

# After School Sports Connection

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## **1.0 Executive Summary**

The After School Sports Connection (ASSC) is a non-profit organization providing recreational sport activities for students at five Los Angeles elementary schools. The program is directed by Kristin Jastrzembki, who is assisted by a workstudy student. Kristin's main responsibilities include scheduling the sports sections for each term, recruiting and assigning an instructor for each section, and supplying adequate sports equipment, depending on the type of sport and number of students involved. In addition, she is looking to include fundraising activities into her role as Director. Currently, the program receives all funding from a single source. Kristin would like to secure additional funds from other sources to expand the program and to end dependence on her single source of funding.

In the past, Kristin has kept all equipment ordering and payment records by hand. She would file copies of faxes and receipts during the term, and then calculate the total cost at the end. This information was only used to match the total expenses to total income from the donor.

The new system now allows all this information to be kept in a database, and all the data input can be done by the student assistant. The system generates reports regarding the cost per student, cost per sport, and cost per school, so that Kristin can evaluate where the funds are going (i.e. if one school is receiving more funds than the others or if a particular sport is too expensive) and decide where to assign future funds. In addition, since the system will contain the equipment pricing data, she will be able to decide on the best deal from among several different vendors (currently, she has one main vendor only).

The final benefits of instituting this system are time savings for Kristin, a change in her job from heavy clerical work to more managerial decision-making utilizing information that is currently available. The system translates this data into reports that are meaningful and can be used to explain and justify costs.

## **2.0 Scope and Purpose of IS**

The process we have reengineered is how resources are allocated to the five schools. The system will show how much money is spent on sports equipment and instructors and the schools and sports to which they are assigned. The reports created by the system will be used to make budgetary and programming decisions, as well as providing information to be used in marketing to potential financial supporters.

Our metrics for timeliness were: 11/23 first complete prototype; 11/30 Memo regarding installation, acceptance testing, training, job and process changes; 12/1 training document complete; 12/2 installation and implementation; 12/7 class presentation; 12/13 final project complete. Our planned time budget for the project was seven hours per week group work and one and a half hours per week in-person client interaction. User

acceptance is dependent on getting the following information from the system: cost per student, cost per school, and cost per sport. Therefore, one success metric was that the reports provide that information about sports, equipment, and students that Kristin will need to make budgetary decisions. An extension of this metric is the use of this information to reallocate funds according to the school that needs it most, the schools with the most participants, etc., and also to cut any sports program which may be too expensive (in comparison to others). A secondary extension of this function will be Kristin's ability to package the information provided to secure funding from potential donors. A metric of success for this function is if Kristin can increase funds raised by 10% for the year after the system has been implemented. Another success metric was that the ASSC total financial balance figures are consistent with the actual accounting figures. Our final success metric was Kristin being able to use the system, and its outputs, by herself in order to make informed decisions. If deemed necessary, we planned to resume training until this metric was met.

Kristin Jastrzembski, the director of the ASSC, will be the main user of the system. Her skills include Office Suite 97 and she is ready for a system that allows her to process and use the information that she needs to make strategic decisions. Her motivations to use the system are strong – she is the one who requested the system, she stands to benefit from the system (in terms of time and quality of information), and it will change the nature of her job from being administratively-intensive to more strategic decision-making oriented.

### **3.0 Challenges and Risks**

Our group identified 5 major risks and challenges:

1. Kristin's lack of experience with Microsoft Access.
  - This is Kristin's first year as Director of the ASSC. At the beginning of the project, she had limited Access experience. There was a previous system installed by the last class that she still hadn't used yet. This challenge was overcome by Kristin's support of the project. She had a firm belief that project would provide tangible benefit and wholeheartedly supported it. She showed enthusiasm and a willingness to learn. Additionally, the group spent several hours working with Kristin to facilitate her learning process. The group provided a training document as additional support.
2. The system dependence on Kristin as the only user.
  - Since Kristin is the primary user at this point in time, the system risked being dependent on Kristin alone. This risk was overcome by a two-prong strategy. The group trained Kristin on the system, providing her with the tools to train others. Additionally, as mentioned before, the group provided a training manual for the system that can be used by anyone.
3. The system was loaded on only one computer.

- The system was to be loaded on only one computer, thus there was a risk of the system being lost if the computer failed. We overcame this risk through aggressive advice regarding implementing a back-up policy.
4. The transformation of the database from the Chinese version of Access 97 to the English version.
    - We initially began the development of the system on Peiling's Chinese Access 97. We found that we could not open this database in the English version. In order to rectify this situation we imported all tables, queries, forms, and reports from Chinese Access 97 to a new database in the English Access 97. We recreated the relationships among tables. The new English Access 97 database could be opened and edited by either Chinese Version Access 97 or English Version Access97
  5. Our inexperience with Access 97
    - Since we were relative novices to Access 97, we encountered a variety of bugs as we developed the system. These bugs delayed the development of our prototype, and thus also delayed testing and training. In future projects, we now know to allocate more time in our plan for debugging.

## **4.0 Methodology**

We used Contextual Inquiry and Participative Design methods, utilizing Kristin's input to develop the new system. Due to the time of year, Kristin was not performing the functions upon which we were modeling the system. Since we could not directly observe her work experiences, she carefully explained what the process entailed. Additionally, we had several discussions about the program and some of the issues Kristin had regarding the growth and support of the growth of the program. We then discussed how our system could enable Kristin to reach her goals. First, we looked at the existing enrollment process; through Kristin's explanations and role-playing of hypothetical situations, we obtained a better understanding of the current system. Then, we gave Kristin our first prototype to decide which of the functions she liked and what still needed to be added. According to her feedback and responses, we modified and changed the system to satisfy her requests. We then installed the system on her computer and began the testing, training, and implementation phases of our plan.

