，保证了文件的真实性和完整性。认证公司提供“数字时间戳”服务，为任何电子文件各个节点提供准确的时间证明，并能够检验出该节点自加上时间戳后是否变更过，具有不可否认性和强有力的法律效力。

8、电子评标（异地评标系统）

电子评标系统由协调系统、开标系统、评标专家终端程序三个模块组成。通过协调中心系统把分散在不同地域的评委终端程序和主会场的开评标系统集成起来，综合建设工程招投标监管系统、各交易中心异地评标资源完成整个评标过程。全省联网的异地评标系统，实现了全省电子评标系统的信息协同、评标专家bid

身份确认及连接主会场、数据采集工作。

协调系统：用于组织地区评标资源，协调建设工程招投标监管系统、主会场开评标系统、评标专家终端系统共同完成开标评标工作，协调系统按程序部署可分为：智能客户端、服务端两个部分。其中协调系统服务端部署在省级主管部门为各级交易中心提供异地评标服务，客户端则部署在各地主管部门。协调系统主要完成三个功能：

（1）按交易中心为单位管理维护其异地评标机位使用情况。各交易中心可以在空闲的机位上提出使用申请，经机位所有单位确认后锁定，直至评标结束完成。

（2）按工程项目为单位管理维护其涉及机位使用情况。各项目经办人可以查看异地评标项目相关机位的使用情况，协调系统每个间隔时间检查评委终端程序和开评标系统的连接状态。每个机位除的占用状态，还需要用工作状态描述评委当前评标进度。

（3）为评委终端登录，提供身份检查确认服务。评标专家在指定机位输入用户名和身份卡后，系统将匹配抽取的工程项目和专业。如身份合法，系统将继续检查其CA信息。检查匹配合法后，系统将自动给评委终端发送主会场地址信息和项目信息。终端程序将根据协调系统反馈消息自动建立连接。

开评标系统：提供智能客户端模式的电子化开评标系统，部署在各交易开标厅。

1. 招标文件导入
2. 投标文件导入
3. 初步评审
4. 激活评标。
5. 评委工作情况监管
6. 汇总计算
7. 确定中标人
8. 报表输出
9. 发布公示

评标专家终端程序：

1. 评委登录系统，下载评标数据包。
2. 阅读招标文件
3. 阅读技术标，技术标评审
4. 阅读商务标，商务标评审
5. 工程造价信息阅读分析，经济指标查看分析
6. 评标结果查看及报表查看分析

9、中标公示

经电子评标工程项目的招标结果将自动提交发布。

10、中标通知书

 全省统一编号，提供权威数据查询。

**Apply Modern Information Technology to Improve Bidding Work on an Overall Basis**

**– Brief Introduction to Shangdong Construction Project Bidding Supervision Information System**

** YAN Min，Deputy Chief of Shandong Construction Project Bidding Management Office**

Beginning in 2010, Shandong Province, established in accordance with the establishment of preventing corruption system requirements, to promote the standardization and information of the work of construction project bidding of the province's 17 cities, set construction project bidding work, services, supervision, monitoring as one of the province unified of construction project bidding regulatory information system.

First, the system architecture

The entire system uses a combination of smart client and thin client, smart client for local processing, and a Web service business will handle the complex and tedious aspects of the operation. For query, display does not contain the logical function of thin-client manner, the ordinary IE to view, download.

Distributed storage, and centralized management. Each region to maintain a separate subsystem, store it in the region, business data, in the region reporting data storage to the provinces by calling the Web service server. Province server can quickly view the various regions of the reported data for statistical analysis. Management advantages of this data is the data of the whole system is a distributed deployment, reducing the pressure on the server, new areas can be easily integrated into the whole system in the region the number of data on the entire system pressure does not cause a big impact to ensure the efficient and stable operation of the entire system.

Bidding smart client is an important part of Shandong Province construction project bidding management network, and the bidding parties to the main unit to handle the bidding for the business office software (hereinafter referred to as a client). Client take full advantage of the local computer resources, call the Web service to submit business data, increase system speed of response, provide a better human-computer interaction and online communication, improve work efficiency.

In different places in the bid evaluation application, the client is not restricted by geographical location, paperless electronic bid evaluation. Through remote video image, voice control, off-site bid evaluation. The whole process paperless online bidding, tendering, bid evaluation; the whole process of electronic traces of online and can be traced back to be investigated; a full range of standardized, online filing, supervision, monitoring.

Second, the system features

1, support for offline operation, be submitted online. Make full use of the local computer resources, information display and data processing, instant save feature for faster system responsiveness.

2, support the message box. Hot broadcast messages, offline messages push, support of friends online status inquiries, bidding person in charge of online communication and offline message function. When the mouse to move to a flashing tray icon, a message box appears, you can click on a message, open the session window and send an announcement, rather than dialogue.

3, a flexible query capabilities, so that the flow of information at your fingertips. Client matters related to the query, for example, click on the project name to view similar projects to handle the situation, click on the construction unit to the unit's other items to provide users with full reference to the business.

Four precision approval. Support and approval items one by one head lock and unlock. Bidding regulatory agencies detailed label did not apply for grant matters, facilitate the timely correction of tender and the tender agent, quickly improve the application content, improve the efficiency of application approval.

5, the cloud model synchronization. The client uses advanced synchronization mechanisms, the need for the local database and cloud database version to judge data synchronization to data is synchronized at both ends to maintain data consistencyThe system supports smart upgrade, system procedures, business processes, synchronous interface configuration information update.

Third, the client application in the electronic bid evaluation

Evaluation experts of the client offsite bid evaluation system construction projects in Shandong Province management system to extract local and off-site experts to form a joint bid evaluation committee, the use of network communication technology, computer technology and security technology, evaluation experts in their local trading center at the venue the bid evaluation remote terminal (client), remote authentication, read the technical standards, business tenders browsing, and remote bid evaluation. Completely solve the off-site judges and local judges the right to equality.

Tender documents can contain multiple tenders, one-time import to review tenders. The system according to the number of tenders automatically match the tender documents and tender documents, save tenders to import time. Multiple tenders can review the same time, improve the efficiency of the evaluation of the bid evaluation experts.

Technical standard code to promote the use of out-of-order numbering scheme is all upset the number, the scores of the contents of the number and unit number are random, the model may increase the difficulty of evaluation experts to tender units to identify.

