

The Progress in Education,
Theory and Application of E-Commerce

电子商务教育、 理论与应用新进展

——第七届全国高校电子商务教育与学术研讨大会论文集

李洪心 李琪 ● 主编

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前 言

电子商务是适应社会经济发展的需要而产生的新兴的学科专业。在电子商务的理论研究和教学实践过程中,国内外的专家和学者们在专业教育课程体系、知识结构、技能培养、电子商务的理论与技术发展对电子商务专业教育的促进等方面取得了许多的研究成果,教育部高等学校电子商务专业教学指导委员会按照教育部高等学校本科教学质量与教学改革工程的要求,已经初步拟定了电子商务专业的知识体系框架。随着电子商务的飞速发展以及电子商务教育体系不断完善,我们需要提供一个更广泛的面对面的交流平台,让更多的电子商务专业办学单位了解和熟悉电子商务专业的知识体系结构和教学建设内容,尽快地完善电子商务专业的知识模块与课程体系的衔接,以更好地培养适应市场需求的高质量的电子商务专业人才。同时,中国电子商务的发展已向学术界提出了一系列的新课题,研究这些问题,进行广泛的交流,提出相关对策,对我国电子商务事业的顺利健康发展具有重要的意义。

受教育部高教司委托,由教育部高等学校电子商务专业教学指导委员会主办、东北财经大学电子商务学院承办的第七届全国高校电子商务教育与学术研讨大会将于2008年10月16日至19日在大连东北财经大学召开。

本次大会的主题是:电子商务教育、理论与应用新进展。涉及的议题包括:电子商务人才培养模式、电子商务专业知识体系与课程体系建设、电子商务专业认证、电子商务理论研究、电子商务技术发展与应用、电子政务、电子服务等电子商务学科发展的理论与应用前沿课题。

本届电子商务教育与学术研讨会自筹备以来,得到多方面的积极响应与大力支持,共收到学术论文140余篇,正式录用93篇。研讨的范围涉及电子商务的理论研究、电子商务技术发展与应用、电子商务教育与人才培养等领域,反映了近年来国内的教育界和专家学者在电子商务的教育和相关领域学术研究与应用的最新进展。

在本次大会会议筹备和组稿阶段,在大会组委会的领导下,东北财经大学电子商务学院马刚教授、杨兴凯副教授、刘继山、王谢宁等教师在论文审阅和整理方面做了大量的工作;本次大会会议秘书处的徐忠明、李扬老师为论文征集和论文集的出版付出了辛苦的劳动;姜明老师带领电子商务学院创新小组的李天宇、高智勇等同学牺牲了大量休息时间,保证了会议网站的建设、运行与会议信息的及时发布。在此,向他们表示感谢!正是他们的辛勤工作,才保证了会议的顺利召开。

最后,衷心感谢国家教育部高教司、教育部高等学校电子商务专业教学指导委员会和东北财经大学对本次大会的大力支持;衷心感谢所有参与本届电子商务教育、理论与应用学术研讨会投稿的各位作者;衷心感谢本次大会的程序委员会、组织委员会,以及会议秘书处的专家和工作人员的辛勤劳动和卓有成效的工作。

第七届全国高校电子商务教育与学术研讨大会

大会主席:



