Collaborative Requirements Development Methodology

Business Process Analysis Participant's Guide

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Common Terminology

Directions: Fill in the left column of the chart using the terms below so that they match the definitions in the center column. If you can, also add examples to the right column. (If you don't feel you understand the term well enough to list an example, leave it blank for now.)

TERMS		
Business process	Entity	Outcome
Business process analysis	Transaction	Input
Business process redesign	Business process matrix	Output
Requirements definition	Business rules	Collaboration
Information system	Task	Task flow diagram

Term	Definition	Examples
	A tool that supports work.	
	The effort to understand an organization and its purpose while identifying the activities, participants, and information flows that enable the organization to do its work. The output of this phase is a model of the business processes to be used for design or redesign of business processes.	
	The resulting transaction of a business process that indicates the objective has been met. Often measured by how much, how often, how many, etc.	
	A set of statements that define or constrain some aspect of the business process. They are intended to assert business structure or to control or influence the behavior of the agency.	
	Information received by the business process from external sources (not generated within the process).	
	A strategy for working together to develop information systems in a complex environment in which organizations have more in common than not.	
	The effort to improve organizational performance through restructuring tasks and workflow for greater efficiency and effectiveness.	

Term	Definition	Examples
	Refining our understanding of the workflow in order to define database outputs needed to support the work. This process answers the question, “How do we see information systems supporting task X?”	
	A set of related work tasks designed to produce a specific desired programmatic (business) result. The process involves multiple parties internal or external to the organization and frequently cuts across organizational boundaries.	
	Information transferred out from a process.	
	A bit of work that can be done at one time. A business process is made up of a series of these.	
	Exchanges between entities. These exchanges may be information, goods, or services.	
	A person or group of people who performs one or more tasks involved in a process.	
	A table that depicts the components that characterize a business process—goals, objectives, triggers, inputs, outputs, business rules, and outcomes.	
	Graphical representation of tasks showing inputs, processes, and results for each step that makes up a task.	

What is a business process?

Background

Although the term "business process" has been widely used in industry to describe the way in which organizations conduct their activities and achieve specific goals and objectives, the term is not commonly used in public health.

The first step in understanding the business processes of public health agencies is to understand the definition of a business process and how the work of public health agencies can be modeled within that context.

Characterizing a business process

An organization or industry defines the term "business process" according to their unique characteristics. The following, when considered together, are common characteristics of business processes.

A business process:

- Is in response to a trigger event
- Is a collection of activities or steps (tasks)
- Involves entities/participants
- Rarely takes place in isolation. It may be comprised of activities that span across and/or within multiple business units such as departments, organizations, divisions, or branches.
- May contain inputs from and outputs to other business processes
- Can be part of a larger encompassing process
- Can be viewed at various levels of granularity
- Has a clearly defined objective or purpose
- Contains entities that work toward a common goal
- Produces something of value for the benefit of an organization, stakeholder or customer
- Has an outcome that is measurable and may be assigned parameters for establishing performance gains
- Meets customer and/or stakeholder needs and expectations
- Involves the flow of material and/or information (transactions)
- Has a known method or set of business rules, also known as an algorithm to define activities. When the method is applied to the input, certain outputs are created as a result of the business rules.

Components of a business process

Drawing from the common characteristics, a business process will include each of the following components, at a minimum:

- Entities
- Transactions
- Goal
- Objective
- Business Rules
- Trigger
- Task set
- Input(s)
- Output(s)
- Outcome(s)

Defining a business process

Within the public health milieu, a business process is defined is described using the following criteria:

- Depicts all of the people, groups of people, organization, and other systems (***entities***) that perform one or more tasks
- Includes all key exchanges of information and materials (***transactions***) between entities
- Describes the health ***goal*** that is supported by the business process
- Contains a concrete description or ***objective*** of what the business process seeks to achieve
- Reflects the policies, laws, procedures, and constraints (set of ***business rules***) that are imposed upon the agency as it performs works
- Identifies the event, action, or state (***trigger***) that initiates the activities of the business process
- Describes the set of tasks (***task set***) that are performed
- Includes information and materials received from (***inputs***) or transferred to (***outputs***) other business processes
- Has an ***outcome*** that is intended to satisfy the objective

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Business process analysis template

Directions: Use this worksheet to record your observations about positive and negative aspects of the current business processes.

Business Process Details
Name: Objective:

+	
Observation	**Owner**

—	
Observation	**Owner**

Not Sure	
Observation	**Owner**

Business process analysis modeling

Business Process Analysis uses the following to fully define and illustrate the components of each process:

- Task flow diagrams help us specify the discrete tasks that occur within a particular entity. Discrete tasks are those which can be performed by an individual or group without interruption once the task has started.
- The Business Process Matrix is a table that helps keep track of all the business processes you are mapping.

While task flow diagrams give us a "picture" of the business process, these graphical models are not enough for individuals to understand the backbone behind the processes – the goals, objectives, business rules, etc. The Business Process Matrix used in conjunction with the graphical models provides at a glance the pertinent information about a business process during business process analysis.

The nature of collaboration will require ongoing dialogue within the workgroup to define the processes to be included, i.e., those that are broadly accepted within the public health organization, as well as to define the characteristics relevant to that process, again considering the broad application of the tool. The workgroup will be challenged to consider the implications of a narrowly-defined process, or an entity that is not universal to public health organizations. Consequently, the products of the workgroup will be further defined at the local level, customized to meet the unique range of variables that affect the way each organization takes care of the business of public health in their community.

What is task flow analysis?

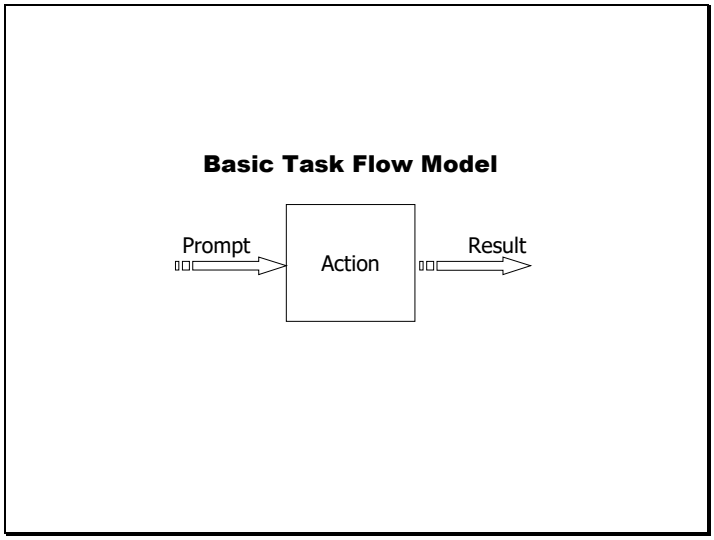
Purpose of task flow analysis?