Fourth, the system processes

1, the tender announcement for approval

Tender or tender agent, can use the client for announcement and approval of business, and approval of elements of upload. Client supports the customization of business processes and business templates, office processes and business data template and can be customized for different regions; supported by the client prequalification, after review, online review of a variety of modes; client approval log, you can record each results and approval of the views of the approval procedure for approval.

2, the tender documents for approval

Template in accordance with the tender, the tender document template of local approval for the tender documents. Tender or tender agent, fill in the relevant content based on the template, complete the production of tender documents submitted. Bidding for regulatory agencies to review the tender documents submitted by local content for the template file returned to operation. Tender or tender agentcan accurately and in a dynamic fashion swiftlynavigate to the point,be recorded.

3, online registration

For pre-, online review model, the tender unit needs to proceed with online registration, the system automatically will review the bidder qualification \ qualification and tender performance information.

4, Q & A

Online Q & A as an important means of bidder information confidential, the system supports tender unit anonymous login, dynamic application login account password login trace.

5, schedule management

The client contains the statutory holidays, including the standard calendar, agent, may apply to the handling in the effective working days after bid opening time, place.

6, margin management

Through the interface with the bank data synchronization, margin management.

7, e-tender documents submitted

Four elements, namely the introduction of the CA certification services, electronic documents, electronic signatures and electronic signatures, with adequate security of online transactions: the integrity of the transmission of information confidentiality, data exchange, send a message non-repudiation, the identity of traders uncertainty. Electronic signature technology as a concrete manifestation of the electronic signature, to achieve the authentication of electronic documents, to ensure the authenticity and integrity of the file. The certification provides a "digital time stamp service, to provide proof of the exact time for each node of any electronic document, and be able to test the node whether the change in the time-stamp, has the legal effect of non-repudiation

8, the electronic bid evaluation (offsite bid evaluation system).

Electronic bid evaluation system consists of a coordinated system, bid opening, bid evaluation expert terminal program three modules. The decentralized system of focal points in different regions of the jury terminal program and the main venue for the opening of the bid evaluation system integrating regulatory system of integrated construction project bidding, bid evaluation resources of each trading center off-site to complete the evaluation process. The interconnection of the province off-site bid evaluation system, to achieve the province's electronic bid evaluation information collaboration, evaluation experts in the identification and connection of the main venue for data collection.

Coordinate system: the organization of area used for bid evaluation resources, coordination of construction project bidding monitoring system, the main venue of the opening bid evaluation system, evaluation experts terminal system together to complete the Bid Opening, Evaluation, coordinated system deployment can be divided into: Smart Client , the service-side in two parts. Which coordinate system server deployment to provide off-site bid evaluation service, the client is deployed around the department in charge of the provincial authorities at all levels of trading center. Coordinated system to complete the three functions:

(1) trading center in units of management to maintain its off-site Bid Evaluation machine usage. Trading center in the free on application and confirmed by the seat of all the units locked until the bid evaluation to the end to complete.

(2) maintenance for the unit management project involving machine bit usage. Various project managers can view the off-site bid evaluation project related to machine usage and coordination of each time interval to check the jury terminal program and open the connection status of the bid evaluation system. Occupied state of each bit in addition, need to use the state description of the judges the progress of the current bid evaluation.

(3) judges terminal login, identity checks to confirm the service. Evaluation experts in the designated seats enter your user name and identity card, the system will match the extraction projects and professional. Such as legal identity, the system will continue to check the CA information. Legitimate after the check for a match, the system will automatically give the main venue for the judges the terminal sends the address information and project information. The terminal program will be under the coordination system feedback messages to automatically establish a connection.

Open evaluation system: the smart client mode electronic open tender evaluation system, deployed in all transactions Opening Hall.

1) The tender documents into

2) Tender documents into

3) the initial assessment

4) activation of the bid evaluation.

5) judges the work of supervision

6) to calculate totals

7) to determine the successful bidder

8) Report Output

9) the release of publicity

Evaluation experts terminal program:

1) The judges just log in and download the bid evaluation packet.

2) read the tender documents

3) read the technical standards, technical standards review

4) read the Business Standard, Business Standard Review

5) project cost information read analysis, view the analysis of economic indicators

6) evaluation results to view and report view

9, the successful publicity

Automatically submit electronic bid evaluation project tender results will be released.

10, notification of award

Uniform numbers of the province, providing authoritative data query.

**“e路阳光”让招投标市场一路阳光**

——江苏南京市“e路阳光”网上电子招投标平台介绍

南京建设工程交易中心 主任 杨 洋

南京市作为经济大省江苏的省会和长三角地区经济发达城市，每年用于基础设施建设、民生改善等工程建设项目的资金呈逐年增长趋势，建设项目采用公开招标投标的总额和数量也呈同步上升态势。为完善建设工程招标投标管理机制，强化廉政风险防控，建立市场诚信体系，打击招投标活动中违法违规行为，从2006年起，我市在各级领导支持帮助下，改变传统管理模式，创新“制度+科技”手段，探索建立招标投标管理的科学体系，建立了“e路阳光”平台，从源头上控制和减少工程领域腐败现象的发生，全市建设工程招标投标管理工作迈上了新台阶，取得了新成效。“e 路阳光”平台先后荣获江苏省、南京市纪检监察创新工作一等奖，南京市科技进步奖，全省建设系统信息化工作优秀项目奖，目前在我省已全面推广，中国纪检监察报、中央电视台等中外主流媒体做过重点报道和介绍，“e路阳光”品牌已获得国家工商总局注册。

**一、创新架构招标投标管理新体系，建立“e路阳光”平台，实现全市招标投标一网运行**

随着城市建设加快，招标投标市场出现了多种新情况和新问题，如信息不完全公开、围标串标、弄虚作假、招标效率低、浪费严重，监管不到位等，严重搅乱了建筑市场秩序，危及工程质量和安全生产，腐败现象时有发生。针对这些新情况、新问题，我们坚持阳光交易的理念，从源头上阻割腐败利益链，利用交易中心集中场所优势，全新构架招标投标管理科学体系，建立了具有智能化操作和监控评价功能的建设工程网上交易平台，并命名为“e路阳光”，于09年7月正式开通运行。

