# The Information Chain Theory

| Flow Chart of the ICL Theory | | |
|---|---|---|
| Independent Variables → | Intervening Variable → | Dependent Variable → |
| Population + Symbols + Centrality + Codification + Motivation + Technology | The Scale of Cooperation Information_Chain_Length | National Wealth |

The independent variables affect the intervening variable which affects the dependent variable. The arrow at the end of the sequence means that the relations are circular; the dependent variable in turn affects the independent variables. All the variables are interrelated.

**Wealth**: Wealth refers to well-being, as in well-th. People are wealthy when they are healthy, when their basic needs for food, clothing, and shelter are met, when they are safe whereever they go, when they are free to travel, and have free time and resources to enjoy live.

The best single indicator of national wealth is life expectancy at birth. Based on death rates of all age groups, life expectancy measures general well-being in a society much like temperature and blood pressure measure the general state of a person's health. . Return to flow chart.

**Cooperation**: Cooperation produces wealth. To cooperate effectively, efficiently and sustainably people must; 1) Communicate, 2) Specialize, and 3) Reciprocate.

Communication makes cooperation effective.

Specialization makes it efficient.

Reciprocity makes it durable. Return to flow chart.

**Information Chain Length**: One link in an information chain occurs when one person communicates with another person: A--> B.

A second link occurs when any of that nformation is relayed to a third person: A --> B --> C.

Chains continue to lengthen as long as any of the information that originated with A continues to survive the communication process.

The two problems of information chain communication are entropy and volume. Entropy refers to the tendency of all messages to be distorted as they pass from person to person. Volume refers to the length of messages. The more details in messages, the more effort people must expend receiving, interpreting, and relaying them.

To increase information chain length and, thus, to enlarge the scale of cooperation, ways had to be invented to reduce both message entropy and volume. The independent

variables vary in entropy and volume. Return to flow chart.

**Population**: The larger number of people able to cooperate, the larger the scale of cooperation and, therefore, the greater the wealth produced.  People must learn to cooperation. Therefore, the key factor is the population growth rate, which must be slow enough to allow this learning to occur. Return to flow chart.

**Symbols**: Symbols are physical things (such as, sounds, marks, and signs) that human beings use to communicate information to each other. The main types are language, written words, written numbers, and money. They form a hierarchy.

Language carries the largest amounts of information the shortest chain distances.

Written words carry smaller amounts of information longer chain distances.

Written numbers carry less information but longer information chain distances than written words.

Money's job is to carry the smallest amount of information the longest chain distance, but it cannot do its job well today because its unit is undefined. We need to follow the example of the metric system to make money communicate reciprocity more accurately. Return to flow chart.

**Centrality**: Centrality refers to feedback loops. The more feedback loops, the greater the centrality or, we may also say, the greater the density of the communication network. Centrality enables people to identify and correct errors in their messages. Return to flow chart.

**Codification**: Codification refers to ways to organize information. It consists of a hierarchy: uniqueness (no codes), categories, tradition, bureaucracy, democracy, science, and philosophy. As people progress up the hierarchy they are able to handle more information on their own. This increase in autonomy increases the effectiveness and efficiency of cooperation. Return to flow chart.

**Motivation**: Motivation refers to why people cooperate. It consists of a hierarchy: physical threat and fear, material reward, value commitment, and good will. As people progress up the hierarchy they act more willingly and, therefore, at less cost, increasing the efficiency of cooperation. Return to flow chart.

**Technology**: Technology refers to both the software knowledge and the hardware machinery that aid us to communicate, produce, and transport. Its hierarchy is: manual, animal, mechanical, electrical, and electronic. Return to flow chart.

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