From 9/17 to 12/14, we spent over 25 hours meeting with our client. From 11/18 to 12/10, we spent well over 100 hours programming and debugging the database.

## **5.0 Brief Overview of As-is Process**

In the past, Kristin decided on the sports programming based on student response (i.e. if soccer was popular, she would institute more soccer programs), and allocated sports equipment according to which sport was at each school, and her estimate of how many new items were needed.

At the beginning of the term, Kristin or a workstudy would go to each school and count the number of equipment items in the locked bin. After comparing this number with her estimated required number of each item for that school, Kristin would fax a list of needed items to BASSCO, her primary vendor. BASSCO would then fax back a price list, and she would fax a purchase order for the items. When the items arrived, she would distribute them to the schools' equipment bins. She would keep a copy of the faxes, and the receipt, in a file.

This process relied heavily on Kristin's estimates of needed equipment, and taking into account budget constraints. Her "paper trail" of faxes and receipts was burdensome and did not facilitate use of the information for managerial decision-making – she would total the receipts for each term by hand and then store them.

## **6.0 To-be Process and Organization Models**

The To-be Process Model (see Appendix B) shows the new functions and events that will occur. There is now a report generation and review aspect of the process, which will enhance decision-making.

The To-be Organization Model (see Appendix A) remained the same as the As-is, but, as mentioned above, there will be new functions to be performed and new skills will be needed.

Director of ASSC

- \* Use MS Access
- \* Use of system-generated reports
- \* Nature of job changes, from administratively intensive to strategic decision-making and managerial focused

Workstudy (student assistant)

- \* Use of MS Access
- \* Data input

## **7.0 Changes Needed to As-is and Why**

- *Data Input:* In the As-is, all information was handled and tracked via pen and paper alone. With the new system, data input is required to enable the database functions. For example, the cost calculation functions are based on employees' salary information and purchase order payments. This information has to be entered into the system for this function to work.
- *Calculation:* The new system provides automatic calculations of items including total balance and various cost calculations, such as cost per school or cost per sport. In the previous system different costs were rarely calculated, and on the occasions when they were, they were done by hand. This old process was time-consuming, tedious and prone to errors. The new system provides the client with quick, accurate calculations of important figures and avoids rework caused by manual calculation errors.
- *Report:* In the AS-is, the client had no formal reports to present information in an organized fashion. The new system creates a series of reports that are presented in a organized fashion. Based on different queries, the system creates exact reports that the client requires and specifically requested.
- *Decision-making:* In the As-is, the Kristin has no formalized process that aids her in crucial decision-making activities. The new system integrates and provides analysis for several types of data, which then is incorporated into meaningful reports. This system provides Kristin with quantitative information, allowing greater time to spend making more inform, relevant decisions regarding the program.
- *Smart shopper:* The new system stores different price information of different vendors. This information combined with the cost requirements of the program, can be compared and analyzed to help Kristin to find a optimal deal.

## **8.0 Specs for To-be IS**

- Built-in drop-down menus for Kristin view all schools and sport programs list and this design will reduce users' data input errors and save 50% data input time.
- Output (report and form) will provide the only information deemed necessary by Kristin for that particular event
- Track available balance in ASSC account with user inputting cash flows in and out of system. The available balance will be displayed. In the short term, Kristin will be able to accurately assess what resources are available and in the long-term she will be able to assess how the current funding meets the requirements of the ASSC.
- Generate costs per school (total cost, equipment cost, instructor cost) with users inputting data on payments for purchasing equipment and paying employees. The system will track what the outflow of cash on school by school basis. This will allow

Kristin to understand how resources are being allocated to each of the individual schools and if there are any anomalies.

- Generate costs per sport (total cost, equipment cost, instructor cost) with users inputting data on payments for purchasing equipment and paying employees. The system will calculate what financial resources are being captured by the various sports. Kristin can use this data understand what the requirements of each sport are and forecast future expenditures.
- Generate costs per students with users inputting data on payments for purchasing equipment and paying employees. The system will calculate what the average cost per student in the program is. This will allow Kristin to assess the fiscal needs per single student and project financial requirements for expansion of the program.

## **9.0 Testing Plan; Results of Testing**

There are two levels of testing that were conducted to ensure that the installation and implementation of new system was correct: unit and acceptance testing. The unit test ensures that individual query, form, or report operates according to specification and design. Unit test is also applied to certain functions based on multiple tables, such as ordering equipment, to ensure they work adequately. Acceptance testing involves comprehensive testing of the business functions, such as tracking the cash flow, performed by the users and is the final testing scenario for user sign-off. The objective of acceptance testing is to validate that all systems requirements and functionality have been delivered according to expectations, and to verify that the system is usable in client's business environment.

During the walkthrough testing, when errors or suspected defects are to be discovered, the team recorded the actions and response of the client made taken during the testing. The team tried to fix the errors and schedule further follow-ups with clients.

## **10.0 Training Plan; User's Guide; Results of Training**

The group has provided training on the system and on Access as the project progressed. As far as formal training, the training manual was given to Kristin when the system was installed. She walked-through the guide and system at her leisure; we provided more support as needed. Later assistance will be scheduled upon Kristin's requests. Most likely, self-training, with the aid of the training guide, will be expected for future users of the system.