“e路阳光”平台整合了招标投标运行、行政监督、信用信息和行政监察等“四大系统”于一体，强化协调、联动、规范、监督并重，促进招标投标市场健

康有序，彻底改变传统的单打一的管理模式，初步建立了招标投标全方位管理体系，促进了招标投标更加“公开透明、便捷高效、诚实信用、节约环保、监管有力、反腐有效”。

 “e路阳光”实现了工程招标投标的全流程无纸化网上招标、投标、开评标，全过程电子化网上留痕、可溯、可查，全方位规范化网上备案、监管、监察。全市依托 “e 路阳光”，将省、市、区县所有工程项目的招标投标纳入一网运行，有效解决了长期存在的市、区、县操作不统一，当事人无所适从现象。

**二、打造阳光工程，实现工程招投标全过程公开透明，操作统一规范**

依托“e 路阳光”，我市所有国有投资项目招投标活动已全部实现公开网络运行，其主要包括项目登记、公告发布、投标报名、招标文件发放、投标文件递交、开标、评标、中标公示、合同备案等八大最主要环节；同时，可以公开的信息均实现通过门户网站实时公开，便捷查询，从招标公告发布到中标结果公示，从各类办事流程到相关法律法规，从招标进程到企业各类信息等，并与省、市有关系统对接，达到全方位透明，有效解决信息不对称带来的暗箱操作。按照对招标投标的监管要求，在同一平台实现了“五个统一”，即：统一信息发布、统一评委抽取、统一交易运行、统一行政监管、统一行政监察，招标投标监管监察能力和水平再上新台阶。

**三、建立信用信息平台，构建建筑市场诚实信用良性运作环境**

为不断完善建筑市场监管，强化信用体系建设，促进行业健康发展，我市依托“e 路阳光”平台建立了施工、监理、代理和代建公司等企业和个人的电子信用信息库，其主要内容包括企业基本信息（有诚信承诺书、营业执照、资质证书、安全生产许可证、组织机构代码、信用管理手册等信息）、企业业绩信息、企业获奖信息、企业不良行为信息等等。此信用信息库与招投标活动在平台中自动关联，共享共用，同时构建了“曝光台”，被曝光企业和个人在政府投资招投标活动中受到限制，达到“一处受罚，处处受限”。目前已入库各类企业近5800家，各类人员近4万人，所有相关信息对社会永久公开，接受社会监督，防止弄虚作假，在实际运作中已发挥了应有的作用，涉及招标资料弄虚作假的投诉大幅降低，投标人不能也不敢提供虚假资料骗取中标。

**四、强化监管监察，形成招投标活动监督的“电子眼”**

**一是强化规范运行。**所有招标备案文件无纸化递交、备案和审查，通过“数字认证、密钥登陆、网上操作，系统留痕”方式实现有效管理和监督，达到全程留痕，有案可查，防止“暗箱操作”；**二是强化权力监察。**实现招标投标全流程固化，突出重点项目关注、异常预警、效能监察等，全方位监察权力运行过程，保证了依法行政行为，也充分限制了个人自由量裁权，达到机器管事管人，最大限度防止人为因素干扰；**三是强化评标考核。** “e路阳光”固化设置评标准备、初步评审、详细评审、推荐中标候选人“四大环节”，有效促进评标工作更加规范、严谨，采用多环节检验，遏制评委有针对性的“选择性废标”，废标率已由15%下降到2%；采用关键节点控制，防止评委对相关项目漏审，杜绝评标工作随意性；采用电子辅助评标，提高评审效率；采用异地远程评标，进一步整合评委资源和增强评标的公正性；采用量化考核评委出勤、评标综合情况、评分离散度、评标行为过程等，进一步监督和管理评标工作。

**五、打击围标串标，消除各种不正当利益链**

为更好地解决招标投标中存在的“围标串标”、“量身定做”等突出问题，“e 路阳光”利用现代科学技术，采用多重手段防范控制：**一是模板化制作各类招投标文件**。将国家制定的标准范本定制成模板化的招、投标文件制作工具，最大限度消除招标人利用编制招标文件的机会，人为设置招标“陷阱”、“量身定做”，甚至操纵招标的现象；**二是增加围、串标难度。**采用数字认证密钥登陆网上报名、加密递交投标文件、投标文件模板工具、多家软件公司共同开发等多种办法和手段提高串围标成本，增加串围标难度；**三是利用相似度分析技术有效发现围标串标线索。**采用计算机自动记录用户硬件特征码、IP地址、工具软件和计价软件身份码、雷同性比对等，识别分析投标文件中不应该相同的信息，检查出可能围标、串标的线索。

**六、创建“绿色招投标”新模式，招投标效率明显提高**

我国建设工程传统的招投标交易活动过程中,消耗了大量纸张等社会资源。据测算，传统方式投标每次需要纸张成本平均约5000元，“e路阳光”运行后，大大节约纸张和运行成本，如果按我市交易情况看，一年可节约纸张费用约8000万元，同时还可减少交易各方的通讯、交通、印刷、人力、管理等方面的支出，大大降低各类资源的消耗，实现了真正意义上的“绿色招标”。

“e路阳光”采用文件电子制作、电子签章，网络递交，系统接受，并适时反馈意见，改变了传统招投标模式，为交易各方节省了相互往返递送各种文件的时间，极大方便了当事人，提高了办事效率。据统计，一个项目招标招投标人跑有关部门过去需13-14趟，现在只要4-5趟。

 “e路阳光”的建设和运行，得到了国家、省、市各级领导和社会各界的关心和支持，并得到高度评价，当事人普遍反映，在南京招投标既公开透明也方便快捷，管理部门既能规范操作也能公正执法，有很多企业冲着“e路阳光”进入南京市场参加投标的，有的企业还表示没有任何关系在南京也能中标。“e路阳光”运行近三年来，累计交易已达到3100多个标段，交易额近900亿，国有项目和政府投资项目网上招投标覆盖面均达100%。

实践证明，利用“e路阳光”平台实现了工程招投标的“**五大转变**”， 即从信息不对称到信息完全公开的转变，从滞后分散管理到同步统一管理的转变，从诚信体系缺失到信用体系基本构建的转变，从低效浪费到高效环保的转变，从简单人为到科学管理的转变，有效促进了工程招标投标源头反腐，阳光运行。