Task flow diagrams are a tool for us to portray activities, or key tasks -- those that are most important to identifying requirements.

Mapping out important tasks gives us more detail about how the information systems can support activity within a business process.

What form do task flow diagrams take?

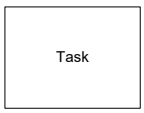
Task flow diagrams identify the various tasks required to achieve the organizational objective summarized in the Business Process Matrix. The diagrams also show the interrelationships among tasks because results from one task are used as prompts to others. Each task conforms to the model of prompt → action → result. This process is similar to the data processing model of input, process, and output. We will use the terms prompt and result in this document to avoid confusion with the terms input(s) and output(s) which are used to describe transactions in the business process.



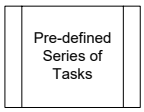
Task flow diagrams look like standard flowcharts. Therefore, they have the following qualities:

- There is a prompt or starting point.
- There are one or more activities or tasks performed on the input to create a result.
- They are read from left to right or top to bottom. Task flow diagrams are networks with a single direction of flow.
- Standard flowcharting tools are used—rectangles, arrows, diamonds for decision points, etc.

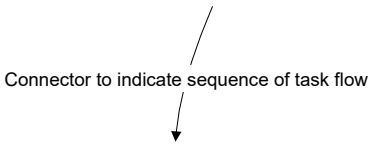
Examples of task flow symbols



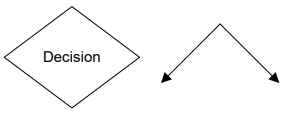
A ‘task box’ depicts an activity or series of activities that can be performed by an individual or group from beginning to end without interruption (from another entity or task).



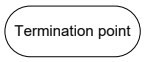
A box with parallel lines along each side is a short-hand symbol to represent a series of tasks that is grouped together to execute a specific operation.



Lines with arrows are drawn to connect symbols and to indicate direction of task sequencing. Task flows are read from top to bottom or from left to right.



A decision ‘box’ (really a diamond or rotated box) shows an “either/or” condition is being invoked by the entity performing the work. Depending upon the answer to the question posed within the diamond, one of two or more courses of action will be followed. Sometimes the actual box is implied with the use of split arrows.



A rectangle with rounded corners is the symbol used to identify the beginning and end to any series of tasks.

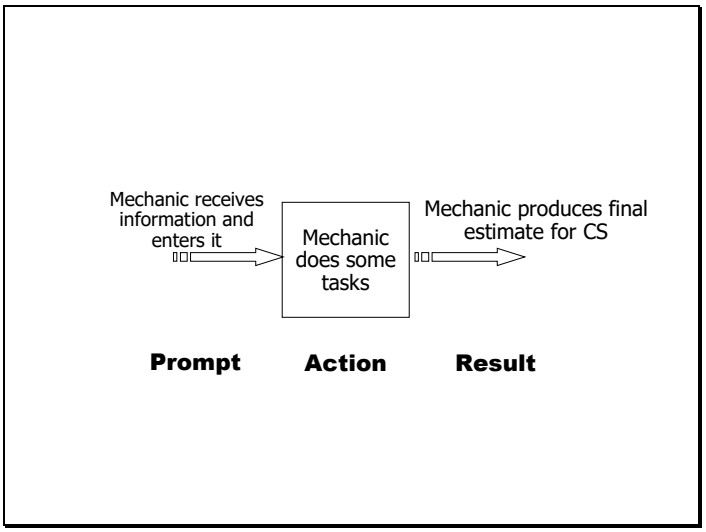
The on and off-page connectors are used to show that a sequence of tasks is broken (usually due to space on a page) and continues somewhere else. The letters or numbers or text that appears inside the connectors are matched to the mating connector where the sequence is continued.

Developing task flows

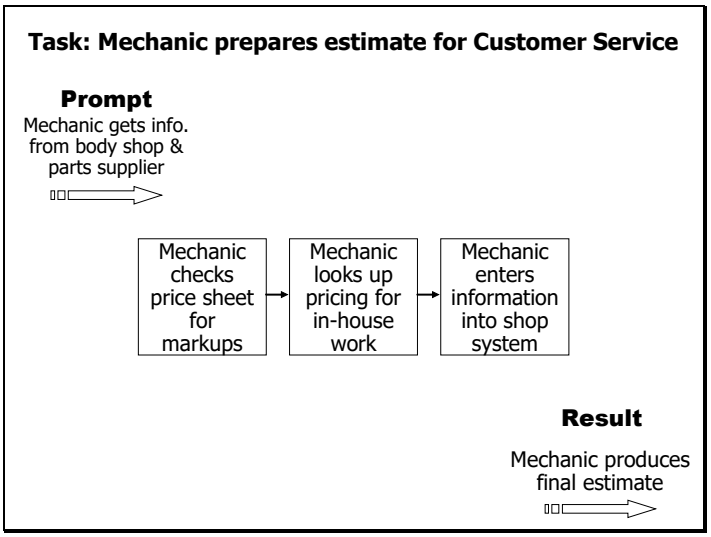
Flow diagrams—more specifically, task flow diagrams—help us break down the discrete tasks that occur within a particular entity. Discrete tasks are those which can be performed by an individual or group without interruption once the task has started.

Task flow diagrams are completed for key areas of the business process (where it is important to look at the detailed activities within the process).

