

***The impact of process and content decisions on eProcurement***

***A Case Study of a State Government Agency \****

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## 1. Background of the Case Study

The Franchise Tax Board has administrative responsibility for two of California's major tax laws: Personal Income Tax and Bank and Corporation Tax. The department also has non-tax responsibility delegated to it, such as Homeowners and Renters Assistance, audits under the Political Reform Act and several delinquent debt collection functions.

Those operations involve 5,000 employees working in offices throughout California and in Chicago, Houston, Manhattan and Long Island. The FTB processes approximately 16 million personal income tax returns and 3 million payment documents annually. Additionally, over one-half million business tax returns are processed yearly with 400,000 payments documents. The department also receives and analyzes approximately 200 million income records, performs over one million audits and takes collection actions on over one million tax and non-tax accounts.

The FTB purchasing process is typical of a large organization whereby purchasing is subject to multiple approval levels, the number of approval step depending on the amount of the purchase. The purchases are coordinated internally with the fiscal side of the house to insure budget and fiscal integrity. For larger purchases, coordination and approval is required outside of the FTB. Currently, the user generates a purchase request on paper (form FTB 6278), which once approved, is converted into a purchase order by the Procurement section into the Purchasing Management System.

The purchase order process is not the only mechanism to obtain small business commodities. Requestor may also obtain frequently used office supplies from the Department's internal Supply Store. In addition, a limited number of employees are Cal-Card holders and can use their State issued Visa card to obtain certain business commodities. Of the annual number of purchase orders which ranges around 5,000 totaling about \$30 million, about 70% of these are for smaller

purchases, a requisition amount representing less than 5% of the total value. The general store also processed about 8000 requests.

With regards to its e-commerce initiative, FTB has to work within the constraints of the Department of General Services that oversees the implementation of an inter-state agency electronic procurement system. DGS is responsible for managing suppliers, catalogs, contracts and purchase orders. FTB is responsible for the development of its internal applications and intranet but needs to be compliant with DGS in its IT infrastructure.

## **2. Project Objectives and Deliverables**

### **Objectives**

The project will focus on high volume, low cost transactions. Some of the issues associated with those transactions are: the aggregation of the purchases, the length of the time spent by the users, the approval staff and the processing staff, the reconciliation of purchase orders with bills, the accuracy of information, etc. This study has the following three main objectives:

1. Analyze the current processes and its associated cycle times, costs and other metrics.
2. Identify re-engineering opportunities.
3. Identify the impact of e-commerce and e-catalogs

This document focuses on the content management issues and their relationship to process management.

### **Deliverables**

The FTB employees mainly obtain small business commodities through the purchase order process, the Supply Store or through use of the Cal-Card. The deliverables include:

1. Descriptions and process flows for the current processes: purchase orders, Supply Store and Cal-Card.
2. Re-engineered process flows that can be integrated an e-commerce automated process.
3. E-commerce implementation benefits and guidelines.

### 3. Current Purchasing Process at FTB

Most of FTB's purchases are for office supplies and miscellaneous goods (non IT). FTB maintain also its own general store for frequently used office supplies. These represents more than additional request for a total value of \$250,000.

**Table 1: Small Purchase Business Commodities under \$1,000**

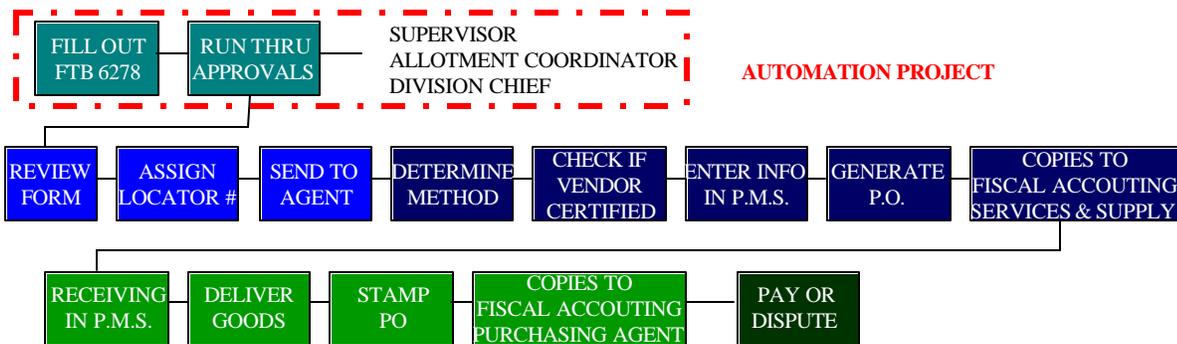
<b>Purchase Type</b>	<b>Number of Requests</b>	<b>Amount</b>
State Contracts	203	\$79,706.88
Office Depot	705	\$117,042.69
Office Supplies	563	\$98,205.32
Day Planners	248	\$26,856.12
Other	1,141	\$376,517.65
<b>Total</b>	<b>2,860</b>	<b>\$698,328.66</b>

Table 1 shows a breakdown of small purchases done on a purchase order. It can be noticed that office supplies and day planners for example can also be procured at the internal Supply Store and do not require a P.O.

Small purchases comprise over half of the Purchasing Unit's annual workload. It takes between 1.1 and 1.9 hours to process a purchase order depending on the complexity of the request. 83% of the requests require 1.9 hours to be completed at a processing cost of \$47.06. This does not include the value of the time of the original requestor, the time spent for approvals by miscellaneous managers and other non-direct costs.