**“Electronic Sunshine” Brings Sunshine into the Bidding Market**

**-- Introduction to Jiangsu Nanjing “Electronic Sunshine” Online Electronic Bidding Platform**

 YANG Yang，Director of Nanjing Construction Project Trade Center

As the capital of Jiangsu Province (a province with a big economic aggregate in China)and a city with developed economy in the Yangtze River Delta, Nanjing has invested more and more funds in projects of infrastructure construction and projects aiming to improve people’s livelihood year by year. The total number of construction projects which adopt the way of public listing and the total amount of public listing have also been rising. In order to perfect the bidding and tendering management mechanism of construction projects, reinforce the risk control of upright government, establish a market credit system, and crack down on illegal behaviors in bidding and tendering activities, our city has, since 2006, thanks to the support and assistance of leaders of various levels, changed the traditional management model, innovated the “system + technology” measure, explored the establishment of a scientific system of bidding and tendering management, and established the platform of “e sunshine”. Therefore, we have not only controlled and reduced the occurrence of corruption in the field of construction projects, but also made new improvement and achieved new results in the bidding and tendering management of construction projects. The platform of “e-sunshine” has been successively awarded such honorary titles as “The first prize in the innovation of disciplinary inspection and control in Jiangsu Province and Nanjing”, “The prize of technological progress in Nanjing”, and “The prize of excellent projects in the information technology in the provincial construction system”. So far, this platform has been spread in an all-round way in our province, and has been emphatically reported and introduced by Chinese and foreign mainstream media including Chinese Discipline Inspection and Supervision and China Central Television. The brand of “e-sunshine” has been registered at the National Administration of Industry and Commerce.

**Ⅰ. Innovatively setting up a new system of bidding and tendering management, establishing the platform of “e-sunshine”, and enabling the operation of bidding and tendering in the whole city in the same network**

Along with the acceleration of urban construction, many new situations and problems have emerged in the bidding and tendering market, e.g. incompletely open information, collusion in bidding, falsification, low tendering efficiency, serious waste and inadequate supervision which have seriously disturbed the order of construction market, endangered project quality and safe production, and raised the frequency of corruption. Against these new situations and problems, we have cut off the interest chain of corruption from its origin by adhering to the concept of “sunshine trading”. We have also set up a brand-new scientific system of bidding and tendering management, and an online trading platform of construction projects， named “e-sunshine”， with the function of smart operation, supervision and appraisal, which was formally put into operation in July 2009.

The platform of “e-sunshine” integrates “four systems” including bidding operation, administrative supervision, credit information and administrative inspection. By attaching equal importance to coordination, linkage, normalization and supervision, it aims to promote the healthy and orderly development of the bidding and tendering market, and thoroughly change the traditional management model of “concentrating on one thing only”. We have preliminarily set up a system of all-round bidding and tendering management, thus having enhanced the “openness, transparency, convenience, efficiency, honesty, creditworthiness, economy, environmental friendliness, supervisory force and anti-corruption effectiveness” of bidding and tendering.

 “E-sunshine” has brought about paperless online tendering, bidding and bid opening， as well as appraisal in the entire process of project bidding and tendering, electronic online marking, traceability and consultability in the entire process and all-round standardized online registration, supervision and inspection. In addition, “e-sunshine” has enabled the operation of the bidding and tendering of all projects in Jiangsu Province, Nanjing and various districts/counties in the same network, thus having effectively solved the following longterm existing problem: the operation between Nanjing and its districts/counties is not integrated, and parties concerned are at a loss of what to do.

**Ⅱ. Creating “sunshine projects” and achieving open, transparent, integrated and normative operation in the whole process of project bidding and tendering**

With the help of “e-sunshine”, all bidding and tendering activities of state-owned investment projects in our city have been put into online operation publicly, chiefly including such eight most important links as project registration, announcement release, bidding application, distribution of tendering documents, submission of bidding documents, bid opening, bid appraisal, publicity of successful bids and contract filing. In addition, all the information that can be opened has been opened in a real-time way through web portals and can be consulted conveniently, from the release of tendering announcements to the publicity of successful bids, from various work procedures to relevant laws and statutes, and from tendering process to various types of enterprise information. Moreover, it has been connected with relevant provincial and municipal systems, so that all-round transparency can be achieved and black case work caused by information asymmetry can be effectively solved. According to the supervisory requirements for bidding and tendering, “five integrations” have been achieved on the same platform: integrated information release, integrated judge drawing, integrated trading operation, integrated administrative supervision, and integrated administrative inspection, so that the capacity and level of bidding supervision and inspection can be enhanced.

**Ⅲ. Establishing a credit information platform, and creating an environment of honest, creditworthy and benign operation of the construction market**

In order to continuously perfect the supervision of construction market, reinforce the construction of credit system and promote the healthy development of the industry, we have established an electronic credit information bank for companies/enterprises and individuals of construction, supervision, agency and acting construction with the help of “e-sunshine”, chiefly including basic enterprise information (e.g. written credit commitment, business license, qualification certificate, safe production license, organization code, credit management manual), information about enterprise performances, information about enterprise awards, and information about misconducts of enterprise. This credit information bank and bidding/tendering activities are automatically linked and shared in the platform. In addition, “an exposure platform” has been set up. Exposed enterprises and individuals are restricted during bidding and tendering activities of government investment, so that “if they are punished at one place, they will be restricted everywhere”. So far, nearly 5800 enterprises of various types and nearly 40 thousand people of various types have been incorporated into this bank. All relevant information is open to the society forever, so as to accept social supervision and prevent falsification. During actual operation, this platform has been playing its due role. As a result, complaints about the falsification of tendering data have been declining dramatically and bidders cannot and dare not provide false data to win the bidding in a fraudulent way.