For example, in the workflow box that reads, "Mechanic produces final estimate for CS," there are several discrete tasks that take place *within* this box that need to be mapped out. Converting this to a simple task flow diagram would look like this:

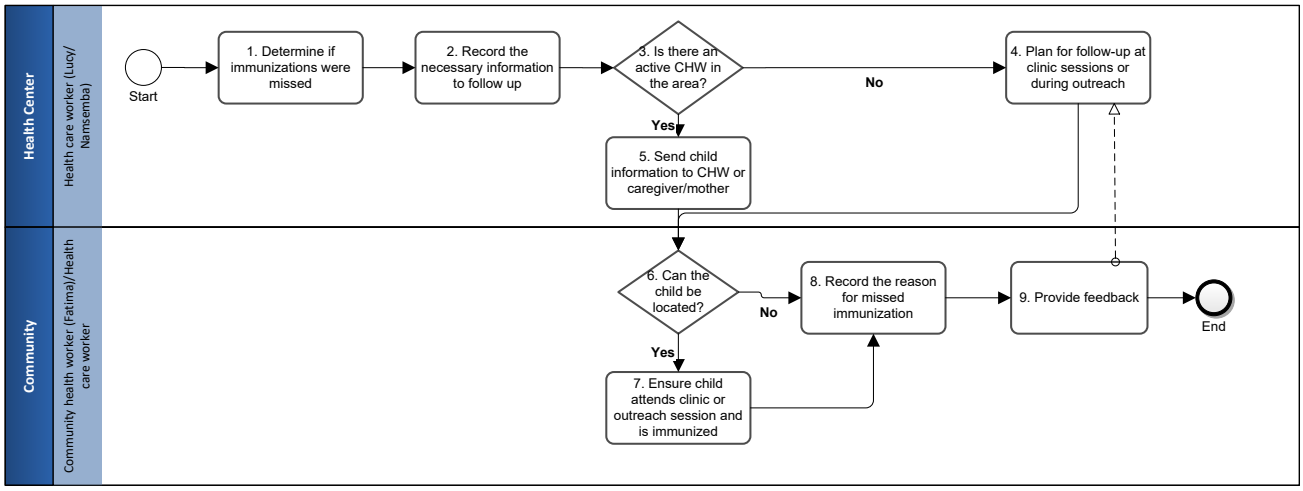


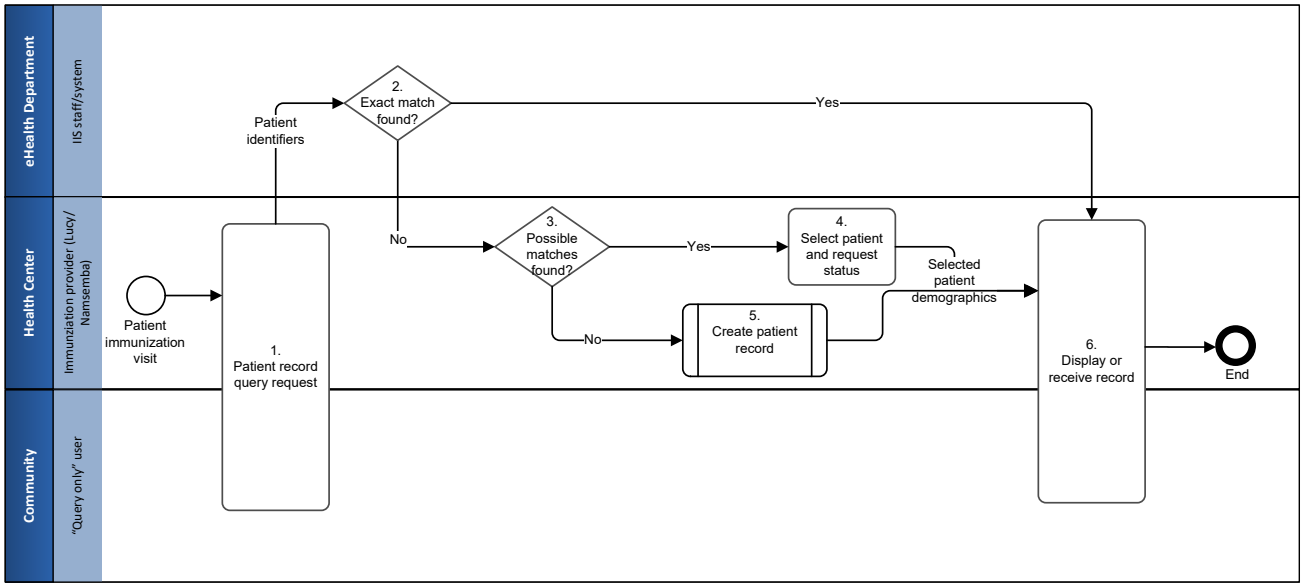
Now, the business analyst asks a series of questions to determine what those tasks are. The result is a more specific task flow diagram that looks like this:



Task flow diagram examples

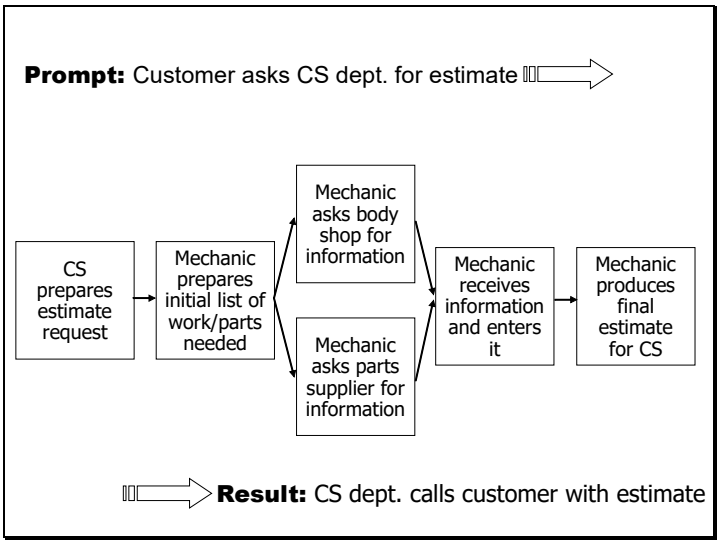
The following diagrams are from the Better Immunization Data Initiative.[1]





[1] More information can be found in Product Vision for the Better Immunization Data (BID) Initiative, available at: http://bidinitiative.org/wp-content/uploads/FINAL_BID-Product-Vision-09122014.pdf.

How to create task flow diagrams



Develop the task flow diagram

The flow is always from left to right or top to bottom and the diagram as a whole represents a complete, single pass through the business process.