The next three sections will describe the process flows for purchasing the California Franchise Tax Board. These are the purchase orders, the Cal-Card and the Supply Store. Purchase orders are the standard process. Cal-Card has been introduced to simplify the process in specific cases. The Supply Store is specifically for office supplies.

## Purchase Orders



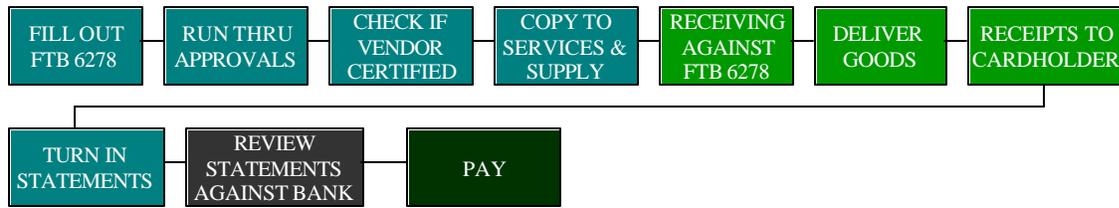
**Figure 1: Purchase Orders Process**

Requestors need to out the form FTB 6278 and obtain approvals from their supervisor, allotment coordinator and the Division Chief. The form is then sent out to the Purchasing Unit and the lead agent reviews the form for approvals, assigns a document locator number and distributes the P.O. to an agent for processing. This agent determines the appropriate purchasing method and orders the commodities. This also means that at this part of the process, the agent can elect to use his Cal-Card instead of processing the order under a traditional P.O.

The information is then entered in the Purchasing Management System. Vendor certification is verified to meet the State requirements (Vendor Data Record STD 204 and Drug Free Certification STD 21) or appropriate forms are sent via mail to the vendor to have this task completed prior to the order. After the agent issues a P.O., copies are sent to Fiscal Accounting and Service and Supply. Service and Supply matches the P.O. number with the goods, delivers them to the requestor and send a copy of the P.O. stamped to the purchasing agent and Fiscal Accounting. Fiscal Accounting matches the P.O. with the invoices, pays the suppliers or prepares a dispute letter as required.

This is a very long and tedious process. Automation activities are under way to automate the approval of the FTB 6278 form. However, the data from the request form will continue to be manually entered into the Purchasing Management System by the procurement staff in order to issue a hard copy of the purchase order.

## Cal-Card Orders



**Figure 2: Purchasing Card Orders Process**

The Cal-Card initiative started in 1992 and was extended in 1997 to 64 cardholders. Although this was introduced as a mean to simplify to purchasing process, a manual was developed quickly developed to outline the procedure. It lists prohibited items such as memberships, subscriptions, office furniture and most computer hardware and software.

The process still requires the requestor to fill out form FTB 6278 and obtain necessary approvals. However, the cardholder has much more responsibility than in the P.O. process. Most holders have limit of \$1,000 per purchase except for the purchasing agents where the limit is \$15,000 per order and \$50,000 per month. The cardholder is responsible for order and billing problems but also vendor certification. The items can only be picked up at the vendor if it is an emergency.

The most cumbersome part of the process is associated with the reconciliation of statements. The cardholder needs to prepare a package with the monthly bank statements and FTB forms 6278 that need to be forwarded by their approving official within three working days. Within five working days, the nine approving officials review and monitor cardholders' purchases and forward copies of all documentation to Fiscal Accounting and Branch Allotment Coordinator.

## Supply Store Orders



**Figure 3: Supply Store Order Process**

The Supply Store has approximately 350 office supply items from Office Depots' custom catalog and an additional 100 stock items such as standards forms, paper and envelopes. Because the purchasing process has been simplified for those items, the approval steps required are less complex than purchasing order process. Another reason for the simple process is that Supply Store items are recognized as department budget items and are not charged to the requestor's Branch or Unit.

The Supply Store catalog and order form in Excel format are available online on the FTB Intranet. The individual requestor sends an e-mail to the manager who has right to approve the purchase, with order file attached. The manager, after having approved the order, redirects the e-mail to the Supply store. Currently, roughly 90 % of orders to supply store come via e-mail, according to the manager of supply store. The requestor can submit two copies of a completed and approved stub requisition (FTB 6286) to the Service and Supply Office Technician, as another way of requesting item.

The Department of General Services contracted Office Depot for office supplies. FTB has catalogs (not electronic) from Office Depot that contain all the items available under the contract. For items ordered by Supply Store, up to a 75 % discount rate is applied. But, for other items purchased by purchasing agents, the discount rate is at most 45%. In case FTB needs to stock additional items that are not included in the contract, they look for other vendors. Usually they end up purchasing from Office Depot because, as result of the contract, Office Depot provides them with the best prices and availability. A lot of paperwork is also avoided when ordering to Office Depot.