**Ⅳ. Reinforcing supervision and inspection, and producing “electronic eyes” for supervising bidding and tendering activities**

First, reinforcing normative operation. All tendering documents should be submitted, filed and checked in a paperless way, so as to achieve effective management and supervision in the way of “digital certification, secret key log-in, online operation and system marking”, realize all-the-process marking and documentation, and prevent “black case work”. Second, reinforcing authority inspection: achieving all-the-process solidification of tendering and bidding, highlighting attention to key projects, early warning of exceptions and efficiency inspection, and inspecting the process of authority operation in an all-round way. As a result, we have fully restricted the individual authority of discretion, enabled machines to control affairs and personnel, and minimized the interference of human factors. Third, reinforcing bid-appraisal checks. “E-sunshine” solidifies the set-up of such four links as bid-appraisal preparation, preliminary review, detailed review and recommendation of candidates of successful bidders, effectively promotes the more normative and rigorous work of bid appraisal, and adopts multi-link inspection to restrain the pertinent “selective bid cancellation” of judges, with the bid cancelation rate having been declined from 15% to 2%. By controlling key nodes, we also try to prevent judges from failing to review some relevant projects and completely eradicate the arbitrariness of bid appraisal. By means of electronically-assisted bid appraisal, we try to enhance the efficiency of review. By means of remote bid appraisal at other places, we try to further integrate judge resources and enhance the impartiality of bid appraisal. In a quantitative way, we try to check the attendance of judges, the profile of bid appraisal, the divergence factor of grades and the behavioral process of bid appraisal, so as to further supervise and control bid appraisal.

**Ⅴ. Cracking down on collusion in bidding and eliminating various illegitimate interest chains**

In order to more desirably solve outstanding problems existing in bidding and tendering (including “collusion in bidding” and “tailoring”), “e-sunshine” applies modern science and technology and adopts multiple measures for preventive control: First, producing various types of bidding and tendering documents in a templated way. We tailor standard models (worked out by the central government) into tools for producing templated bidding/tendering documents, so as to prevent tenderees from taking the opportunity of producing tendering documents to set up artificial tendering “traps”, “tailor” and manipulate tendering. Second, increasing the difficulty of collusion in bidding. We adopt many methods and measures (including secret key log-in online application of digital certification, encrypted submission of bidding documents, template tools of bidding documents and co-development of many software companies) to raise the cost and increase the difficulty of collusion in bidding. Third, using the technology of similarity analysis to effectively discover clues of collusion in bidding. We use computer to automatically record users’ hardware feature codes, IP addresses, identity codes of tool software and pricing software, similarity contrast, etc., identify and analyze the information in bidding documents which should not be the same, and find out the clues of possible collusion in bidding.

**Ⅵ. Creating the new model of “green bidding and tendering”, with the efficiency of bidding/tendering having been obviously enhanced**

In the process of traditional bidding trading activities in Chinese construction projects, a lot of social resources including paper have been consumed. According to estimation, the average cost of paper needed in each round of traditional bidding is about 5000 yuan. Since the operation of “e-sunshine”, paper and operating cost have been saved considerably. In terms of the trading of our city, the annual cost of paper that can be saved reaches about 80 million yuan. In addition, expenditures of various trading parties in such aspects as telecommunication, transportation, printing, human resources and management can be reduced, thus having not only considerably reduced the consumption of various types of resources, but also achieved “green tendering” in its real sense.

 “E-sunshine” adopts such ways as electronic production of documents, electronic signature, online submission and system acceptance and feeds back comments in due time. It has changed the traditional model of bidding and tendering, saved the time of mutually delivering various documents among various trading parties, offered huge convenience to parties concerned, and enhanced work efficiency. According to statistics, a project bidder or tenderee needed to go to departments concerned 13 to 14 times in the past, but only 4 to 5 times now.

The construction and operation of “e-sunshine” have not only enjoyed the solicitude and support from national, provincial and municipal leaders and all walks of life, but also a high appraisal. As universally reflected among parties concerned, bidding and tendering in Nanjing are not only open and transparent but also convenient and prompt. Management departments can not only carry out normative operation, but also carry out laws impartially. Many enterprises chose to enter Nanjing market for bidding because of “e-sunshine”, and some enterprises said that they would still be able to win bidding in Nanjing even if they had no relationship. Since the operation of “e-sunshine” began three years ago, more than 3100 tenders have been accumulatively traded, with a trade volume of nearly 90 billion yuan (RMB). The coverage of online bidding and tendering of both state-owned projects and government investment projects has reached 100%.

In practice, “e-Sunshine” System has realized “Five Changes” in the engineering project bid, namely, change from the information asymmetry to the information disclosure; change from the dispersed supervision afterwards to the centralized real-time supervision, change from the lack of the integrity system to the fundamental establishment of the integrity system, change from the low efficiency and waste to the high efficiency and environmental protection, and change from the traditional roughness to the scientificity and normalization. Therefore, it is able to prevent the corruption from the source in an effective manner and let the engineering bid market exposed under the sunshine completely.

**深圳市建设工程阳光电子交易平台介绍**

深圳市住房和建设局、深圳市建设工程交易服务中心

副局长 段衡金

应用信息技术改变传统招标投标方式，是适应当前有形建筑市场改革和发展的必然要求。深圳市建设工程交易服务中心自1998年5月成立以来，坚持以改革促发展、以创新促提高、以服务树品牌的宗旨，积极探索信息技术在建设工程招投标领域中的应用。经过多年的建设，目前已经建成了以计算机评标系统和远程评标系统为核心的覆盖各类工程招标投标全过程的建设工程电子交易平台,实现了建设工程交易全过程电子化和网络化管理。

**一、建设工程电子交易平台**

**（一）概况**

电子交易平台是利用先进的计算机技术、网络技术和数据库技术开发，以CA认证为安全保障、以交易网站为依托，以电子评标系统为核心的综合型交易服务平台。由工程交易管理系统、计算机自动评标系统、异地远程评标系统、电子招投标档案管理系统、数据交换系统、工程交易服务网六大部分组成。



**（二）系统组成**

**1、工程交易管理系统**是对建设工程交易全过程管理的内部业务处理平台，涵盖工程招投标业务管理的各环节。交易系统以建设工程、建筑业企业、建筑从业人员三大数据库为基础，以招投标业务流程为主线，结合建筑业企业和从业人员诚信信息的联动机制，实现了对各类工程交易的报建、投标报名、截标、开标、评标、定标以及工程备案等全部环节的流程控制和业务处理，确保了交易环节的严密可靠。

