Social System
System Description

Abstract

A living social system provides its members a way to achieve a purpose that no member can accomplish on their own.

The living social system consists of the following elements:

- Social Network
- Social Structure
- Emergent Culture

The members of the social system are typically organisms (e.g. bees, ants, human beings, bacteria, etc.). A human activity system is a type of social system where the members are predominately human beings (people / person). Aspects of human activity systems are also covered in this document.

This document provides a description of the systems and concepts used in a Social System within the set of Living Systems. This document describes the various elements of the Social System and how these relate to the various systems derived from this system type. The social system also integrates the Person (Human Being).

PDF:: System Description: Person (Human Being), Version 2.4, 04-April-2023

PDF:: System Description: Social System, Version 0.10, 03-November-2020

Author and Version

Bruce McNaughton, Version 0.10, 03-November-2020

Contents

Revision History

V0.10 03-November-2020 Integration with Living Systems and various edits.

V0.9 24-October-2020 Repackage all details into the revised system description.

V0.8 08-June-2020 Integrate Social System and Human Activity System into a single document. The HAS is a type of Social System

V0.7 03-February-2020 Revision of Social system models to match latest definitions (e.g. with organism).
V0.6 31-January-2020 Review and update Social System and Person models .. related to emotion and feelings from Damasio.
V0.5 23-November-2019 Edits from review.
V0.4 12-October-2019 integrate PPT with this document; revise definitions to align to glossary
V0.3 05-October-2019 update to latest images and include leadership.
V0.2 05-April 2019 Update with new 'Behaviour' thinking.
V0.1 01-November-2018 Update from powerpoint slides.
V0.0 08-July-2018, Initial Draft

Acknowledgments

I sincerely appreciate the conversations and dialogues that shaped my thinking:

First Capra Course Study Group: Dave Cole, Seymour Hersh, Drew McNaughton
INCOSE UK: Duncan Botting, Hillary Sillitto, Simon Perry, Stephen Powley
Ent Arch: Peter Murchland, Tom Graves, Leonard Fehskens, J. D., Sally Bean, Rich Hilliard (ISO 42010)
STN: Gene Bellinger, Geoff Elliott
GilbFest: Tom Gilb, Will Hopper, Trevor Lea-Cox, Jeff Sutherland
ONS: Ben Humberstone, Ian Cope
Fritjof Capra: the Capra Course and the opportunity to help create a glossary (Rosetta Stone).
Oxford Martin School: Kate Rawort h, Lord Nicholas Stern, Myles Allen
UML: .Jim Arlow, Ila Neustadt, Craig Larman
Leadership / PPM: Meg Wheatley, Andy Murray, Craig Kilford..
Insipirations: Peter Drucker, Jay Galbraith, Russell Ackoff, Donella Meadows

Living Social System

A living social system provides its members a way to achieve a purpose that no member can accomplish on their own.

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PDF:: System Description: Person (Human Being), Version 2.4, 04-April-2023

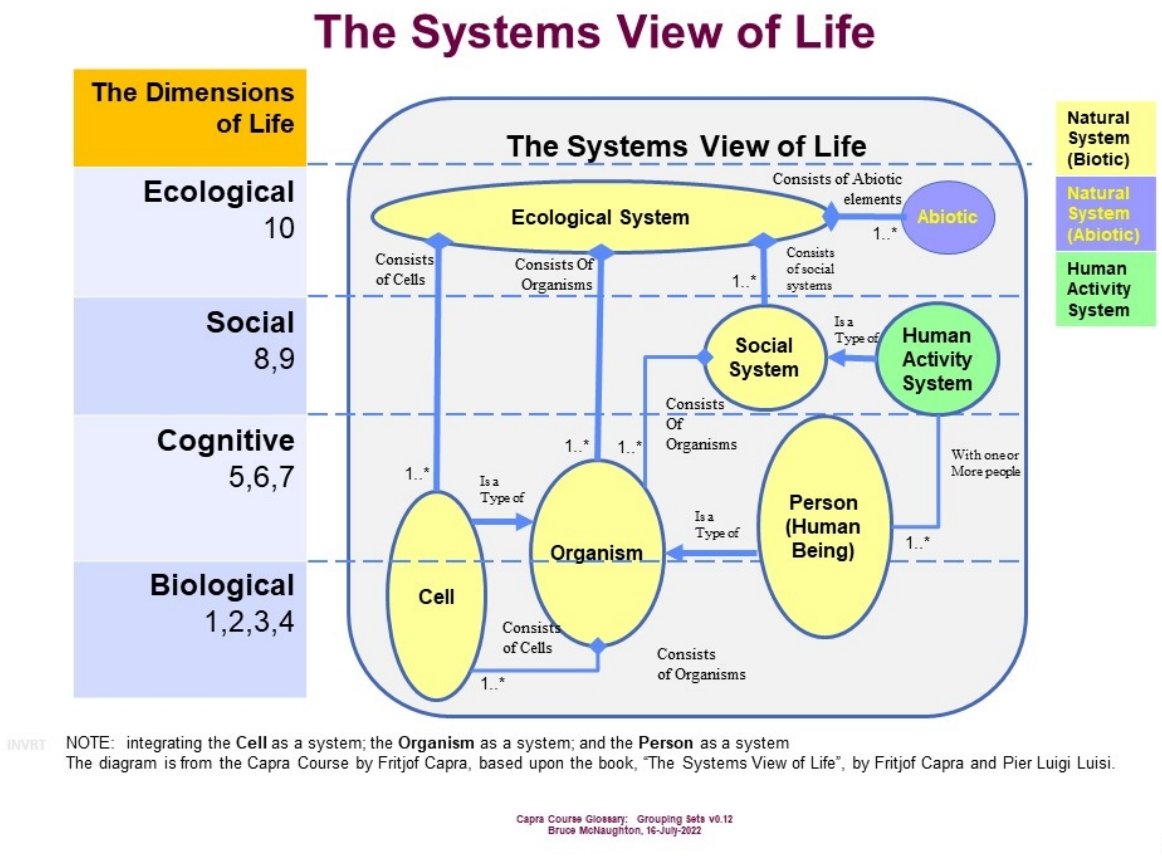
PDF:: System Description: Social System, Version 0.10, 03-November-2020

Background

This model of a Social System comes from the concepts included in the various books, lectures and movies that Fritjof Capra related to the systems view of life. The key sources for this paper come from the following sources:

- the textbook, The Systems View of Life. Specifically, sections 14.1 through 14.4.
- the 12 lectures in the Capra Course based upon the Systems View of Life, specifically lectures 5, 7, 8, and 9.
- the book, The Hidden Connections, providing additional information on social systems
- the book, Leadership and the New Science, by Margaret Wheatley
- the book, Organizational Culture and Leadership, by Edgar Schein
- and many other books related to social systems

The living systems addressed by the Capra Course and the Systems View of Life are shown in the next picture:



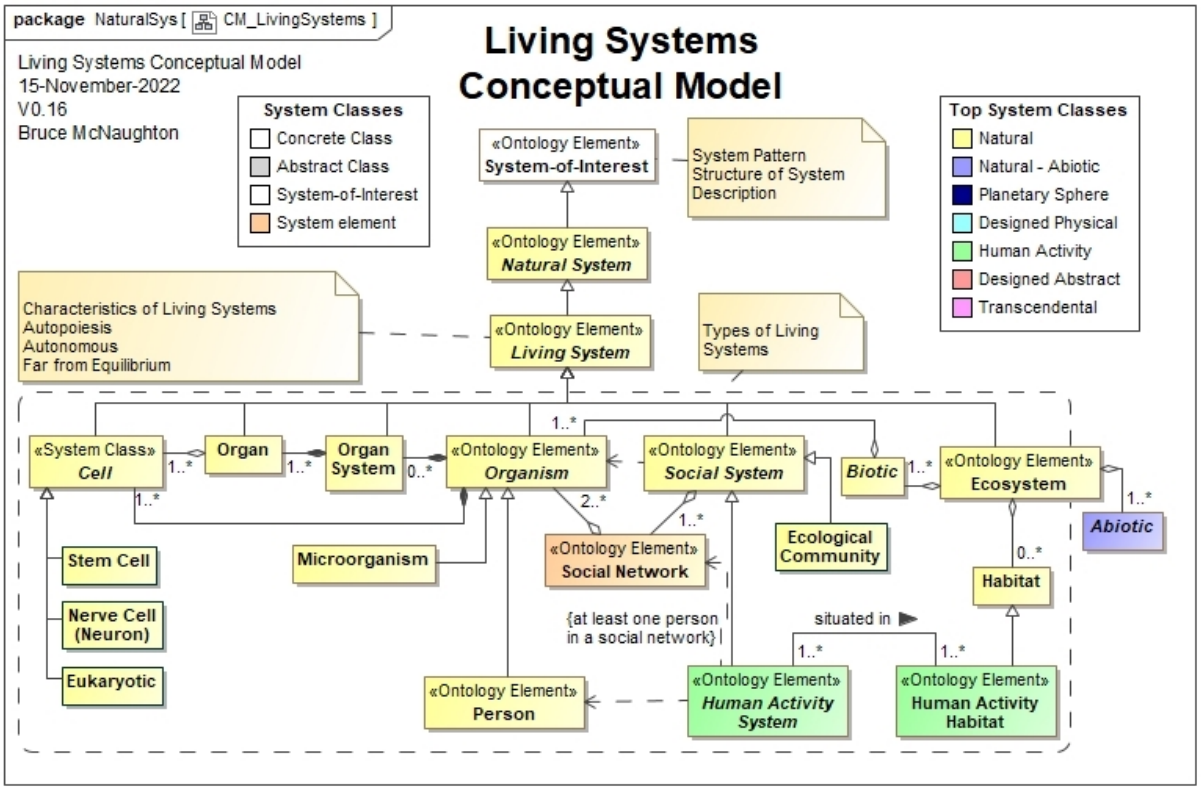
This System Description focuses on the Social System as a living system and highlights the social system as the basis for a Human Activity System (HAS), This diagram also highlights the relationship to other living systems.

The social system is a fundamental system type that forms the basis for all human activity systems, such as the Enterprise, Household, Government, Community of Practice, and Financial Institutions.

This document also builds upon the system concepts used to create the system descriptions used in this document. The links in each of the headings of a system description contain information about the system viewpoint.