教授

2008年7月于东北财经大学

目 录

第一部分 电子商务技术与应用

The Establishment of Evaluation Criteria System of Websites of E-government Procurement of China	Liu Jishan (2)
An Exploratory Analysis About the Conceptual Model of E-service Quality	Li Fenglin Leng Zaixin (10)
HRIS Outsourcing of Information-based Starting Business	Sun Delin Zhang Jian Tan Xin Wang Qing Wang Jinhui (17)
A Review of Studies on Factors Affecting Interorganizational Systems (IOS) Adoption	Wu Li Liu Zhenyu (22)
The Analysis of Essential Elements for Mobile Payment	Liu Chang Wang Ninghong (28)
B2B 电子商务模式下供应链批发商的两种逆向物流策略研究	余真翰 (33)
网络环境下确保商品质量的博弈分析	杜 宏 (39)
B2C 中的不确定性分析及消费者信任建立	王守中 (44)
P2P 电子商务中的智能代理技术研究	朱少林 王 琳 (49)
安全密钥交换算法及其在电子商务中的应用研究	刘吉华 周 静 (54)
第三方物流与制造企业竞争力分析研究	刘金芝 黄小亮 张卫清 (58)
电子商务中的赞助商链接、信任和隐私	刘伟江 林 政 (63)
浅析我国电子支付的创新策略	马 刚 吴国昊 (68)
浅论电子商务网络营销	孟晓明 陈拥军 (73)
服务于中小企业的电子商务服务模式	彭 欣 喻光继 (79)
基于电子政务“一站式”服务的政府再造	谭玲玲 (84)
XBRL 在我国网络财务报告中的应用	余世英 潘 都 (89)
电子商务个性化服务需求的研究	贡 莉 任智军 (94)
葡萄酒制造企业电子商务管理方案策划	赵 莉 (99)
论知识共享在网络企业中的应用	赵玉莲 袁国方 王亚南 (102)
基于工作流引擎的移动支付平台技术的研究	王谢宁 (105)
电子政务环境下的 CRM 的应用模式研究	杨兴凯 张 雪 (112)
网上交易中信用缺失问题的探讨	黄建莲 李跃贞 苏丽琴 (116)
移动电子政务系统研究与设计	姜 明 李天宇 (121)
政府信息资源分类组织方法研究	杨兴凯 张笑楠 (128)
广西—东盟自由贸易区电子商务发展策略	李 颖 (134)
医药电子商务环境下的物流模式分析	冯慧琴 薛万欣 (139)
电子商务网站新模式研究	刘 琳 (143)
基于 Smart Client 技术的电子商务的设计与实现	麦 涛 (147)
移动商务的商务模式及应用分析	李智敏 杨路明 徐 旻 薛见亮 (151)
移动支付发展趋势分析	李冬杰 (156)
论企业电子商务网站的安全问题	陈雯燕 任智军 (160)
基于 UML 的网上虚拟商店的系统分析与设计	王 宇 陈修权 (164)
浅析电子商务安全现状与技术解决	尹佳妮 孙 喆 任智军 (168)

基于 Agent 的订单排序方法研究	张 云	陈修权 (173)
基于 Web Services 的动态电子商务应用框架设计	姜 丽 贾红雨	刘 磊 (177)
基于五力模型对我国网上银行竞争环境的分析	李 巍	(181)
垂直搜索引擎及个性化信息服务	周晓艳	陈修权 (186)
电子商务安全技术的应用和发展	周婷玉	任智军 (190)

第二部分 电子商务理论与前沿

数字音乐产业的电子商务发展策略	彭丽芳	杨 明 (196)
浅论电子服务对传统服务的影响	陈少芳	孟 健 (201)
电子商务时代企业文化的再造	沈 晴	任智军 (205)
电子货币并非虚拟货币	颜 飞	(209)
论电子服务的竞争战略	颜 昭	孟 健 (212)
软件服务化 (SaaS) 的理论解释	陈蔚珠	(216)
网络社区的体验营销价值探讨	陈 远	陈 林 (222)
面向流通企业的“BAB”电子商务模式探究	梁 韵	(227)
我国应对电子商务关税问题的对策及措施	罗应机	(232)
电子商务信用体系建设的研究	李洪心	张晓娜 (236)
电子商务信用体系的法律构建	彭丽芳	杨 明 (241)
电子商务法律新问题研究	秦成德	陈 静 (247)
浅谈电子商务法	王 菲	(252)
中小企业 B2B 电子商务前景分析	徐 旻 杨路明	李智敏 薛见亮 (256)
电子商务对企业组织变革的影响分析	薛见亮 杨路明	李智敏 徐 旻 (263)
电子商务平台: 概念、分类与交易机制	易法敏	(267)