*Content of training:*

1. Demo systems' environment and functions provided
2. Walk through tutorial

3. Provide user manual guide.
4. Self-test, record the mistakes and inconveniences, and provide on-site support.

## 11.0 How ERD and UI Screens Facilitate To-be Process

In the original ERD, the *Employee* table had three subclasses: *Workstudy*, *Coordinator*, and *Instructor*. To add one new employee, we created an employee form for data input based on 4 tables, *Employee*, *Instructor*, *Workstudy*, and *Coordinator*. The client had input the data in according to the appropriate sequence based on the referential constraint of the system. In revised ERD, instead of three subclasses, the *Employee* table now includes the "type" attribute to indicate the type of employee (i.e.instructor, workstudy, or coordinator). The Employee form is based on a single table. If Kristin wants to modify employee's information, she opens the employee form and changes certain field's data directly without violating any constraint. The integration of the ERD and UI screen (Employee form) allows the system to trace the employee's payment accurately by relating employee salary information directly to *Outpayment* table.

In the ERD we distribute ordered equipment to sports. This provides Kristin with information regarding the equipment requirements associated with certain sports (i.e. martial arts) and total and equipment costs for these sports. This data is entered using the Purchase Order form. Once the 'pay' button on the *Purchase Order* form is hit, the system automatically allocates costs based on the price information provided in the *Equipment* table. This equipment information can be edited by using the Equipment form. Once all the required information is entered, Kristin can view the corresponding cost data by school based on the relationship between *Sport-Scheduled Sport-School*. The scheduled sports information (and the corresponding schools these sports are attached to) can be updated using the Scheduled Sport form.

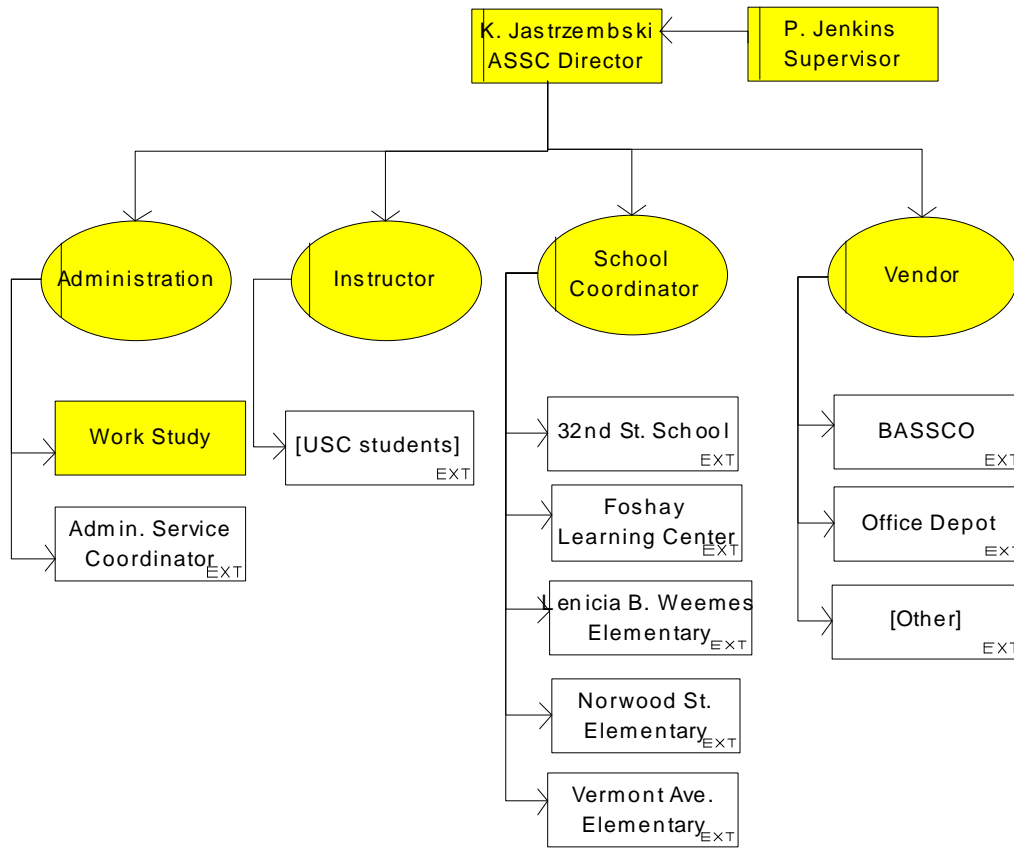
The Infund form allows the client the opportunity to enter data regarding money entering the data, an essential component required to track the balance.