Living Systems

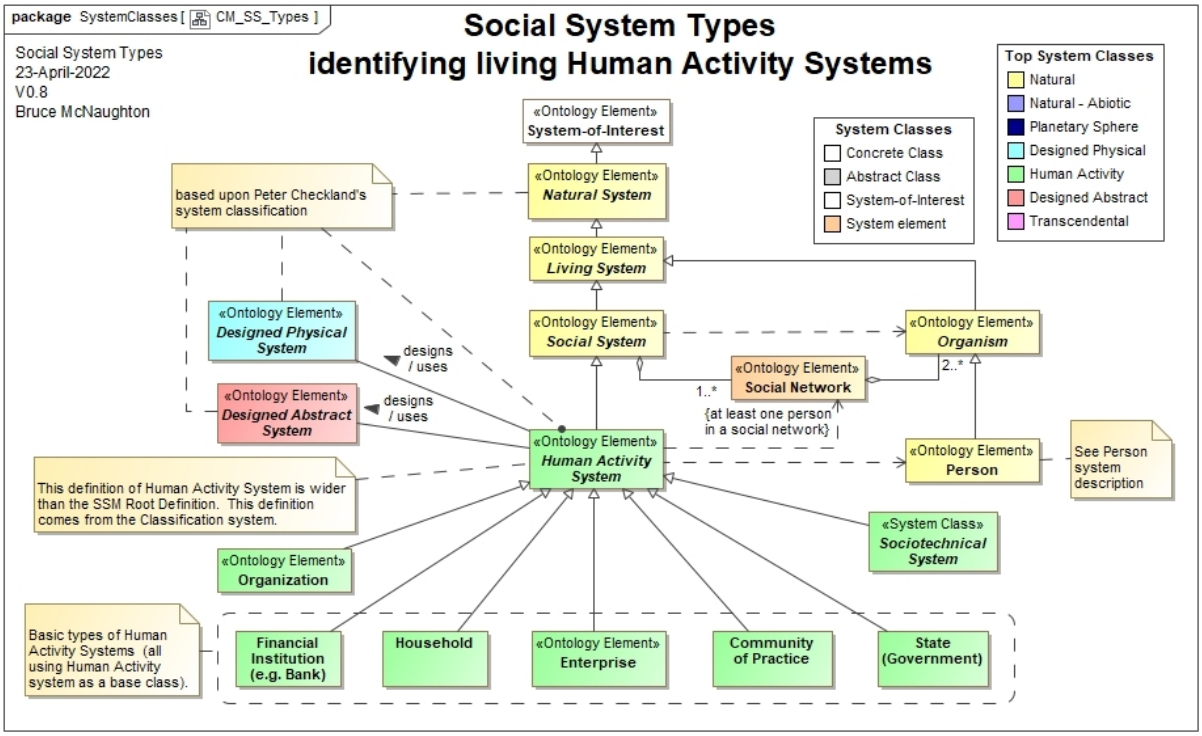
The following diagram highlights the various types of living systems.



The Social System

This document describes the social system as a living system. A system description is provided for the social system along with various topics related to the various components (parts) and processes (the dynamics) of the social system. Communication is key to the aliveness of the organization.

The following conceptual model shows the position of the abstract social system model and its use to define human activity systems. Human Activity Systems are social systems that are predominately human beings (people / person) as members of a social network.



The Person

A person is a type of organism. The system description of a person is included in this document as many of the systemic properties of a person are needed to form a healthy living human activity system. Though any person in the human activity system can take on the role of a leader, the specific skills, knowledge and experience make this role much more effective. These aspects are covered in this document.

Notes

Many of the terms used in this document come from the new Capra Course Glossary and the associated mapping back to the system concepts used to create the system descriptions.

The social system model is a Fractal Model (self similar when applied).

Social System have capabilities and states that differentiate social systems in the following way:

- The difference between one social system and another is the set of capabilities (people, process and technology) they need to deliver their purpose.
- These capabilities relate to their contribution and fit within the social structure.

Social Systems are Networks of Networks within an organization

- All social systems are structurally coupled within an organization.
- Key linking of the organization is through the manager of a team as a social system. These managers are generally part of two social systems 1 as manager and 1 as team member.

Informal vs Formal Networks of communication

- In the conceptual model, there is only one social network of communications and one set of people (members).
- This network of communications can have conversations that are both formal and informal.
- Creating an open and trusting network of communication will align both the formal and the informal and value creativity and innovation to create emergence and adaptation.
- Aliveness arises from the coherence of the formal and informal networks of communication.

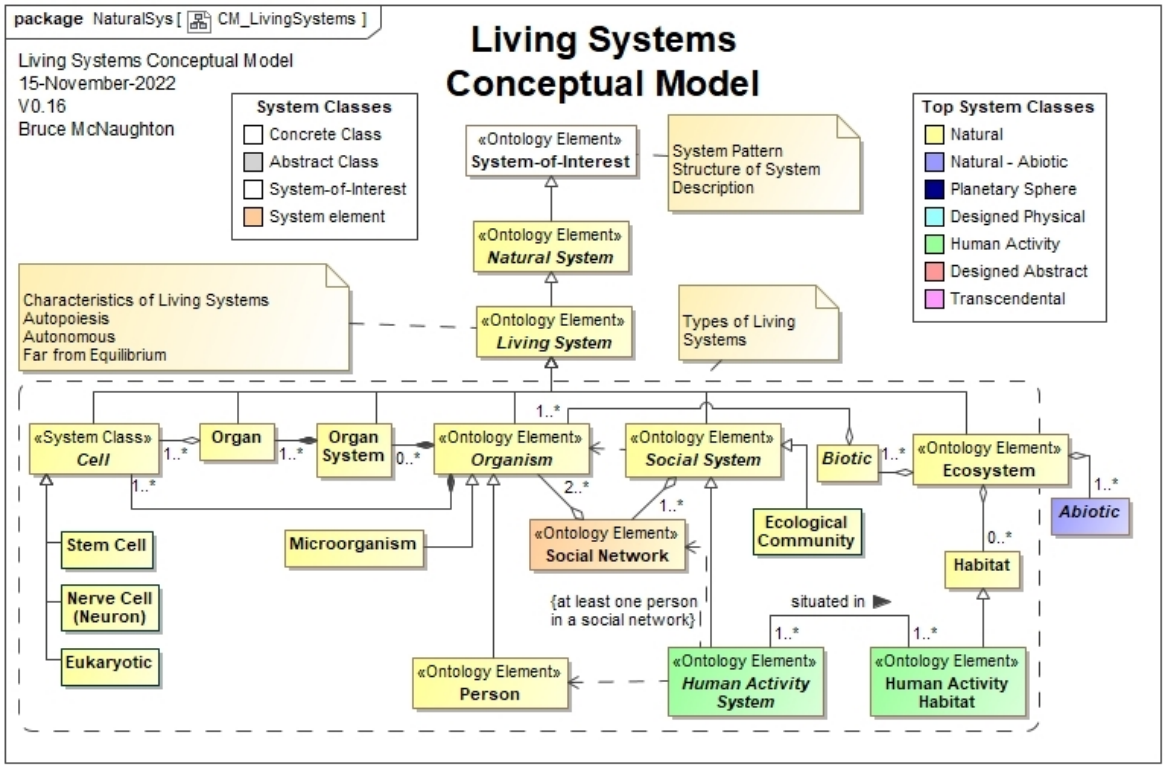
View: System Name and Class

This section identifies the system of interest for this system description

Name: Social System

Based on: Living System

A social system Is an autonomous living system.



Abstract System: This system has been identified as an abstract system that cannot be implemented directly. The abstract system establishes a shared pattern of characteristics that any system can use to describe its unique characteristics when referenced in the 'based on' list above. These references are described using a generalization association in UML.

Applicable definitions:

- Social System
- Social Network
- Social Structure
- Network of Communication
- Communication
- Technology.
- Culture
- Sociotechnical system

The social system is a fractal pattern. Any social systems within a social system can use the same system description.

The basic social system pattern includes Organisms as the key part of the social system. This works for Bees, Ants, People, etc. When the organisms are predominately Human Beings (People / Person), the social system is called a Human Activity System. This system description includes some sections that are more specific to human activity systems.

The human activity system can be an enterprise, household, community of practice, financial institution, government, etc.

Examples of organism based social systems:

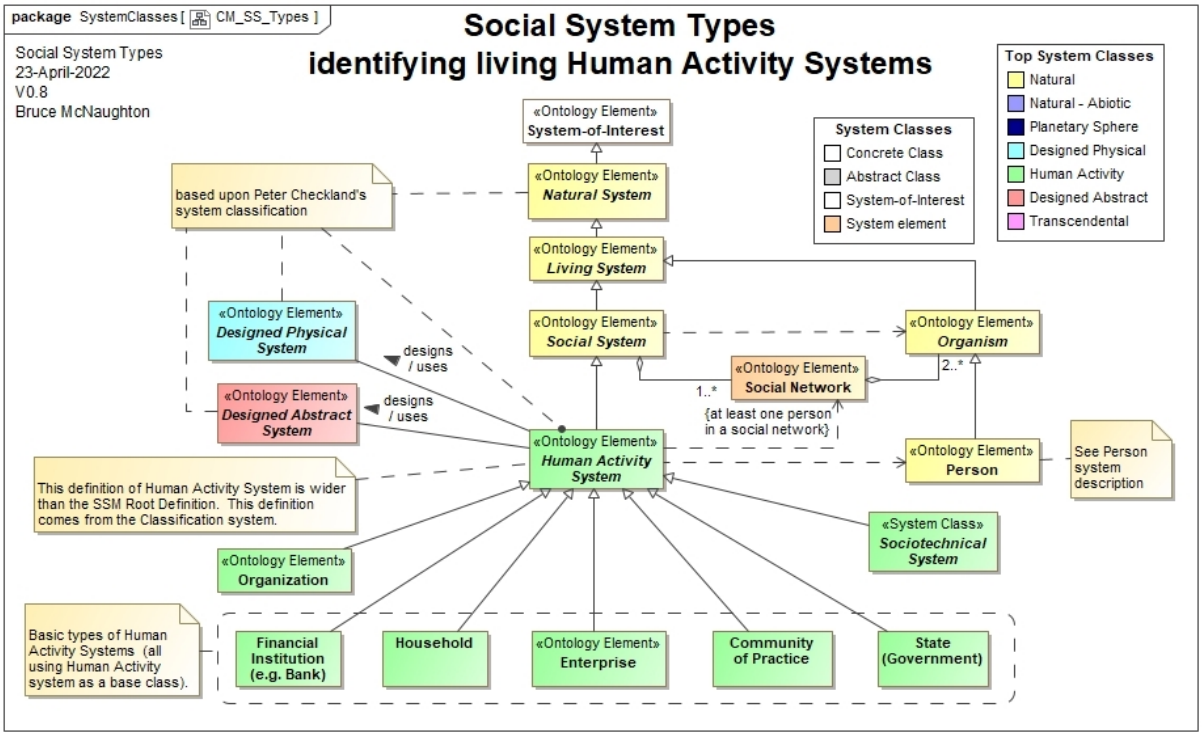
- Bees and Beehive
- Ants and Anthills
- Flocks of birds and murmurations

Examples of human activity systems,(predominately organisms as Human Beings (People / Person))

- Organizations / Enterprise
- Person and their pets
- Sheep Dog Trials (Farmer, sheep dog, and sheep)
- African tribes and elephants

Social System Types

Note: Green boxes are living systems



View: System Purpose

The stated or implied purposes for any Social System are typically:

- To use energy and matter in a sustainable way to sustain the life / purpose of the social system.
- Establish a cultural identity
- To ensure the survival of the organisms within the social system (community).

For a Human Activity System, the following are generally established:

- a specific purpose and objectives for the human activity system to contribute capabilities / results to the wider society, the economy and the individual
- vision, values and beliefs for the culture (common context of meaning).

View: System Properties

System properties Overview

In social system properties support the realization of the purpose of the social system. These are created through the interaction of the members of the social system.

Systemic Measurable Variables

The systemic properties created or used through the interaction of the system elements. This includes both desired and undesired.

