



## Experience Report

### Social Services Application: Essentials and Extensions for Improved Design

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**Abstract:** *This report describes the application of usage-centered design with essential use cases to a social services information system used by social workers to manage their case loads within the context of their county-run social service program and to report data to the state. Essential use cases and other related techniques brought clarity to the system design and development process when it was floundering from a surplus of information at varying levels of detail and from design decisions made prematurely.*

**Keywords:** essential use cases, usage-centered design, application development, use case extensions, task modeling

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#### Characteristics of the Problem Domain

At a very high level, social work is organized around a three step process: Intake, Assessment, and Case Management. The process starts with a request for service. The request is either screened out or it is determined that there is a need for an assessment. At the end of the assessment process there is a determination whether to deliver service and the type of service(s) to deliver. Case management is the activity that occurs during the service delivery process. It includes activities like setting goals and conducting periodic reviews to assess the need for ongoing service and tracking information necessary to meet reporting requirements.

Some of the characteristics of the domain:

- Different program areas have different needs: child welfare, child protection, developmental disability, chemical dependency, and placement each have different eligibility and reporting requirements, work tasks, and timelines. Traditionally, a program specific form was used to collect data for each program area.

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- Intake is a triage-like process, it may take some time and investigation for a situation to unfold. For example, a request for information may turn into a report of maltreatment.
- There is a common service delivery process across program areas, despite the different data collection requirements. The process of determining a need for service, initiating service delivery and finding providers, tracking and managing service is similar.
- Small counties have different needs than large counties and consequently their staff have different roles. For example, work is divided up more in larger counties and smaller counties rely more on informal communications.
- There is not a single definition of 'case' across counties. Some counties use a single case to identify all services delivered to members of the same family group. Other counties define a new case for each instance of service delivery. In addition, there are differing rules about when to create the case during the process.

### **Background Work**

A lot of work was completed on this project, but because there was lack of clarity around the basic conceptual model for the system (the core tasks and participants), we found it difficult to proceed further in the design and development process. Some of the artifacts produced by different participants:

- Advanced Planning (Requirements) Document. A document created for the purpose of having an agreement with the federal government about the system requirements."
- Process flow diagrams.
- Detailed data model.
- Data flow models.
- Project plans which broke the system down into pieces based on customer priorities.
- A large number of use cases written by representative end users. Each use case describes the steps of a particular task in detail and how the design will accommodate the task.
- Narratives describing concrete (although made-up) social work scenarios.
- High level content model - representing the external structure of the system.

### **Detailed, Concrete Use Cases**

The use cases already written were very detailed and included design decisions. The use cases were written to describe a specific step in a process or to describe a concrete scenario of how the process might work in a certain situation. It is an easy mistake to make, if you look at the steps described in a sample social work narrative, it might appear that these should correspond directly with use cases. But, the problem is that there are too many use cases with too much

detail, without a clear understanding of user intent. For example, a list of use cases for intake:

1. Collect and record information about the subject of the report
2. When requesting private or confidential information from someone, inform them of their data privacy rights.
3. Search for current or prior case activity
4. Collect financial information to determine eligibility for service.
5. Receive and log a written report from a mandated reporter.
6. Create a reminder describing a task that needs to be completed.
7. Record the disposition of an initial contact.
8. Record an information only contact.
9. Record an information and referral contact.
10. Make a referral or prepare other initial contact documents.
11. Complete the initial contact activities and pass on the initial contact folder for assessment.

Steps of some concrete narratives which were the basis for the use cases:

**Request for Information** (as described by an intake worker)

1. Receive a call from an individual requesting information about social service programs offered by the agency.
2. Look up resource information.
3. Provide caller with requested information on services, programs or community resources and/or assist the individual in making contact with a resource that can respond to his or her need or problem.
4. Record name of caller if known, reason for call, short description on the nature of the call, date and time of call and agency action taken.

Variation: the individual walks into the agency requesting information.

**Report of Maltreatment: Intake** (as described by an intake worker)

1. Receive call from reporter (school nurse) regarding a boy who does not want to go home because of abuse.
2. Record details including alleged offender, type of report and where incident(s) occurred.
3. Record name and contact information for reporter.
4. Record identifying information about child, parents, other family members or individuals living in the household and any other persons involved. (screening information).

5. Check for past or current social service.
6. Ask reporter to send a written report describing allegation within 72 hours (required by law).
7. Instruct reporter to contact squad to investigate allegation and assess for immediate danger to the child and possible emergency placement.
8. Fax copy of screening information to police.
9. Give copy of screening information to supervisor for assignment to a child protection assessment worker.
10. The supervisor gives the case to the clerical staff with the name of the assessment worker.
11. The clerical staff opens to the case to the assessment worker and when applicable, gives other records on the family to the assessment worker.

Variations:

1. The caller may not be a mandated reporter and must be informed of data privacy rights when asked to provide private or confidential information to social services.
2. In a small county, the person taking the call may also be the assessment worker who will conduct the investigation. There is no handoff after intake, therefore the sequence of steps taken may vary somewhat.
3. If there is an open case for the persons involved, the case worker on the open case will get involved and the actions taken may be based in part on existing knowledge.

### **Efforts at Making Progress**

So what did we do next? In the interest of making progress, we proceeded with the design of parts of the system which were relatively isolated from the core functionality and were high on the priority list. This worked OK to a point, but some of the core issues which were not resolved kept coming up. After getting through the design on two functional areas, the team decided to focus efforts on the design of the whole.

Because we already had all the existing resources listed above and there was pressure to involve a lot of people in the design process and get the user interface designed quickly, we focused on defining content models of the whole system to lead to interface design. This was somewhat useful in that we had people working in small groups and some useful information came out of the process, but again we found that were still missing a clear understanding of the whole and how to structure the application internally and externally around core work tasks. We found that a lot of the materials that had been produced so far had a lot of built in assumptions with no clear basis for the decisions that were made.

How did we get back on track? We identified core users and work tasks.

## User Roles

We identified the core user roles and the workflow between the roles. The results of this work proved to be quite useful in writing essential use cases.

Intake worker: receive a request for service, classify request (determine if additional steps are needed and initiate them), collect information to process request, satisfy requirements as dictated by state statuses.

Assigning worker: classify request by type of service, assign a request for service to the appropriate worker (based on need and availability), determine if agency already has information on the person requesting service, maintain waiting list(s) for service.

Assessing worker: assess and investigate need for service, make a determination, forward for assignment as dictated by determination, satisfy requirements as dictated by state statuses.

Primary case worker: deliver service to client(s), track and manage the service delivery process and satisfy requirements as dictated by state statuses.

Worker: to simplify the roles in some of the use cases, we defined the 'Worker' role to be inclusive of all the types of workers described above.

Next we identified core work tasks. We put together a small design team, got a room dedicated to the design process, and started writing essential use cases and mapping relationships between the use cases.

We still went through several iterations of use cases to find the right level of detail. The more we simplified the use cases, the more coherent the work became. To simplify the steps in the use cases, we looked for activities which were common throughout the process and created separate use cases. Activities like producing and tracking documents and identifying participants. This provided a more flexible model which would allow these activities to occur at different stages of the service delivery process.

Following are the core essential use cases that we came up with. In some ways the first three provide the major story around which we can assemble the others in extends and uses relationships. It was critical that we used extensions in the essential use cases to record the variations from the main path. Again, you will notice that we focused on the purpose of each use case before describing the detail. For intake, rather than having multiple detailed use cases, we have only one which describes the tasks common to all intakes and then use extensions to identify all the variations from the main path. Using abstraction in this way made the overall conceptual model for the system much clearer.

## Essential Use Cases

The table below identifies some of the core essential use cases.

<b>Essential Use Case</b>	<b>Role(s)</b>	<b>Purpose</b>
1. Handle an Incoming Contact	Intake worker	Classify and act on an incoming contact with the agency. Gather information from the source of the contact, make a preliminary assessment of the situation and determine an appropriate course of action.
2. Initiate Service	Assessing worker, Primary case worker	Identify clients and other participants involved in receiving and delivering service. Determine the structure needed to deliver the service and whether a new case is required or service will be delivered within an existing case.
3. Track & Manage Service Delivery	Primary case worker, Supervisor, Reviewer	Manage the delivery of service to a client or to a group of related clients. Implement the service plan, record planned and unplanned activities, describe outcomes, and summarize service delivery.
4. Identify Participants	Intake worker, primary case worker	Identify participants involved in receiving and delivering service in a case.
5. Produce & Track Documents	Reviewer, Supervisor, Worker	Create and manage documents associated with service delivery to a client.
6. Arrange for Service Delivery	Assessing worker, Primary case worker	Arrange for the delivery and payment for an externally-provided service. Identify and select a provider, complete service agreements and seek authorizations for payment.
7. Handle a Referral	Intake worker	Identify a resource and process a referral.
8. Handle a Report of Maltreatment	Child protection worker	In the course of tracking and managing the maltreatment assessment/investigation, record NCANDS data and a determination.

### **The Use Case Model**

A technique that helped us to explore and understand the relationship between the use cases and the importance of understanding these relationships is the use case model [Or use case map. Ed.]. This model helped us to determine the appropriate level of detail for the use cases. It was also useful in prioritizing the different use cases and understanding dependencies.

When one of the user-system interactions in the typical path of a use case is also a discreet user goal, the initial use case uses the use case which describes that discrete user goal. User-system interactions which are outside of the typical interaction path are expressed as extensions to the typical path. Extensions may or may not be use cases.