#### 4. Purchasing Process Transformation

##### **Main Issues with The Current Processes:**

- Long cycle times:
  - Too many unnecessary approvals and too many steps in the purchasing processes
  - Processing times for each role (person) to complete their tasks are not tracked and/or audited
  - High percentage of errors in the form (roughly 10%)

- Long error recovery time (handling)
- Long total routing time of the paperwork
- Duplication of activities: re-keying information to Purchasing Management System, filling out duplicated forms, copying etc.
- Low percentage of contract purchase: roughly only 40% of total number of purchases are done through the Supply Store and 38% of purchases through P.O. may have been available through Supply Store.
  - Supply Store doesn't have statistical information on the purchases through P.O.
  - Supply Store doesn't have data mining capabilities to find out which items are not necessary to keep in stock
  - The user decides what purchase type (P.O or Supply Store or Cal-Card) is used, which means that many items that could be ordered through the Supply Store are not
  - Some users find it difficult to browse on-line catalogs

### **Suggestions**

- Create aggregated and user-friendly on-line catalogs:
  - Integrate the Supply Store catalog with the purchasing agents' catalogs
  - Build a user-friendly interface for the aggregated catalog (especially a friendly interface for search function).
- Remove the paperwork and build on-line order form:
  - Redesign the order form so that there is no duplication of information
  - The system automatically fills out some fields with default data
  - Route the data to information systems: Purchasing Management System, Order Information Database etc.
  - Route the approvals through e-mail when necessary (if purchase amount is greater than the pre-determined authorized amount)
- Implement error checking function in the on-line order form:
  - Identify missing fields and incorrect information
  - Store information on generated errors and use it for user training
- Let the system select the purchasing process, provide the user with a unique interface:
  - After receiving order, the system selects which of the three purchasing types is used and routes it accordingly as specified by pre-determined rules.
- Build information system capabilities to collect and report purchases information:

- Collect, report and build statistics on purchases: item, quantity, price, user, order date, delivery date, cycle time etc.
- Build information system capabilities to track and audit work-flow:
  - Report approval lag in a work flow
  - Identify and report critical path and bottle neck in the process
- Automate the approval process for typical and frequent type of purchases

The following table summarizes recommended remedies for various problems:

<b>Suggestions</b>	Aggregated and user-friendly catalogs	Remove paper works and build on-line form	Error checking function in the on-line order form	Pre-determined purchase flow	IS for purchase information	IS for auditing work-flow	Automate approval processes
<b>Problems</b>							
Too many approvals and steps							
Processing time not tracked							
High percentage of errors							
Paper routing time							
Duplicated activities							
Statistics on purchase through P.O.							
Find out unnecessary item in Supply Store							
User decides purchase type							
Difficulty in browsing							

**Table 2: Problem/Suggestion Matrix**

## 5. e-Catalog Based Workflow for the FTB Purchasing Activities

Based on the above analysis, we propose to re-engineer the purchasing process with the assumption of an online e-commerce system. The eCatalog and the related workflow functionality are a key to the transformation. A total solution is dependent on these strategic components, and is justified as follows.

### **Process Transformation Justification**

In looking at re-engineering the procurement at the FTB in light of what we have identified as the main problems and the major goals for the future system, two alternatives emerged. The first one was to pursue a gradual incremental process transformation, without changing the underlying way that the procurement was handled. This would simply be an automation of the current procurement process. The other option was to do a full transformation of the procurement processes, thus suggesting a brand new process and a system that would enable it to be successfully implemented.

The second option was chosen for the following reasons. Perhaps most important was the fact that a simple automation of the current process would simply be an improvement in speed of a bad process. No matter how fast and or efficiently we could get their process running, the underlying model would still be one that had many inherent flaws that would stop the FTB from capitalizing on possible savings and other improvements. If we chose to simply automate the current system, we would be putting ourselves in the situation where the system will eventually have to be re-engineered again in the near future, as the inadequacies of the process became clear and understood under automation.

The implementation of a total re-engineering also allows designing it for reporting and order aggregation functions that would not be available under a simple automation of the current system. This was seen as a very important part of the project as it allowed FTB to monitor what they buy and order optimally for the supply store and in quantity to get the best discounts and prices. To achieve this it was necessary to choose a new process.

A more intangible justification for doing this also comes from the fact that if FTB were to do automation or piece by piece re-engineering then new problems would probably be in the future. As technology is always changing at such a rapid pace, it is conceivable that the piecemeal approach would be creating more of a legacy system that would have to be replaced in the future. On the other hand the scope of a total solution transformation seemed manageable in size and effort despite the significant change management problems. Those problems include radical cultural changes and a fundamental shift to of roles. The internal politics will also make it difficult to get user and middle management approval for the system at first. It is thus very important for the top management to support the re-engineering and the transformation very aggressively.

Even so it may still prove hard to get everyone to accept the new way of doing things even if it is more efficient. We especially expect to see resistance from purchasing agents and the approval staff, of whom there are now a large number, as their jobs are no longer necessary in such large quantities. However we feel that this is an inevitable consequence of bringing the procurement into the Internet age and no matter how we tried to do it we would find resistance and reluctance in some area.

Thus, we reason that it is better to get the maximum benefit and all the employee dissatisfaction over in one single change. If we were to do it part by part we would eventually find the same problems, and possibly more as roles are repeatedly redefined, it would just be over a longer period. Therefore we suggest that the transformation to the proposed architecture is done in one stage with maximum employee and user interaction to explain and justify the change, and minimize their hardship and resistance.

### **Transformation Goals**

With this architecture we are trying to merge the three current purchase processes into one easy to use and more efficient process with fewer errors in a quicker, easier process. We try to do this with as much automation as possible by using an electronic workflow to remove the use of paper.

A major concern is to reduce the use of non-value added time such as the duplication of activities, be it the copying of orders, re-keying information, manual approving and auditing as

seen in the current process. Another goal is to reduce the time it takes to fill out an order and get the goods back. We try to accelerate the order processing cycle time. There is also the possibility with the suggested architecture to have an automatic aggregation of orders, depending on required arrival time and urgency, to get the best prices.