Build task flows by looking at each part of the workflow diagram

Once you have the workflow diagram, look at each step in the flow to determine whether it represents a single, discrete activity or multiple activities performed by an internal entity

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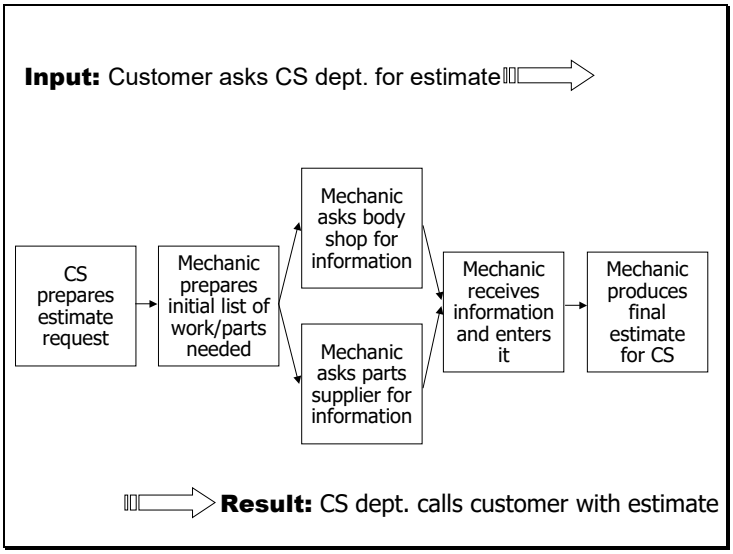
How do we identify results?

Results from one step are used as prompts into the next sequential task and, in some cases, other downstream tasks. Frequently, one subset of the results is used in the next step and another subset used elsewhere. Results may also directly represent the achievement of the organizational objective being analyzed, that is, no additional task is required to achieve the objective. Any result directly meeting an end objective can be viewed as "the last link in the chain."

Thus, the result from each task is used in one of three distinct ways:

- As input to the next sequential step
- As a prompt to a downstream step
- To represent the achievement of an objective.

For example, the last box in the diagram below is, “Mechanic produces final estimate for CS.”



The completion of the estimate by the mechanic serves as both a result of the task within the mechanic entity AND as a prompt for the customer service department (next box in workflow is not shown). The completion of the estimate by the customer service department serves as the result of the task within the customer service entity AND as the outcome of the business process. The outcome is the transaction that indicates the objective has been met.

Naming task flow diagrams

Usually, the name of a task usually includes the entity and the result of the task. For example, the task ending with the information being sent to the outside entities (body shop and parts supplier) might be titled, “Mechanic asks body shop and supplier for information.”

A note about cyclical processes: Since most data processing systems support cyclical functional environments, handling of the repeating cycles can be a stumbling block. The basic rule, however, is simple: Stop once the steps become redundant. Identify the achievement of the objective and any results from the cycle required as prompts to the next cycle. At the point where they are used as prompts, note that they are from the previous cycle. For example, when producing a monthly bank statement, the prompt is simply the balance from the previous cycle, and should be shown as such.

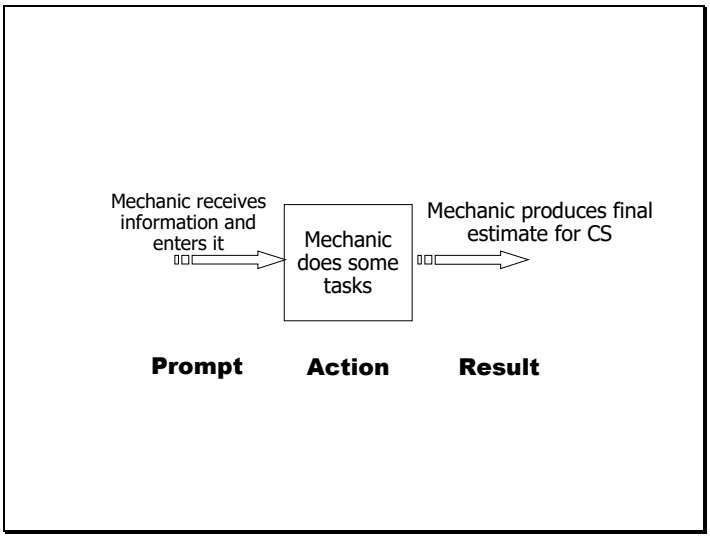
How do we identify prompts?

Prompts are derived from these sources:

- The result from a prior process.
- Data from a previous cycle.
- Input into the process from outside the process.

Therefore, each box on our workflow diagram, except for the last one, is a prompt for a task within an entity.

In this example, "Mechanic prepares estimate for Customer Service," the prompt would be the result of the previous step, "body shop and supplier give information."

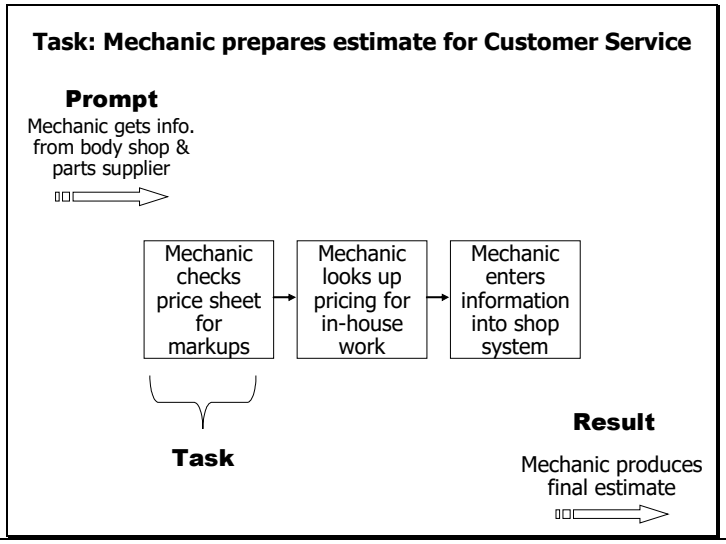


How do we describe the tasks that occur in transactions?

In addition to prompts and results, the task flow diagram must also describe the actions involved to complete the actions that take place to produce the result.

Upon further examination of the mechanic's work associated with finalizing the estimate, we discover that several tasks must be performed. First, the mechanic must check price sheets to see what the markup is on parts and auto body work. Then, s/he must look up pricing for work that will be completed in-house at the repair shop. S/he then enters this information into an estimator sheet in the shop system, which totals the information in a format for him/her to print out and give to customer service.