- Measurable benefits / contribution
- Performance (outputs / outcomes)
- Well-being

Systemic Capabilities or Functions

The capabilities or functions the social system provides to realize the purpose of the social system.

The capabilities the system needs to change and adapt:

- communication of interests and concerns
- Leadership to create the environment (Trust, Collaboration, etc)
- Development

System States

A person may be in a number of different states:

Transformational:

The various transformational states that the Social System can be in.

- Need Established for Social System
- Leader identified (selected from members of social system)
- Social System setup complete
- Operational (Healthy)
- Operational (Illness)
- Releasing
- Closed

Operational

The following are various operational states for the Social System:

- Alive and working
- Dormant (on hold)
- Stressed
- Distressed (reacting to a disruption).

Systemic Quality Properties

Culture (common context of meaning)

- including: values and beliefs, language, rituals, shared knowledge base, sense of belonging, etc.
    - values and beliefs including: Trust, openness, collaboration, dialogue, etc
- establishes a boundary and membrane around the members of the social system.
- the culture can block or allow external information, energy or matter to enter the social system

Health / Aliveness

Stakeholder and member satisfaction.

Temporal qualities (life time):

- Short term or temporary (social systems formed, contribute and then are released)
- Enduring social Systems (social systems that endure as people join and leave; a nation, enterprise, or other type of community of practice)

System Quantity Properties

- The size of the social network (count of members)
- Frequency of communication

Culture

A social system is a self generating network of communications in a social network within a cultural boundary of its own making.

Culture as emergent property

- Each person 'brings forth' their own values, beliefs, attitudes and behaviour based upon the open communication with other members within the social system
    - Also relates to 'Internalization', 'Enculturation', and 'Socialization'.
- A common context of meaning emerges through these open communications. Through associated actions, formal social structures may be created to form elements of the common context of meaning as shared knowledge, rules, values and beliefs
- These elements are reinforced and shared through open communication and opportunities to learn using common Myths, Rituals, Ideology, Stories, Symbols, Logos, etc. creating a climate of trust and support.

Culture as membrane / boundary

- Establishes a boundary through a shared sense of identity, purpose and belonging.
- Determines what goes in or out of a social system
- Constrains the actions of the people within the social system
- Forms the basis for 'purposeful' and 'collectively 'meaningful' actions / activities.
- Decisions and actions are taken consistent with this common context of meaning.

Culture as hologram

- Each person within the social system carries their mental images and language of the common context of meaning.
- The coherence of each person's mental images and language create the intensity of the culture of the social system

Health and Aliveness

> Health is a state of well-being resulting from a dynamic balance that involves the physical and psychological aspects of the organism, as well as its interactions with its natural and social environment (from notes and book.. This will change for the social system…)

A healthy system is in dynamic balance with all of the elements of the system (people, structure, culture, technology).

The normal state of dynamic balance for a system relates to its well-being and aliveness

The normal state depends upon the activities or load the social system is under at a specific point in time.

Sources of disturbances.

- A living system is structurally coupled to its environment and may be disturbed by any source. The structural changes that result may knock the system out of balance.
- Disturbances may also come from inside the system which also have an effect of knocking the system off balance. Internal conflicts of interest through networks of communication may create disturbances (aliveness).

View: System Stakeholders and Concerns

The Stakeholders and their concerns or interests in this system-of-interest are described in this section.

Team members: with unique skills, knowledge and experience, including:

- Leader (s) (aka manager(s)): a member of the social network taking on leadership / management responsibilities / activities.
- Members with specific needs and expectations.

External Stakeholders, including people who:

- have the ability to create or release a social system (e.g. provide funding or sponsorship)
- have regulatory / governance responsibilities related to maintaining the purpose, and contribution
- represent suppliers or customers needs, expectations and experiences

View: System Environment (Context)

Other Organisms outside of the organization

- Interacting with the social system

People outside the social system.

- People who may want to join the system.
- People who receive value from the system.
- Person to person communication across the boundary (structural coupling)
- Learning based upon interactions
- Note: a person may be part of many social systems at the same time

Social Systems outside of this social system

- Flow of information.
- Flow of energy and matter

The **Physical Environment** providing the environment for the social system.

- Flow of energy and matter (money, things, technology, etc.)
- Natural Systems
- Designed physical or abstract systems
- Waste
- Integration with local ecosystems

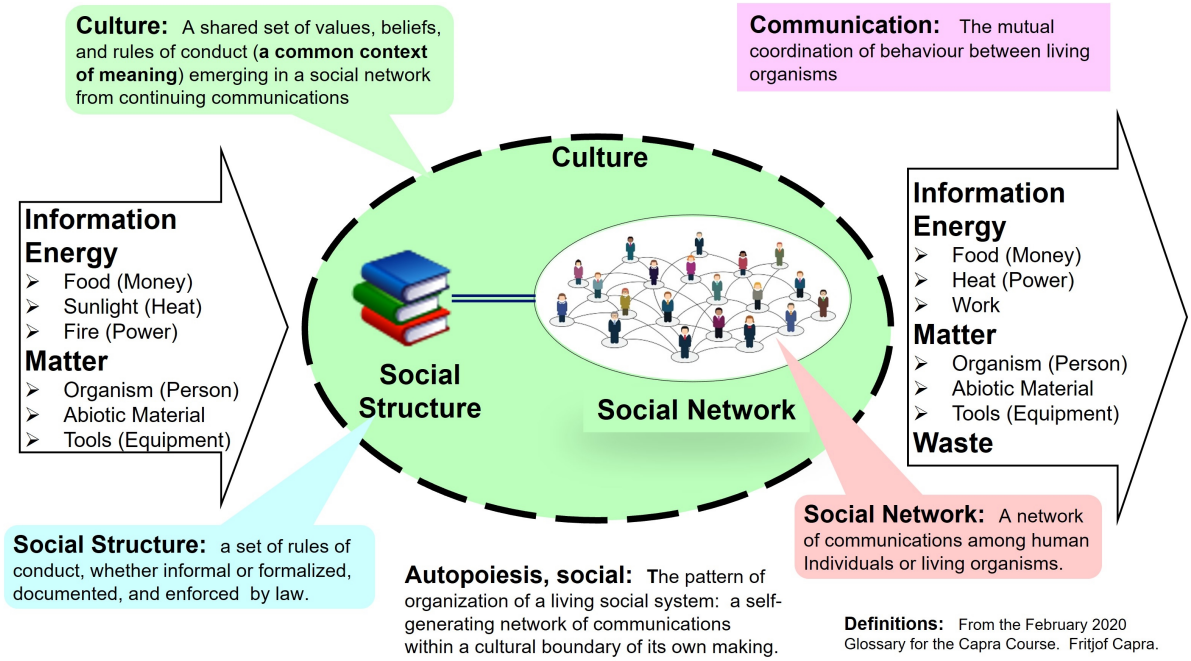
The cultural boundary may constrain the system to only respond to specific triggers with specific types of structural changes.

View: System Structure (Pattern of Organization)

The system structure or pattern of organization represents a logical model of the systems for the system-of-interest. This logical model is independent of any specific physical realization of any of the systems. This logical model may also be called a conceptual model of the system-of-interest.

System Element: Identification

The following picture shows the pattern of organization for a Social System.

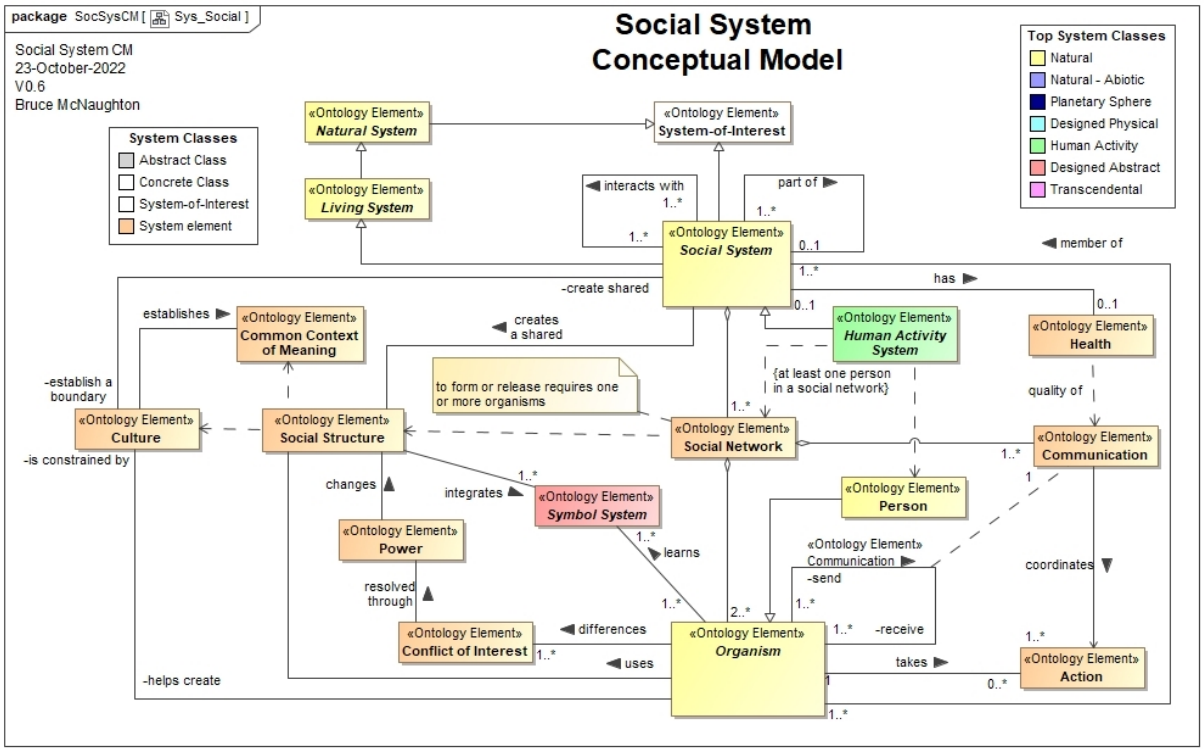


The pattern of organization consists of the following system elements:

- Social Network
- Social Structure
- Culture, a systemic property, forming a boundary of its own making.

System Element: Relationships

The following model highlights the various relationships among each of the elements. This is a simple version related to the basic definition.

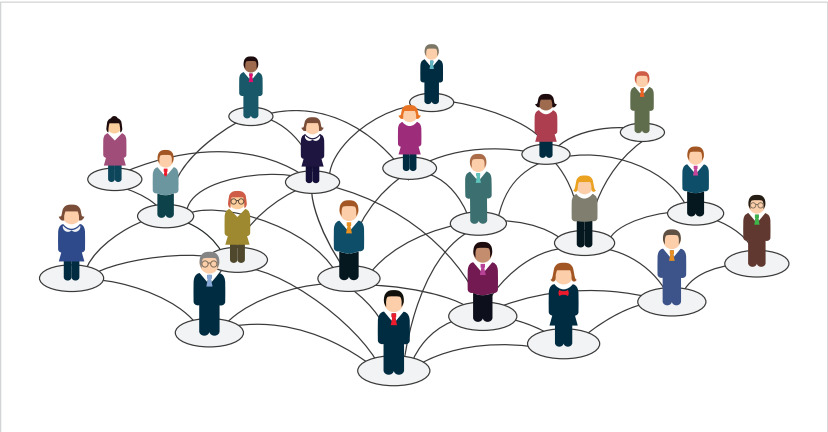


The culture and health elements are system properties that are created through the interaction of the system elements. The social network consists of communication between organisms to coordinate actions / behaviours. The Social Structure represents the rules and knowledge that is created, shared and changed among the organisms. The symbol system(s) are used to encode and decode information that is communicated among the organisms. The human activity system is a type of social system. The social system becomes a human activity system when the social network includes at least one person (human being) in the set of organisms.