We also try to reduce the number of non-contract purchases by making it easy to order through the system and impossible to order around the contracts through the system. If there is a better price away from the contract then the system will order this way anyway and as such the user always uses the system. The overall philosophy is to empower the end-users with the use of friendly aggregated catalogs in an easily accessible location on the desktop. This way the user simply orders from the desktop and the system takes care of the rest of the process. The user no longer has to decide how to order or where to order from to get the best price.

### **Suggested Process**

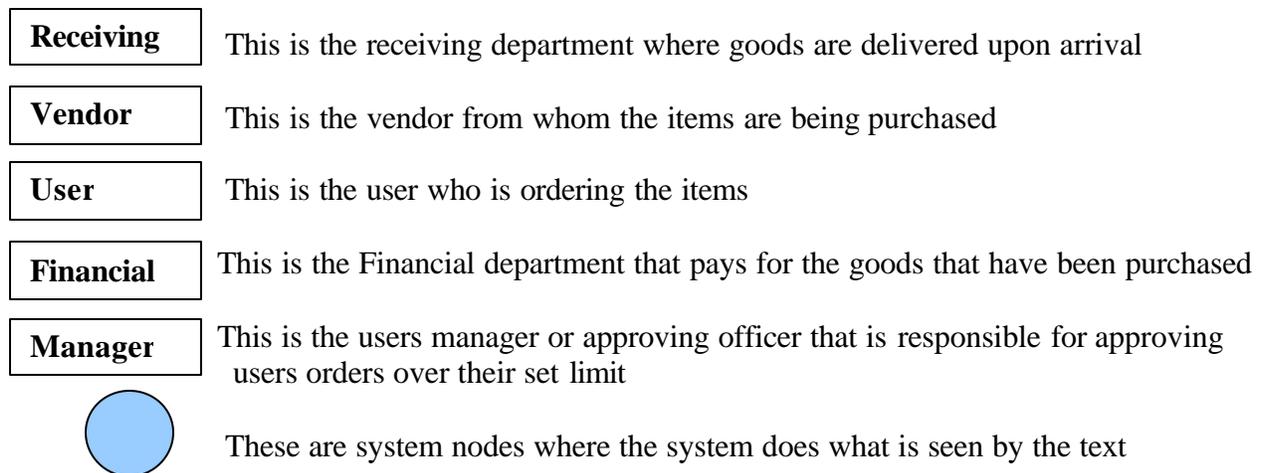
- Users browse the aggregated catalog on the desktop
- Users fill in 1 type of PO electronically
- Only sent if correct, system checks PO, and sends back to the user with mistakes highlighted
- Automatic approval below specified level, if above specified level routed to approving officer to approve
- Systems checks if items are in supply store and if so orders them from there if not orders from the outside vendor
- For small quantity items collect and aggregate and order in bigger quantity
- Vendor sends acceptance and receipt to user
- System checks receipt and PO match and sends to user, if not sends error message to user and vendor.
- Copy of receipt and due date goes to receiving
- PO and receipt routed to Financial Dept. (approving office)
- Receiving scan goods in at delivery
- Delivery notice sent to user and financial
- Finance knows to pay now, or that they have so many days to pay from delivery. They can get system to pay automatically at last minute to get highest value from time value of money
- System can generate reports on orders, usage, aggregation and data for data mining any strategic analysis

The purchase order the user completes also contains required due dates so that urgent orders can be routed ahead of others in the system with high priority for approval and ordering. If an item is not in the catalog the user can contact the purchasing agents, who are responsible now for producing the aggregated catalog, and request the item. The purchasing agent will then try to locate the item or suggest an alternative item from the catalog.