第三部分 电子商务教育与教学研究

电子商务专业本科生课程体系研究与设计	马 刚 苗慧勇	张英英 (276)
从中国台湾高校项目教学法谈电子商务物流教学改革	哈进兵 王曰芬	颜端武 (285)
《电子商务物流管理》课程内容设计分析	汪晓霞	(289)
电子商务专业课自主学习的实践探索	王晓晶	(295)
以就业为导向建立电子商务实战型实训教学体系探索	张淑琴	(300)
数字证书实践教学环节的设计及实现	赵 莉	许 娜 (303)
应用型电子商务人才培养中的实践教学途径探索	朱 萍	明小波 (306)
信息化创业项目驱动下的复合型人才培养模式研究	蔡晓阳 孙德林 谭 鑫 关 婧 焦 健	程耀文 (311)
从电子商务发展看电子商务专业人才培养	陈拥军	(315)
电子商务专业教师知识管理的内容探讨	盖 印	(319)
电子商务人才创新创业能力培养初探	何 慧 孙德林 关 婧 谭 鑫 乐芳兵	李 慧 (324)
中小学网络教育商务模式分析	胡 桃 包泉鳌	梁金凤 (328)
电子商务实践教学研究	姜丽媛	(333)
基于图式理论的电子商务专业人才培养——以长春税务学院为例	李 明 程 鹏	姜建华 (336)

浅谈电子商务导论课程教学	李文武 (340)
Agent 技术在多媒体教学中的应用	李霞 林以霞 (344)
以基于阿里巴巴电子商务认证的实践基地途径培养电子商务应用型人才	郇 瞻 (348)
电子商务专业课程体系优化	梁晗晗 张世举 (352)
高等院校电子商务专业实践教学体系设计	林中燕 (356)
电子商务应用性人才培养的若干思考	牟 静 支芬和 (360)
关于电子商务专业开设综合性设计性实验的探讨	彭 亮 (363)
高职高专电子商务实践教学探讨	汤 云 (367)
电子商务人才培养与企业需求对接的研究	童 馨 叶 敏 (370)
电子商务专业培养中的岗位角色教育构想	万 君 邵良杉 (375)
《电子商务网站建设》课程探索与实践	薛晓霞 薛万欣 (379)
基于创新创业能力与意识培养的 ERP 教学	
模式研究	张宇华 孙德林 张卫华 关 婧 谭 鑫 焦 健 (383)
网络环境下的专业教学模式研究	胡玫艳 (388)

第四部分 电子商务相关研究

人口老龄化与电子商务发展关系研究	李洪心 李 婷 (394)
金融中介的作用及其在电子市场中的发展演化	潘 菊 闫 俐 (400)
网络游戏商的生财之道	马艳宾 彭 红 (405)
基于客户生命周期的虚拟社区构建方法研究	徐 佳 何建民 (408)
网上采购若干问题探讨	余世英 苏春艳 (412)
基于人工神经网络在服装方面的应用	高杜薪 陈如亮 (417)
基于 CMM 的小型软件项目管理模型的研究	林以霞 李 霞 (420)
基于客户生命周期值的商品推荐方法研究	吕成成 (426)
一种数字签名和数字水印相结合的算法	邢 根 陈修权 (431)
创业网店的建设方法探讨	戴建中 (434)
国际贸易中电子合同有效性的监管策略实证研究	吕西萍 (438)

The Establishment of Evaluation Criteria System of Websites of E-government Procurement of China

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Abstract This paper aims at building up a set of scientific, suitable for Chinese situation evaluation criterion system on websites of E-government procurement of China so as to provide a reference standard and uniform rule for the construction of future websites of E-government procurement of China. This paper defines the objectives of the websites of E-government procurement of China, designs the evaluation criteria eliciting flow on websites of E-government procurement of China, constructs the multi criteria evaluation index system of website of E-government procurement of China for the first time.

Key words government procurement website evaluation criteria systems

1 INTRODUCTION

In recent ten years, E-government Procurement of China (EGPC) has gradually developed from experiment to full operation. By far, most of the provincial and municipal governments in China have set up their own Website of E-government Procurement (WEGP) since the Websites of Government Procurement of China (WGPC) established by Ministry of Finance, P. R. China began run formally on December 31, 2000. WEGP has covered 32 provinces, autonomous regions and municipalities directly under the Central Government in China amounting to 403.

The volume of trade through the Websites of E-government Procurement has been increasing year after year from 65.3 billion yuan in 2001 to 400 billion yuan in 2007^①, this is shown in Fig. 1.

As a new purchase approach, the Websites of E-government Procurement has becomes a kind of main platform from which enterprise can get the information of government procurement and participate in purchase, its construction is being increasingly paid high importance to by Chinese government. The construction of WEGP has great significance to China,

which can be summarized as follows:

- Reduce the time and cost of doing business for both vendors and government;
- Realize better value for money spent through increased competition and the prevention of cartel formation;
- Standardize the procurement processes across government departments/agencies;
- Increase buying power through demand aggregation;
- Provide a single-stop shop for all procurements;
- Allow equal opportunity to all vendors;
- Bring transparency and ultimately reduce corruption;
- Achieve higher service levels.

In view of above significance of the construction of WEGP, the purchasing businesses of Chinese government shall be entirely shifted to the Websites of E-government Procurement to fulfill the automation of the procurement in the future. Thus, the future WEGP would bear more responsibilities for government procurement, its quality is extremely important. But up to now there is no an authoritative evaluation criterion, so it is necessary and urgent to set up an evaluation criterion on the Websites of E-government Procurement

① <http://news.163.com/08/0209/08/448EPJNQ0001124J.html>.

of China. It is based on such background that this paper is presented.

Procurement Scale of China Government

(unit: hundred million yuan)

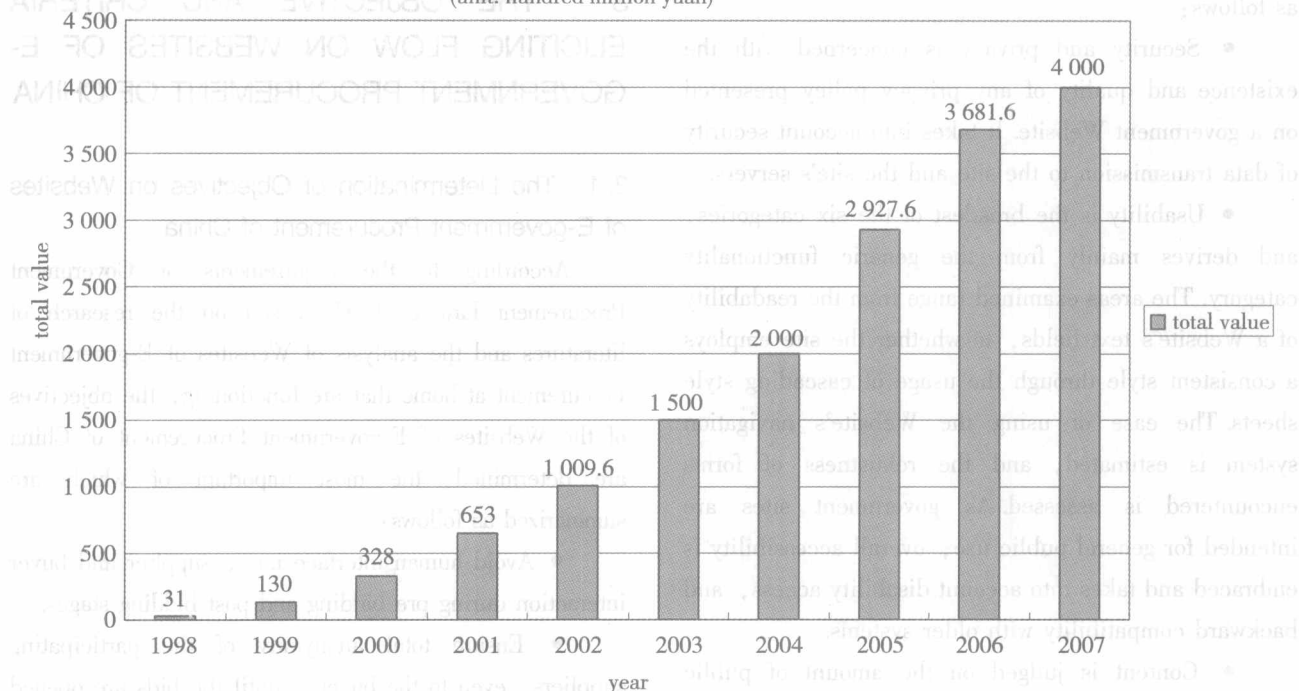


Fig. 1 The volume of trade through the Websites of E-government Procurement

2 THE LITERATURE OVERVIEW ON THE STUDY OF EVALUATION CRITERIA SYSTEM OF WEBSITES OF E-GOVERNMENT PROCUREMENT

The study of evaluation on generic websites and government websites have been done by many specialists, academicians at home and abroad^{[1]~[3]} and international organizations^[4]. So far as present study, the study stress of evaluation of generic websites and government websites are focused on following aspects.

