

# Project Proposal: SD 2.0

## *System Dynamics recast for a modern world of bigger problems and more problem solvers*

This is a project proposal to recast System Dynamics in a modern framework to make System Dynamics methods and techniques accessible and useful to a much larger community of problem solvers. The high level objectives are:

- 1) Draft and approve three formal, version controlled, open source documents:
  - System Dynamics Principles document – the “Principles”
  - System Dynamics Information Model specification – the “Info Model”;
  - System Dynamics Portable Model Format specification – the “PMF”;
- 2) Enhance the de facto modeling methodology with several new basic functions;
- 3) Improve the “toolset” for collaboration;
- 4) Establish a community model warehouse of refined and validated models.

An essential document for the System Dynamics community is a formal, version controlled, open source **System Dynamics Principles** document – a readable report on the breadth and depth of System Dynamics modeling methods and techniques that relate to the question: “What is...?” The “Principles” document is a comprehensive baseline of information that is necessary to complete any follow-on documents.

Another essential document for the System Dynamics community is a formal, version controlled, open source **System Dynamics Information Model** – a software specification to rigorously define the model objects such as stocks and flows, their relationships, their attributes, and the operations performed during modeling and simulation.

A third essential document for the System Dynamics community is a formal, version controlled, open source **System Dynamics Portable Model Format** – a software specification to make a model as portable as a pdf file.

An open source project has recently been created for System Dynamics document creation:

<http://www.sourceforge.net/projects/sdinfomodel/>

Contemporary System Dynamics experts must produce models that are more useful to a broader community. Two enhancements to the de facto System Dynamics methodology are proposed that make models for real-world systems less esoteric – more “real” and understandable to people with less knowledge and less time to appreciate some nuances:

- A Transformation function to mix flows of dissimilar goods into a new good;
- A Time Delay function to explicitly delay a flow for a calculated period of time.

Contemporary System Dynamics tools must enable casual, effortless collaboration. The following enhancements to tools are proposed:

- Implement the “Info Model” and the “PMF” methods in the available applications;
- Adopt a common metadata specification to facilitate model warehousing searches;
- Add a query and parse method to import external variable data from Internet sources.

The “grand” objective:

To put SD 2.0 on a handheld device – for anyone’s use anywhere they happen to be to solve any problem that happens along.

The process to complete the System Dynamics Principles document, the System Dynamics Information Model specification and the System Dynamics Portable Model Format specification is generally represented by the following diagram:

