

Whitemarsh
Information Systems Corporation

Section of Function Diagraming

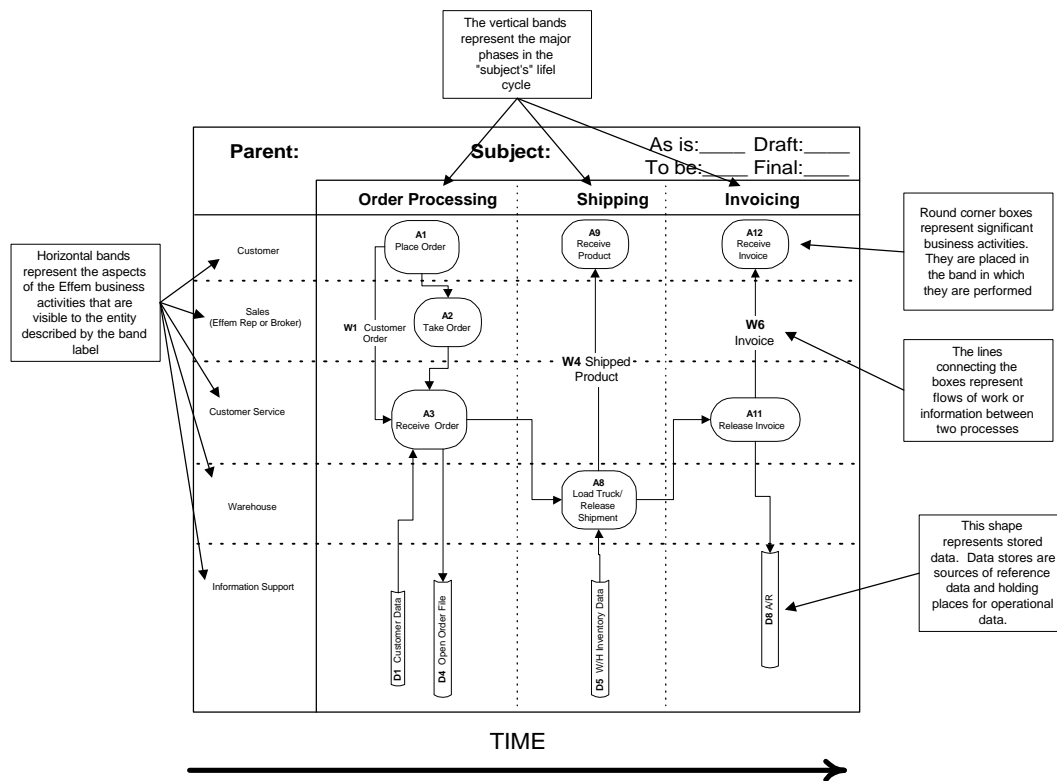
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1. Introduction

An activity workflow diagram conveys a broad perspective of a set of activities within a well bounded area of work. The name of this well bounded area is the diagram's subject. Each activity map consists of the following:

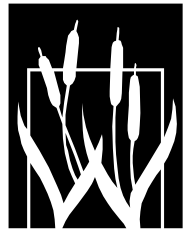
- ! Organizations
- ! Activities
- ! Major activities groups
- ! Work flows
- ! Data stores

Figure 1 depicts a complete set of these five diagram components.



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Activity & Work Flow Diagraming

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1. Introduction

An activity workflow diagram conveys a broad perspective of a set of activities within a well bounded area of work. The name of this well bounded area is the diagram's subject. Each activity map consists of the following:

- ! Organizations
- ! Activities
- ! Major activities groups
- ! Work flows
- ! Data stores

Figure 1 depicts a complete set of these five diagram components.

2. Organization

An organization is a business recognized organizational entity that performs work in support of defined business objectives. With respect to this diagramming technique, organizations are of two types: the customer, and supporting organizations. The customer organization represents the end-user or "target" of the activity effort. The next organization is the one that most immediately interacts with the customer. The remaining organization are those that have interaction with each other but in an increasing "distance" from the customer.

The organizations are placed on the "Y" axis of the diagram with the customer at the top, and the remaining organizations listed top-to-bottom in the order of increased "distance" from the customer.

The bottom-most diagram band (the "X" axis) represents the information support organization that is responsible for receiving and dispensing the information used by or generated by the activities that are performed by the organizations named on the "Y" axis. Data stores are listed on the "X" axis.

Horizontal dashed line separates the organizations. Activities are placed within each dashed line band enabling the diagram viewer to "see" all the activities that are performed by each organization with respect to the diagram's context.