Thus the single transaction is shown as the following task flow:



Completing a task set for a business process

The collection of task flow diagrams that describe the activities in the business process are referred to as the task set. By working from one transaction to another, and expanding those that are most relevant to the process objectives and project scope, we gradually build a series of individual task flow diagrams that collectively describe the process.

Think carefully about how to define discrete tasks. Discrete tasks should only be delineated if they are performed by an entity under the organization's control. External entities, by definition, are not under the sponsoring organization's control. Therefore it is unlikely that the contemplated system support will support the performance of tasks undertaken by any external entity. It then follows that the workflow description is sufficient for all activities performed by external entities.

For example, we would NOT develop a task flow diagram for "body shop and supplier give information" (fourth step)," because we are not concerned about the activities that the body shop and parts supplier (external entities) perform to get the information, only that the information comes back to us.

Even if an activity is performed by an internal entity it is necessary to break it down further only if the activity defines multiple, unique tasks that should be broken out separately. The rule most helpful in this situation is to evaluate the activity in terms of whether or not it represents a discrete work activity that requires a prompt from which results intended to be passed to another person, or group, are produced. Visualize it as a desk with an in-box and an out-box. As long as the work involves using the contents of the in-box to create a result that ends up in the out-box, it is a single unit of work no matter how many individually identifiable steps are required to produce the result. For example, if the person performing the work prepares a document that is used internally to perform a subsequent step, the entire sequence should be treated as a single unit of work, or task.

The key words in the determination of discrete tasks are *continuous* and *uninterrupted*. If the task can be performed by an individual or group from beginning to end without interruption (continuous from beginning to end) then it is a discrete work activity.

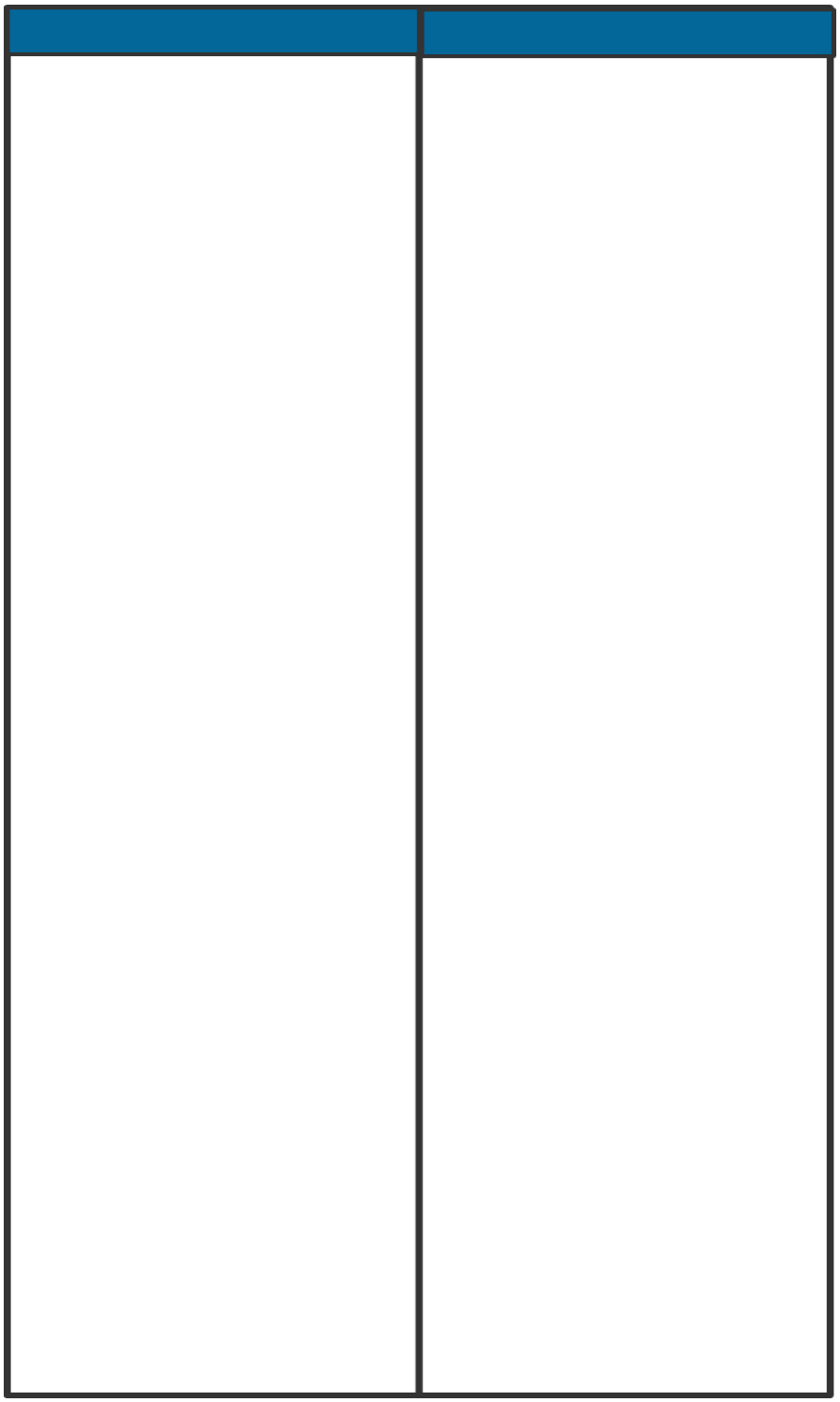
One transaction may result in multiple task flow diagrams. Discrete tasks performed within a given entity would not show up on the business process workflow because it would require a subdivision of the natural entity. Thus the "Order Entry Department" would have to appear as "Jane's Desk", "Sally's Desk", and "Joe's Desk" if there were three discrete tasks performed on order entry. For example if Jane took the orders over the phone, Sally verified the product codes and price, and Joe formally approved the order then there would be three discrete tasks performed in sequence within the order entry department.

Keeping track of the work

At the end of task flow diagramming, all transactions should appear at least once in the task set. Thus all transactions should be "crossed off" at the end of task flow diagramming.

Task flow diagrams for Sally's order fulfillment

Directions: Create a task flow diagram for the order fulfillment process at Sally's Sandwich Shop.