## 12.0 Lessons Learned

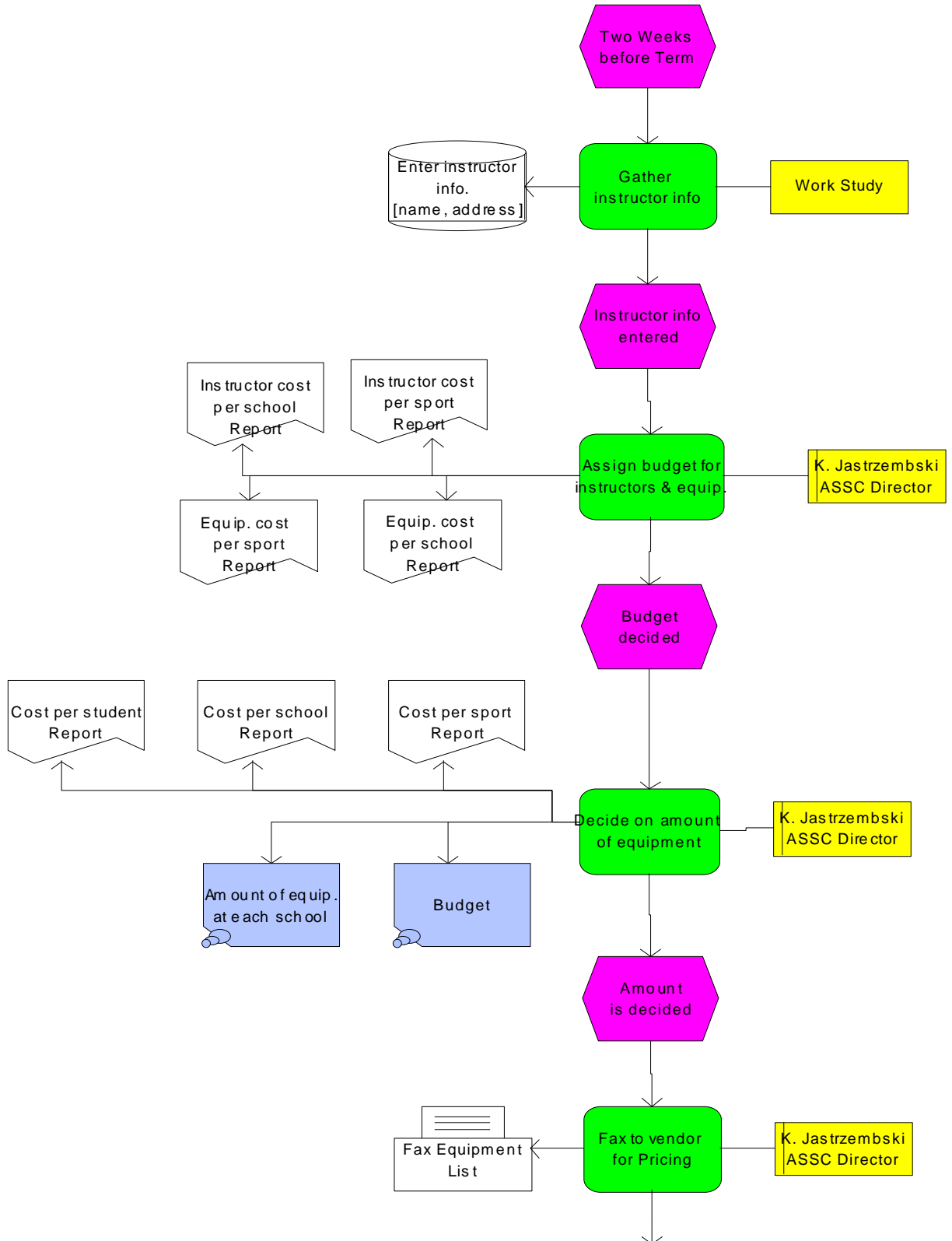
- Flexibility is required in developing schedules and timing plans
- The need to identify the process before attempting to scope it
- Put limits on the scope of the project, both on the client and group side
- More time and specificity in the modeling stage make building the system easier
- The modeling helped us understand the system specs needed and what we could provide
- The benefits of Participative Design
  - Giving the client a sense of ownership

- Continual checkpoints, consisting of client approval
- Getting an accurate feel for the user's needs and expectations
- Allowing more time for programming and debugging the system

