



MASENO UNIVERSITY

SCHOOL OF COMPUTING AND INFORMATICS.

PROJECT PROPOSAL

SCS 408 DESIGN PROJECT 1

**Project Title: WEB-BASED PROCUREMENT SYSTEM
(Case - Capital Investments Bank)**

Group Members:

Signature

- | | | |
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1.1 BACKGROUND TO THE STUDY

In daily operations of an organization whether a small company or a large firm, they require a very wide range of goods, services or works and operating resources for their operations and to facilitate productive workflow. There exists very lengthy procedures of finding, acquiring, delivery, handling and buying such for most of these companies and hence doing the acquisition manually usually takes a lot time and effort. Organizations have set aside a specific department or a dedicated team that deals with the ordering and delivery of goods and services required within to help activities run smoothly. These departments end up getting caught up in a pile of huge workload due to the various procedures involved in procurement process. Procurement of goods and services needs to be fast and very efficient and ensure that the buyer receives goods, services and works at the best possible price, when aspects such as quality, quantity, time and location are compared. Each corporation or company will often define the processes intended to promote fair and open competition for their business while minimizing risks like exposure to fraud and collusion. To ease up the procurement process we came up with the idea of a system that will be used to perform these activities. For our case study, we looked into the operations of Capital Investments Bank from its head office and sampled operations at several of its branches. We observed and noted the procedures involved in all their procurements which they do manually due to lack an efficient system that suits their requirements and their defined processes.

1.2 PROBLEM STATEMENT

From our research at Capital Investments Bank, we identified the need for a procurement system to simplify the processes involved since they are doing it manually due to lack of an efficient system to suit their operations. Despite the fact that there exists many procurement

systems in the market, Capital Investments had not adopted any due to many factors such as efficiency of the system, lack of budget control functionalities, Lack of a customized system, lack of proper authorization levels for placing orders, inability to provide customer feedback according to their satisfaction, then need for a cost-effective systems in terms of its maintenance and sustainability and the need for the best decision on acquisition and sourcing of suppliers . We seek to provide a comprehensive solution to these as well as improve on the features.

1.3 OBJECTIVES OF THE STUDY

1.3.1 General objectives

- ❖ To design a procurement system for Capital Investments Bank
- ❖ To design a suitable conceptual model for our project.
- ❖ Use the model to develop our procurement system.
- ❖ Test our system functionality according to the set requirements.
- ❖ Implement the system.

1.3.1 Specific objectives

- ❖ To provide a comprehensive procurement system for Capital Investments Bank
- ❖ To develop a strong relationship – collaborating and partnering - with the customers and other Functional groups
- ❖ To reduce risk and cost by managing supplier relationships and ensuring continuity and quality of supply.
- ❖ To support the bank's goals and objectives by improving productivity.
- ❖ To create an efficient platform for better communication within and out of the bank.
- ❖ To support the Operational processes in the bank
- ❖ To manage the procurement process and the supply base efficiently
- ❖ To control organization's spending

- ❖ To facilitate easy ordering and better service
- ❖ To enforce purchasing policies for the organization with unprecedented control and governance support.

1.4 JUSTIFICATION OF THE STUDY

With the development of procurement policies for each company or organization, intended to promote fair and open competition for their business in procurements and maximizing profits for the organization, we sought to develop a system that will help in achieving these easily and minimizing risks like exposure to fraud and collusion that could occur during the procurement process and lead to very huge losses for the company as well as use technology to ease up the procurement process. During our study at Capital Investment Bank, we noted these risks and shortcomings and seek to provide a solution to them.

1.5 SCOPE OF THE PROJECT

Generally, the scope pertains to the system management features for the bank's project line. This project will help the bank in purchasing of the items they need to work with.

Since the project is a procurement system, there will be limit in buying certain goods. Capital Investments Bank can have a specific supplier with whom they will place their order. The system will allow the bank to order for items and as well check or preview their order.

1.6 LIMITATIONS

Aggregation of requirements is difficult to achieve with no one single interface in operation.

Addition of new suppliers means contract leakage is widespread.

Supplier pricing can vary as central control exists in all but a few categories of spend.

Data concerning all the aspects of spend, delivery and performance may not be available.

1.7 ASSUMPTIONS

It may be assumed that;

There are adequate resources available to complete the assigned tasks.