What is a business process matrix?

What is the business process matrix? (BPM)

We use textual and graphical components to develop a complete model of the business process. During business process analysis, workgroups use graphical modeling tools to describe the tasks (task flow diagrams) within each business process. The business process matrix (BPM) is a table that outlines the components of a business process that describe the process (goal, objective, business rules, trigger, inputs, outputs, and outcome). The BPM is designed to be used as a quick reference for groups who are analyzing business processes. It is useful as a reference when developing task flow diagrams to keep everyone thinking of the same objectives.

The BPM is also useful to collaborative workgroups. The BPM helps to establish shared definitions of business processes and provides a record for keeping track of and refining multiple business processes as they are being defined. For example, it is easy to see when using the matrix when two or more processes share enough characteristics to be combined into one business process.

What does the business process matrix look like?

The business process matrix is a table with eight columns. Each column represents a component of the business process description. Each row describes a single business process.

Business process matrix definitions and examples

Name	Definition
Goal	The major health goal that the business process supports. The goal is the end state to be achieved by the work of the health agency and should be defined in terms of the benefits provided to the community/ population or individual/client.
Objective	What the business process seeks to achieve. The objective should be specific to the process such that one can evaluate the process or reengineer the process and quantify performance measures. A well-worded objective is SMART (Specific, Measurable, Attainable/Achievable, Realistic and Time bound).
Business Rules	A set of criteria that defines or constrains some aspect of the business process. Business rules are intended to assert business structure or to control or influence the behavior of the health agency (business).
Trigger(s)	Event, action or state that initiates the first course of action in a business process. A trigger may also be an input, but not necessarily so.
Task Set	The set of activities that are carried out in a business process.
Inputs	Information received by the business process from external sources. Inputs are not generated within the process.
Outputs	Information transferred out from a process. The information may have been the resulting transformation of an input, or it may have been information created within the business process.
(Measurable) Outcomes	The resulting transaction of a business process that indicates the objective has been met. Producing or delivering the outcome satisfies the stakeholder of the first event that triggered the business process. Often, measures can be associated with the outcome (e.g., how much, how often, etc.).

Below is an example of a business process matrix from Public Health Informatics Institute's *Taking Care of Business: A Collaboration to Define Local Health Department Business Processes.*

Business Process	Goal	Objective	Business Rules	Trigger(s)
	The major health goal that the business process supports. The goal is the end state to be achieved by the work of the health agency and should be defined in terms of the benefits provided to the community/ population or individual/client.	A concrete statement describing what the business process seeks to achieve. The objective should be specific to the process such that one can evaluate the process or reengineer the process and quantify performance measures. A well-worded objective will be SMART (Specific, Measurable, Attainable/Achievable, Realistic and Time-bound).	A set of criteria that defines or constrains some aspect of the business process. Business rules are intended to assert business structure or to control or influence the behavior of the health agency (business).	Event, action, or state that initiates the first course of action in a business process. A trigger may also be an input, but not necessarily so.
Billing and Accounts Receivable	Assurance that the fiscal process supports the strategic goals of public health and complies with all legal and policy requirements.	Process accounts receivable in a timely, efficient and accurate manner to assure cash flow, compliance with legal requirements, and alignment with budgeted public health activities.	GAAP; OMB Circ A-133 (Single Audit); U.S. Government Auditing Standards; City/county charter/law; State law.	Services provided to customer.
Communicable Disease and Clinical Intervention & Treatment	Early identification, treatment and resolution of health condition; Promotion and protection of population's health.	Complete accurate and timely screening, diagnostic and treatment processes; Assure individual compliance with and completion of recommended course of treatment.	Public and private medical providers; State and local health departments; Diagnostic labs and other entities; Hospitals/acute care system; Standardized and best practice communicable disease control.	Client presents with symptoms or risk factors; Periodicity schedule for screening; Referral for services; Alert (population risk); Lab report; Surveillance reports; Clinical diagnosis.
Community Health Assessment	Assessment of the health status and needs of the community.	Compile and analyze data as requested by stakeholders.	Statistical methods; Data collection protocols; Reporting guidelines.	Public Health requirements to track core set of indicators; Identification of data gaps by stakeholders; Continued health surveillance; Health emergency identified by Public Health staff or others.
Environmental & Safety Inspections	Prevention of disease or injury caused by environmental exposure (air, water, food, waste).	Inspect proposed or existing facilities to find and prevent potential sources of disease or injury.	Daycare, restaurant policies, ordinances; Proposals are responded to rather than sought. Complaints are responded to rather than solicited.	Proposal for land use including new facility; Complaints about current land use or facility; Scheduled routine inspection; Incident report.
Field Nursing	Improvement in the health and psychosocial wellbeing of at-risk families.	90% of all families will achieve Healthy People 2010 goals for healthy pregnancies and child development.	Evidence-based interventions; Standardized assessment, data collection, and evaluation; Healthy People 2010 Goals; State laws for child welfare and protection; Health insurance eligibility guidelines; Birth to 3 early intervention standards.	Referrals.
Grantee Administration	Accurate management of financial resources, information and effective use of resources to achieve public health goals.	Assure grant compliance following statements of work and contract requirements. Coordinate grant management to minimize the number of grants limited to one focus area and to maximize those having the broadest focus.	Grantor restrictions and allowances; Local government restrictions and policies on use of grant funding.	Signed/approved contract.
Grantor & Contractee Administration	Enhanced population health through new resource acquisition	Assure grant compliance following statements of work and contract requirements; Engage the service community to provide resources and services; Coordinate grant management in order to minimize the number of grants limited to one focus area and to maximize those having the broadest focus.	Grantor restrictions and allowances; Local government restrictions and policies on use of grant funding.	Announcement of funding for services of interest to an agency.
Immunization Administration	Reduction and elimination of vaccine-preventable diseases.	Maintain x% minimum compliance with community each year with ACIP immunization recommendations.	VFC & PPV regulations; ACIP/vaccine mgmt protocols; Immunization grant requirements.	Request for service.
Pricing	Fees for services that allow extension of public fund sources and assurance of service delivery resources within community public health standards.	Establish fees for services that meet all legal requirements and include schedules that allow appropriate access to services to meet public health needs of the community.	Board directives; policy; City/county ordinances and regulations; Medicare/Medicaid rate schedules; Usual & customary fee standards; U.S. poverty level.	Board request; Need to set fee schedule.