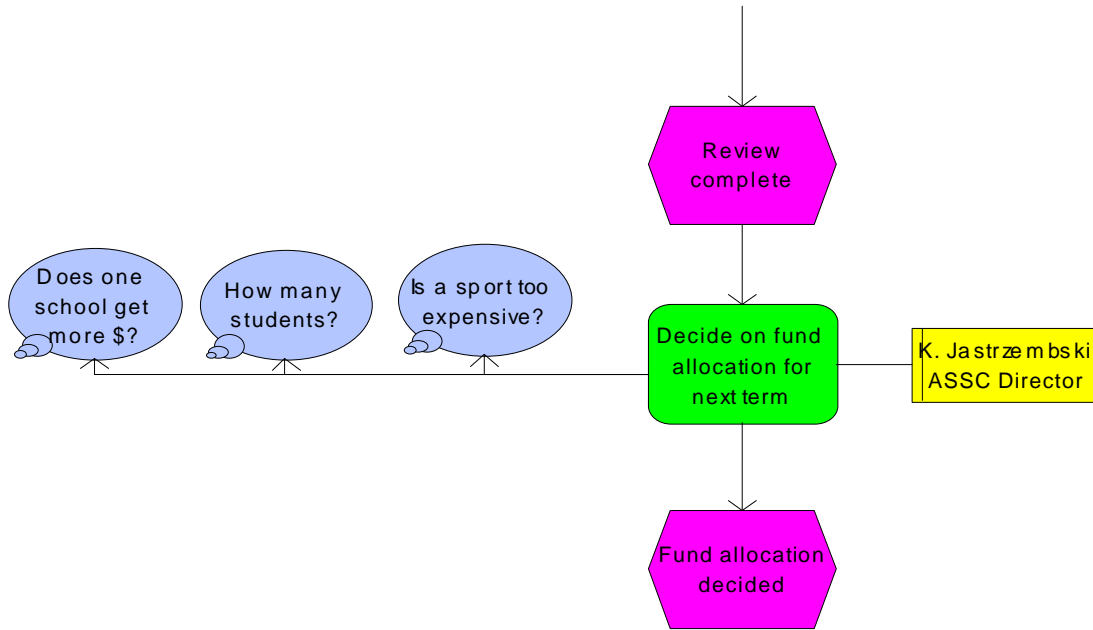
## Appendix A Organization Chart



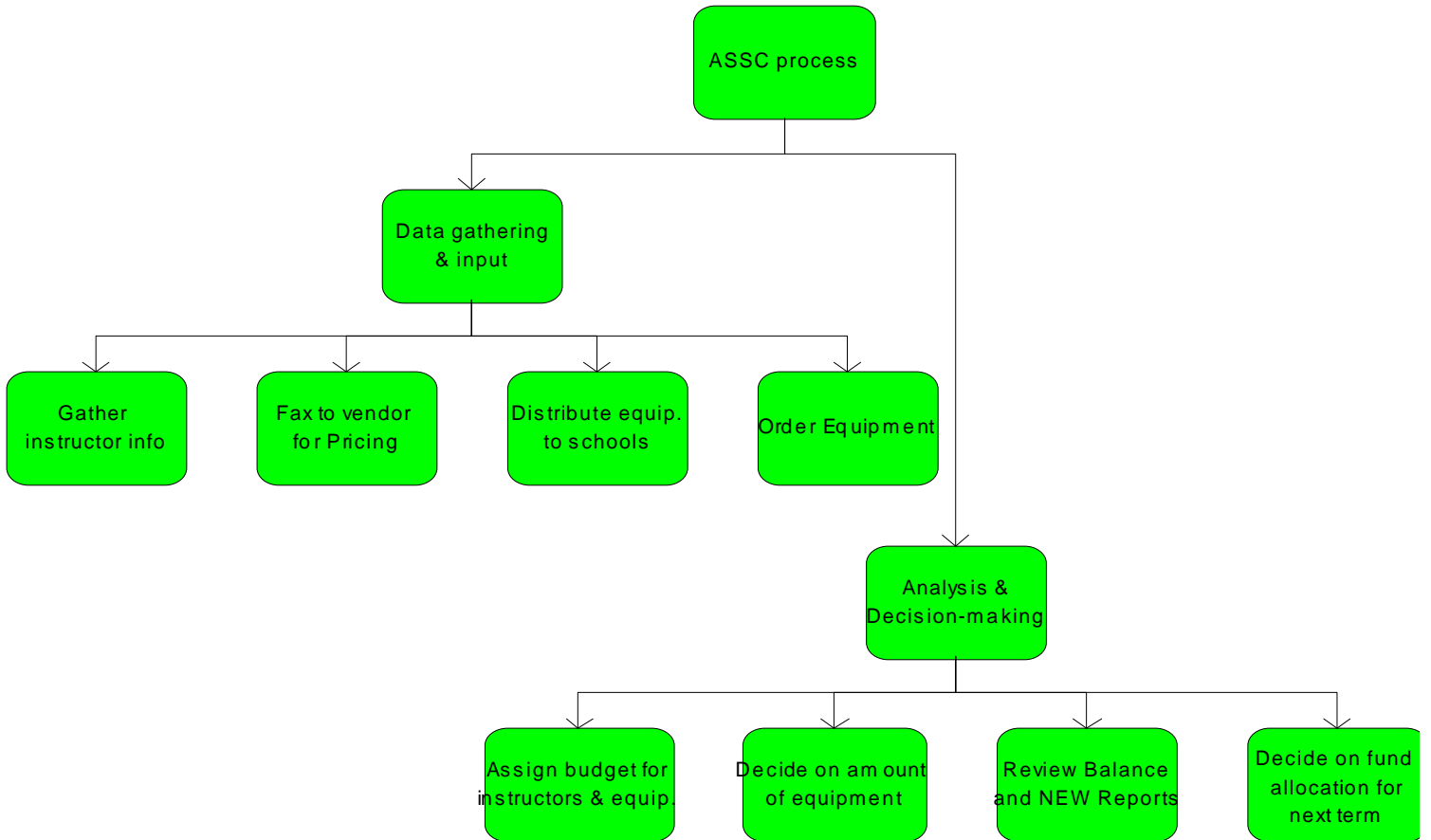