**2、工程交易服务网**是工程交易平台的依托，提供完备的网上交易服务平台，交易主体能够通过网站进行网上招标、网上投标、网上开标。交易服务网的使用，大大提高了招投标工作效率，实现了真正意义上的建设工程招标投标全过程电子化和网络化。

**3、****计算机自动评标系统**是电子交易平台的核心，这套评标软件采用科学的评标模型，能快速的对工程清单全部构成项数据进行分析核算较，自动筛选最优的商务标，解决了标书数据量大和评标时间短这一长期困扰评标工作的突出矛盾，提高了评标的质量和效率。

4、**异地远程评标系统**是计算机评标系统的扩展和延伸，依托互联网，利用先进的网络通信技术、计算机技术和安全保障技术，由各评标专家在本地交易中心进行远程评标，通过共享跨区域的优质评标资源，适应了建设工程评标工作日益专业化、复杂化的需求。

5、**数据交换系统**整个交易平台的纽带，适应信息共享的需求，实现内部不同业务系统间、内部与外单位不用业务系统进行信息交换的功能。

6、**电子招标投标档案系统**是交易平台的基础，整合业务办理过程中的电子档案数据，提供快速、有效的数据检索，既保证在档案有效期内的数据完备性，又保证数据检索、分析的高效性。

**（三）安全保障机制**

阳光电子交易平台全面引入CA数字证书安全保障机制，包括系统使用的身份认证，标书文件的数字签名和加解密，网上业务办理的数字签名等等，确保了标书文件及网上业务办理的合法性、完整性、保密性、不可篡改性、不可抵赖性;并为安全地网上递交电子投标文件提供了保障，保证了网上交易的安全性和法律效力。

**二、计算机自动评标系统**

作为电子交易平台核心的计算机自动评标系统是利用了先进的计算机技术和网络技术，以电子标书制作系统和招标文件备案系统为基础，采用科学的评标模型，实现了商务标的自动评审。

**（一）系统构成**

计算机自动评标系统包含招标文件编制子系统、招标文件备案子系统、投标文件编制子系统、开标子系统、自动评审子系统。系统应用图示如下：



**1．招标文件编制子系统**

招标人或者招标代理编制招标文件（商务标、技术标）的工具，并对招标文件进行电子签名。

**2．投标文件编制子系统**

投标人编制投标文件（商务标、技术标、资信标、资审文件）的工具，并对投标文件进行电子签名、加密。

**3．招标文件备案子系统**

建设行政主管部门对招标人提交的招标文件进行备案管理，并通过网站发布招标公告、招标文件。

**4．开标子系统**

快速导入招标文件、投标文件，并进行自动唱标、标书数据检查、电子签名验证、标书符合性和有效性检查。

**5．自动评审子系统**

应用自动评标模型，对所有标书的所有数据项进行全面的核算、分析和比较，发现标书存在的各类问题，筛选出最优的商务标。

**（二）自动评审**

在自动评标过程中，通过科学评标模型，分析计算每份标书的清单数据及其构成，使用动态参数计算其偏离度及每份标书的综合偏离度，然后将综合偏离度按一定规则折算成各标书的评标价或者分值，最终得出标书的排名。同时，还采用软识别码嵌入技术、数字签名和加密技术，保证投标数据的安全性和法律效力，实现评标结果的确定性、可重现性和数据的一致性，防止人为因素对评标数据的干扰和篡改。

评审中使用的评标模型采用科学的数理统计原理，能实现了评审结果的科学性、合理性。利用计算机的快速运算能力，在数秒钟内，自动评标系统全面核算、分析和比较工程清单全部构成项数据，极大地提高了评标质量和效率，而且筛选出来的商务标绝对是“客观、合理、择优”。

自动评标系统为招投标各方主体提供一个规范、统一的平台，减少人为因素的干扰，为招投标过程中的公开、公平、公正、科学择优提供了现代化的手段和工具。该系统作为“科技防腐”主题入选“辉煌六十年——中华人民共和国成立60周年成就展”。

**三、异地远程评标系统**

在计算机自动评标基础上，我们实现了异地远程评标。可以在多个城市的交易中心同时抽取专家，组成联合评标委员会，并依托互联网，利用先进的网络通信技术、计算机技术和安全保障技术，由各地评标专家在本地交易中心进行异地招标工程的评标工作。

异地远程评标系统由评标管理子系统、专家评审子系统、实时交流平台、远程视频监控子系统、与现有系统之间的数据接口子系统五个部分组成。



1、评标管理子系统用于本地与异地交易中心之间的评标工作调度与协同管理、开标数据资料和评标结果的数据传递。

2、专家评审子系统实现标书查看和对比、评审打分、提交评审结果、查看评标汇总结果等功能。

3、实时交流平台采用会议电话方式，评标委员会可通过会议电话的多方通话功能与位于异地的评标专家、招标人、投标人进行语音交流和沟通。

4、远程视频监控子系统实现对异地交易中心的评标录音录像资料的调用频，供工程所属地交易中心和主管部门对异地评标过程进行管理。

5、数据接口子系统提供异地远程评标系统与本地交易中心其它相关系统之间的数据接口。

目前我中心与北京、广州、天津、重庆等全国２０个城市共同签署了异地远程评标合作协议，已陆续开通与广州、重庆、长沙、厦门、绵阳等城市的异地远程评标。

**四、应用效果**

深圳市建设工程电子招标投标系统的推广应用是建设工程招投标领域的一大创举，计算机自动评标系统自2008年8月份正式投入使用以来，逐步实现了施工、监理、设计、货物和勘查及其他类工程的电子评标，截至2012年6月，累计使用电子招投标的工程数量近1700项。取得良好的经济效益和社会效益。

（一）制约建设领域工程招投标环节的腐败。电子招标投标系统减少了招标投标过程中人为因素的影响，增加了透明度，使得招标工作更加科学规范，保护交易主体各方权益，切实达到质量与效率的统一，“三公”与择优的统一，实现了“阳光操作”。

（二）节约成本，绿色环保。使用电子标书代替传统纸质标书，大量节省纸张、打印及包装耗材以及传送纸质标书所需的交通工具的能源消耗。据估算，实现无纸化招标，每年可节约纸张约400吨。同时，采用计算机自动评标，在提高评标质量的同时，极大提高评标效率，以往项目较大的清单招标工程采用人工评标需要三至四天才能完成，电子自动评标可以在半天内结束，体现了真正意义上的“节能、环保、绿色招标投标。