Task Set	Inputs	Outputs	(Measurable) Outcomes
The set of activities that are carried out in a business process.	Information received by the business process from external sources. Inputs are not generated within the process.	Information transferred out from a process. The information may have been the resulting transformation of an input, or it may have been information created within the business process.	The resulting transaction of a business process that indicates the objective has been met. Producing or delivering the outcome satisfies the stakeholder of the first event that triggered the business process. Often, measures can be associated with the outcome (e.g., how much, how often, decrease in incidents, etc.). Please note that an outcome can be, but is not necessarily, an output of the process.
Document service; Credit Payment; Bill appropriate payer; Document A/R by date; Secondary billing; Final notice; Document payments, write-offs and reports.	Time and activity schedules; Payments received.	Invoices; Reports.	Payments received; Timeliness of payments received.
Perform assessment; Provide health counseling; Provide information & referrals; Perform client intake (history, determine need, obtain consent); Prepare inventory (assemble, store medication); Communicate risks as needed; Administer treatment/medication.	Screening and testing reports; Referral information; Medical orders; Insurance reports; Audit claims; Screening testing & disease investigations.	Screening, testing and investigation reports to MDs and state health department; Insurance claims and documentation; Case management reports; Referral to community agencies; Compliance report.	Timely completion of screening, diagnostic and treatment processes; Control or resolution of health condition; Inventory maintained and updated; Tracking complete for funding streams.
Identify appropriate data sets; Develop data sharing agreements; Design and implement surveillance tools; Analyze data; Report information.	New data sources; Survey instruments; Human subject guidelines.	Dissemination of useful health information.	Usable information for planning.
Assess risk and inspecting criteria; Establish minimum and maximum requirements; Design inspection plan; Perform inspections; Monitor results; Report findings; Provide permit decision.	Inspection schedule; Reports; Application proposal; Site characteristics information (location, soil type, other land uses, etc.); Application proposal and details (type of construction, use, etc.).	Inspection findings; Approval or denial of application; Corrective action; Follow-up requirements.	Absence of environmental risk as a result of installation.
Intake/Referral information; Scheduling; Assessment; Family engagement; Health education and counseling; Case Management; Evaluation of service outcomes; Documentation; Billing; Advocacy .	Referral information.	Number of visits; Number of clients; Reports to payers; Follow-up to referring entity; Periodic surveillance reports to Policy Board; Referral to social services and community resources.	Birth outcomes (low incidence of low birth rate); Pregnancy outcomes (reduced smoking); Child growth and development outcomes; Child maltreatment prevention (low rates of confirmed child maltreatment); Breastfeeding (initiation and duration); Mother-infant attachment; Family planning (birth spacing).
Bill per grant contract allowance; document billing date and amount; create A/R; credit A/R; Generate reports; Compliance audits.	Grantor restrictions and allowance expenditures; Audit requirements.	Project reports.	Meeting contract/grant goal; Compliance and/or financial audit results.
Pay per deliverable and report completion or grant policy; Evaluate grantee compliance; Track compliance as vendor or subcontractor with appropriate oversight; Establish reporting process for grantees; Establish payment process to grantees.	Statement of work and contract requirements; Payment for deliverables.	Contract deliverables; Evaluated and approved reports.	Meeting contract/grant goal; Compliance and/or financial audit results.
Perform client intake (history, determine need, obtain consent); Prepare Inventory (assemble, store vaccines); Educate client; Administer vaccine; Document administration; Schedule next visit; Investigate potential adverse events; Collect appropriate fees.	Recommended vaccines; Immunization history; Registration forms; Updated registration; Vaccine.	Client ID/tracking number and cross-index to Immunization Information System; Printed updated immunization record; Vaccine administered with correct technique; Updated inventory; Adverse event reports (employee or client); Schedule for client's next appointment; Immunization education information (to client).	Vaccine productivity targets met; Immunization protocol targets for registered clients met; Appropriate fees collected; Inventory maintained and updated; Tracking complete for funding streams; Risk management data distributed appropriately.
Pricing; Monitor costs; Monitor salaries, overhead; Develop pricing per service; Set service price list; Financial need assessment; Income-based fee schedules.	Policy-driven cost components; Algorithms or calculation masters.	Fee schedules; Price list.	Utilized schedules.

Using the business process matrix

Start with the goals and objectives.

The most important step is for the workgroup to agree on the goal and the objective(s) of a business process. While the goal explains how the business process supports one or more of the goals of public health, the objective is a concrete statement describing what the business process is trying to achieve in support of this goal. The objective should be written at a low level so that it can be evaluated at the conclusion of a project to see whether it was achieved or not.

Objectives often begin with an action verb such as increase, reduce, improve achieve, etc. A well-worded objective will be SMART:

- **S**pecific
- **M**easurable
- **A**ttainable/Achievable
- **R**ealistic
- **T**ime bound

In a collaborative setting, the objective must be written in a way to support multiple organizations. Although there may be more than one objective in a business process, normally, there are usually only one or two *primary* objectives. For example when a restaurant fulfills an order, two primary objectives are (1) to provide an accurate order to the customer as well as (2) to receive payment. Depending upon which part of the process is under analysis, there are other objectives of this process including: inventory control, collecting customer demographic data. During business process analysis, the business analyst will use the BPM to clarify with the group the primary objectives and outcomes that are under consideration.

Having too many dominant objectives associated with one process may indicate a need to divide the business process into multiple processes.

How will you determine if you have met your objective?

The outcome of the business process is the transaction that determines whether or not the objective(s) have been met. When completing the BPM, the group will need to determine which action or transaction in the business process satisfies the objective and completes a cycle of the process. For example, the delivery of the completed customer order, and the receipt of payment are the outcomes for the order fulfillment business process in our discussion.

What sets the business process into motion?

After identifying the objective and outcome, the workgroup should agree on what triggers the business process. The trigger is an event, action or state that initiates the first course of action in a business process. A trigger may also be an input from another business process, but not necessarily so. Identifying the trigger enables the group to proceed forward in describing the events of the business process.

The remaining components of the BPM may be identified in any order through collaborative discussion. The group will often find that they will want to revise the descriptions within the matrix as more of the business process becomes defined. There should be someone who accurately collects the ideas that emerge and the final version should be documented.

