

**SDNET: An Integrated Communications
Network and Database for the International
System Dynamics Community**

by

Jack B. Homer and Peiwei Mi

University of Southern California

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ABSTRACT

The apparent slow growth of System Dynamics as a field may be due in part to the relative isolation of many practitioners of SD around the world. Not only is the field geographically dispersed and in the minority in most instances, it is also changing rapidly along with the rest of the computer world. In this context, it seems critical that practitioners have easy and timely access to information and people that could both assist and amplify their research and teaching endeavors and give them the psychological support to continue working in the field.

SDNET is an integrated electronic network and database that is intended to provide such access to practitioners of SD around the world. SDNET has been developed and tested at USC's System Dynamics Laboratory as an initiative of the Institute of Safety and Systems Management. It is currently available to be used by anyone who has access to an account on the academic BITNET network or any other electronic network (such as ARPANET) that links with BITNET. The database (SDBASE, housed on an Apple Macintosh) is structured to contain and fully relate information on people and institutions, publications, models, conferences, interest groups, and electronic messages in the world of System Dynamics. This information may easily be added to, modified, or extracted upon request.

This poster demonstrates some of SDNET's capabilities and discusses its current status and plans for the future.

Current Structure and Services of SDNET

Structure

- Distribution list maintained within BITNET at a node (SDNET@USCVM) on USC mainframe.
- Membership available by sending request to HOMER@USCVM.
- Database (SDBASE) maintained in REFLEX PLUS files on SD Lab Macintosh, with modem communication to mainframe.

Services

- Send electronic mail to an individual or a group of individuals, or to the entire SDNET membership (via SDNET@USCVM).
- Request SDBASE report (information extract) by sending appropriate message to HOMER@USCVM.
- Modify or add to SDBASE by sending appropriate message to HOMER@USCVM.
- Real-time electronic conference among any number of SDNET members.
- BITNET links over one thousand universities and institutions around the world and has gateways to other networks (e.g., ARPANET). BITNET communications and services are free of charge.

File Structure of SDBASE

- Linked files contain information on people and institutions, publications, models, conferences, interest areas/groups, and electronic mail.
- People file--individuals and institutions: name, title, mailing address, telephone, electronic address, Society membership status. Linked to models, publications, conferences, interest areas, and mail.
- Bibliography file--publications: authors, title, publisher, length, date, and category (book, thesis, journal article, working paper, conference paper). Linked to people, interest areas, models, and conferences.
- Model file--background on computer models including authorship, development, size, run time, key variables, behavior modes, policy findings, etc. Also contains lists of equations and definitions if available. Linked to people, publications, and interest areas.
- Conference file--SD conferences: host institution, location, dates, organizers. Linked to people and publications.
- Groups file--interest areas and groups. Linked to people, publications, models, and mail.
- Mail file--SDNET mail: date, sender, receivers, subjects, complete text. Linked to people and groups.

Current Contents of SDBASE

- Currently 50% of SDBASE is information on publications. Another 30% is information on people.
- Bibliography file includes complete list of publications from most recent SD Newsletter (1984).
- People file includes complete list of individuals and institutions from SD Society mailing list. Includes both current and past-due members as of November 1987.
- People file includes complete list of individuals from Dartmouth Resource Policy Center mailing list.
- People file includes all authors of abstracts and other correspondence to Dr. Homer regarding ISDC'88.
- Conference file includes information on ISDC'88.
- Mail file includes all SDNET mail to date plus electronic network addresses of all members.

Summary Report on People and Institutions

As of Friday, January 22, 1988 , SDBASE contains 678 people and institutions with address information on file. These people and institutions come from 43 countries.

<u>Country</u>	<u>Current</u> <u>Indiv.</u> <u>Members</u>	<u>Past</u> <u>Indiv.</u> <u>Members</u>	<u>Current</u> <u>Instit.</u> <u>Members</u>	<u>Past</u> <u>Instit.</u> <u>Members</u>	<u>Indiv.</u> <u>Non</u> <u>Members</u>	<u>Country's</u> <u>Total</u>
Canada	10	4	3	1	1	19
Denmark	6	2	1	2	4	15
F.R. Germany	4	1	4	5	7	21
France	4	7	1	3	3	18
India	2	5	3	5	2	17
Italy	5	4	3	3	1	16
Japan	10	0	4	1	3	18
Netherlands	6	3	3	3	2	17
Norway	3	0	3	5	2	13
P.R. China	8	3	1	0	57	69
R. China	3	1	2	0	4	10
Spain	6	1	4	4	2	17
U.K.	8	12	9	20	3	52
U.S.A.	168	59	23	9	32	291
Others w/<10	31	20	13	14	7	85
<u>Total:</u>	274	122	77	75	130	678

Summary Report on Publications

As of Friday, January 22, 1988 , SDBASE contains 1244 publications.