(1) Generic Website evaluation

Methods for Website evaluation based upon the design and architecture principles use a variety of characterizations. For example, Edwards (1998)^[5] sees evaluation in terms of access, quality and ease of use. Alexander and Tate (2003—2006)^[6] use the criteria: authority, accuracy, objectivity, currency, and coverage, for which they elaborate different sub-criteria for different Website types such as

informational sites. Many of the evaluation categories may be briefly outlined as follows:

- Functionality refers to how effectively a site is designed in order to help you navigate around it.
- Authority refers to the trustworthiness of the information carried at the site, and how reliable it is.
- Validity is an indication of the extent to which a site is considered useful by other parties.
- Obtainability refers to the ease with which a site may be recalled and displayed.
- Relevance accounts for the information requirements of a user and how pertinent to them a site is.
- Substance assesses the significance of the site for producing unbiased and reliable content.

(2) Government Website evaluation

Literature indicated that it was possible to group the factors thought to influence the quality of government Websites into six major categories: ① Security and Privacy; ② Usability; ③ Content; ④ Services; ⑤ Citizen Participation; and ⑥ Features.

Five of the categories and many of the Security and Privacy questions are based upon those of Melitski et al (2005) .^[7] Categories may be briefly described as follows:

- Security and privacy is concerned with the existence and quality of any privacy policy presented on a government Website. It takes into account security of data transmission to the site and the site's servers.

- Usability is the broadest of the six categories, and derives mainly from the generic functionality category. The areas examined range from the readability of a Website's text fields, to whether the site employs a consistent style through the usage of cascading style sheets. The ease of using the Website's navigation system is estimated, and the robustness of forms encountered is assessed. As government sites are intended for general public use, overall accessibility is embraced and takes into account disability access, and backward compatibility with older systems.

- Content is judged on the amount of public information available on the Website. The amount of horizontal integration between various government agencies is also assessed, along with an estimate of the amount of information available about the dealings of these agencies.

- Services comprise two sub-categories: services for citizens, and services for businesses. In each of these sub-categories the availability of payment, registration and application services is observed. Online tendering by businesses, and online recruitment for citizens is also considered.

- Citizen participation examines the extent to which citizens are able to communicate both with the government agency and with each other through the Website. The availability of opinion polls, bulletin boards and satisfaction surveys is observed.

- Features included within this category are assessment for: availability of personal pages and the degree to which the government agency allows each citizen to create their own space.

Although there are many studies on the evaluation of generic websites and government websites, there are few studies on the evaluation of websites of E-government Procurement. Up to now, the evaluation

criteria on Evaluation of Websites of E-government Procurement of China have not been constructed.

3 THE OBJECTIVE AND CRITERIA ELICITING FLOW ON WEBSITES OF E-GOVERNMENT PROCUREMENT OF CHINA

3.1 The Determination of Objectives on Websites of E-government Procurement of China

According to the requirements of Government Procurement Law of PRC, based on the research of literatures and the analysis of Websites of E-government Procurement at home that are functioning, the objectives of the Websites of E-government Procurement of China are determined, the most important of which are summarized as follows:

- Avoid human interface i. e. , supplier and buyer interaction during pre bidding and post bidding stages.
- Ensure total anonymity of the participating suppliers, even to the buyers, until the bids are opened on the platform.
- Facilitate online tendering based on Internet technology to provide "any where any time" access to the Website.
- Reduce human error, enhances the integrity of the data.
- Bring in transparency to the Government procurements and tender documents containing all details are hosted on the web site.
- Facilitate standardization of processes.
- Shorten tender cycle times.
- Eliminate subjectivity in receipt and evaluation of bids and reduce corruption to a significant extent.

3.2 The Criteria Eliciting Flow on Websites of E-government Procurement of China

In order to elicit scientific, accurate and rational evaluation criteria system of Websites of E-government Procurement of China so as to better direct the construction of Websites of Government Procurement of China, we design following flow, as shown in Fig. 2.