Social Network

The **Social Network**, consists of:

- A set of organisms and people that form the membership of the Social System
- A set of relationships for the organisms and people in the network
- A mechanism for communication among the organisms and people.
- Any member can be a leader (managers are part of the social network).



- The leader needs to have the basic skills, knowledge and experience to create an effective social system.

A collection of living organisms (typically people) who are members of the social system.

- Each organism in the collection of living organisms is an 'Autonomous Living System' with a unique set of system properties.
- The network generates a flow of communication that is both formal (based upon the social structure) and informal (may or may not be related to the social structure).
- A n organism with appropriate system properties can change their role within the network. An organism can also join (selection) or Leave a social network. In the case of a human social system, a person is fungible and

may be part of the flow of energy and matter (e.g. may choose to leave and may be replaced by a person with suitable with similar mental and physical abilities.
- Diversity of the people and their relationships in the network promotes resilience.
- Each organism will bring forth their own understanding (mental model) the social system and their role in the social system that is aligned to form a shared culture.

Each communication (the line between 2 people) is:
- Intended to coordinate actions and behavior aligned to purpose.
- Provide feedback on messages, actions or ideas
- Exchange ideas / concepts / to support creativity / innovation

Social Structure

The **social structure** is a set of rules of conduct which may be written or not that enable the social system to work in a consistent way. The social structure is composed of language, symbols, meaning, rituals.
- organization structures
- documents, manuals
- policy, procedures, standards, etc.
- Strategies, Plans, Objectives, Goals
- rules of conduct
- processes (Roles, Responsibilities, Activities, Work Products)

All of the above items are based upon appropriate Symbol Systems.

These social structures may or may not be written down.

The following types of information are generally found in documented social structures within an enterprise.
- Products and Services (capabilities)
- Stated values, beliefs, behaviours, etc.
- Jobs, Assignments, Roles and Responsibilities
- Rewards, Measures, feedback.

The degree that the conversations use the social structure as documented ensures the context of meaning is strengthened and areas where miscommunication can occur. When communication is based upon the social structure and improvements are made and implemented all of the members will benefit.

Symbol System

View: System Name and Class

Name: Symbol System

Based on: Designed Abstract System

An designed abstract system that may or may not be written. Symbol system can be shared through any modes of communication: Spoken, written or gestures.

Symbol systems form part of the system structure for a social system.

View: System Purpose

Overall Purpose:
- Provide a shared vocabulary for people to use in social systems
- Provide a way to capture cultural changes or variants for a language
- Enable encoding for Symbol Products
- Capture the sounds, gestures and symbols for a symbol system.
- Basis for communication and alignment of thinking

View: System Properties

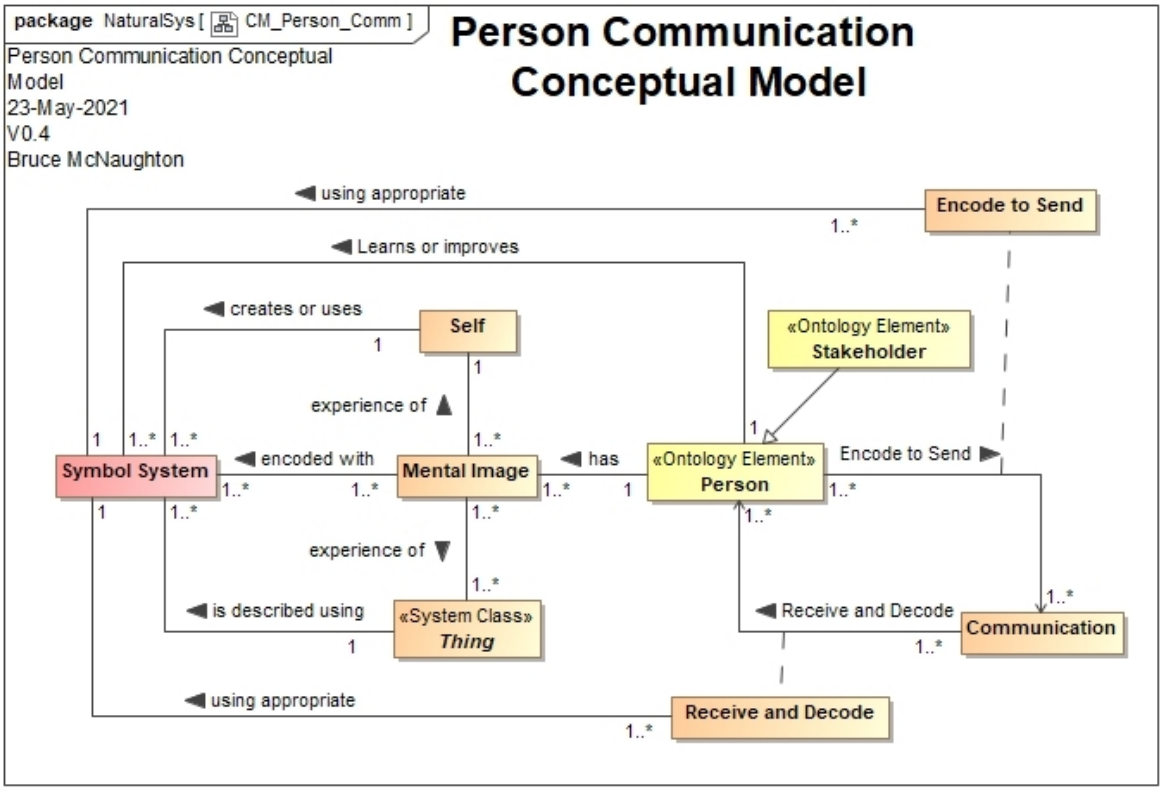
System Quantity Properties
- Number of symbols, and symbol sets in the lexicon

Systemic Quality Properties
- Accuracy of communication

Systemic Capabilities or Functions

The symbol system establishes:

- Grammar for a language
- Meaning for communications
- Ability to encode and decode



System States

The various defined states that the System of System Thinkers main group and any sub-groups can be in.

- Architected / Designed
- Shared usage

View: System Stakeholders and Concerns

Symbol System Practitioners

- User of the symbol system
- Designer of the Symbol System
- Trainer of the Symbol System
- Authors of symbol system documentation (if any)

View: System Environment (Context)

Symbolic Products

- **Books**
- **Music**
- **Dance**
- **Expression of models using UML**
- **Sports**

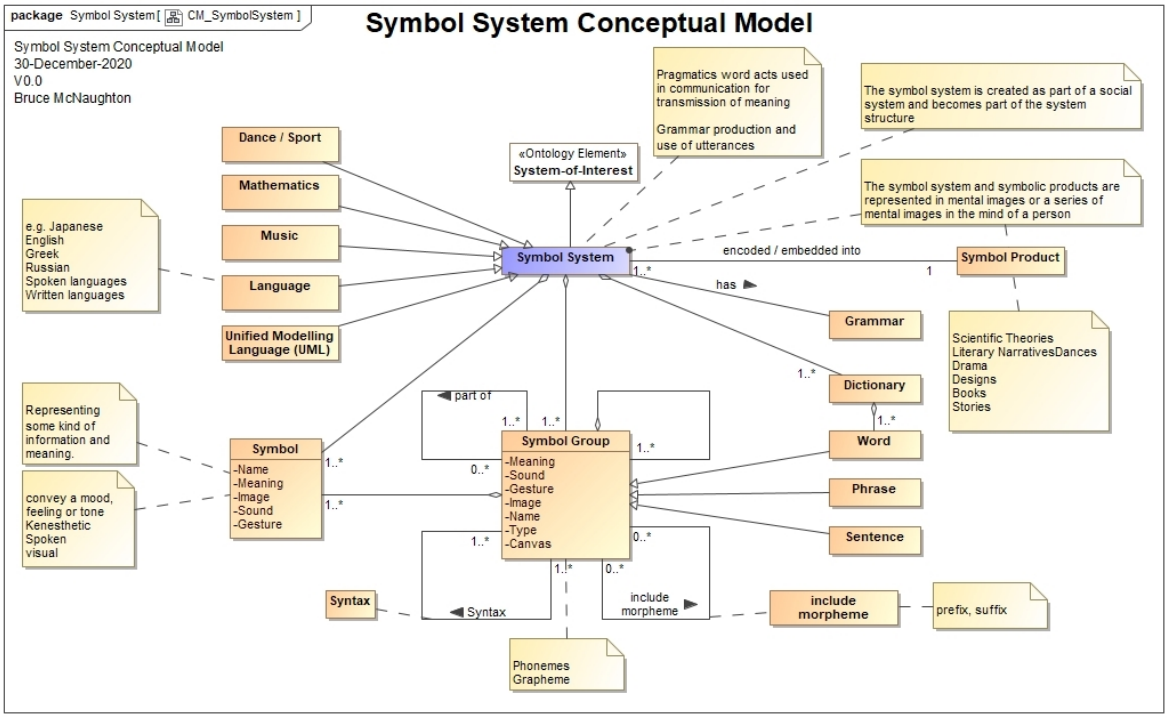
System Symbol integration

- into a person's mental processes for use in mental images.
- into a social system culture

View: Pattern of Organization

System Element: Identification and Relationships

The symbol system consists of the following system elements and relationships:



View: Structural Changes

Configuration / Scenario:

Describes any configuration / scenario attributes for a specific system-of-interest. This may not be appropriate for all system descriptions (e.g. patterns or abstract systems).

Cyclical (Repeating / Regular) Processes

Regular cycles

Trigger: need to transfer knowledge Process: encode using the symbol system and send information

Trigger; understand communication Process: read and decode using the symbol system

Trigger: need to respond to communication Process formulate feedback using symbol system and communicate.

Development Life Cycle Processes

Trigger: new usage Process: upgrade the symbol system or create a new symbol system

Trigger: gap in symbol system use Process: add new symbols or remove symbols

Trigger: need to integrate Process: synthesis with other symbol systems and authors.