（三）信息共享，提高招投标市场运行效率。招投标各方主体通过标准化格式统一的电子数据文件进行沟通，对于招投标监督部门、招标方、投标方、中介机构、评标专家以及相关的其他社会群体，实现了各方主体之间的信息共享，最大限度的保证了各方的利益，优化了资源配置，提高了招投标市场运行效率。

（四）提供强有力的数字化分析手段。通过招标投标造价数据指标的积累，利用科学的数据挖掘技术进行决策分析，为建筑行业提供可靠的数据参照标准，成为建设行政管理部门在制定行业发展规划和宏观调控政策是的科学依据。

在推广阳光电子交易平台的同时，为防止业主、投标企业、评标专家在招标投标过程中，相互串通谋取非法利益，我们建立了招标投标相关信息公示制度，将招标公告、资格审查办法、资格审查结果、评标定标办法、招标控制价、评标结果、中标情况等项内容向社会公布；引入符合国际惯例的工程量清单招标和工程担保制度；借鉴香港经验，建立政府投资工程承包商制度；建立建筑市场信用评价档案，企业信用信息作为评标的依据；设立独立评标区，专家进行独立评审，对评标活动实行全过程跟踪管理，有效避免了业主、评标专家、投标人的舞弊行为。通过科学的运作体系，整个招标投标活动交易程序化、管理规范化、监管制度化，保障了工程质量和效益，有效避免了腐败问题。

**Introduction to Shenzhen Construction Project Sunshine Electronic Trade Platform**

  DUAN Hengjin，Deputy Director of Shenzhen Bureau of Housing and Construction and Shenzhen Construction Project Trade Service Center

Apply information technology to change the traditional way of tendering and bidding is the necessary requirement to adapt to the reform and development of current tangible construction market. Since the foundation in May, 1998, Shenzhen Construction Project Trading Service Center has adhered to its tenet of promoting development with reform, improving with innovation and building brand with service, actively explored the application of information technology in the tendering and bidding of construction projects. With the development of many years, it has established the electronic trading platform of construction project, taking the computer bid evaluation system and long-distance bid evaluation system at the core, covering the whole process of tendering and bidding of various projects, and has realized the electronic and network management on the whole trading process of construction projects.

**I. Electronic Trading Platform of Construction Project**

 **(I) Overview**

The electronic trading platform is a comprehensive trading service platform, developing with advanced computer technology, network technology and database technology exploration, taking CA certification as safety guarantee, relying on trading website and taking electronic bid evaluation system at the core. It consists of six parts, project trading management system, computer automatic bid evaluation system, off-site remote bid evaluation system, document management system of electronic tendering and bidding, data exchange system and project trading service website.



 **(II) Composition of system**

**1.** **Project trading management system** is the internal business treatment platform to manage the whole process of construction project trading, covering each link of business management in project tendering and bidding. Based on three databases of construction project, construction enterprise and construction employees, taking tendering and bidding business process as the main line, combing the linkage mechanism for credit information of construction enterprises and employees, the trading system has realized the process control and business treatment of all links for various project trading, such as, project application, tender application, tender closing, bid opening, bid evaluation, bid selection and project recording, and ensured the reliability of trading links.

**2.** **Project trading service website**, supporting project trading platform, provides complete on-line trading service platform, on which trading subjects can achieve bid inviting, bid submitting and bid opening on line. The application of trading service website has improved the efficiency of bid inviting and submitting greatly, and has realized the real electronic and network management on the whole trading process of construction projects.

**3. Computer automatic bid evaluation system is the core of electronic trading platform**. This bid evaluation software uses the scientific bid evaluation model, can analyze and check all the composition data of project lists, and screen automatically the optimal business bidding document, which resolved the long existing contradiction in bid evaluation between the large quantity of data of bidding documents and short time for bid evaluation and improved the quality and efficiency of bid evaluation.

**4. Off-site remote bid evaluation system** is the expansion and extension of computer bid evaluation system. Depending on Internet, using advanced network communication technology, computer technology and safety guarantee technology, it enables each bid evaluation expert to evaluate the bidding in the local trading center, which is applicable to the needs of specialization and complication of construction project bid evaluation, through sharing the interregional high-quality bid evaluation resources.

**5. Data exchange system,** the hub of the whole trading platform, has achieved information exchange adapting to requirements of information sharing between different internal business systems, internal and external units without applying business systems.

**6. Electronic bidding filing system,** the foundation of trading platform, integrating electronic record data generated in business transaction process to provide rapid and effective data retrieval which guarantees not only data completeness within the valid period but also high efficiency of data retrieval and analysis.

 **(III) Security mechanism**

Sunshine Electronic Trading Platform introduces completely CA digital certificate security mechanism including identity authentication, encryption, decryption and digital signature of bidding documents, and digital signature of online business handling and so on which guarantee the legitimacy, integrity, confidentiality, tamper resistance, non-repudiation of bidding documents and online business transaction; and provide security for online submission of electronic bidding documents guaranteeing safety and legal effect of online trading.

**II Computer Automatic Bidding Evaluation System**

As the core of electronic trading platform, the computer automatic bidding evaluation system applies advanced computer and network technologies achieving automatic evaluation of commercial bidding documents based on electronic bidding document preparation system and bid submitting document recording system.

 **(I) System components**

Computer Automatic Bidding Evaluation System includes subsystem for bid inviting document preparation, subsystem for bid inviting document recording, subsystem for bid submitting document preparation, subsystem for bid opening and automatic evaluation subsystem. Diagrammatic representation of system applications are as follows:



**1. Subsystem for bid inviting document preparation**

It is the tool for bid inviting document (commercial bid, technical bid) preparation of bidders and bid invitation agent, and executes electronic signature on tendering documents.

**2. Subsystem for bid submitting document preparation**

It is the tool for bidders to prepare bidding documents (commercial bid, technical bid, credit bid and prequalification documents), and execute electronic signature and encryption on bidding documents.

**3. Subsystem for bid inviting document recording**

Administrative department of construction conducts filing management for bid inviting documents submitted by tenderers, and releases bid inviting announcement and documents on the website.

**4. Bid opening subsystem**

It imports bid inviting documents, bid submitting documents rapidly and conduct automatic bid result announcement, data inspection of bidding documents, checking of digital signature, compliance and validity checking of bidding documents.