3. Activities



Activity and Work Flow Diagraming

An activity produces a product or output within the context of the diagram. The context of a diagram must have some real boundaries. The entire set of activities on a diagram should represent the complete life cycle of the diagram's context.

The scope or subject of a diagram is identified and named, for example, operating plan. Each subject proceeds through a life cycle. In the insurance business the subject might be a life insurance policy. For another business it might be a human resource such as contractors, vendors, and employees. A more abstract resource might be a business plan that could be seen in terms of three subplans: strategic, operating, and on-going review of business.

Activities are placed in a left-right sequence and infer a progression through the diagram's life cycle. Not only are activities seen within the context of an organization and a major life cycle phase, they are also be characterized with:

- ! Identifier for unique reference
- ! Name
- ! Description
- ! Time consumed
- ! Value added

The name of the activity should be a quick short hand for what is accomplished. For example, an activity name might be: receive request, perform problem analysis and provide solution. Where there is no hard and fast rule as to the form or length of the activity name, it should begin with a verb and state a result outcome.

The activity's description should define the end result or objective. The description/objective of the activity, receive request, perform problem analysis and provide solution might be to:

Obtain the request for a problem solution, investigate the problem, determine the likely cause and probable solution, formulate the solution, quantify the resources (time, money, and staff) and present the solution in terms of a plan of action.

Time consumed represents the quantity of resources required to perform the activity. In the previous example, the time consumed is NOT to solve the problem. Rather, it is the time required to come up with the problem's solution.

Value added is a characterization of the improvement derived by performing the activity. In the previous example, the value is that the "problem" is ready to be "solved." The investigation has been performed, the solution identified, and the resources required to accomplish the "fix" has been identified.



4. Major Activity Groups

Each major partition of the diagram's life cycle becomes a dashed vertical line. Activities are placed between vertical bands. All the activities between two vertical bands form a major activity group. When the set of all activities are placed on the diagram, it is obvious who (organization) performs what (activity) within the resource's life cycle (major vertical band). For order fulfilment, there may be three major phases, order processing, shipping, and invoicing..

5. Work flows

Activities are connected to each other by lines. Each line represents both a transfer of control and necessary information. Each line is labeled as work¹ flow, and should be representable as an enhanced activity result. For example, if there is a line between customer and sales representative, the line represents a completed order. Each work flow contains the following parts:

- ! Unique identifier for reference
- ! Name
- ! Description
- ! Value

The name of the work flow conveys the essence of the work's content. For example, the output of the *place order* activity is the *customer order*.

The description of the work provides the next level of detail to the work's name. Surface descriptions are sufficient.

The value of the work represents the value that the "source" activity has conferred to the "target" activity.

6. Data Stores

¹ Work is either a noun or a verb. In the context of this diagramming technique, a work flow represents the flow of an item of work between one activity and the next. Hence, it is a noun. When work is a verb, it represents the process of accomplishment. Work, as a verb, that is, process, is represented with this diagramming technique through activity. Work flows identify not only the information the flows but also considerations of mechanism, e.g., order information being transmitted via EDI transmission.



Activity and Work Flow Diagramming

A data store represents a set of persistent data that is either used or created by various activities performed by an organization. A data store can be a database, hard copy, or any other medium. There is no real rigor to the name and content of the data store within this diagramming technique other than the name of the data store should be obvious and meaningful to the diagram's reviewer.

Each data store contains the following parts:

- ! Unique identifier for reference
- ! Name
- ! Description
- ! Major data groupings
- ! Example
- ! Location of a physical example

The name of the data store should convey its purpose and intent to a knowledgeable diagram reviewer.

The data store's description should provide a brief explanation of the purpose of the data store.

The major data groupings are the major sets of data that are represented by the data store.

An example of a data store provides a physical reality characterization of the data.

Finally, the location of a physical example provides the follow on database design activity the actual location and physical identify of an actual data store example from which the database is designed. Example:

- ! Name: Employment record
- ! Description: The employment record contains all the human resource information to completely characterize an employee's tenure with an employer.
- ! Data Groupings: Biographic information, past job histories, performance evaluations, benefit elections, promotions, site locations, and assignments.
- ! Location: Human Resources Information System Database design document

