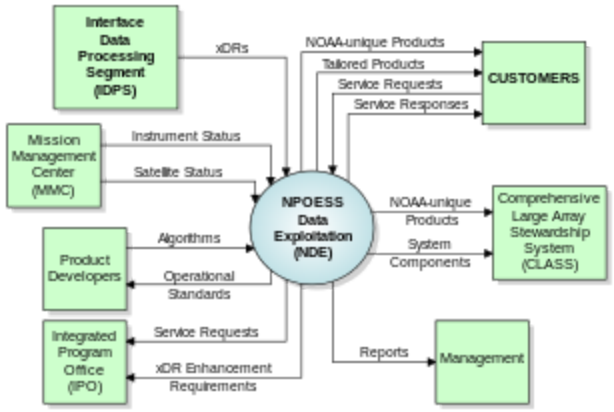
System context diagram

A **system context diagram** (SCD) in engineering is a diagram that defines the boundary between the system, or part of a system, and its environment, showing the entities that interact with it.[2] This diagram is a high level view of a system. It is similar to a block diagram.



Example of a system context diagram.[1]

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Overview

System context diagrams show a system, as a whole and its inputs and outputs from/to external factors. According to Kossiakoff and Sweet (2011):[3]

> System Context Diagrams ... represent all external entities that may interact with a system ... Such a diagram pictures the system at the center, with no details of its interior structure, surrounded by all its interacting systems, environments and activities. The objective of the system context diagram is to focus attention on external factors and events that should be considered in developing a complete set of systems requirements and constraints.

System context diagrams are used early in a project to get agreement on the scope under investigation.[4]Context diagrams are typically included in a requirements document. These diagrams must be read by all project stakeholders and thus should be written in plain language, so the stakeholders can understand items within the document.

Building blocks

Context diagrams can be developed with the use of two types of building blocks:

- *Entities (Actors)*: labeled boxes; one in the center representing the system, and around it multiple boxes for each external actor
- *Relationships*: labeled lines between the entities and system

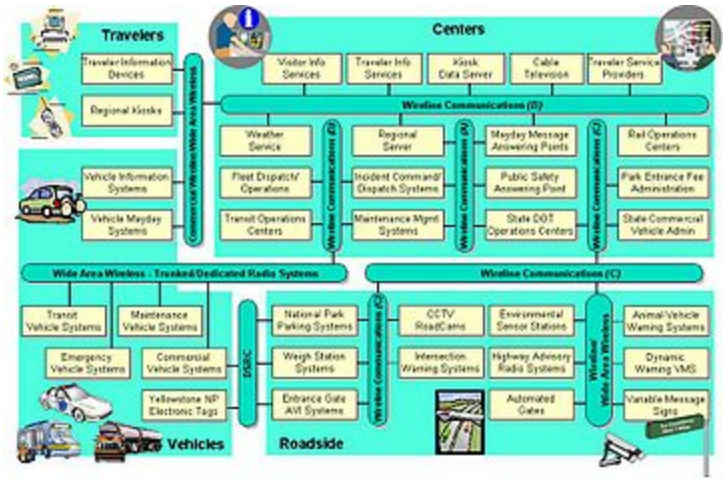
For example, "customer places order." Context diagrams can also use many different drawing types to represent external entities. They can use ovals, stick figures, pictures, clip art or any other representation to convey meaning. Decision trees and data storage are represented in system flow diagrams.

A context diagram can also list the classifications of the external entities as one of a set of simple categories[5] (Examples:[6]), which add clarity to the level of involvement of the entity with regards to the system. These categories include:

- *Active*: Dynamic to achieve some goal or purpose (Examples: "Article readers" or "customers").
- *Passive*: Static external entities which infrequently interact with the system (Examples: "Article editors" or "database administrator").
- *Cooperative*: Predictable external entities which are used by the system to bring about some desired outcome (Examples: "Internet service providers" or "shipping companies").
- *Autonomous (Independent)*: External entities which are separated from the system, but affect the system indirectly, by means of imposed constraints or similar influences (Examples: "regulatory committees" or "standards groups").

Alternatives

The best system context diagrams are used to display how a system interoperates at a very high level, or how systems operate and interact logically. The system context diagram is a necessary tool in developing a baseline interaction between systems and actors; actors and a system or systems and systems. Alternatives to the system context diagram are:



Example of an Architecture Interconnect Diagram.[7]