## Appendix B Process Model



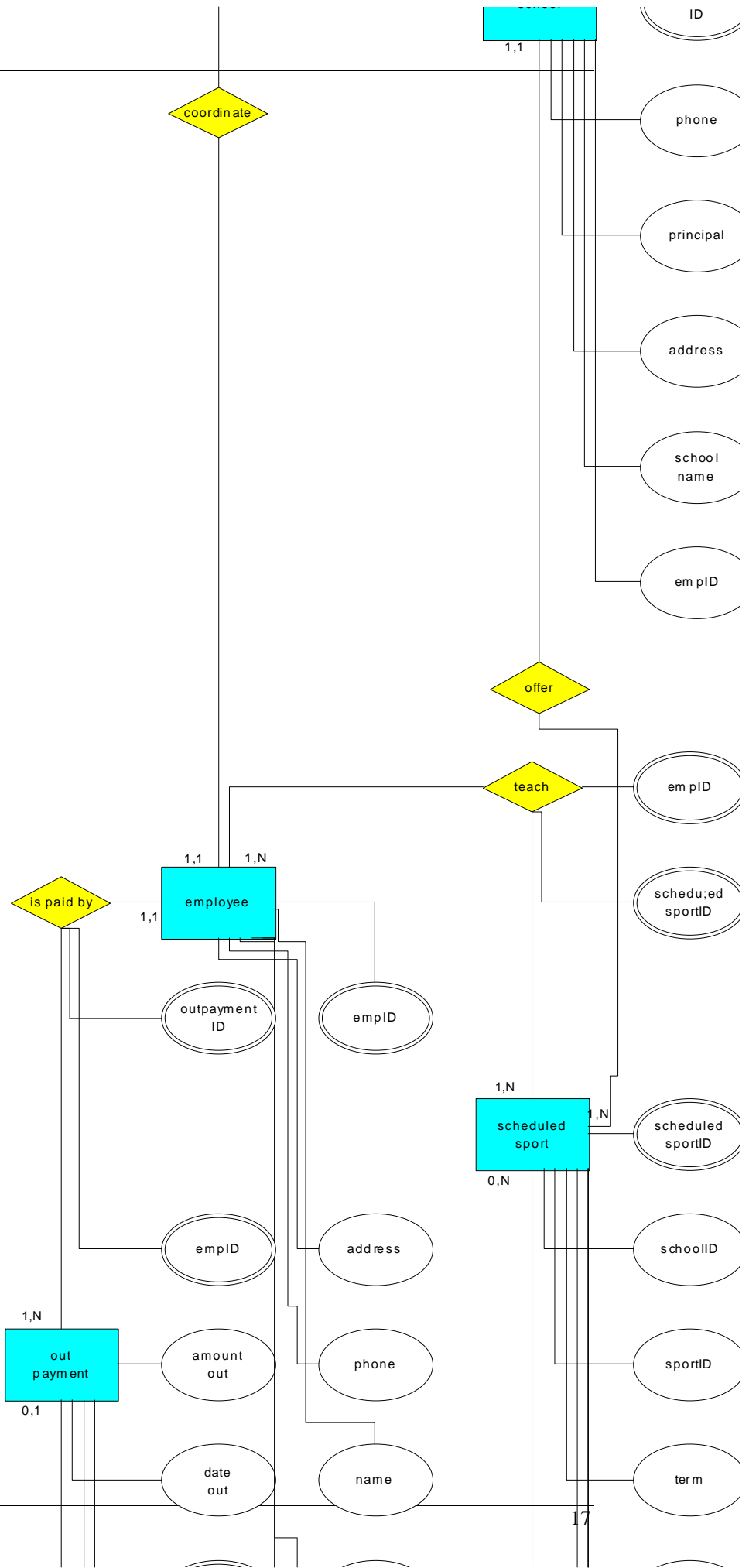




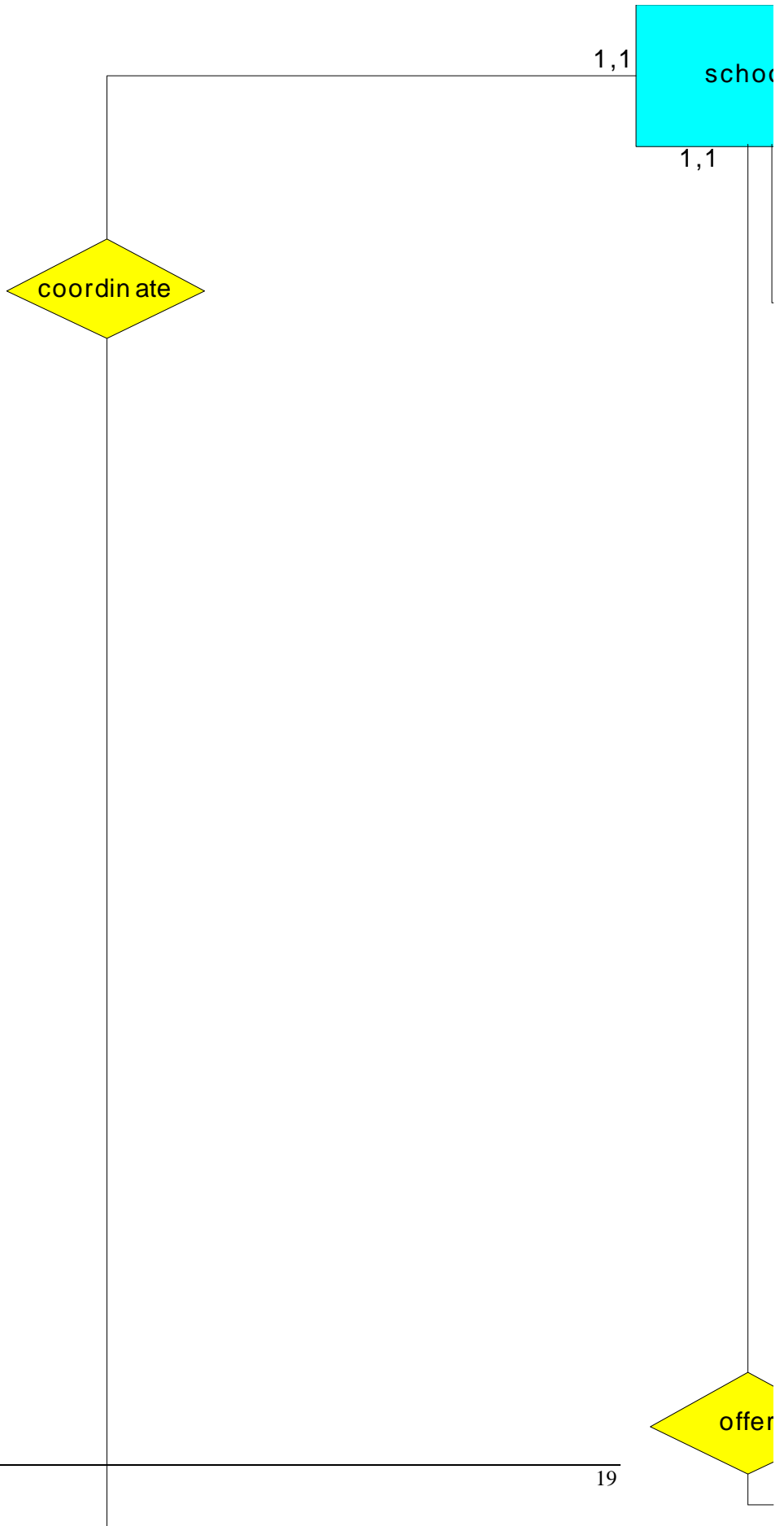
## **Appendix C** **Function Tree**



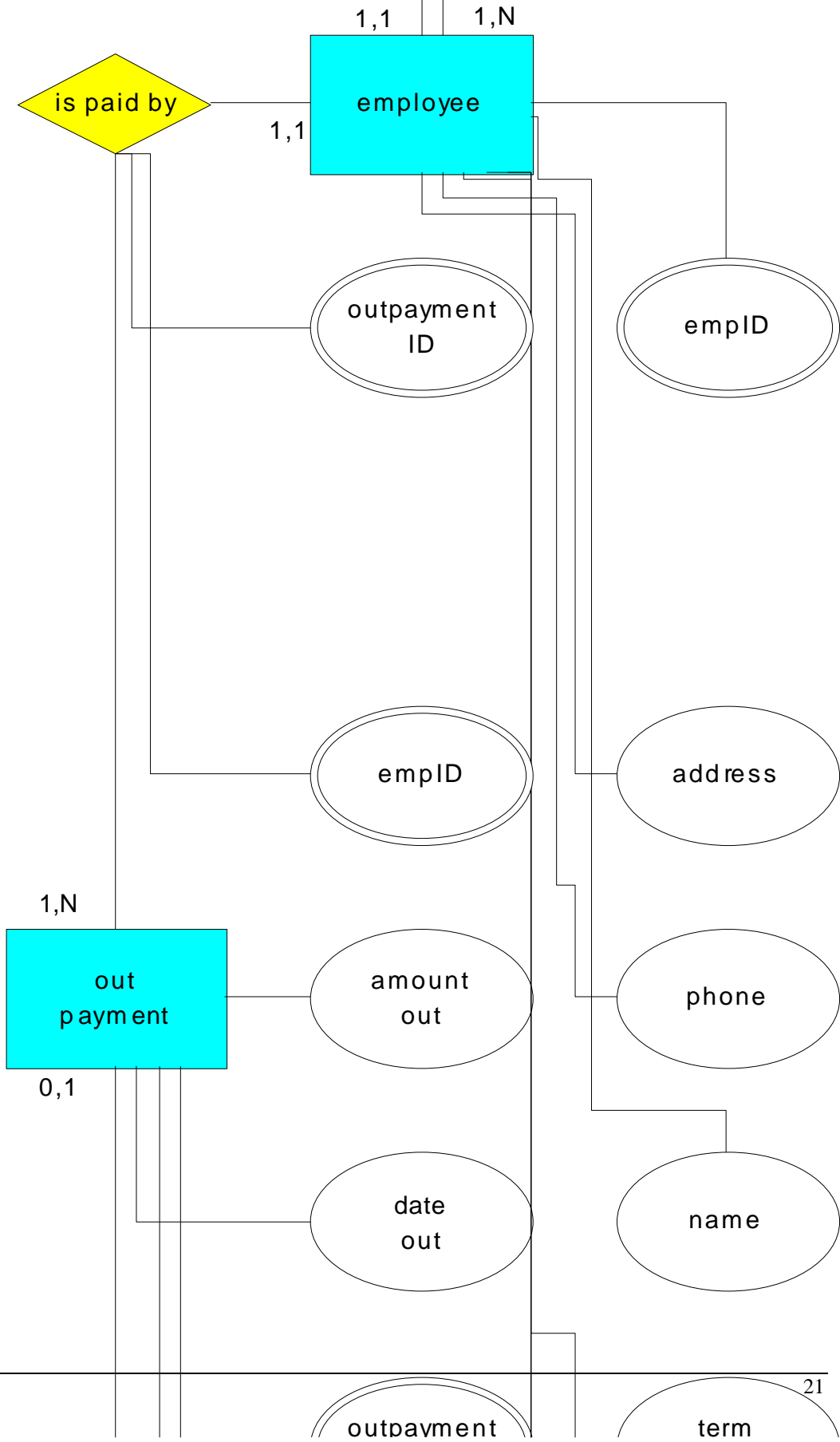
**Appendix D**  
**ERD -- Overview**



ERD – Detail (3pages)