7. Diagram Techniques



Activity and Work Flow Diagramming

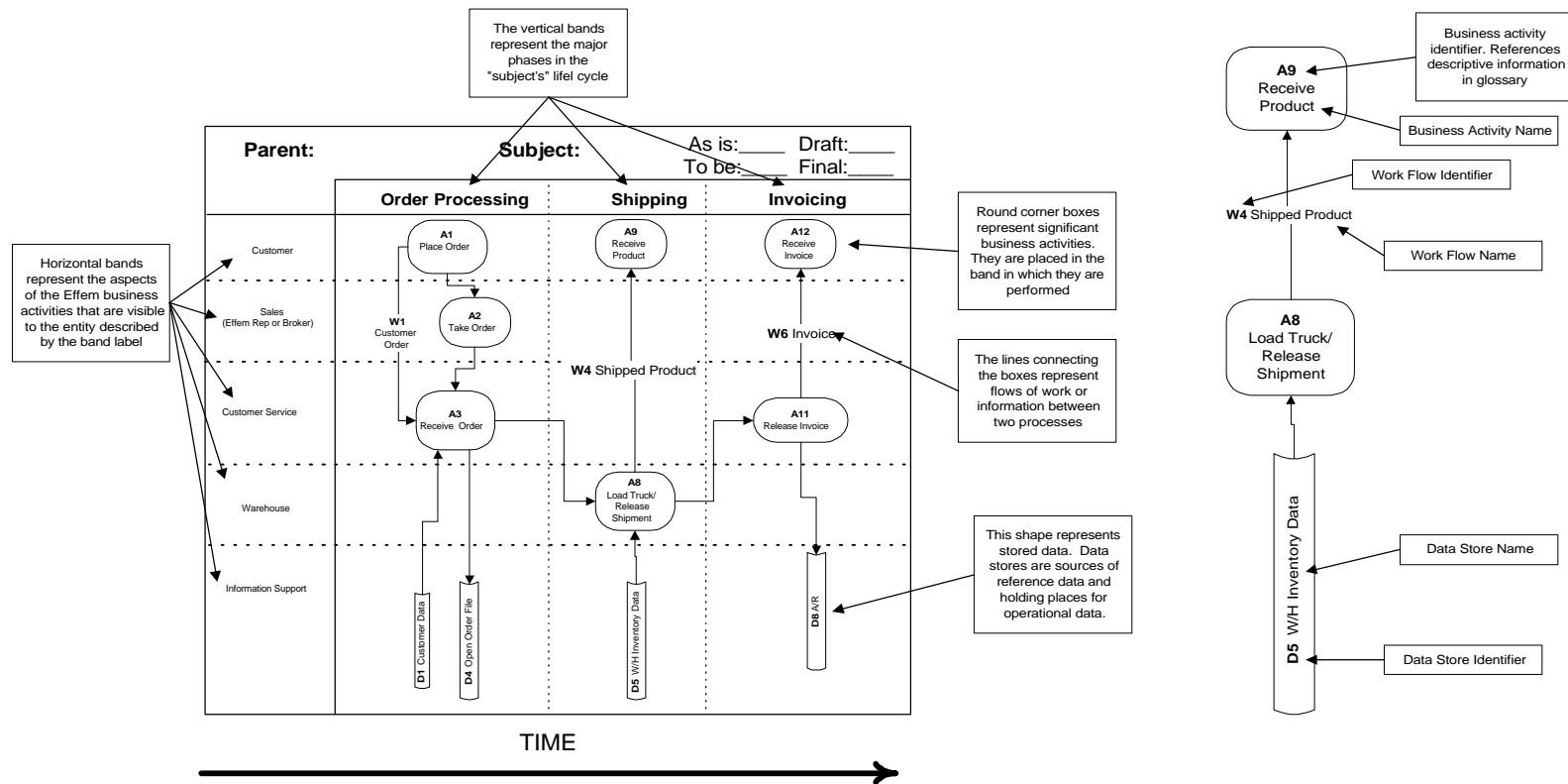
The following guidelines are helpful when constructing activity diagrams. A template for this type of diagram is contained in Figure 2. This diagram template is available as a Visio (™) file.

1. Determine the diagram's context. Ensure that is bounded to a single major resource such as operating plan, annual budget, customer service, order fulfillment.
2. Identify the resource's life cycle. Group the life cycle into major divisions such as might be for an operating plan: initiate, research, formulate, review, publish, and retire. The quantity of vertical bands should not exceed 7 so that the diagram does not become overly partitioned.
3. Determine the ultimate customer. Identify this as the highest band on the "Y" axis. Identify the organizations that are peer level to each other but that interact and list them "down" the "Y" axis in increasing distance from the customer.
4. Identify the activities within each "box." Name, describe, assess the time consumed, and characterize the value produced.
5. Identify the work flows between activities within and between bands. Name and describe the "work" that is flowed between each activity.
6. Identify the data stores that provide information or that receive information. Data stores may be repeated across the bottom band so long as they are named the same. Repeated data store names are *italized*. Do NOT characterize the data stores with names like draft plan, proposed plan, reviewed plan, and published plan. These state changes in the plan should be obvious from the activities within their major phase partitions.
7. Attach a letter and number to each diagram component. For example, [A]ctivity, [D]atastore, [O]rganization, and [W]orkflow. Place all diagram components in an inventory that both carries their information (name, description, etc.) And also enables components to be re-used across diagrams. Indicate re-used components in the inventory through an appropriate mechanism such as a spread sheet.