Notes

Space for notes

Dissipative Structures

Social Systems create / utilize dissipative structures. These depend upon the type of human activity system. Some examples are listed:

Enterprise

- Order to cash in the bank (Flow of money)
- Raw materials to products (Flow of matter and energy)
- Person to experienced person. (Flow of people)

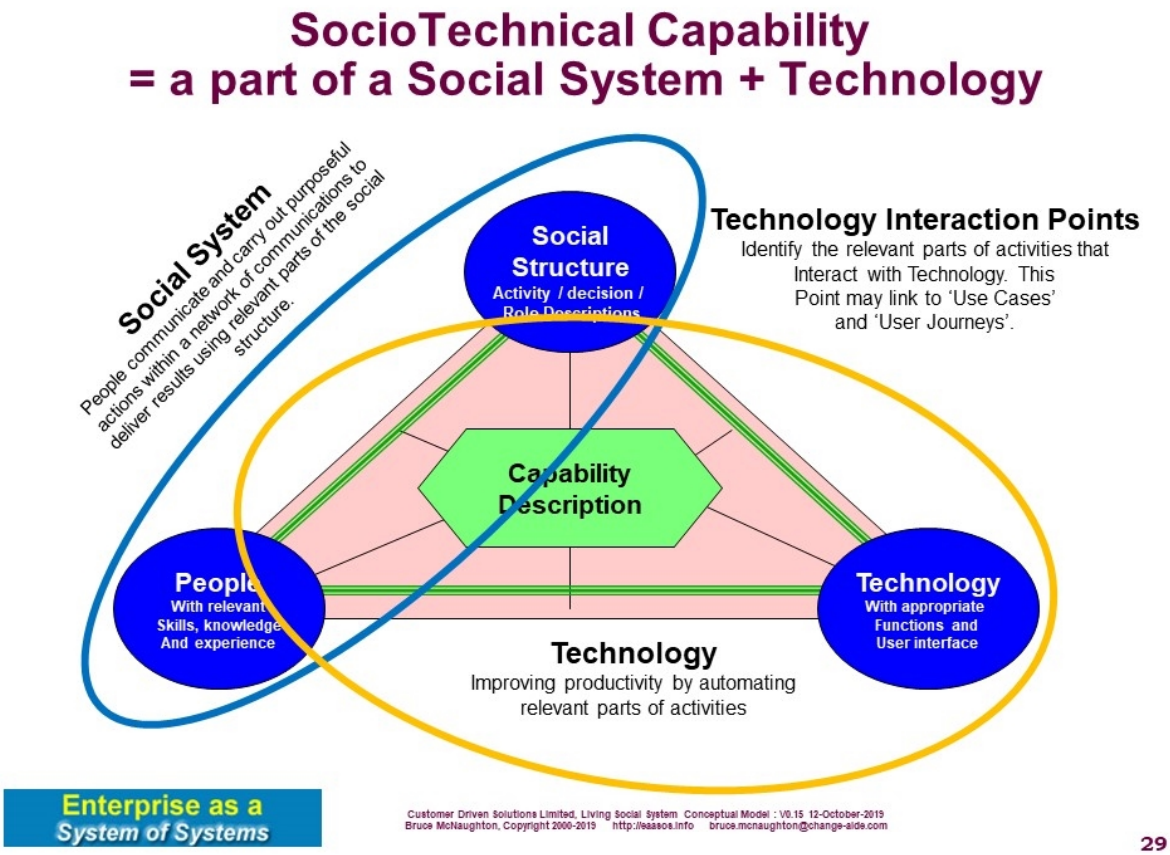
Educational Institution

- Person to demonstrated knowledgeable person (Flow of people)

Government

- Taxes to cash in the bank (Flow of money)
- Provision of public services (Flow of matter and energy)

Dissipative structures are created through the use of capabilities (these are small systems integrating people, social structure and technology)



View: System Behavior (Structural Changes)

This section describes the structural changes created with a disturbance or trigger from the environment or internally. This section is providing descriptions based upon human activity systems where the organizations are predominately Human Beings (people / person). Social Systems with other types of organisms will build on the organisms inherent cognitive capabilities.

Configuration / Scenario: for the option or system-of-interest

Describes any configuration / scenario attributes for a specific system-of-interest. This may not be appropriate for all system descriptions (e.g. patterns or abstract systems).

Cyclical (Repeating / Regular) Processes

To fulfill the purpose of the social system, a set of regular processes are established to carryout the system's contribution.

These tend to be the operational processes (or core capabilities) established within the social system. These align to the purpose of the social system.

These are typically identified with a:

- **Trigger or event:** To identify the appropriate process to trigger (cognitive response) and the initiation of the appropriate process.
- **Process Steps / Sequence:** The triggered process proceeds based upon current embodied capabilities (based upon previous learning too).

Each operational process may involve many people (or organisms) to take on roles and carry out activities. Some of these processes may be documented in the social structure and some may not be written down.

Each person in the social network brings their skills, knowledge and experience to take actions. As a person is an autonomous living system, these actions are also subject to a stochastic (probabilistic) element where errors may be introduced, incorrect decisions may be taken or accidents happen. This probabilistic aspect is why statistical process control is a way of understanding variation in a process. These processes form a way to understand the performance of the processes and provide opportunities for learning within the social system.

Communication is a critical aspect of repeating processes and is also subject to communication errors. The quality of the communication capability is key.

One of the regular processes relates to membership of a social system.

- Trigger: internal member need: process: recruit and select
- Trigger: external member need: process: membership drive or self-selection

A member (person) may move through the following various states as they become a member of the social system (varies by type of system):

- **Identified**: The name of the person is identified.
- **Short Listed**:Identified as a possible candidate with possible appropriate skills, knowledge.
- **Contract Agreed**: A person has been selected and a contract has been agreed.
- **Active**: A person is an active member of a team with objectives and development plans.
- **Releasing**: A person is being moved to a new team.
- **Released**: A person is released from the team. In some cases, the contract is terminated.

Communication

The line between two living organisms (typically a Person) represents communication used to coordination of Actions and Behavior within the social network.

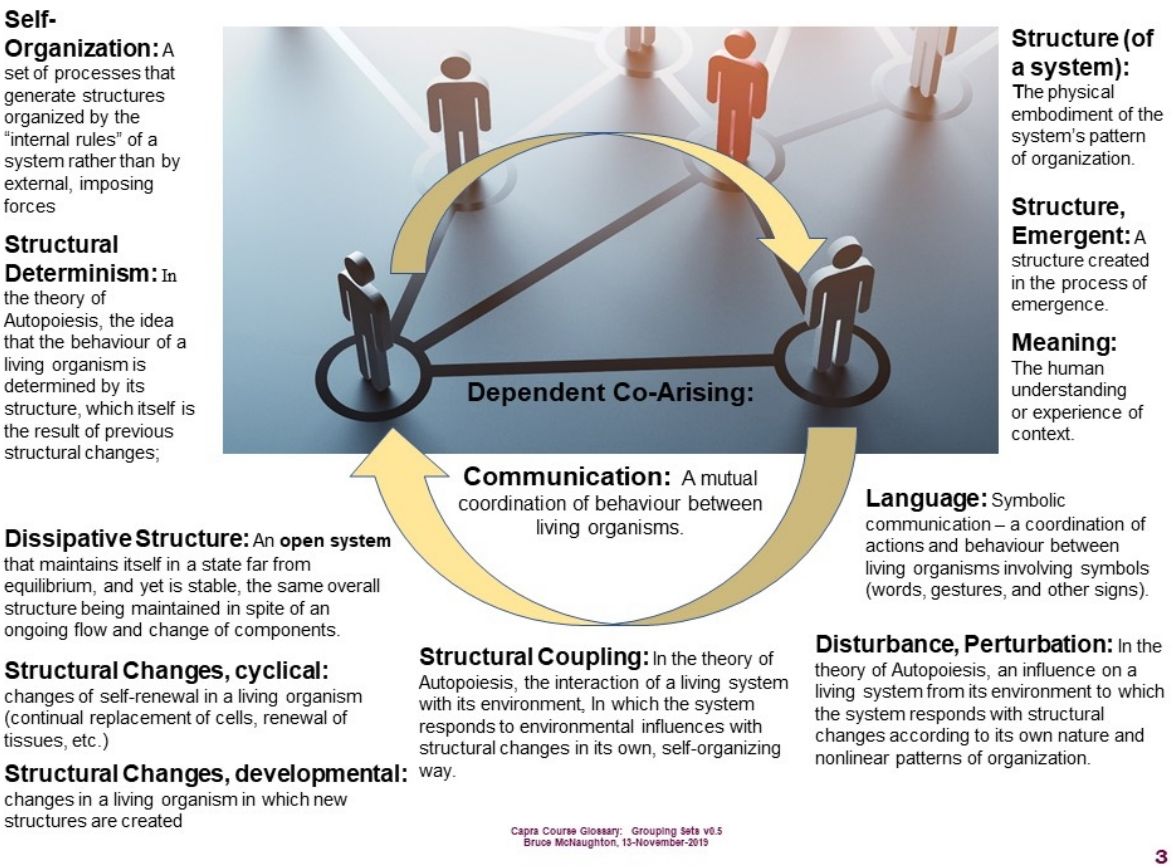
A person transmits (Action) a message to one or more people

- Identify the topic of the communication. The topic may be related to the social structure (using language, mental images, symbols, etc) or a response to a received communication from within the sender's common context of meaning.
- Identify the media of the communication (F2F – best for story telling or sharing experiences, written (email or book), images, social network, etc).
- Confirm the intention and expectation of sending the message.
- Send the message
- A communication causes a disturbance to other people (structural coupling).

A person receives (Action) a message from a person.

- The disturbance triggers a structural change through cognitive processes.
- Interpret the message cognitively based upon own personal experience and state of mind and the receiver's common context of meaning.
- Decide to Ignore or determine what action to take (Human Agency)
- The action may be:
  - Check what thought heard against social structure / culture
  - Respond with a communication (question, reply, confirm, provide feedback, etc)
  - Carry out activities / actions in response to the communication (doing)
  - Learn from the communication and make internal changes to understanding or knowledge base
  - Create some new mental images or meaning .
- Emotions and feelings may also result from receiving a communication

Communication is shown in the following picture:



Conflict of Interest and Power

Conflict of Interest

- Conflicts of interest may arise during any communication due to variations in understandings of the common context of meaning.
- The conflicts may arise through
  - self organization of informal networks of communication that challenge current thinking (aliveness).
  - issues with the social structure or as a normal part of the creative and innovation processes.
    - (e.g. multiple mental images needing to be resolved).
  - conflicting individual values, beliefs, attitudes and behaviors
    - styles and effectiveness of communication (e.g. bully, narcissist, etc)
- Conflict resolution skills are key to understanding how to get to consensus based decisions.

Power

- Power in social systems is the means to resolve 'conflicts of interest'
  - Relates to preferences and choices.
  - "Nothing whatever is accomplished without it".
  - Power with (Collaboration), Power to (Empowerment) as alternatives to Power Over (Domination)

- Power to establish a formal social structure integrating power elements
  - E.g. organizational structure, roles and responsibilities, decision making rules, rules of conduct
  - Power to constitute social systems
  - Power to connect or exclude people from the social systems
- May result in structural changes in the social structure.
  - Through normal practices embedded in the social structure (e.g. rules, decision making, audits, reviews, etc)
  - Through changes in the network of communications
  - Through decisions around change and innovation.
  - Resolution of conflict of interest ensures the successful continued development of the social system.

Development Life Cycle Processes

The development life cycle processes tend to relate to the formation, development and release of a social system. The typical activities of a leader and manager apply to these areas:

- **Leader**: Future, Engage, Deliver.
- **Manager**: Planning, Organizing, Resourcing, Integrating, Measuring, and Developing people.