**5. Automatic evaluation subsystem**

It applies automatic evaluation model to account, analyze and compare all data items of all bidding documents to find out all problems there exist and screen out optimal commercial bidding.

 **(II) Automatic Evaluation**

In the automatic bid evaluation process, listed data and its components are analyzed and calculated through scientific evaluation model, applying dynamic parameters to calculate its degree of deviation and the comprehensive deviation of each bidding document which will be converted into bid evaluation value or scores according to certain roles, and finally find out the ranking of each bidding document. At the same time, applying soft identification code embedding technology, digital signature and encryption technology to guarantee the security and legal effect of bidding data, achieve certainty, the reproducibility of evaluation results and the consistency of data, and prevent evaluation data from interference and tampering by human factors.

The model used in bid evaluation applies scientific principles of mathematical statistics and achieves scientific and rational results. Depending on fast computing capacity of computer, the automatic bid evaluation system is able to comprehensively account, analyze and compare all composing data of project list within seconds, which greatly improve quality and efficiency of bid evaluation, and the commercial bids selected will be absolutely “objective, reasonable and competitive”.

Automatic bid evaluation system provides standardized and uniform platform for main parties of bid inviting and submitting, reducing interferences of human factors and offering modern means and tools for the open, fair, impartial, scientific and competitive bidding process. The system is selected as theme of “Scientific Anti-corruption” to be listed in “Glorious Sixty Years - Achievement Exhibition of 60th Anniversary since Founding of the People's Republic of China”.

**III. Off-site Remote Bid Evaluation System**

We realized off-site remote bid evaluation on the basis of the automatic bid evaluation by computer, which can select experts from trading centers of a number of cities simultaneously to form a joint bid evaluation committee, and the evaluation experts from different places can carry out bid evaluation work of off-site bidding projects at local bidding center through the Internet and advanced network communication technology, computer technology and security technology.

Off-site remote bid evaluation system consists of bid evaluation management subsystem, expert evaluation subsystem, real-time communication platform, remote video surveillance subsystem and data interface subsystem among the existing systems.



1. Evaluation management subsystem is used for scheduling and coordinated management, transfer of data information for bid opening and evaluation results of the evaluation work between local and off-site bidding centers.

2. Expert evaluation subsystem can view and compare as well as evaluate and score the bid documents, submit evaluation results and view summary results of the bid evaluation.

3. Real-time communication platform applies conference call, the bid evaluation committee can achieve voice exchange and communication with off-site evaluation experts, tenderers and bidders through multi-party phone function.

4. Remote video surveillance subsystem achieves call frequency of audio and video data of bid evaluation carried out in off-site bidding centers, so that the trading center and the competent authorities of areas where the projects located can manage the off-site evaluation process.

5. Data interface subsystem provides data interfaces between off-site remote bid evaluation system and other relevant systems in local trading center.

At present, the Center has jointly signed cooperative agreements on off-site remote bid evaluation with more than 20 cities such as Beijing, Guangzhou, Tianjin, Chongqing, etc., and gradually opened off-site remote bid evaluation with cities such as Guangzhou, Chongqing, Changsha, Xiamen and Mianyang successively.

**IV. Effect of Application**

The popularization and application of the electronic trading system of Shenzhen construction project is a major pioneering work in the industry of bid inviting and submitting in construction project. Since the formal application of computer automatic bid evaluation system in August of 2008, the electronic bid evaluation of construction, supervision, design, goods and exploration, and other types of projects have been progressively realized. By June of 2012, nearly 1,700 projects had adopted electronic bid inviting and submitting system. It has obtained excellent economic and social benefits.

 (I) It restricts the corruption in the project’s bid inviting and submitting link of construction field. The electronic bid inviting and submitting system reduced the impact of human factors in the process, and the increased transparency makes the bid inviting work more scientific and standardized, protected the interests of the transaction entities, as well as effectively achieves the unity of quality and efficiency, the unity of “Openness, Fairness and Honesty” and selection of best, and realized the “sunshine operation”.

 (II) It Saves the cost and protects the environment. The use of electronic bidding document instead of traditional paper bidding document, saves the consumption of paper, printing and packaging, and transport energy consumption for delivering required paper bidding documents. It is estimated that the realization of paperless bidding may offer an annual saving of about 400 tons of paper. At the same time, using the computer automatic bid evaluation not only improved the quality of the bid evaluation, but also greatly improved its efficiency. The previous large scale bid inviting projects take three to four days to use manual bid evaluation, while the electronic automatic bid evaluation can complete within half a day, which reflects the true sense of the “energy saving, environmental protection, green bid inviting and submitting".

 (III) It realizes information sharing, operating efficiency improving of the bid inviting and submitting market. Parties of bid inviting and submitting communicate through unified electronic data files in a standardized format. For the supervision department of the bid inviting and submitting, the bid inviting party, the bid submitting party, the intermediary organs, the evaluation experts, and other relevant social groups, this realizes the information sharing between those parties, and guarantees the interests of all parties at the maximum, optimizes the allocation of resources and improves the operating efficiency of the bid inviting and submitting market.

 (IV) It provides a powerful means of digital analysis. Through the accumulation of data indicators of bid inviting and submitting cost, the use of scientific data mining techniques for decision-making analysis, provides reliable reference standard of data for the construction industry, became the scientific basis for the construction administrative departments in the formulation of development plans and macro-control policies.

In order to prevent owners, bidding corporates and evaluation experts from colluding with each other to seek illegal interests in the bidding process, in the promotion of the Sunshine Electronic Trading Platform, we also establish publicity system for relevant bid inviting and submitting information to release bidding announcement, the method of qualification examination, results of qualification examination, bid evaluation and selection methods, controlling price of bid inviting, evaluation results, bid winner and other content; introduce bill of quantities bid and project guarantee system in line with international practice. Learning from the experience of Hong Kong to establish contractor system of government-invested projects and taking enterprise credit information as the basis of bid evaluation, we establish credit rating files of construction market. we also set up an independent bid evaluation area for experts to conduct independent evaluation, tracking and managing the whole bid evaluation process to effectively prevent the owners, bid evaluation experts and bidders from fraudulent practices. Through scientific operation system, the entire bid inviting and submitting activities achieve transaction routinization, management standardization and supervision institutionalization, ensure the quality and efficiency of projects, and effectively avoid corruption.