<u>Category</u>	<u>Publications</u>	<u>Authors</u>	<u>Authors w/Address on File</u>	<u>Authors' Countries</u>
Books	70	73	22	6
Theses	65	66	15	5
Articles	432	271	56	12
Conference Papers	671	499	232	24
Working Papers	6	9	5	1
Comprehensive	1244	738	245	25

Report on An Individual Person

Homer, Jack B.

Institution: University of Southern California

Position: Assistant Professor of Systems Science

Address:

Institute of Safety and Systems Management, System
Dynamics Lab, Room 109, University of Southern California,
Los Angeles, CA 90089-0021

U.S.A.

Telephone No.: (213)743-4669

Network Address: HOMER@USCVM

SDS Membership Status: member

Professional Interests: Biological and Ecological Models
Business and Technology Models
Growth of the Field
SDNET

Publications on File: 17

Models on File: 1

Mail Messages Sent: 1

Mail Messages Received: 23

Individuals and Institutions Listed Above: 1

Report on An Individual Model (Page 1)

Full Model Name: Emerging Medical Technology Model

Abbreviated Name: EMEDT

Author: Homer, Jack B.
University of Southern California

Sponsor: National Heart, Lung, and Blood Institute (1980-1981)

<u>Documents:</u>	<u>Title</u>	<u>Category</u>
	A Dynamic Model for Analyzing the Emergence of New Medical Technologies	Thesis
	An Extended Diffusion Model with Application to Evolving Medical Technologies	Paper

Period of Development: From 1980 To 1983

Application Area: Business and Technology Models

Case Studies: Cardiac Pacemaker, Clindamycin (antibiotic drug)

Information Sources: Technology diffusion literature, medical literature, physician interviews, company rep interviews

Language: DYNAMO Computer: IBM PC-AT

Model Size (bytes): 10,000 Execution Time: 15-30 sec.

Report on An Individual Model (Page 2)

Full Model Name: Emerging Medical Technology Model

Major Variables: procedures, recipients, benefit-harm ratio, functional capability, recommending physician fraction, eligibility fraction, follow-up reports, perceived benefit-harm ratio, marketing effort, technical development

Time Horizon: 10-40 years

Major Behavior Modes: S-shaped growth, rise-and-decline, rise-decline-and-rebound

Major Policy Findings:

- 1 . Restrictions on availability of technology may be of neutral or negative value even when the technology is used inappropriately at first. Such restrictions tend to slow down the process by which use becomes appropriate through accumulated experience. They are of positive value only under certain narrowly defined circumstances.
- 2 . A clinical registry of cases focusing on treatment outcomes, frequently updated and reported to physicians, should help to prevent traps of complacency or inactivity which can slow down the transition to more appropriate use.

Summary Report on SDNET Membership

As of Friday, January 22, 1988 , SDNET has 19 members
from 8 countries.

<u>Last Name</u>	<u>Country</u>	<u>Network Address</u>
1 Bronson	U.S.A.	PF25010@NJECNVM
2 Dangerfield	U.K.	bs01%uk.ac.salford.sysa@ac.uk
3 Engelbrecht	Denmark	FLGEXT@NEUVM1
4 Forrester	U.S.A.	JECON@MITVMA
5 Gaynor	U.S.A.	SED9FYN@BOSTONU
6 Geinzer	U.S.A.	r59402@d1.DARTMOUTH.EDU
7 Hall	Canada	RHALL@UOFMCC
8 Homer	U.S.A.	HOMER@USCVM
9 Jacobsen	Israel	ierah01@technion
10 Meadows	U.S.A.	13534h@d1.dartmouth.edu
11 Rahn	Canada	4300JRAH@LAVALVM1,4300JRAH@LAVALVM2
12 Randers	Norway	ADM87003@NOBIVM
13 Richardson	U.S.A.	gr383@albny1vx
14 Roberts	U.K.	bs24%uk.ac.salford.sysa@ac.uk
15 Saeed	Thailand	APPCOMEB.AIT%EMSTUMS.Ontyme.Tymnet@OFFICE-1.ARPA
16 Watts	U.K.	MCS93%UK.AC.BRADFORD.CENTRAL.CYBER2@AC.UK
17 Wheeler	U.K.	MCS68%UK.AC.BRADFORD.CENTRAL.CYBER2@AC.UK
18 Wolstenholme	U.K.	MCS547%UK.AC.BRADFORD.CENTRAL.CYBER2@AC.UK
19 Zahn	F.R. Germany	JCAH@DS0RUS0

Objectives and Plans

- Promote SDNET and build membership.
- Place standard summary reports from SDBASE in BITNET file server for quick and easy access by all SDNET members. Would eliminate need for many messages to USC requesting information extracts, resulting in faster turnaround for remaining "special" requests and inquiries.
- Build file of SD models. Solicit assistance of Society membership to this end.
- Create quarterly hard-copy newsletter containing updated SDBASE reports and SDNET mail of general interest to Society membership. Distribute newsletter to all Society members.
- Hire individual as "SDNET Administrator" to maintain system and respond to requests and inquiries. Administrator would also help to pursue items listed above.