The required budget is available to complete the tasks needed.

The timeframes listed in the project, example in the communication schedule are satisfactory.

The process and duty of sourcing the suppliers quarterly is upto the Capital Investments Bank – Finance Department to select the supplier for each quarter of the year which is updated by the Admin appropriately.

1.8 THE DEFINITIONS OF TERMS

- **Procurement** - is the act of finding, acquiring, buying goods, services or works from an external source often via a tendering or competitive bidding process.
- **Firm** – is a business organization, such as corporation, Limited Liability Company or partnership that sells goods or services to make a profit.
- **CIB** – Capital Investments Bank (the case study organization)
- **Project** – Something that is contemplated, devised or planed.
- **Implementation** – the act of putting into effect; fulfillment. It is the process of installing and maintaining a new system
- **RFI** – Request for Information
- **Requisition** – A purchase request.

1.9 CHAPTER SUMMARY

In summary, this proposal chapter has outlined many different strategies direction for procurement in Capital Investments Bank. The bank will be influenced to a large degree to the public and its approach to procurement.

CHAPTER TWO: THE LITERATURE REVIEW

2.1 THEORY AND A BRIEF HISTORY

Procurement is an old profession yet it has attracted little attention from historians. Certainly not nearly as much as another profession with the same name and with which it is sometimes confused.

Procurement began with the emergence of trade. There's a little doubt that the need for some types of procurement policies and practices can be linked to the ensuing growth of organizations and their bureaucratic rules. These rules could be linked to the need for standardized procedures and documents, the separation of owners and managers in private sector businesses and the requirement of transparency of public sector divisions. Due to the diversity of activities associated with procurement, i.e. defined as the science of buying and supply for the purpose of this white paper. What follows could be called a disjoint history. Procurement practitioners are increasingly responsible for supervising the basis on which large amounts of supervision is undertaken. Some aspects of supply management such as outsourcing, more sophisticated contract management, the use of ecommerce and partnering strategic alliances have received growing academic attention as awareness of the financial and operating impact of the profession has developed.

The emerging versions of procurement will demand a strategic focus, a customer service focus, a capacity to interpret financial, political, legal, operational and other supply chain risks, and the capacity on the part of practitioners to operate as a senior executive. The purchase requisition of yesterday has not entirely disappeared but in the organizations that have harnessed a version of e-commerce or e-business electronic ordering will free the procurement professionals to focus on the strategic issues and work to solve the existing and future challenges for procurement.

E-procurement is constantly receiving attention from industries, business and government agencies. Analysts believe that utilization of e-procurement can lead to enormous cost saving and efficiency in procurement process. E-procurement also enlarges customer base, broadens the search for raw materials to lower its production cost. The results showed that cost benefit was the main driver for companies to implement e-procurement. Other benefits included were transparency and visibility across process, better internal and external relations and streamlined buying process. The problems of implementation and integration of existing infrastructure and security and control risks were holding back companies from wide usage of e-procurement. But most of all, lack of managerial commitment hinders the adoption process.

Company's needs were the deciding factor for the kind of approach they will follow regarding the adoption of e-procurement and emergence of a new approach. In today's dynamic global business competition scenario, web based technology is no longer an afterthought, rather, it is a must. It is vital for companies to provide its customers with cost-effective total solution and life-cycle costs for sustainable value. With emergence of Internet, and information and communication technology (ICT) applications, the companies are strained to shift their operation from traditional way to the virtual e-business, e-procurement and e-supply chain philosophy. E-commerce is seen as the new tool that will revolutionize business as we know it today. E-procurement is a technology solution that facilitates corporate buying using the internet. It has the power to transform the purchasing process because it pervades all of the steps identified by the supply manager.

Procurement is broadly defined to include a company's requisitioning, purchasing, transportation, warehousing, and in-bound receiving processes. Recent procurement strategies focus on restructuring the entire order-to-delivery process rather than on specific tasks within the process. Thus, e-procurement is not just an addition of technological aspect to traditional procurement.

2.2 Rationale for

From our research conducted prior to this project, it gave us several arguments in favor of implementing this project. We got detailed information on the issues and problems that Capital Investments Bank was facing and also to help skyrocket their productivity as a firm and improve/ ease their working procedures by use of technology since they were still using the traditional procurement methods that were time consuming, very involving and bulky, complicated and costly. It was also very difficult fetching all the records for the year or month while compiling the quarterly reports and also during Operations auditing in the Bank. This project will help them transition and implement a very efficient system that will simplify and integrate all these activities into one.