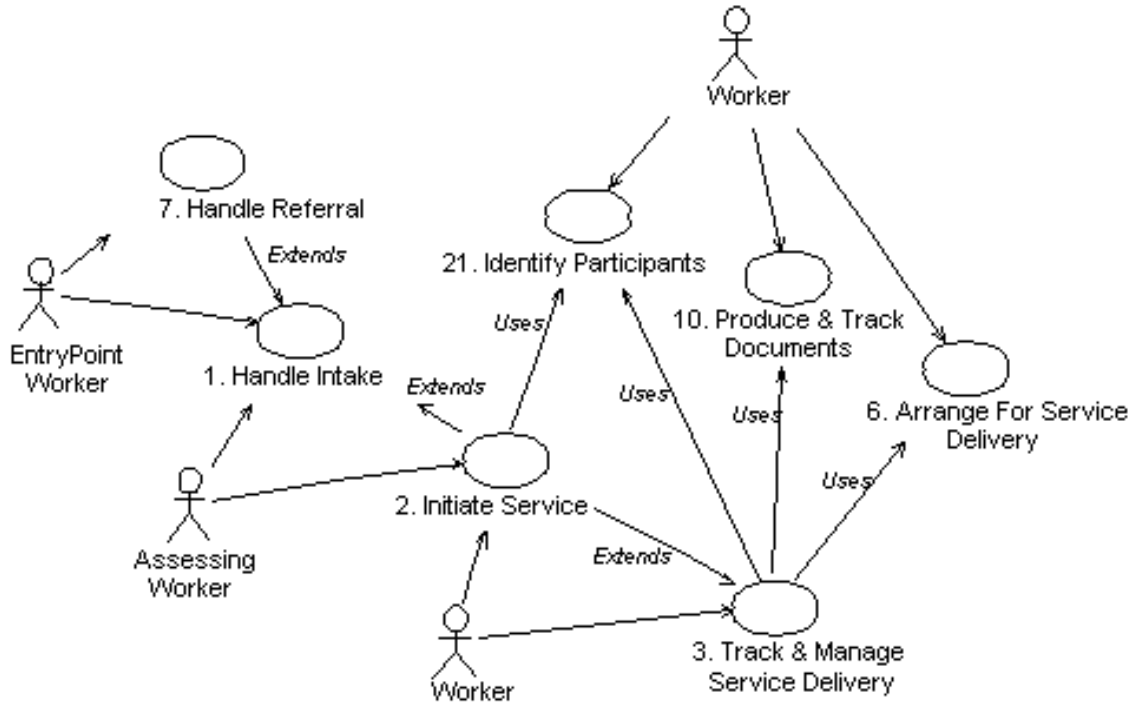


Figure 1 - Portion of the use case map for the social services application.

### Essential Use Case: Handle an Incoming Contact (Intake)

This is the final form in which we described the intake process as a use case.

**Section:** Main

**Actors:** Worker

**Purpose:** Classify and act on an incoming contact with the agency

**Overview:** The worker gathers information from the source of the contact, makes a preliminary assessment of the situation and determines an appropriate course of action.

**Type:** Primary and Essential

USER INTENTIONS	SYSTEM RESPONSIBILITIES
1. Receive an incoming contact.	Provide means for recording information received.
2. Classify contact (assess situation and determine course of action).	(May guide the worker through the classification process)
(Optionally) Access current or past activity of person(s) involved.	Provide access to search capabilities.
(Optionally) Locate resources to fulfill request for information.	Provide access to information on state statutes which must be met.
3. Log who contacted the agency, the reason, duration and disposition.	Create intake contact record.

Extensions:

1. Condition: The contact is by document  
(Extends) Produce & Track Documents
2. Condition: Person needs a referral  
(Extends) Handle a Referral
2. Condition: Person contacting the agency is reporting maltreatment  
Change the contact to a maltreatment report
2. Condition: Client already receiving  
(Extends) Track and Manage Service Delivery: Record Contact
2. Condition: Person needs to be assessed for service delivery  
(Extends) Initiate Service
3. Condition: The person is not already receiving service  
Create an intake contact record and a participant record

Notes on extensions:

- Documents are created and tracked throughout service delivery and the process is the same.
- There are specific rules governing the type of information that is needed and the time lines under which certain actions must be taken. In the case of maltreatment, an assessment is mandated therefore the Track & Manage Service Delivery use case has a condition for maltreatment which contains the detail and keeps it out of the intake process.
- When the client is already receiving service, the contact can be recorded as an ongoing contact in an existing case.

- Service may or may not be initiated during intake that is why it should be treated as a separate use case. Also, additional services may be initiated later during the course of service delivery.

### **Summary and Recommendations**

Doing lots of work and producing lots of documents is not a good substitute for completing the right work. Usage-centered design techniques, especially essential use cases help in focusing on the right work. One test during the design process is to ask yourself if you can describe the business problem succinctly.

When the same issues keep coming up over and over, pay attention to those issues and get to the root of the problem. Focus on understanding why an issue keeps coming up rather than trying to find a crafty solution to 'work around' the issue with technology.

Representative end users are critical in getting the design right, but be sure to define roles for them to do what they do well and do not ask them to design. Uses cases and content models are used to communicate and validate design issues with the users. Sometimes it takes getting to the detailed user interface design before some of the issues are really understood.

Abstraction of use cases is made possible by iterating between the use cases, content models and conceptual object model. When you get stuck on one model- look at the problem from the perspective of the other models.

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