Note: leaders and managers create the work environment for the social system to contribute and achieve its purpose. Anyone can be a leader / manager and the management activities can be shared given the appropriate skills knowledge, experience, attitudes and behaviour of the people. Leadership and management are both necessary as they are two sides of the same coin.

This area utilizes the leadership / management capabilities within the social system to move the social system to a place **far from equilibrium** and **create conversations** in a network of communication. The following are some of the development life cycle events that move the social system through its life cycle.

- **Trigger**: Leader appointed; **Process**: Establish purpose and values,.
- **Trigger**: Need to Plan; **Process**: Establish plan for the social system (including end state model).
- **Trigger**: Establish the social system; **Process**: establish assignments of people to the social system.
- **Trigger**: Need to grow or shrink; **Process** assess the current state and adjust the plan.
- **Trigger**: Ready to close the social system: **Process**: Release people and materials and close the social system.

Note that development triggers can come from inside the social system. These include:

- New ways of working (changes to current practice): innovation and creativity.
- Clashes or problems (issues with people and their skills, knowledge, experience, attitudes and behavior).
- External changes: environmental changes (storm, earthquake, etc); regulatory changes, competition, etc).
- Decisions to change the purpose or direction.
- Accordance that emerge from the operation of the social system.
- Integration with other social systems (merger and acquisition).

These tend to be also involve creativity and innovation. Where possible, these can be co-created with the members of the social system.

A concept of health is also important within a social system. A measure of the aliveness of a social system may be an indicator of a need for developmental or operational change.

These changes may require changes to the social structure elements.

See 9 Principles of Complexity

THE NINE PRINCIPLES OF WORKING WITH COMPLEXITY

9 Principles of Complexity, Brenda Zimmerman

1. View your system through the lens of complexity in addition to the metaphor of a machine or a military organization.
2. Build a good-enough vision. Provide minimum specifications, rather than trying to plan every little detail.
3. When life is far from certain, lead with clockware and swarmware in tandem. Balance data and intuition, planning and acting, safety and risk, giving due honour to each.
4. Tune your place to the edge. Foster the “right” degree of information flow, diversity and difference, connections inside and outside the organization, power differential and anxiety, instead of controlling information, forcing agreement, dealing separately with contentious groups, working systematically down all the layers of the hierarchy in sequence and seeking comfort.
5. Uncover and work with paradox and tension. Do not shy away from them as if they were unnatural.

6. Go for multiple actions at the fringes, let direction arise. You don't have to be "sure" before you proceed with anything.
7. Listen to the shadow system. That is, realize that informal relationships, gossip, rumor and hallway conversations contribute significantly to agents' mental models and subsequent actions.
8. Grow complex systems by chunking. Allow complex systems to emerge out of the links among simple systems that work well and are capable of operating independently.
9. Mix cooperation with competition. It's not one or the other.

Change

Structural Changes are required to restore Health (dynamic balance).

- A cognitive response is required to assess the actions.
- The response of the system may be predefined in the social structure (business continuity plan, contingency plan, etc)
- The network of communication may also need to be changed in order to restore the state to a normal well-being.

Changes may relate to:

- Elements of the social structure that can be changed
- Elements in the network of communications (a person or other organism) that can be disturbed.
- Technology may also need to change and create a network disturbance (See Sociotechnical System).

The disturbance may be so strong that the system is damaged beyond repair or creates an adaptive response that causes the entire structure of the system to change. (engaging creativity and innovation in the process).

- This may result in new products and services
- This may result in a closure of the social system
- This may result in the change of the way the social system works (changing to culture, social structure and the network of communications).

The result is the restoration of dynamic balance at the current or new state of operation.

Engagement and training are key to social system changel

The ideal situation is to have existing people form change or process teams to co-create and deliver training solutions. When change comes from the inside, the change are faster and more relevant to a person's role and work.

Leadership and Management

Two sides of the same coin

All change comes from the inside. The members:

- engage with the other members of the social system through communication to coordinate actions and behavior. Leaders and managers take an active part in the network of communications and create an environment of trust and collaboration.
- establish and maintain the social structures necessary for the social system to thrive and fulfill its purpose
- establish an open and learning culture for the members of the social system to contribute to their fullest potential, achieve their objectives and goals and celebrate success.

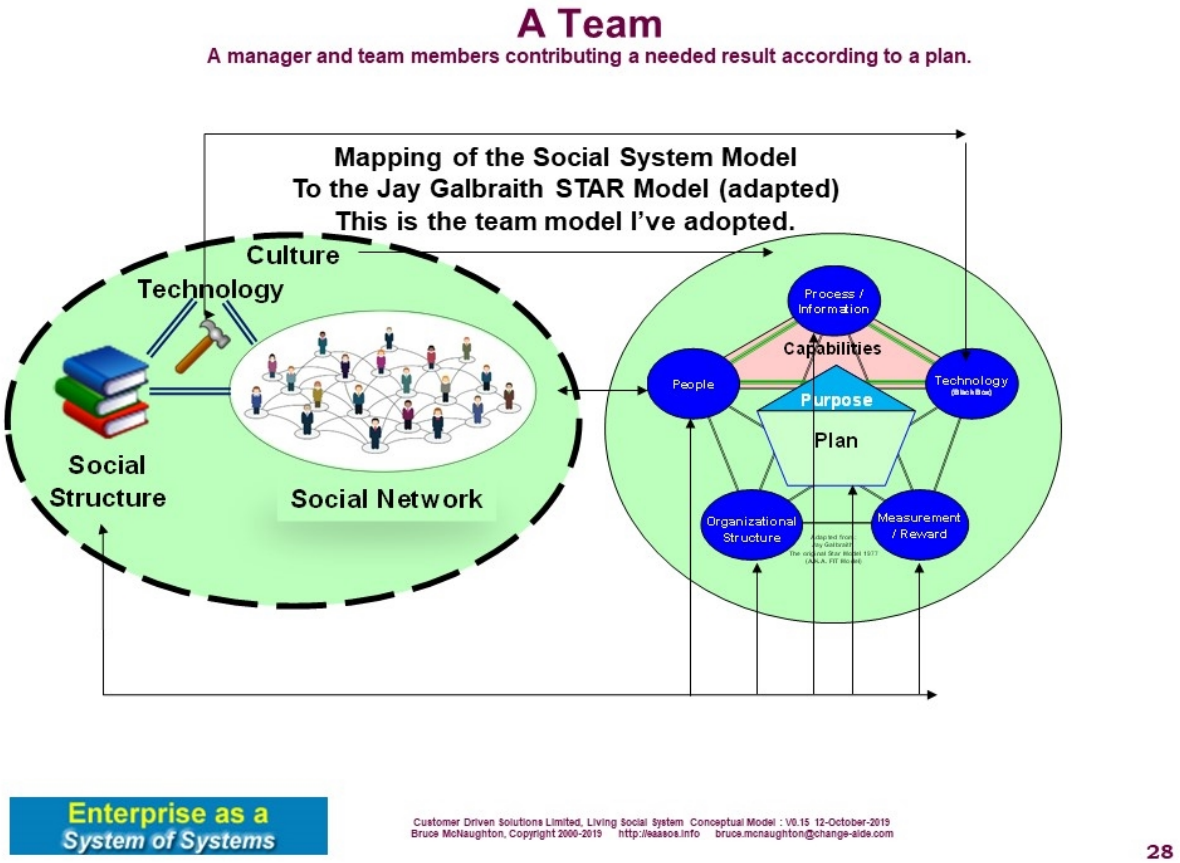
Leaders / Managers are members of two or more social systems

- the social system they have responsibility to lead / manage (if identified)
    - Establish the environment for conversations / dialogue
    - provide the energy to move the social to a place far from equilibrium to start and maintain conversations
    - ensure the fit of this social system within the other social systems.
- the social system of the manager they report to (if identified)
- other temporary social systems (programmes, projects, boards, etc)

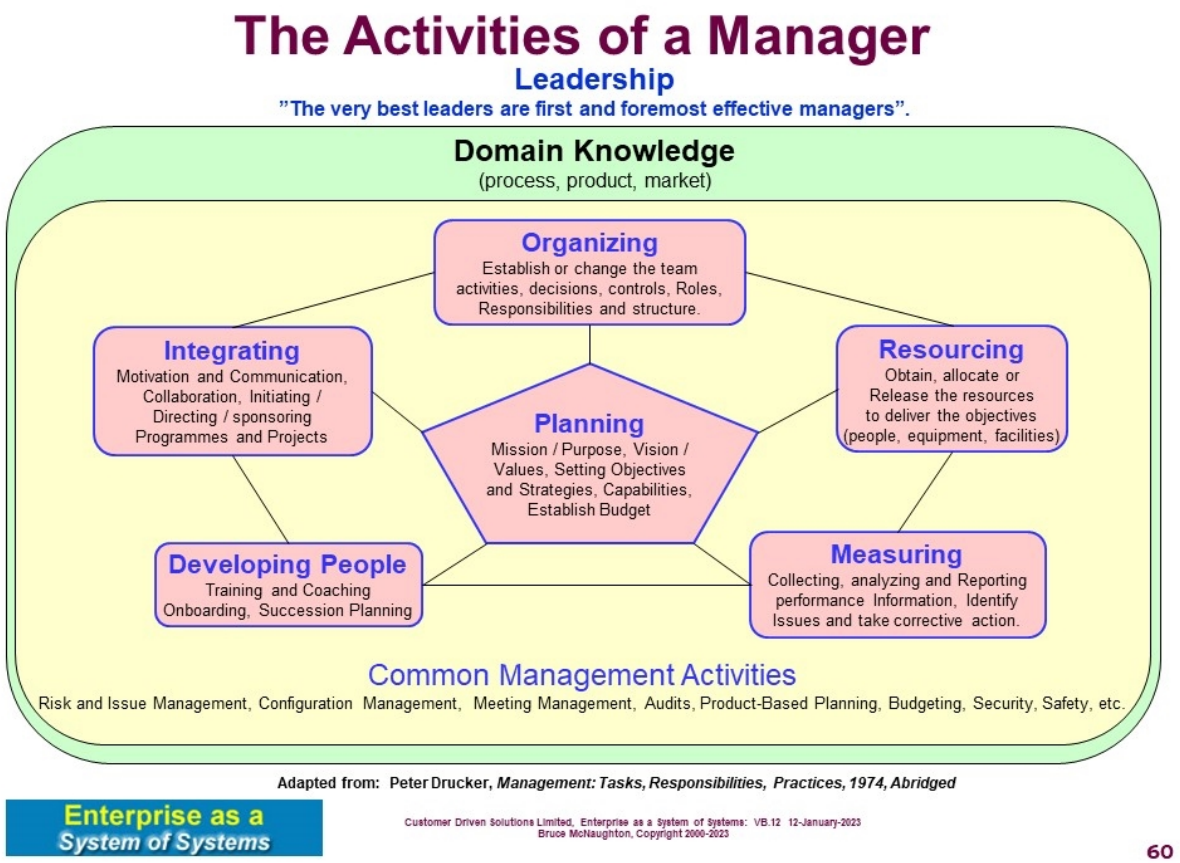
Social System human activities:

- Leadership: Future, Engage, Deliver
- Management: Planning, Organizing, Resourcing, Integrating, Measuring and Developing People.
- Can be carried out by one or more people (e.g. self managed social system).
- Anyone can be a leader.