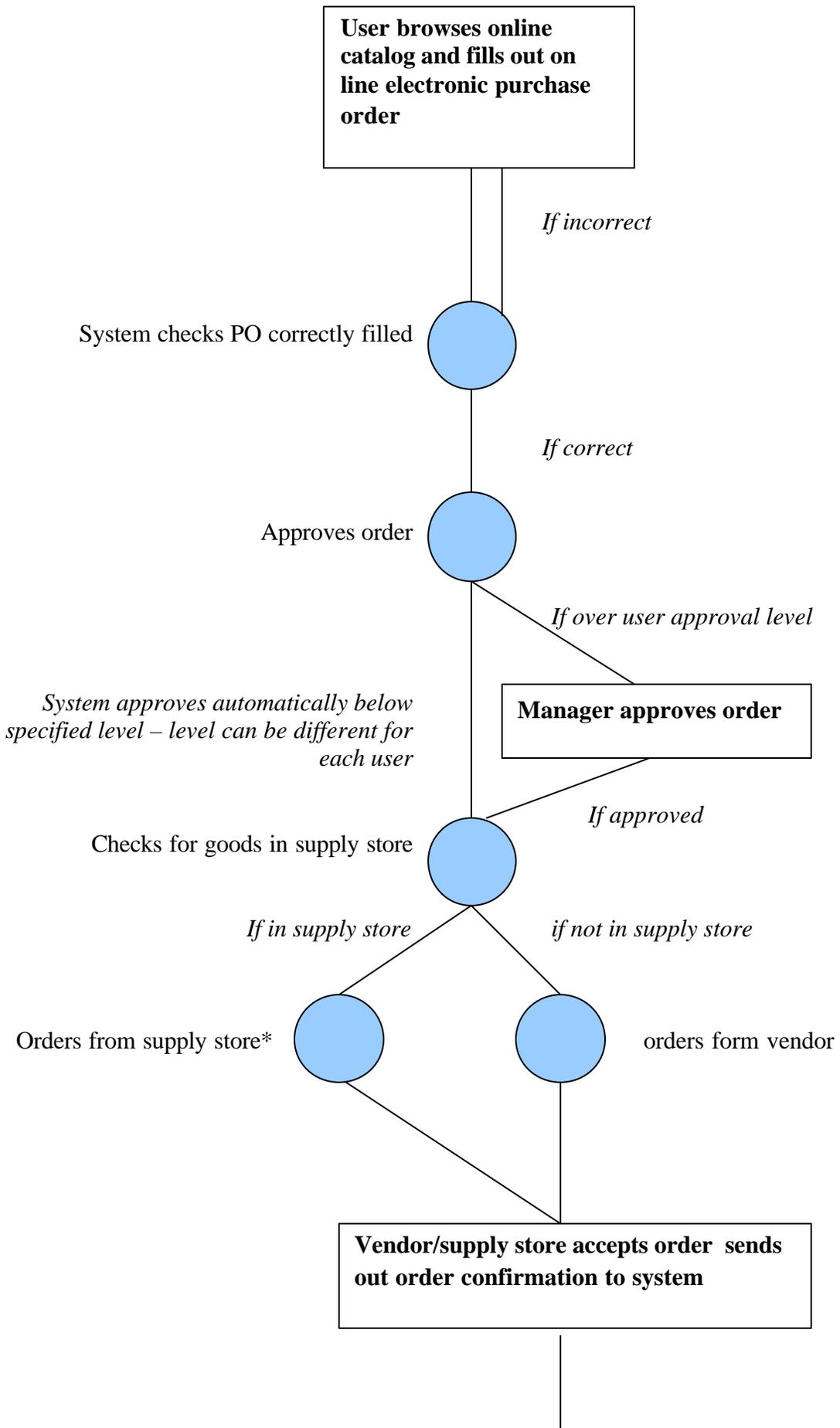
Alternatively it is possible to outsource the production of these catalogs. However, as the FTB is a governmental agency with all the rules and regulations that come along with it, we see it more in line with their ethics to have the purchasing agents produce the aggregated catalog. This catalog will include both the Supply Store and all the outside vendors. This will also minimize the need to reposition so many people. If this system is adopted throughout the California government organizations, it would be sensible for DGS to produce the catalogs in conjunction with the other agencies to get the best deals and a wider range of items.