2.3 Benefits of our system

The benefits of switching to our e-procurement system on the processes involved in procurement of goods and services are:

- Reduced costs- E-procurement saves you money by preventing duplicate spending, leveraging volume buying and saving you costs associated with paper-based systems.
- Transparent spending- Electronically conducting your procurement makes it easier to write and analyze reports on your procurement systems hence you can ensure that the procedures conform to your policies.
- Increased productivity- once you've learned the system, e-procurement is less time consuming than traditional procurement. Having your records stored electronically makes it easier to submit reusable tenders.
- Eliminating paperwork- Tired of finding new space to store all that paper work? With e-procurement everything can be saved and stored

electronically. This not only saves you from needing more room but also makes the process of finding older tenders simpler.

- Increased transaction speed- E-procurement is both time saving and efficient as the electronic handling of tasks supports and simplifies the purchasing process, transaction speed is increased. Also because of e-enabled relationships with suppliers procurements cycle times speed up. It eliminates unnecessary activities, allowing you to focus on more valuable tasks.
- Standardized buying- when you have various departments making procurement decisions, there can be differences in what and how they purchase. Conducting purchasing electronically makes it easier to every department to conform to every company procurement standards.
- Reduced Errors – Electronic paper work is streamlined and thus easier to check for errors. That is, there's no messy printing to get in the way either. Along with this, first orders are more easily referenced hence there is a greater chance that your company can compare orders to ensure new ones are correct.

2.4 SIMILAR WORK

a) Oracle iProcurement- Is the self-service requisitioning application by Oracle that controls employee spending. Oracle iProcurement provides a Web-based shopping system that allows employees to create, manage, and track their own orders while the Purchasing department retains central control.

b) Promena e-Sourcing - (by Promena e-Sourcing solutions) offers e-Auction, e-Procurement, SRM and Strategic e-Sourcing solutions with the aim of providing high efficiency, effective control of time, labor and cost savings to its customers in their purchasing activities.

c) Officewise- (by Officewise) this is an affordable easy to use online system that helps you control spending saving you time and money.

d) Panacea-(by Panacea Software) an online process management application with a single objective to reduce costs on marketing, design and print activity.

e) Coupa Procurement- (by Coupa Software) A simplified purchasing automation, efficiency and control for requisitions, PO's, RFQ's and invoices.