Relationship to Team Model



The following shows the activities of a manager that are performed by members of a team.



Formation and Adaptation

Social System initial formation (Self-Organization)

- A set of people form a social system .. Like Hewlett and Packard in their garage, political parties, etc.
- Establishes the network of communications to then establish the social structure and an emergent open and learning culture.
- May be temporary formation as in a Mob, with high emotion and feelings of the members of the social system motivating their action.

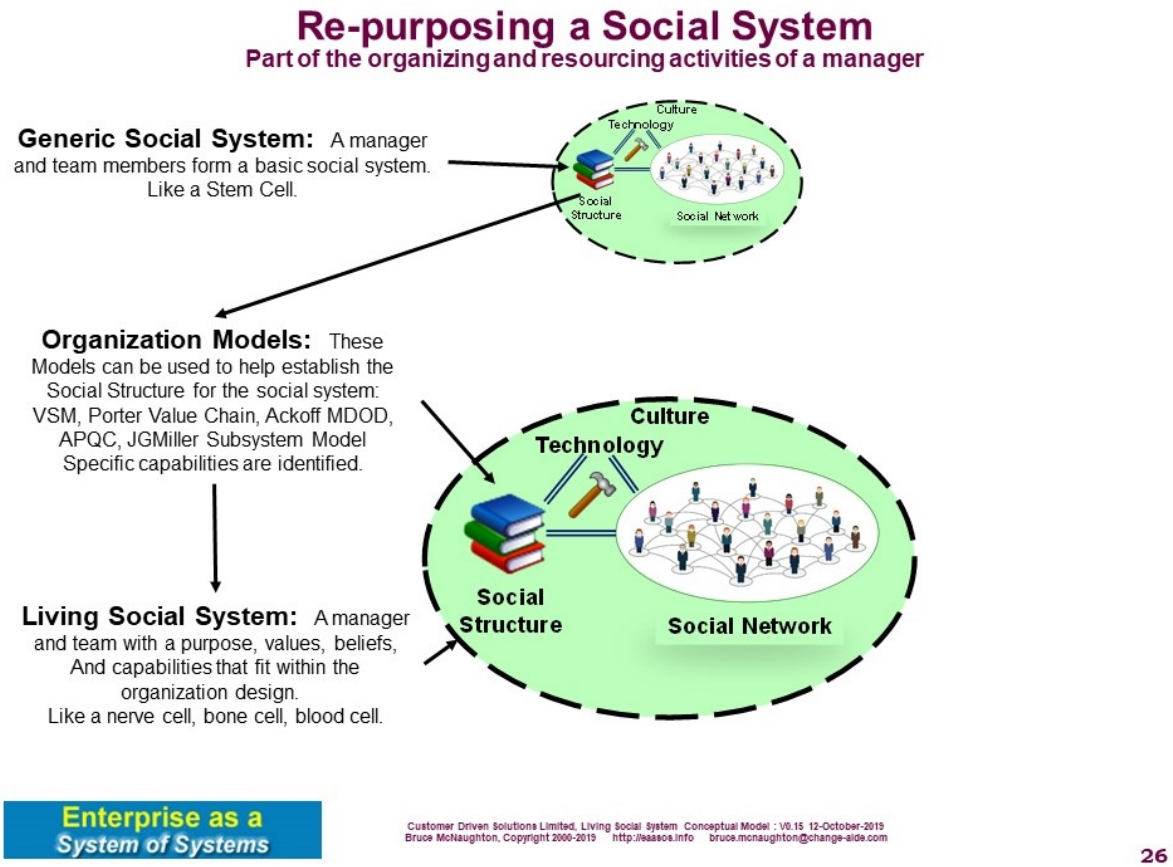
Social System adaptation / change (Management led)

- A manager carries out organization design and identifies a need for a new part of the organization (organizing activity of a manager)
- Appoints a manager (resourcing activity of a manager)
- The manager starts with the social structure of the creating team and repurposes the team to the new purpose. (this is like the DNA)
- The new manager establishes the team using the activities of a manager
- The team is linked to the creating team through the manager and any processes used by the new social system

Social System Organic growth / reduction

- Increasing / decreasing the size or capability of an existing team (social system).

Re-purposing a basic team.



References

Social System

Please see the following Links for the System Description: Social System.

- PDF:: System Description: Social System, Version 0.10, 03-November-2020
- Website:: sysdesc.info: Social System

The Social System, Talcott Parsons

The Social System.
Classic model of a social system.

The New Peoplemaking, Virginia Satir

The New Peoplemaking
Describes the family as a system (social system). This book describes the various types of interactions of the members of the family and the fit of the family into society.

Family Systems Therapy, Elsa Jones

Family Systems Therapy
Discusses the family as a system using autopoietic concepts.

Introduction to Systems Theory, Niklas Luhmann

Introduction to Systems Theory
Discusses the social system as a system using autopoietic concepts.

Communication Power, Manuel Castells

Communication Power
Exploration into communication and power from the Individual Person to Society

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Power and Love, Adam Kahane

Power and Love
A theory and practice of social change.

Business without Bosses, Charles C. Manz and Henry P. Sims, JR.

Business without Bosses: How Self-managing Teams are Building High-performing Companies
This book describes an approach to move from a single manager to a shared management approach. Everyone shares the management of a social system.

The 7 Habits of Highly Effective People, Stephen R. Covey

The 7 Habits of Highly Effective People

Key points:

Moving from 'Dependent (or co-dependent) to Independent to Interdependent is very important. There are 3 habits necessary to make the two transitions. The 'Empowerment movement' attempted to move people from Dependent to Interdependent without taking the intermediate step.

Habits 4, 5, and 6 are critical for establishing an architecture and creating a 'win/win' and inclusive architecture.

Interdependent people are also needed when working towards Self Managing Teams. In self managing Teams, everyone shares part of the management practices for the team. Everyone works for the Win/Win objectives for the group.

Management Core

Please see the following Links for the System Description: Enterprise (SoS).

- PDF: System Description: Enterprise as a System of Systems (SoS), Version 0.17, 24-June-2023
- PDF: System Description: Organization as a SoS, Version 0.13 05-December-2022
- PDF: System Description: Capability as a System, Version 0.16 05-December-2022
- PDF: System Description: Process (Human Activity), Version 0.4, 22-August-2022
- Link to the Enterprise (SoS) Architecture Description Framework
- Link to the Enterprise (SoS) Architecture Viewpoint Definition
- See System: Integrated Management System
- PDF: System Description: Integrated Management System, Version 0.17, 10-October-2023
- Website: EaaSoS.info

Management: Tasks, Responsibilities and Practices, Peter Drucker

Management: Tasks, Responsibilities, Practices (Drucker series)
This book introduces the activities of a manager: Planning, Organizing, Resourcing, Integrating, Measuring and Developing People.
Peter Drucker has written many books on management. This is an abridged version (about 200 pages shorter than most) and includes a glossary. I find this book very readable.

Built to Last, Jim Collins and Jerry I. Porras

Built To Last: Successful Habits of Visionary Companies
Introduces the concept of Core Ideology

Leadership Plain and Simple, Steve Radcliffe

Leadership: Plain and Simple (Financial Times Series)
Introduces: Future, Engage, Deliver model for Leadership.

Organizational Culture and Leadership, Edgar H. Schein

Organizational Culture and Leadership (The Jossey-Bass Business & Management Series)
A good model of culture that supports the social system model. This includes macro and micro cultures.
Edition 5 also includes the cultural dimensions theory from Geert Hofstede

---

Leadership and the New Science, Margaret J. Wheatley

Leadership and the New Science
(A useful book for Managers)

SCRUM: The Art of Doing Twice the Work in Half the Time, Jeff Sutherland

SCRUM: The Art of Doing Twice the Work in Half the Time
A book about agile working from a non-IT perspective.

A New Psychology for Sustainability Leadership, Steve Schein

A New Psychology for Sustainability Leadership
The hidden power of ecological worldviews

The Management Shift, Vlatka Hlupic

The Management Shift
Includes: Emergent Leadership Model and 6 Box Leadership Model.

The Puritan Gift, Kenneth Hopper and William Hopper

The Puritan Gift: Reclaiming the American Dream Amidst Global Financial Chaos

---

Living Systems

The Systems View of Life, Fritjof Capra and Pier Luigi Luisi

The Systems View of Life
This book is supported by the Capra Course which provides a 12 week course covering the four dimensions of life: Biological, Cognitive, Social, and Ecological.
A Capra Course Glossary is available in the Capra Course Alumni Network - A global Community of Practice related to the book.
See chapter 14 for information on social systems.

The Hidden Connections, Fritjof Capra

The Hidden Connections: Integrating the Biological, Cognitive, and Social Dimensions of Life Into a Science of Sustainability
Some additional information related to social systems.: See page 70 to page 128.
Principles of Ecology: See page 231.

The Turning Point, Fritjof Capra

The Turning Point: Science, Society, and the Rising Culture

The Embodied Mind, Francisco J. Varela, Evan Thompson, Eleanor Rosch

The Embodied Mind
Cognitive Science and Human Experience

System Thinking Core

Please see the following Links for the System Description: *System (Abstract)*.

- PDF: System Description: System (Abstract), Version 0.30, 27-December-2023 (working draft)
- Link to the System Description Architecture Description Framework
- Link to the System (Abstract) Architecture Viewpoint Definition
- PDF: Structuring Formalism: System Description (SDSF), Version 0.4, 07-February-2023
- Website: sysdesc.info: System

The System Description includes the following sections representing views of the system-of-interest:

- System Name and Class
- System Purpose
- System Properties
- System Stakeholders and their concerns
- System Environment (Context)
- System Structure (Pattern of Organization)
- System Behavior (Structural Changes)
- Correspondences
- Decisions and Rationale
- References

The following links help create a System Description

- Link to the System Description Template
- Link to the System Description Validation Template

The following are links to the COMPASS Project and the CAFF:

- Link to D21.5b Compass Architectural Framework Framework (Local): CAFF Viewpoint Definitions

General System Theory, Ludwig von Bertalanffy

General System theory
Fundamental thinking about a system pattern that applies across many disciplines. Chapter 3 Some System Concepts in Elementary Mathematical Consideration: Pages 54 - 56: provides some key concepts.

Fifth Discipline, Peter M. Senge

The Fifth Discipline: The art and practice of the learning organization: Second edition
The Five Disciplines described in the book are important to seeing systems and understanding the interaction of the parts.
The Five Disciplines are similar to the System of Profound Knowledge described by Deming.
Key elements of this book:

- An understanding of mental models and the impact they can have on decisions
- An understanding of the importance of personal visions both for individual motivation and later for building a shared vision.
- An understanding of the dynamics of systems thinking both in time and place.
- An understanding of the importance of practice in a safe environment.