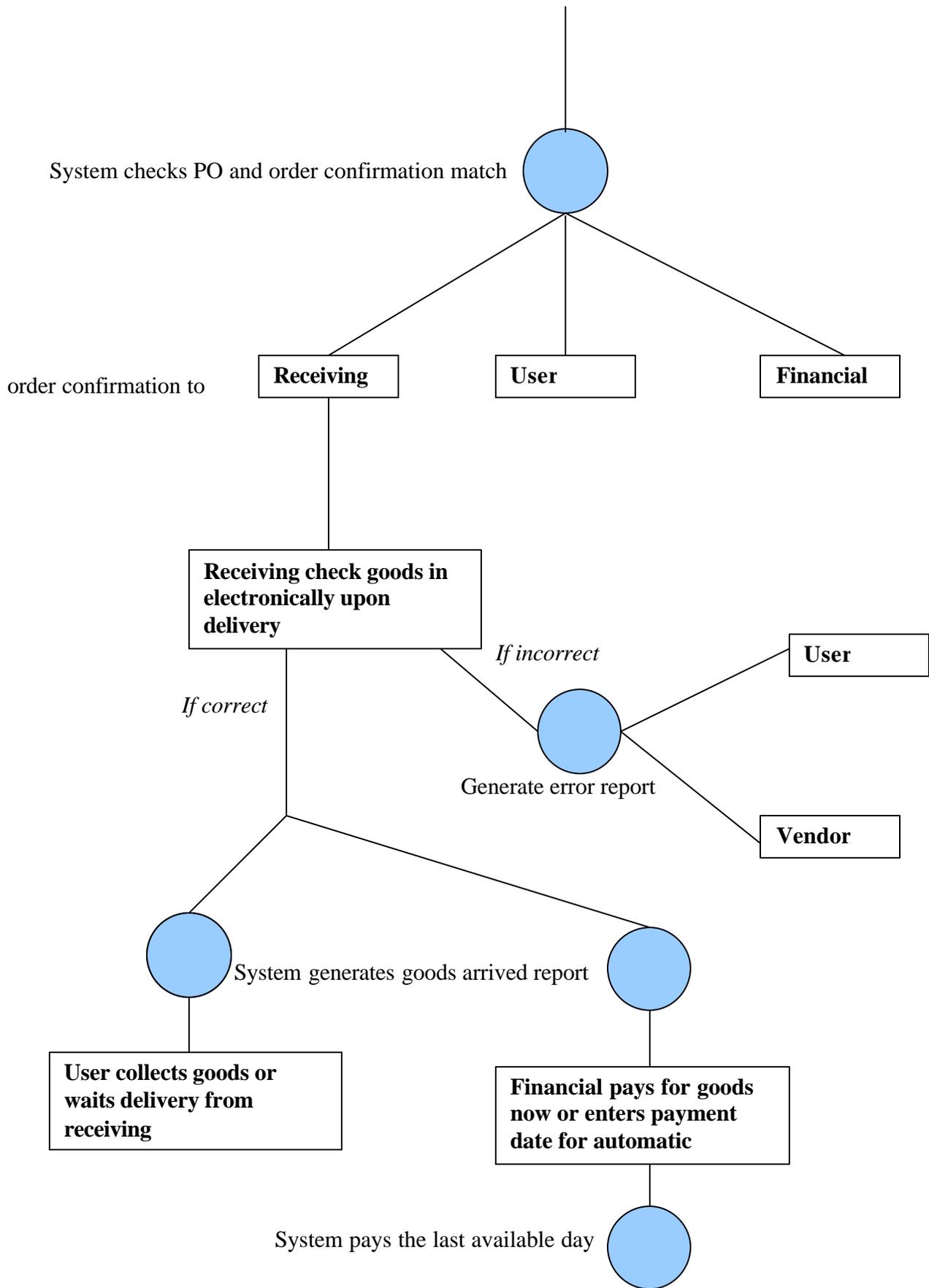
### **Workflow Architecture Diagram**

The suggested workflow architecture can be best seen in Figure 4 below. In this process flow the rectangles represent interaction with the different people in the system, when just the name is cited there is no need for the person involved to do anything, it is mere reporting the order status to them.



*Italicized writing denote* conditions that determine which path the order follows in the process





**Figure 4: Transformed Process Diagram**

We assume that the system collects and collates all of the information that flows through it and can generate reports on the orders. This is fairly reasonable assumption as it is the case in almost all of today's automated order technology.

The system is then able to generate reports on what has been ordered by item, quantity, price, user, order date, delivery date, and cycle time, for example.

These can be used for monitoring and data mining. It will allow the FTB to negotiate better contracts, determine that other goods need to be kept in the supply store, or eliminate some of the current supply store goods that are taking up space and inventory cost unnecessarily.

When goods are ordered from the supply store, although the process follows the same route as previously, it is a little simplified in that receiving is not involved and the user can simply collect the goods themselves. A goods delivery report is still filled out, sent to the user and the other parties involved in the transaction. The approval process for goods from the supply store will also be slightly simplified as they do not need to get a high level approval: the orders from the supply store come out of the departmental budget, whereas vendor's orders come from the branch or unit budget. Thus in the approval steps the branch manager may still be involved depending on where the goods are ordered from.

### **Vendor Incentives**

There are many incentives for vendors to want to become involved in this project, even if there is a cost associated with it. By using this system the vendor is opening itself to a huge potential of Governmental agencies. If as supposed this is a pilot system for the whole California governmental procurement, then successful vendors will reach a vast number of buyers with zero marginal cost as they will already be on the system.

The potential could be much bigger as states other than California witness the success and have successfully changed their procurement to an Internet based. If the vendors are already in the system then it is likely that they will be taken by the other states agencies as well when they adopt the system.

Another incentive for the vendors is linked to the first mover advantage. If they get on the system early in this pseudo-pilot then when it moves up in scale there will be a good argument for these

vendors to be kept on the system as they will have already proved that they work well under it. They will thus have an edge over other vendors, a very desirable situation for any particular vendor.

### The Buyer's and their related parties perspective

	<b>Internal</b>	<b>Suppliers</b>	<b>Intermediaries</b>
<b>Opportunities</b>	<ul style="list-style-type: none"> <li>▪ Reduce errors</li> <li>▪ Reduce # of processes</li> <li>▪ Decrease cycle time</li> <li>▪ Cost savings</li> </ul>	<ul style="list-style-type: none"> <li>▪ Obtain contract purchasing</li> <li>▪ Reduce Cycle time</li> </ul>	<ul style="list-style-type: none"> <li>▪ Cycle time of state approvals</li> </ul>
<b>Mechanisms</b>	<ul style="list-style-type: none"> <li>▪ Intranet</li> <li>▪ Workflow</li> </ul>	<ul style="list-style-type: none"> <li>▪ B2B connectivity</li> <li>▪ Office Depot system/supplier's system</li> </ul>	<ul style="list-style-type: none"> <li>▪ DGS catalogs</li> </ul>
<b>Major Challenges</b>	<ul style="list-style-type: none"> <li>▪ Culture change</li> <li>▪ Organizational restructuring</li> </ul>	<ul style="list-style-type: none"> <li>▪ Keep B2B</li> <li>▪ Manage suppliers</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compatibility with DGS</li> </ul>
<b>Major Strategic Issues</b>	<ul style="list-style-type: none"> <li>▪ Technology investment</li> <li>▪ Adoption</li> </ul>	<ul style="list-style-type: none"> <li>▪ What to do with suppliers not on catalogs</li> </ul>	<ul style="list-style-type: none"> <li>▪ Be a leader among state agencies and run risk of non compatibility?</li> </ul>

## 6. Evaluation of the eProcurement Initiative

The current process of email and excel file, which is demonstrated by Figures 5 and 6, is considered adequate by the personnel at FTB. While providing “local” convenience, this process as still slow, but more importantly, it does not provide adequate infrastructure for obtaining the more significant benefits e-commerce. Based on our analysis, the biggest potential seems to come from aggregation on the product pricing side, and from flexible workflow on the process side. An example of this is the big discounts offered by Office Depot. However, an important related aspect of aggregation is contract management. By contract management, FTB not only can take advantage of short term gains, but also longer term gains by using the best contract and being able to devise better contracts in the future.