orderdate

memo

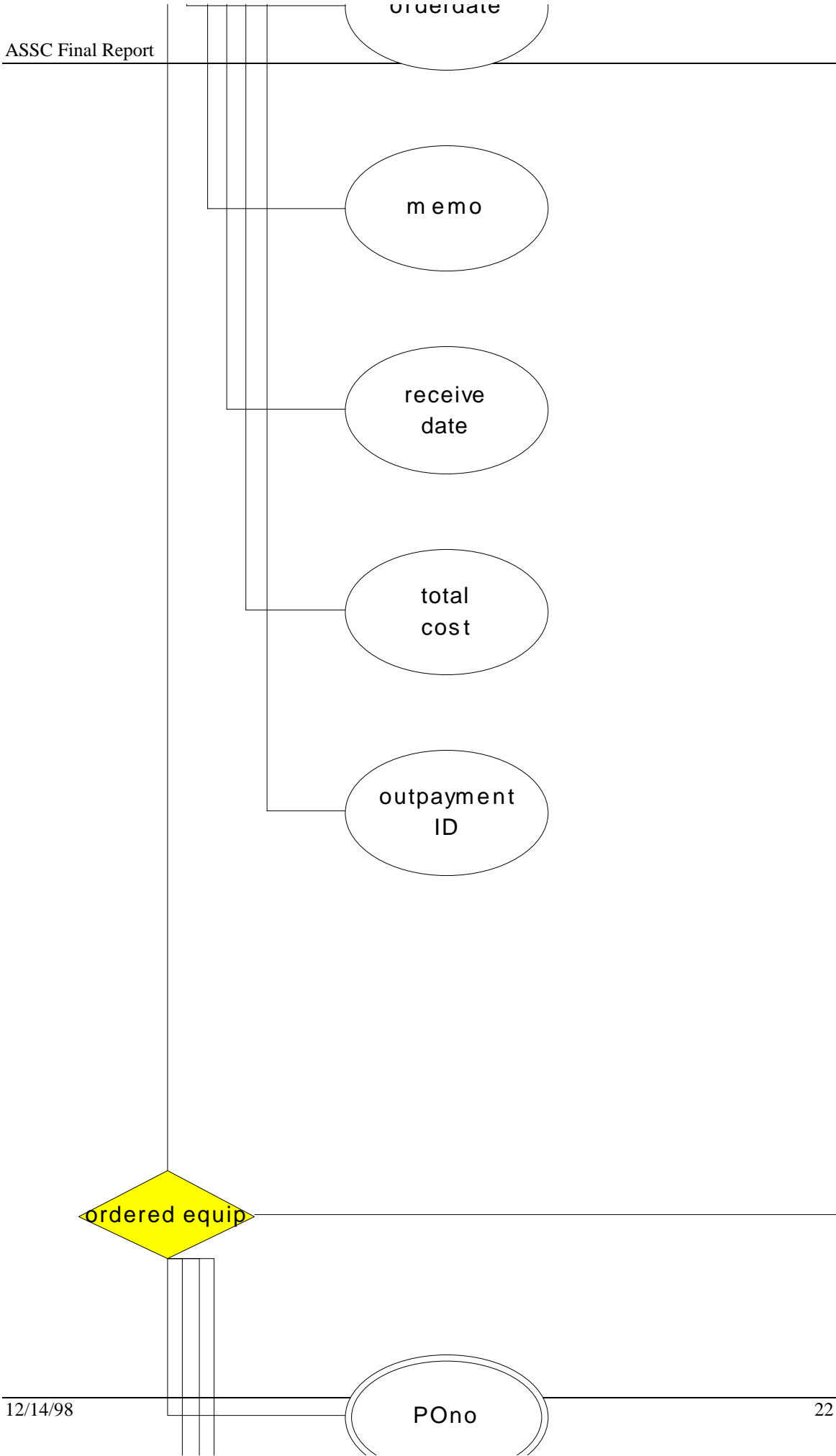
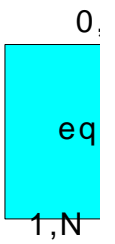
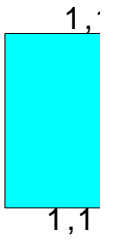
receive date

total cost

outpayment ID

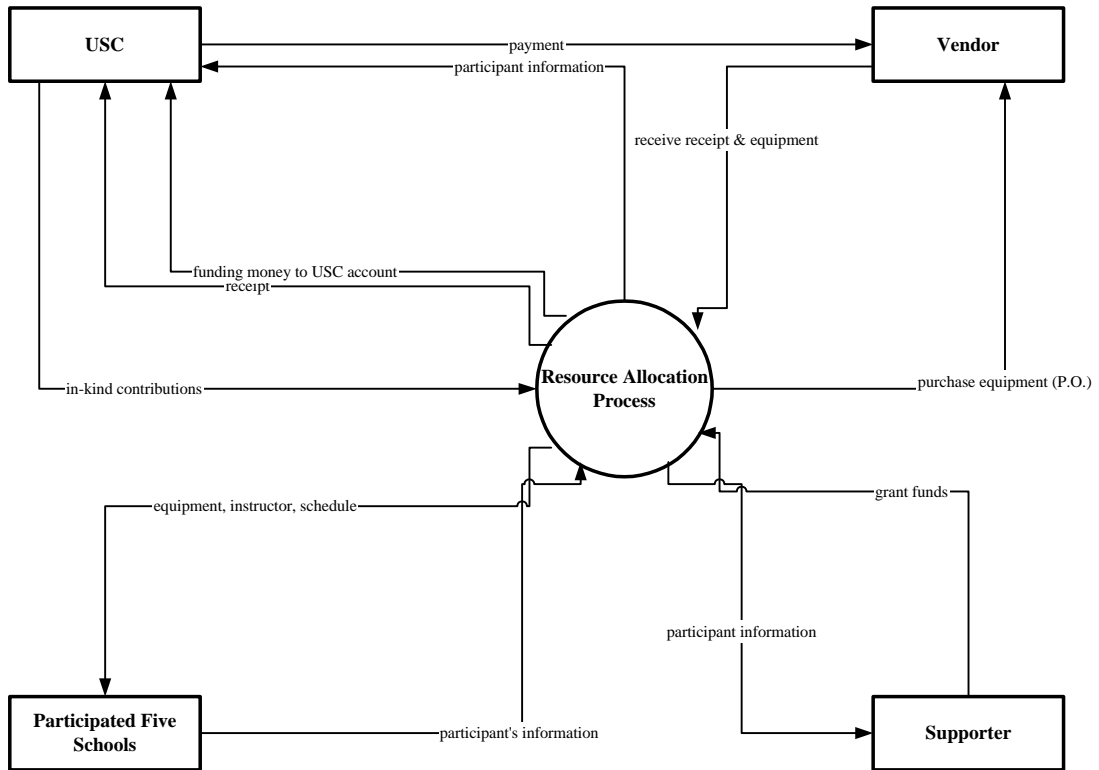
ordered equip

POno



## Appendix E Context Diagram

To Be Context Model for ASSC



## Training Manual