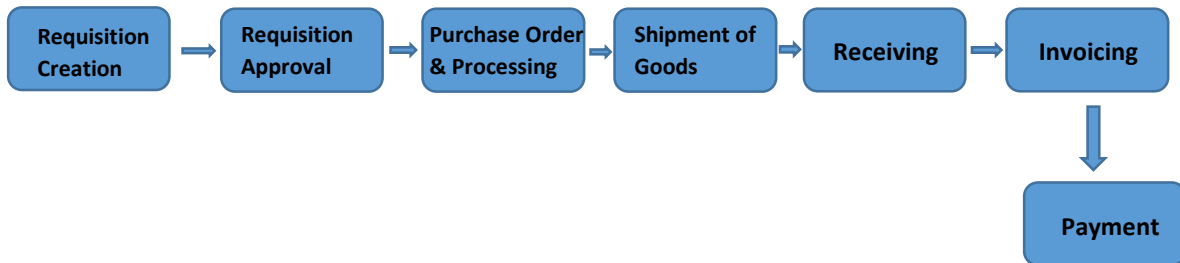
2.5 THE GAP

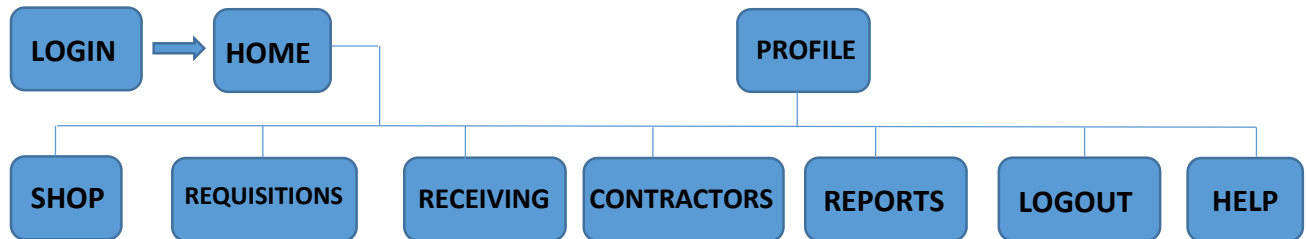
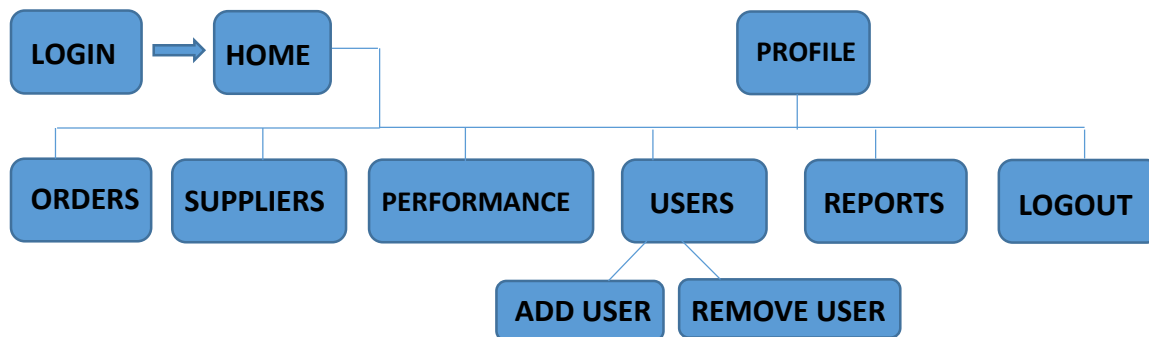
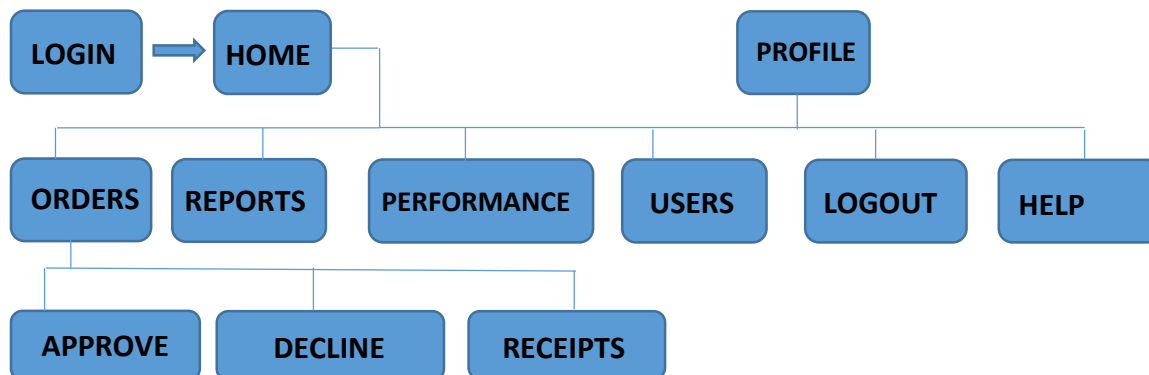
According to our study current e-procurement systems do not some business requirements in the market.