4 THE ESTABLISHMENT OF THE EVALUATION CRITERIA SYSTEM OF WEBSITES OF E-GOVERNMENT PROCUREMENT OF CHINA

4.1 The Principle on the Establishment of Evaluation Criteria System

The construction of the evaluation criteria system should not only follow scientific, rational eliciting flow, but also should possess specific guiding principles, including the combinations of scientific method and utility, integrity and maneuverability, repulsion and integration, absolute and relativity, quantitative and qualitative consideration. These principles may be grouped

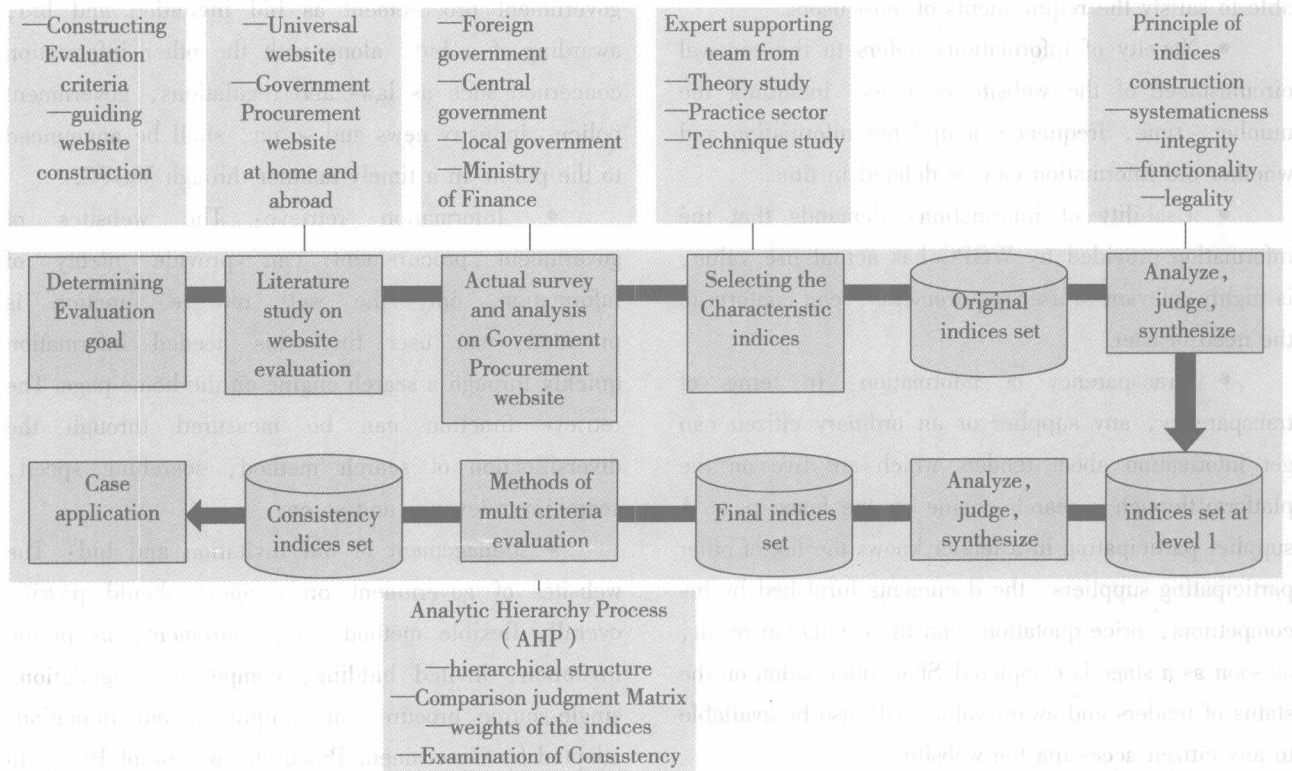


Fig. 2 The Criteria Eliciting Flow on Websites of E-government Procurement of China

These indicators are detailed as follows.

(1) Information quality

Information quality is used to evaluate the quality of information provided by WGPC, it may be decomposed into following sub-criteria.

- Truthfulness of information: refers to all kinds of information must be true, accurate, reliable and false

into eight major categories: (1) systematicness; (2) summarization; (3) utility; (4) functionality; (5) integrity (6) repulsion; (7) progress; (8) legality.

4.2 The Establishment of the Evaluation Criteria System

According to above principles of criteria system construction and eliciting method given in Fig. 2, a set of evaluation indicators for the Websites of E-Government Procurement of China was defined including six main categories, these are information quality, function, service, security & privacy, standardization and legality, website effectiveness, of which there are 6 indicators at level 1 and 31 indicators at level 2, they are given in Fig. 3.

information can be avoided.