Activity and Work Flow Diagramming

Activity Work Flow Diagramming Conventions



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Figure 2 Activity Work Flow Diagram Conventions



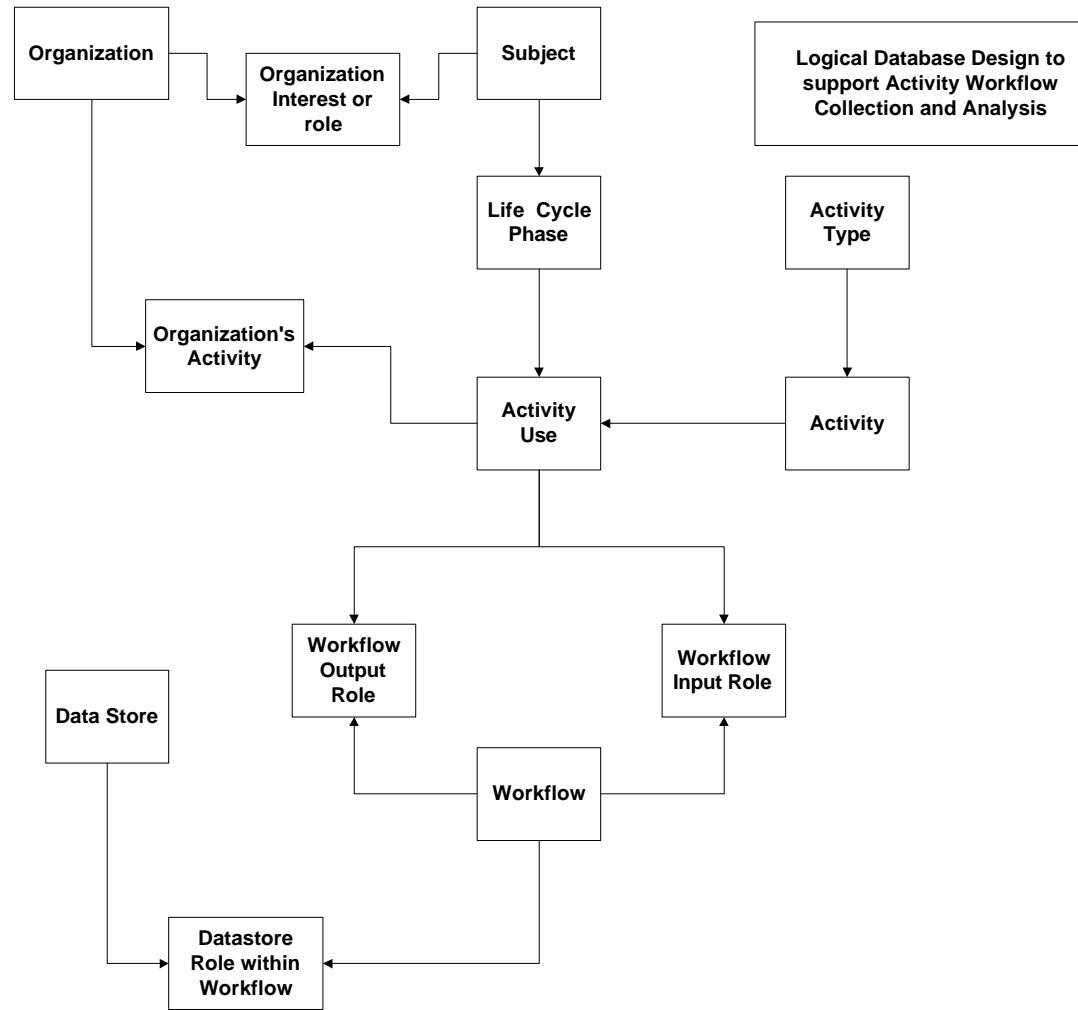
Activity and Work Flow Diagraming

Parent:	Subject:	As is: To be:	Draft: Final:	Date:

Figure 3 Template for Activity Work Flow Diagrams



Activity and Work Flow Diagramming



Activity Work Flow Logical Database Tables and Columns

- ! Activity Type
 - " Id
 - " Name
 - " Description
 - " General Value Added

- ! Activity
 - " Id
 - " Id of Activity Type
 - " Name of Activity
 - " Total Staff Hours Consumed
 - " Activity Duration in Hours
 - " Quantity of Staff Required
 - " Description of Specific Value Added
 - " Activity Structured to Avoid Significant Error
 - " Activity Structured to Maximize Knowledge Worker
 - " Activity Environment Engineered to Contain All Quality Improvement Tools
 - " Activity Engineered to Contain Savepoints and Rollbacks
 - " Activity Engineered to Minimize Criticality of Uniquely Knowledgeable Resource
 - " Activity Engineered to Allow Sufficient Time for Review and Required Rework
 - " Activity Engineered to Automatically Surface and Offer Correction to Commonly Occurring Errors

- ! Data Store
 - " Id
 - " Name
 - " Description
 - " Major Data Groupings
 - " Example
 - " Location of Example



Activity and Work Flow Diagramming

! Data Store Role Within Workflow

- " Id
- " Data Store Id
- " Workflow Id
- " Crud Action

! Life Cycle Phase

- " Id
- " Subject Id
- " Name
- " Description
- " Accomplishment

! Organization

- " Id
- " Name
- " Organizational Placement
- " Primary Functions
- " Secondary Functions

! Organization's Activity

- " Id
- " Organization Id
- " Activity Id
- " Role Within Activity

! Subject

- " Id
- " Name
- " Scope or Purpose
- " Parent
- " Draft or Final Code
- " As-is or To-be Code
- " Initial Creation Date
- " Date of Last Update
- " Creator's Name
- " Project Name



Activity and Work Flow Diagramming

- ! Workflow
 - " Id
 - " Name
 - " Description
 - " Value

- ! Workflow Input Role
 - " Id
 - " Name
 - " Reason
 - " Probability of Containing Error That Requires Rework or Investigation
 - " Received in Compatible Use Format Indicator
 - " Explanation or Supporting Documentation Required Indicator
 - " Explanation or Supporting Documentation Availability Indicator
 - " Format Enables Immediate Use Indicator
 - " Format That Requires Ancillary Calculation Support
 - " Staff Time in Hours to Obtain

- ! Workflow Output Role
 - " Id
 - " Name
 - " Reason
 - " Probability of Containing Error That Requires Rework or Investigation explanation or Supporting Documentation Required Indicator
 - " Includes Explanation or Supporting Documentation Indicator
 - " Produced in Format That Enables Immediate Use Indicator
 - " Includes Ancillary Calculation Support for Subsequent Processing
 - " Staff Time in Hours to Generate



Activity Work Flow Database Reports

- ! by Subject (E.g., Operating Plan)
 - " Life Cycle Phase
 - Activity (Time Consumed & Specific Value) & Activity Type (General Value)
 - Organization
 - # Input Work Flow
 - * Data Store Component
 - # Output Work Flow
 - * Data Store Component

- ! Data Store
 - " Workflow
 - Create
 - # Activity (Time Consumed & Specific Value) & Activity Type (General Value)
 - * Organization's Activity & Organization
 - # Life Cycle Phase
 - * Subject
 - Read (Review?)
 - # Activity (Time Consumed & Specific Value) & Activity Type (General Value)
 - * Organization's Activity & Organization
 - # Life Cycle Phase
 - * Subject
 - Update
 - # Activity (Time Consumed & Specific Value) & Activity Type (General Value)
 - * Organization's Activity & Organization
 - # Life Cycle Phase
 - * Subject
 - Delete (Do We Ever?)
 - # Activity (Time Consumed & Specific Value) & Activity Type (General Value)
 - * Organization's Activity & Organization
 - # Life Cycle Phase
 - * Subject

- ! Activity Type (General Value)



Activity and Work Flow Diagramming

- " Activity (Time Consumed and Specific Value)
 - Life Cycle Phase
 - # Subject
 - Organization's Activity & Organization
 - Workflow Input Role, Workflow & Datastore
 - Workflow Output Role, Workflow & Data Store

- ! Organization
 - " Activity (Time Consumed & Specific Value) & Activity Type (General Value)
 - Life Cycle Phase & Subject
 - Workflow Input Role, Workflow & Datastore
 - Workflow Output Role, Workflow & Data Store