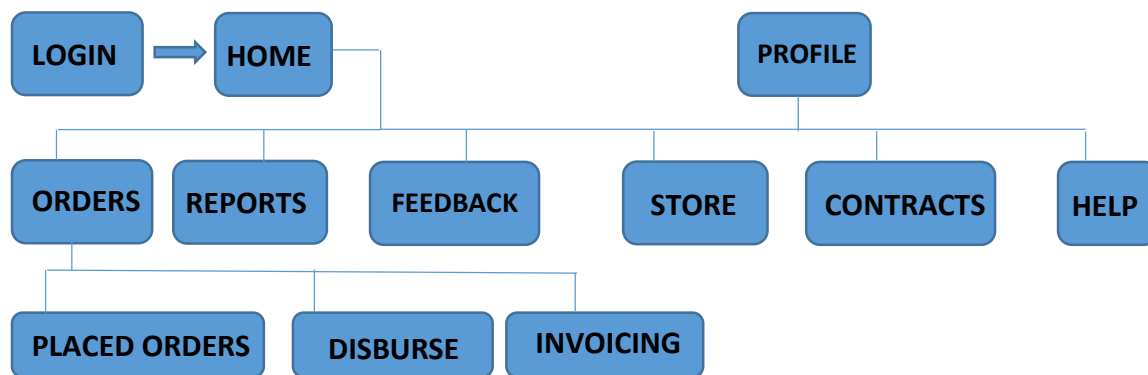
- i. The need for a customized e-procurement system for Capital Investment Bank.
- ii. The need for the procurement system to submit a pending purchase order to appropriate personnel for approval or rejection.
- iii. The need for the system to generate reminders to confirm purchase orders (or confirm recent cancellations).
- iv. The need for the system to generate reminders on new products arrival.
- v. The need for the software to maintain an inventory of goods sufficient to prevent spot shortages.

2.6 PROPOSED ARCHITECTURE/CONCEPTUAL MODEL

General Procurement Workflow



PROPOSED ARCHITECTURE**A. Requisition Page****B. Admin Page****C. Approver Page**

D. Approver Page

CHAPTER THREE: METHODOLOGY

3.1 OVERVIEW

Here, we outline the practices, methods and processes we'll use to develop our system and the various requirement needed to help achieve this from the system requirements definition to its implementation and testing and deploying it into operation as well as help in planning to deliver this project.

3.2 TOOLS AND SKILLS REQUIRED

For this project, we will require several tools such as:-

- A computer operating on either Ubuntu 14 and above or Windows (7 and above) configured with all drivers (from driverpack solution), ability to access internet, a good processor (1 GHz and above), above 1 GB RAM and a disk space of around 10 GB in a perfect working condition.
- Brackets (Release 1.7 build 1.7.0 and above) text-editor for coding.
- WampServer (version 2.5 and above) – Apache server, phpMyAdmin and MySQL
- A modern web browser like Mozilla Firefox (version 30 and above) or Google Chrome(version 24.0 and above)
- CorelDraw CS5 and above for image editing and graphics design.
- Internet connection

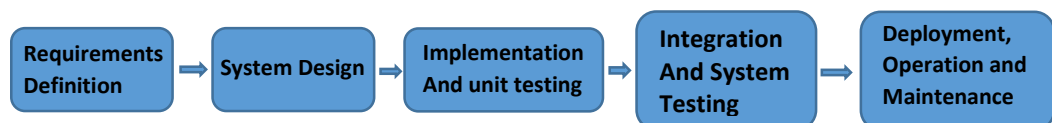
The following skills are a prerequisite:-

- Basic computer skills and knowledge.
- Working with CorelDraw to do graphics design and image editing.
- Proficient skills in PHP programming language.
- Proficient skills using HTML5, bootstrap, JavaScript and JQuery for front-end design.
- Testing and code debugging.

3.3 SYSTEM DESIGN

We will use the waterfall software process model during the development of our system.

This will follow the following workflow plan throughout the project design and implementation.



3.3.1 Why this chosen Methodology

We have chosen to use the Waterfall model since for this project, we have a well laid-out plan on all the processes that will be involved, and all the system requirements have already been specified (and are prone to little or no change at all) and hence we required a plan-driven approach to achieve the various activities in our project. The work has been planned in phases from the requirements definition phase to deploying the system into operation.

3.3.2 LIMITATION OF THE METHODOLOGY

We have adopted the waterfall model since it's the most suitable for our project but it also has its drawbacks. Even though we deem the requirements will be subject to little or no changes, there may occur major changes in the system requirements leading to a need to accommodate these changes which may be difficult with this model. Also, while developing the system, there may be needs to test some particular feature on the implementation phase to see if it's suitable or test the required configuration for it which is not catered for by the waterfall model, since it stipulates that a single phase has to be completed before moving onto the next phase. This may hence result into the need to borrow some features of an incremental model to achieve the project when any issue stated above occurs.

