Cybernetics and Systems Design Timeline

This is a draft of a timeline describing major events in the development of cybernetics, operations research, systems analysis, systems engineering, and systems design. It is still incomplete.

Antecedents:

1868
Maxwell publishes
On Governors

For Scientific Method:

- Robert Grosseteste
- Ochham
- Francis Bacon
- Henri Poincare

Above the timeline (left to right):

1943
Bigelow, Rosenblueth, & Wiener publish
Behavior, Purpose, and Teleology

1943
McCulloch & Pitts publish
A Logical Calculus of the Ideas in Nervous Activity

1944
First conference on "Circular Causal and Feedback Mechanisms in Biological and Social Systems" (aka the Macy Conferences)
Ashby, Bateson, McCulloch, Mead, von Foerster, von Neumann et alia attend

1948
Wiener publishes
Cybernetics: Command and Control in the Animal and Machine

1949
Shannon and Weaver publish
Mathematical Model of Communications

1952
Wiener publishes
The Human Use of Human Beings

1952
Ashby publishes
Design for a Brain

1953
Last of the Macy Conferences

1956
Ashby publishes
An Introduction to Cybernetics

1956
Boulding publishes
The Image

1960
Miller, Galanter, & Pribram publish
Plans and the Structure of Behavior

1961
Pask publishes
An Approach to Cybernetics

1968
von Bertalanffy publishes
General Systems Theory

1968
Churchman publishes
The Systems Approach

1969
Simon publishes
The Sciences of the Artificial

1969
Ramo publishes
Cure of Chaos: Fresh Solutions to Social Problems through the Systems Approach

1971
Conference on Systems Approach at Caltech includes Churchman's
A Critique of the Systems Approach to Social Organizations

1971
Churchman publishes
The Design of Inquiring Systems

1972
Hoos publishes
Systems Analysis in the Public Policy: A Critique

1972
Rittel & Weber publish
Dilemmas in a General Theory of Planning

1972
Rittel publishes
On the Planning Crisis: Systems Analysis of the First and Second Generations

1975
Pask publishes
Conversation, Cognition, and Learning

Related developments:

- Account Planning (in Advertising)
- Decision Support
- Scenario Planning
- Quality Management (TQM)
- Participatory Design
- Applied Ethnography
- Usability Research

Timeline axis: 1930 — 1940 — 1950 — 1960 — 1970 — 1980 — 1990 — 2000

Below the timeline (left to right):

1936
British Air Ministry establishes Bawdsey Research Station for radar experiments

1937
Exercises at Bawdsey involving air defense warning and control system

1938
Follow-up exercises at Bawdsey origin of Operations Research (OR) in both the UK and US

1940
National Defense Research Committee (NDRC) established in US
Vannevar Bush appointed to run it

1941
OR sections set up at RAF command centers

1945
Simon publishes
Administrative Behavior

1945
Bush publishes
Science – The Endless Frontier

1945
Bush publishes
As We May Think

1946
Research and Development Corp (RAND) founded in Santa Monica

1952?
Herbert Simon spends summer at RAND

1955
Ramo-Woolridge Corp gets first contract applies systems engineering principles to Atlas and Titan rocket projects

1962
First conference on Design Methods at Imperial College in London, includes Alexander, Archer, Froshaug, Jones, Thornley, and Pask

1962
Engelbart publishes
Augmenting Human Intellect: A Conceptual Framework

1962
Rittel leaves Ulm arrives at UC Berkeley

1962
Gerstner publishes
Designing Programmes

1962
Asimow publishes
Introduction to Design

1962
Hall publishes
A Methodology for Systems Engineering

1962
Alexander publishes
Notes on the Synthesis of Form

1964
Archer publishes
Systematic Method for Designers

1964
Rittel publishes
The Universe of Design based on his seminars at Berkeley

1965
Alexander publishes
A City Is Not A Tree

1965
Conference on Design Methods at Birmingham

1967
Wissing and Total Design create routing system for Schipol Airport

1967
Papanek publishes
Design for the Real World

1967
Symposium on Design Methods at Portsmouth

1970
Negroponte publishes
The Architecture Machine

1970
Jones publishes
Design Methods

1972
Negroponte publishes
The Soft Architecture Machine includes essay by Pask

1973
Simon publishes
The Structure of Ill-Structured Problems

1973
Schein publishes
Professional Education

1973
Koberg & Bagnell publish
The Universal Traveler

1974
Argyris & Schön publish
Theory in Practice: Increasing Professional Effectiveness

1974
symposium on Design Theory at Columbia University

1977
Kuhn publishes
The Essential Tension: Selected Studies in Scientific Tradition

1977
Sanoff publishes
Methods of Architectural Programming

1977
Peña publishes
Problem Seeking: An Architectural Programming Primer

1980
Design Research Society Conference Portsmouth