The following sections describe what is necessary to complete the remaining columns of the BPM.

Understanding the rules of the business

Once a business process is in motion, the activities are guided by the business rules. The business rules are the logic used to make decisions during the business process. Business rules may be based on policies and procedures, such as legal requirements, organizational standards, or other operating procedures related to that business process. The workgroup should use the BPM to record any known policies, guidelines, and constraints that will influence, guide, or limit activities during the business process.

During task flow analysis, the business rules are considered at decision points within the work flow. Using the order fulfillment business process as an example, we can look at the point in the work flow when the customer service agent checks to see if the completed order is available. This is a decision point: Is the order available? Yes or No. The business rules are used to decide which actions take place based on the answer.

Tradition and culture are sometimes the only known reason that some activities are carried out in certain ways. When this phenomenon occurs, there is a tendency to loosely refer to such restrictions as business rules.

In actuality, these are unwritten procedures that guide behavior within an organization. They can often be identified when an action is justified or explained only in these terms: “This is the way we’ve

always done things around here." Most often, there is no documented procedure in place to support this action.

During business process analysis, the business analyst will challenge the validity of maintaining certain traditional or "undocumented" activities if those activities get in the way of effectively meeting objectives.

What activities take place during the business process?

The workgroup can use the task set column of the BPM to brainstorm and jot down the types of activities that take place during the business process. This high-level summary of the main activities is the *task set*. At this point, the description of the tasks is in a summary format. For example, a few of the tasks listed in the matrix for the immunization administration process include: perform client intake; prepare inventory; administer vaccines; and educate clients.

By detailing this task on the BPM, the workgroup maintains consensus about the activities being analyzed within the business process.

How does the business process relate to other business processes?

Defining the inputs from and outputs to the other business processes in an organization helps the workgroup members and the business analyst understand the various constraints that are exerted externally on the business process. For instance, an input from a process that contains an existing information system or an output to a process that uses another information system can present special considerations for the business analyst when gathering the requirements for any information system to be used to support the process under analysis.

The BPM is used to keep track of the inputs and outputs. The workgroup will record known inputs from other processes into the BPM.

Who participates in the business process and what information is exchanged?

The participants of the business process are called *entities*. An entity is defined as: A person or a group of people who performs one or more tasks involved in a process. The entities are the participants in the process. The exchanges of data or material between entities are transactions.

It is important to understand that an entity does not always refer to an individual. An entity may be an organization, a department within an organization, a certain classification of the public (such as "media" or "infected patients"), or even another information system. For example, in the Immunization Administration business process, the immunization registry is considered an entity because it is accessed directly during the immunization process.

Defining additional business processes using the BPM

The workgroup will determine how narrowly or broadly a business process is defined. In the effort to develop a collaborative definition for the work of public health agencies, it can be challenging to determine the level of specificity for the BPM. Should the business processes be expressed in broad terms encompassing many activities and participants such as "environmental safety inspections?" Alternatively, is it more useful to identify specific program-oriented processes, such as the activities that are carried out during on-site sewage disposal approval or restaurant inspection?

Broad definitions of business processes lend the advantage of being very adaptable for many different organizations. However, the more tightly defined business processes give a more accurate sense of the actual work that is done by a single organization and where process improvements or information systems could be useful. Depending upon the project goals and scope for a collaborative group, the BPM is a tool that can help normalize the discussion.

Business process matrix for Sally's order fulfillment

Directions: Identify each of the following for the process of order fulfillment, as we've defined it for Sally's Sandwich Shop. Note that these categories are usually presented as a row in a table; they're written in a column here just to give you more space to write.

Process Name: Order Fulfillment

Goal:

Objective:

Business Rules:

Trigger(s):

Task Set:

Inputs:

Outputs:

(Measurable) Outcomes:

Business process analysis modeling checklist

Domain Framework

- ☐ Have all of the domain business processes been identified?
- ☐ Is there consensus on the identified business processes?
- ☐ Is there consensus on the business processes that will be analyzed within the framework?

Business Process Matrix

- ☐ Is there consensus on the objective of the business process?
- ☐ Is the objective SMART?
- ☐ Is the objective distinct from objectives of other business processes?
- ☐ Does the objective support the goal?
- ☐ Is there an outcome clearly stated that can be measured to indicate the objective is met?
- ☐ Is the task set unique to this business process?
- ☐ (After task flow analysis) Have all the business rules been captured?

Note: If there are multiple objectives that result from separate task sets, there is probably more than one business processes defined. If the objective is the same as another business process and the task sets are shared, then it may be possible to collapse the two business processes into one.

Task Flow Diagrams

- ☐ Does the task flow diagram represent the expansion of a transaction that is relevant to the project goal and scope?
- ☐ Are all tasks performed by an entity under your organization's control?
- ☐ Does each task represent a discrete work activity or unit of work?

Facilitating business process analysis: Steps to run effective meetings

The art of facilitation enables a group of people to reach an outcome for which they will take responsibility and to which they will be fully committed. Good facilitation skills require:

- Careful observation
- Active listening
- A good sense of timing
- Sensitivity to overall group dynamics

Preparation: What to Do Before the Meeting

- Identify the purpose, or expected outcome, of the meeting. For example:
- Make sure the right people will be there.
- Develop the agenda. The key work of the team will be analyzing the business process.
- Prepare the necessary materials.

Facilitation: What to Do During the Meeting

- Use active listening to get input directed at meeting goal.
- Use consensus-building decision making.
- Deal with difficult people.
- Conclude the meeting and clarify next steps and assignments.

Follow Up: What to Do After the Meeting

- Provide meeting minutes, actions and next steps to all team members immediately.
- Compile meeting documentation on the business process models (from flip charts, templates) into a packet for distribution.
- Distribute the business process models to team members and make any requests for input.
- Collect input/feedback from team members and revise business process models as appropriate. Usually, major changes should only be made with a consensus.
- Establish date for and start planning next meeting session.

Sources: Adapted from "Effective Meeting Facilitation: The *Sine Qua Non* of Planning," by Miranda Duncan, National Endowment for the Arts, Resources, Lessons Learned section at http://www.nea.gov/resources/Lessons/DUNCAN1.HTML and from the *Business Process Analysis Student Guide* © Global Knowledge Network, Inc.