CHAPTER FOUR: PROJECT PLAN AND MANAGEMENT

4.1 TIME PLAN FOR OUR PROJECT

Time(<i>in weeks</i>)	Task	Members
Week 1 &2	a) Coming up with ideas in search of a suitable project. b) Selecting our project, coming up with the description of the project, the objectives we would like to achieve with our project and its key components.	Naomi, Michael
Week 3-6	Requirements analysis- Outlining the specifications of our system and its functionality. Coming up with the methods we will use to build our project(Software to be used for coding, image editing, graphics design, and the programming language to be used for design)	Michael
Week 4	Compiling and submission of the initial project proposal for approval.	Naomi, Michael
Week 5&6	Dividing project roles to the group members and segmenting project into sections.	Naomi, Michael
Week 7	a) Defining roles and responsibilities b) Defining the testing methods for our project.	Naomi
Week 8	Estimating how long it's going to take to complete each task during the implementation of our system.	Naomi, Michael
Week 9-11	Compiling the final project proposal for submission- Chapter 1	Naomi
Week 12	Compiling final project proposal – Chapter 2	Michael
Week 13 - 14	Compiling final project proposal – Chapter 3 - 4	Naomi, Michael
Week 15	Submission of the final project proposal to the supervisor.	Naomi, Michael

Time(in weeks)	Task	Members
Week 17-20	Review Of The Previous Problem Statement and installing the simulator and troubleshooting.	Naomi, Michael
Week 20- 21	Designing the front-end design of the login pages for the Requisition, Admin, Approver and Supplier pages.	Naomi
Week 22-23	Coding the backend for the login pages in PHP, and creating all the relevant MYSQL databases and tables.	Michael
Week 24	Front-end design of the home pages for all the modules and their relevant functionalities.	Naomi
Week 25-28	Coding the backend for all the components in the pages and all the functions and code debugging.	Naomi, Michael
Week 29	Compiling the help page guides for the help function on our site.	Michael
Week 30 - 31	Testing our system with test data, and test scenarios and Implementation the system.	Naomi, Michael
Week 32	Requirements validation and deployment of the system.	Naomi
Week 33	Compiling and submission of the project report to the supervisor.	Naomi, Michael

4.2 REQUIREMENTS

4.2.1 Software requirements

- A server- This is needed to be used to host the web after coding and it's complete (For developing we will use Wampserver that sets up a local host on your machine).
- Photo editor i.e. CorelDraw CS6
- Database(s) - to store the data, users and records of transactions (For our case we use MySQL databases available via phpmyadmin on WampServer).
- Text editor- for creating and editing a website. Also to create and modify unformatted text files (For development purposes, we use Brackets- Release 1.7 build 1.7.0-16898.)

- A modern browser- to help view website, test the system during development, browsing, debugging and final testing to make sure it works perfect (For our case we use Google Chrome Version 54.0.2840.99).

4.2.2 Hardware requirements

- A computer/laptop – A good machine with RAM of around 1Gb and above, fast processor of about 1Ghz Dual-core and above to ensure it computer runs applications fast and smoothly even with heavier programs like CorelDraw, the localhost and website editors.
- Internet- This will facilitate online hosting for us to upload the files online for testing and deployment, and also during debugging of the project code as well as saving a backup of the project on Github.
- External Hard Drive- this will help us for backup in case there rises issues like crashing of the machine.
- Server- a server computer to host the website on to make sure that is available all the time for Capital Investments Bank users to access and use it upon deployment.

4.3 BUDGET ESTIMATE

ITEM	QUANTITY	COST Each (in KES)
Laptops	2	50,000
WampServer	1	Free download
CorelDraw CS6	2	7,500
MySQL Database	1	Available from Wampserver
Transcend 500Gb Hard disk	1	6,500
Chrome browser	2	Free download
Brackets Editor	2	Free download
Server	1	200,000
Total		264,000

CHAPTER FIVE: CONCLUSION

According to our case study done on a branch of Capital Investments Bank, it was established that there was a need for procurement system to aid streamline procurement activities in the bank and make it more efficient as well as increase productivity. It was with this drive that we set to develop a Web-based Procurement System to serve as a solution. We have outlined all the requirements, proposed system design and architecture, methodology to be adopted and the benefits our system will offer. Once finished, it will be deployed into operation to bring the change that Capital Investments Bank desires.

CHAPTER 6: REFERENCES AND APPENDIX

- Sommerville, I. (9th Edition). *Software Engineering*.
- Sig Ueland, *Customer Feedback Tools for Small Business*
- ICAC, *Best Practice Checklist - Procurement*