However, overall government rules and practices play an important role. This project examined the local situation of FTB in the context of a semi-autonomous environment. As it turned out there were other initiatives occurring as the same time in other parts of the state government that

were not successful and had adverse effect on the FTB project (this is an assessment of the author does not necessarily reflect the opinion of others). Figure 7 illustrate this scenario.

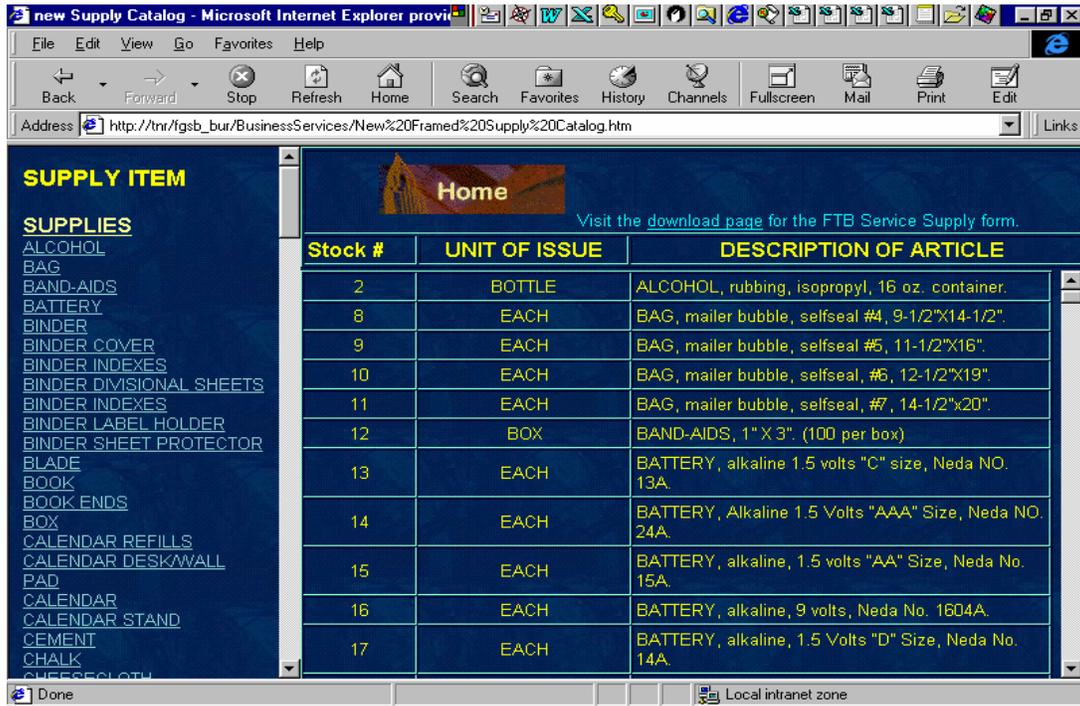


Figure 5: Supply Store Catalog

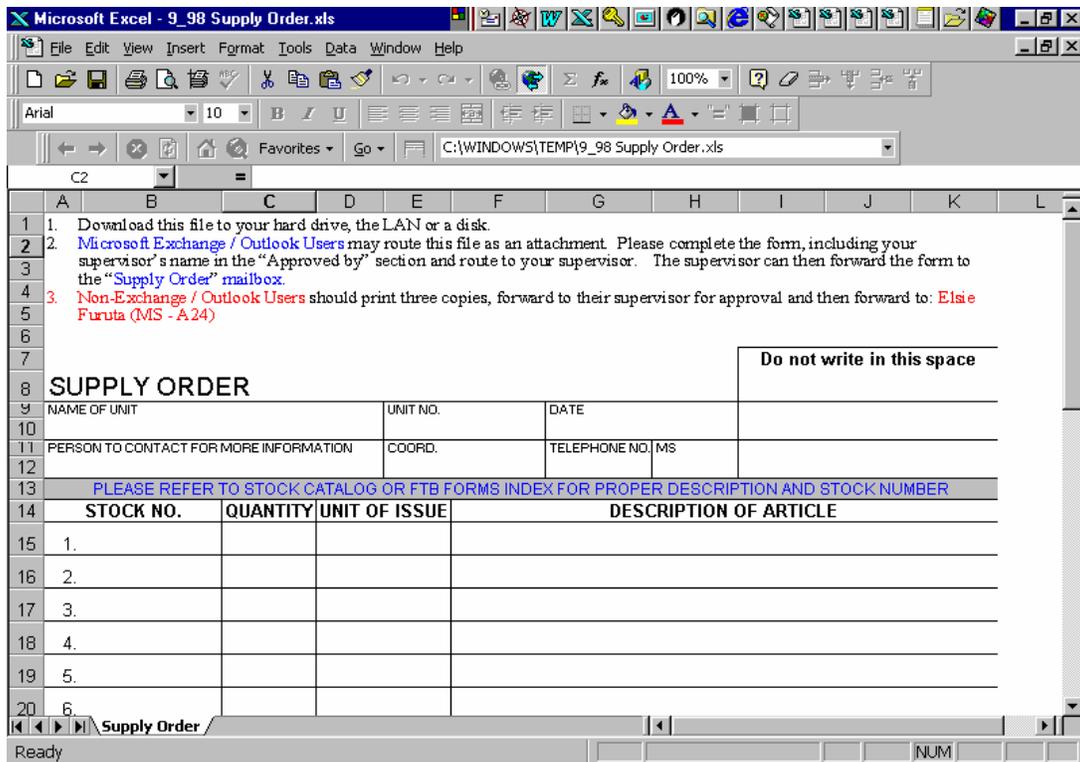
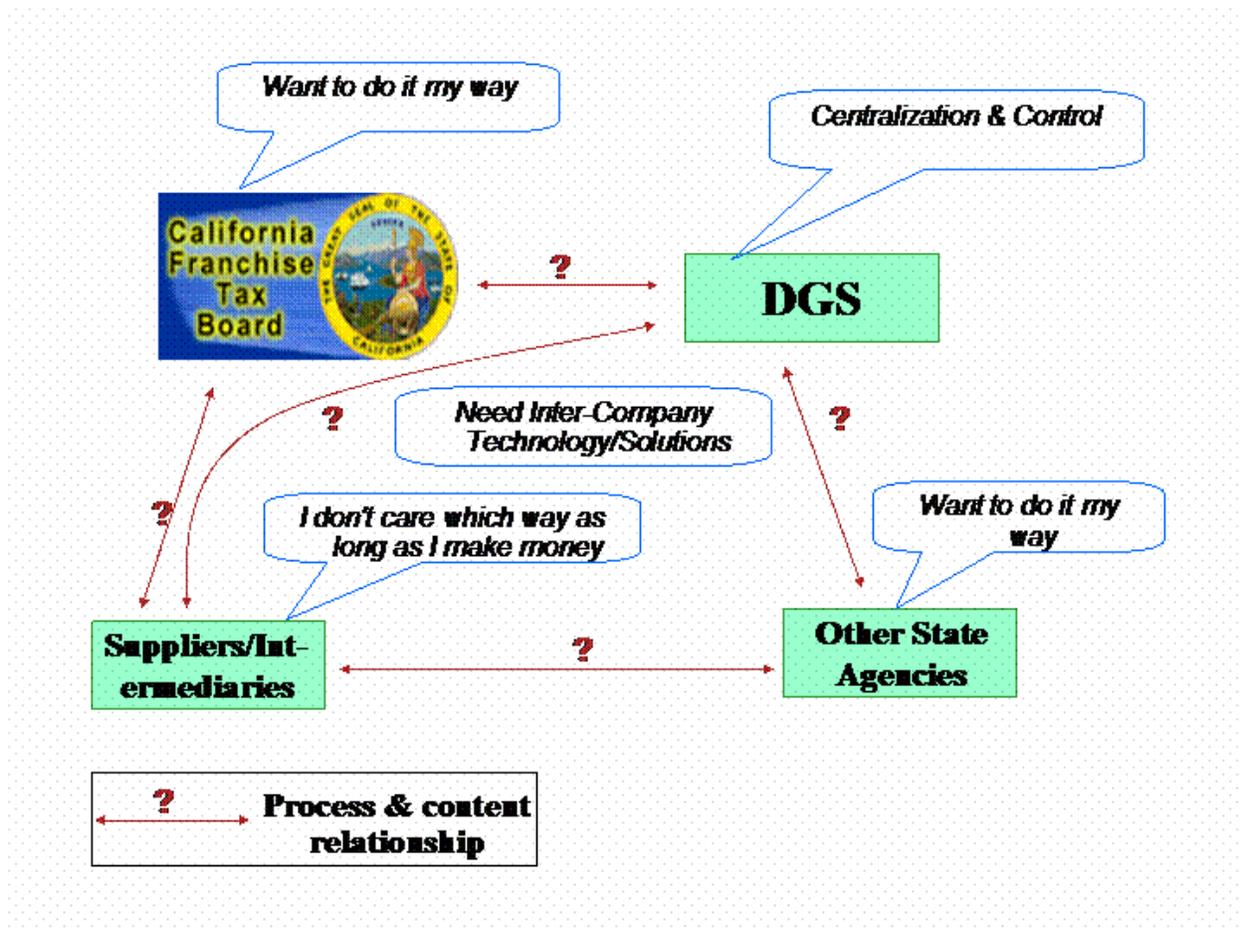


Figure 6: Excel format order form

As the figure shows, a decentralized environment such as large companies and state and federal agencies present significant tensions in conflicting objectives and optimization approaches. The reality in virtual all cases is that either extreme centralization or extreme decentralization does not work. Unfortunately, too many projects have implicit or explicit assumptions that it can work. In this particular case the department of General Services (DGS) represents a central entity that establishes most of the policies and rules, as well as negotiating the schedules (product pricing) with the vendors. In a pre—automation or light-automation situation certain procurement processes can be approved and executed at the local agency level, while others require DGS approval. At the same time of this project assessment, DGS was pursuing a high-profile eProcurement transformation project involving a Desktop Procurement System (DPS) vendor and a large consulting company. The approach was to centralize the process and use a hosted application model for the local agencies.



**Figure 7: Impact of Process and Content Architecture**

From the above discussion it is clear that the centralized project was bound to fail for two main reasons:

1. Process: There was no way to implement the local processes on the centralized system due to a particular business model embedded in it; that meant that a radical process change will have to take place in all state agencies using that system..
2. e-Catalogs. While it looks reasonable to centralize the product catalog given the fact that DGS controls the products and negotiates the prices, there is one major problem: it still needed to be integrated with the local processes and data of the agencies using it. This is one of the biggest reasons for eProcurement implementations in the private sector – an underestimate of the difficulty of managing the e-catalog content and integrating it with other legacy applications. In this particular case even a modern e-commerce system was not open enough to enable that integration.