- Convenience of information: WGPC can provide the user with convenient and easy method of information acquisition, the e-Procurement system allows “any where any time” access for bidders and suppliers from the Internet.

1. Information quality	2. Function	3. Service :	4. security & privacy	5. Standardization and legality	6. Website Effectiveness
—Truthfulness of information —Convenience of information —Integrity of information —Novelty of information —Usability of information —Transparency of information	—User managements —Information announcement —Information Retrieve; —Management of bid invitation and bid —Online bid —evaluation —Online transaction —Query and complaint	—Utility of service —Individuation —Promptitude —Interaction —Continuity	—System security —Information security —Document security —Privacy protection	—Design Standardization —Process Standardization —Content Standardization; —Legality	—Easiness —Stability —Navigation and link —Speediness —Amity & beauty of interface

Fig. 3 The Project Evaluation Criteria System of Websites of E-government Procurement of China

- **Integrity of information:** refers to the information provided by WGPC is rich, complete, and able to satisfy the requirements of most users.

- **Novelty of information:** refers to the renewal circumstance of the website contents, including the number, time, frequency of updated information and whether old information can be deleted in time.

- **Usability of information:** demands that the information provided by WGPC has actual use value, is highly relevant to user requirements, can conform to the need of user.

- **Transparency of information:** In terms of transparency, any supplier or an ordinary citizen can get information about tenders which are live on the platform through a search engine on the home page. A supplier participating in a tender knows the list of other participating suppliers, the documents furnished by his competitors, price quotations and the evaluation result, as soon as a stage is completed. Short information on the status of tenders and award values will also be available to any citizen accessing the website.

(2) Function

This criterion is used to evaluate the functions of WGPC according to the integrity, complexity, usability, convenience and progress in function, it may be decomposed into following sub-criteria.

- **User managements:** include the registration, logging, information query and modification for all kinds of users, such as the procuring entities, the suppliers, the procuring agencies and the members of the bid evaluation committee.

- **Information announcement:** It is the most

basal function and precondition for smoothly completing the government procurement. Information regarding government procurement as bid invitation and bid, awarding of a bid, along with the other information concerned such as laws and regulations, government policy, industry news and so on, shall be announced to the public in a timely manner through WGPC.

- **Information retrieve:** The websites of government procurement can provide plenty of information, only the well retrieve function is provided, can user finds his needed information quickly through a search engine on the home page. The retrieve function can be measured through the diversification of search method, searching speed, searching relevance and so on.

- **Management of bid invitation and bid:** The websites of government procurement should provide overall, flexible methods of procurement, as public invitation, invited bidding, competitive negotiation, single-source procurement, inquiry about quotations adopted by Government Procurement Law of PRC, in order to server different users, including the download and upload of documents for bid invitation and bid, inquiry about quotations and so on.

- **Online bid evaluation:** The E-procurement application provides automatic bid evaluation based on the evaluation parameters given to the system to determine the final winner of the bid online. The websites possessing online bid evaluation can more improve the efficiency of government procurement, save procurement cost. Thus, this criterion may be considered when evaluate the websites of government

procurement.

- **Online transaction:** is also an important part of advanced E-procurement websites. It includes the online payment, online conclusion of electronic contract and the online query about the status of the transaction. For example, at any time in the procurement cycle, any person associated with the transaction can check and know the status of the transaction. This saves time and effort involved in finding out the status of a purchase order.

- **Query and complaint:** The websites of government procurement should provide the function of online query and complaint. Thus, if suppliers have queries or find the actions of violation of Law about matters regarding government procurement activities, they may raise the query or complaint in time.

(3) Service

This criterion is used to evaluate the service functions of WGPC according to the utility, individuation, promptitude, interaction in service, it may be decomposed into following sub-criteria.

- **Utility of service:** refers to whether or not WGPC can provides useful and helpful information for the parties to government procurement such as the explanation of service clauses, the guidance of transaction operation and the manual of government procurement processes.

- **Individuation:** refers to whether or not WGPC can provides different service according to different users.

- **Promptitude:** refers to whether or not WGPC can make a timely reply to the query and complaint raised by enterprise and the public.

- **Interaction:** refers to whether or not WGPC can provides better interactive tools, including chatroom, email, automation reply system, help system and call center etc. so as to receive and answer the query, request and review from users.

- **Continuity:** WGPC should have special personal assigned for the management of website to provide continuous, stable and round-the-clock service for users.

(4) Security and privacy

WGPC should be designed with extensive security

features to help ensure that all activities are logged, no unauthorized person has access to data, all sensitive data is encrypted, and that the system can be restored in a minimal time in case of a disaster or system crash. Security and privacy are used to evaluate the security functions and privacy policy of WGPC, it may be decomposed into following sub-criteria.

- **System security:** refers to whether or not WGPC uses special web server; has special personal assigned for the maintenance of website; takes security measures to protect system security. It also measures the mean time to failure of website and the abilities of antivirus, preventing from invasion and recovery when meet with fortuitous event or special situation.

- **Information security:** refers to whether or not WGPC can guarantee the integrity and accuracy in the transmission of information, prevent information from exposure to unauthorized person, avoid the collusion of entities to damage national interest and divulging the base price of a bid before opening of bids.

- **Document security:** refers to whether or not WGPC can guarantee the security save of all kinds of procurement documents, prevent them from being stolen, misused and tampered. These procurement documents include the records of procurement, procurement budget, bid invitation documents, bid documents, criteria for bid evaluation, evaluation report, contract text etc..

- **Privacy protection:** refers to whether or not WGPC can proclaim privacy policy, provide the safety certification on privacy to protect privacy information of all parties.

(5) Standardization and legality

This criterion is used to evaluate whether the WGPC follows any standards and conforms to the requirements of Government Procurement Law of PRC and other regulations concerned in construction, it may be decomposed into following sub-criteria.

- **Design standardization:** mainly inspects the standardization of WGPC in design, such as directory devising and sorting, web page layout, system identification and navigation structure.

- **Process standardization:** mainly inspects the standardization of WGPC in the procurement processes

design. The processes of WGPC should conform to the standards and rules related to law and software project development to ensure the procurement processes to be able to perform according to the given time and procedure so as to reduce the randomness in government procurement.

- **Content standardization:** mainly inspects the standardization of WGPC in content, including the organization and sorting of content. For example, whether or not new procurement information, notice of awarding of bid, policy, laws and regulations are laid in prominent place of website to facilitate the browse of user.

- **Legality:** refers to whether or not the information, function and processes of WGPC conform to the requirements of Government Procurement Law of PRC and other regulations concerned.

(6) Website Effectiveness

This criterion mainly inspects the overall effectiveness of WGPC, it may be decomposed into following sub-criteria.

- **Easiness:** It is very important to WGPC, because only website facilitates the use of users, can it play a better role.

- **Stability:** refers to whether or not WGPC has special personal assigned for the maintenance of website, can provide continuous, stable and round-the-clock service for user, whether or not the location of website is often changed, information can be found steadily.

- **Navigation and link:** mainly inspects the effectiveness of WGPC in navigation and link, including whether or not navigation system and website map is clear, accurate and reasonable, all links of the website are fast and connected back and forth.

- **Speediness:** refers to whether or not WGPC can make a fast response to the operations of users,

such as browse of website, download and upload of the photograph, animation, video and documents concerned with procurement, along with the jump between different pages.

- **Amity & beauty of interface:** refers to the design of web page of WGPC should satisfy the requirements of man's vision and usage by every means, which is not only beautiful in appearance but also convenient in visit. It can be measured through the design of menu and the application of photograph, animation, video, etc.

5 CONCLUSION

The main work done by this paper may be summarized as follows.

- Define the objectives of the Websites of E-government Procurement of China.

- Design the criteria eliciting flow on Websites of E-government Procurement of China.

- Construct the multi-criteria evaluation index system of Websites of E-government Procurement of China for the first time.

As an important part of National Natural Science Fund Item, this paper aims at putting forward an evaluation criterion on Websites of E-government Procurement of China, which is scientific, suitable for Chinese situation, is able to provide a reference standard and uniform rule for the construction of future Websites of E-government Procurement of China.

Although the study aims at the evaluation of Websites of E-government Procurement of China, the method presented have universality, is able to extend to other project evaluation.

The structure and weights of the evaluation indices of Websites of E-government Procurement of China would be given out in another paper.

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