Re-Creating the Corporation, Russell Ackoff

Re-Creating the Corporation: A Design of Organizations for the 21st Century
Definition of a System and 5 Conditions; Multi-Dimentional Organization Design; Interactive Planning; and more.
System of System Concepts

Systems Thinking, Systems Practice, Peter Checkland

Systems Thinking, Systems Practice: Includes a 30 Year Retrospective
This book contains a good description of Human Activity Systems (HAS) based on a root definition to describe a human activity system (CATWOE). These are both used in the Soft Systems Methodology (SSM).
The concept of the Root Definition has been extended to the System Description that is produced using the System Description Architecture Description Framework. The Human Activity System has also been extended from living social systems.
The book also contains a simple system classification scheme that is being used to define a Earth (Gaia) as a System of Systems model. The system classification system is described in the book from page 102 to page 122. Figure 4, page 112 highlights the 5 system classes. This book also has a good glossary of terms.
This system classification scheme is also being used as the System Classification Framework for the System Description Architecture Description Framework. This framework captures the identified systems and their type.

Thinking in Systems, Donella H. Meadows

Thinking in Systems: A Primer
Donnella Meadows Project

On Dialogue, David Bohm

On Dialogue
A very useful book about conversations that become collective thinking.

On Purposeful Systems, Russell L. Ackoff and Fred E. Emery

On Purposeful Systems: An Interdisciplinary Analysis of Individual and Social Behavior as a System of Purposeful Events

---

Principles of Systems Science, George E. Mobus, Michael C. Kalton

Principles of Systems Science
Excellent visuals, principles and concepts about systems and system science.

Essential Architecture and Principles of Systems Engineering, C. E. Dickerson, Siyuan Ji

Essential Architecture and Principles of Systems Engineering
Explores the mathematical basis of architecture and MBSE

Architecting Systems, Hillary Sillitto

Architecting Systems

SysML for Systems Engineering, Jon Holt and Simon Perry

SysML for Systems Engineering
Includes a description of the Framework for Architecture Frameworks (FAF). This is the basis for the COMPASS Project CAFF.

Competitive Engineering, Tom Gilb

Competitive Engineering: A Handbook For Systems Engineering, Requirements Engineering, and Software Engineering Using Planguage

---

SCRUM: The Art of Doing Twice the Work in Half the Time, Jeff Sutherland

SCRUM: The Art of Doing Twice the Work in Half the Time
A book about agile working from a non-IT perspective.

Doughnut Economics, Kate Raworth

Doughnut Economics
Two models in the book are being used heavily in the development of the Human Activity Ecosystem models: The **Doughnut** and the **Embedded Economy**. The Doughnut is like a balanced scorecard for the planet and the Embedded Economy model is a good starting point to explore the systems that are creating the doughnut problems and the changes that are needed to bring the world into the doughnut safe and just place.
Kate Raworth and Herman Daly Video
Doughnut Economics pictures used with permission, Kate Raworth, 2017

Leadership and the New Science, Margaret J. Wheatley

Leadership and the New Science
(A useful book for Managers)

Organization Design, Jay Galbraith

Organization Design
This book contains the original STAR Model which included Technology.

Management: Tasks, Responsibilities and Practices, Peter Drucker

Management: Tasks, Responsibilities, Practices (Drucker series)
This book introduces the activities of a manager: Planning, Organizing, Resourcing, Integrating, Measuring and Developing People.
Peter Drucker has written many books on management. This is an abridged version (about 200 pages shorter than most) and includes a glossary. I find this book very readable.

Communication Power, Manuel Castells

Communication Power
Exploration into communication and power from the Individual Person to Society

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System Description: Person

Please see the following Links for the System Description: Person.

- PDF:: System Description: Person (Human Being), Version 2.4, 04-April-2023
- Website:: sysdesc.info: Person as a System

Unified Modeling Language (UML)

UML is an Architecture Description Language used to create the Architecture Description Frameworks used in the various system areas.
UML is also a best practice method with extensive documentation.

- See UML

As an Architecture Description Language, UML contains a number of diagrams described by Model Kinds. The following diagrams are used in the architectural area:

UML Structure Diagrams

- Class Diagram
- Object Diagram
- Package Diagram

UML Behavior Diagrams

- Activity Diagram
- Sequence Diagram
- State Machine Diagram
- Use Case Diagram

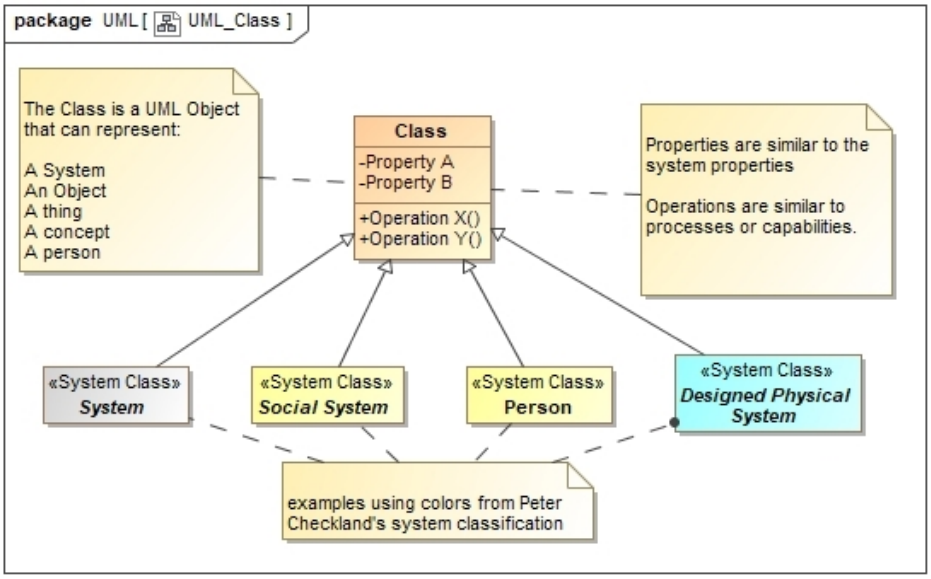
The diagrams have specific symbols / language elements that can be placed on a diagram. The instructions for creating each of these types of models is considered a Model Kind.

UML Modeling Conventions

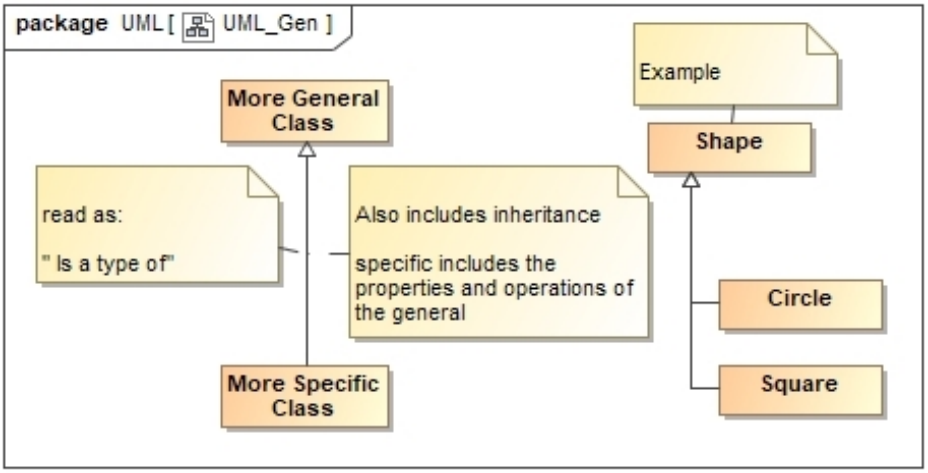
Unified Modeling Language (UML) provides a language for creating diagrams that have a consistent meaning.
This document contains the modeling conventions that apply to UML Class Diagrams as they apply to systems.

What are the modeling Conventions?

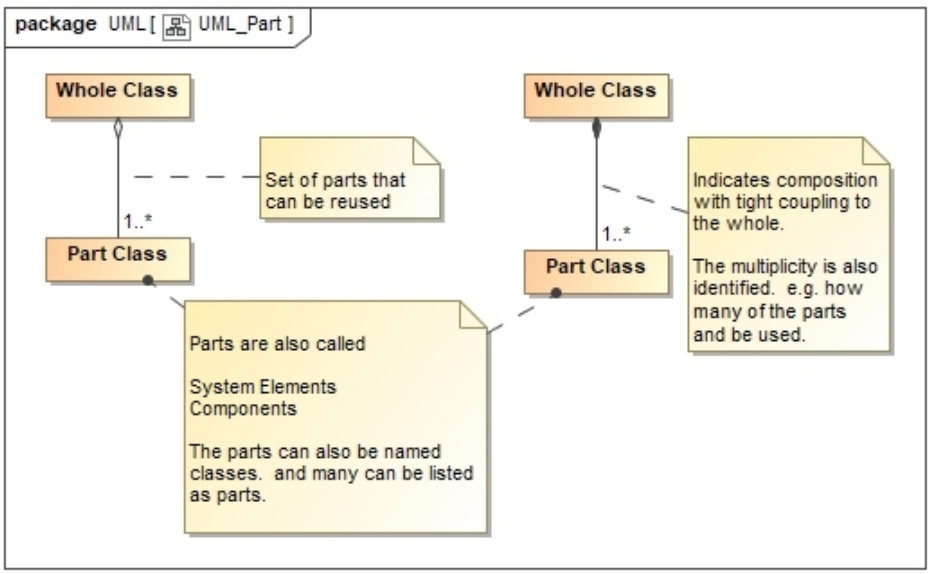
The following conventions from various modeling languages, such as the Unified Modeling Language (UML) or System Modeling Language (SysML) are also used in some of the system diagrams:
The UML Class symbol



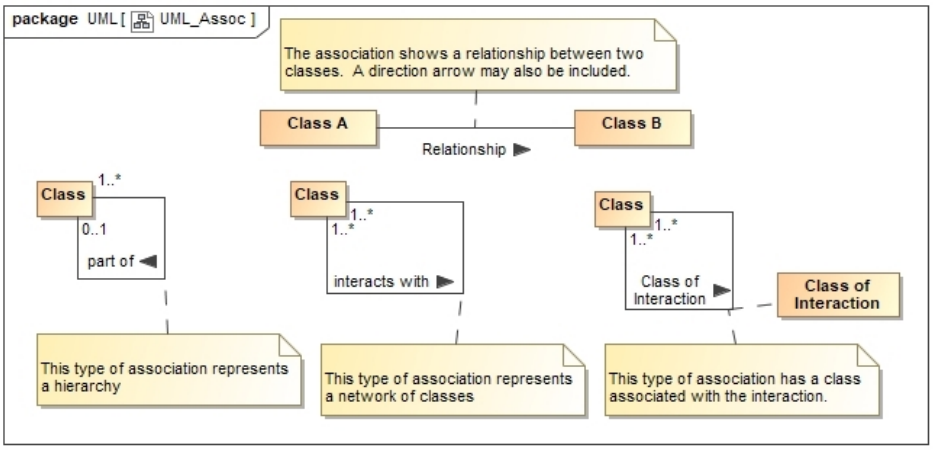
The UML Generalization Symbol



The UML Collection symbol



The UML Association symbol


package UML [UML_Assoc]
The association shows a relationship between two classes. A direction arrow may also be included.
Class A
Class B
Relationship
Class
1..*
0..1
part of
Class
1..*
1..*
interacts with
Class
1..*
1..*
Class of Interaction
Class of Interaction
This type of association represents a hierarchy
This type of association represents a network of classes
This type of association has a class associated with the interaction.