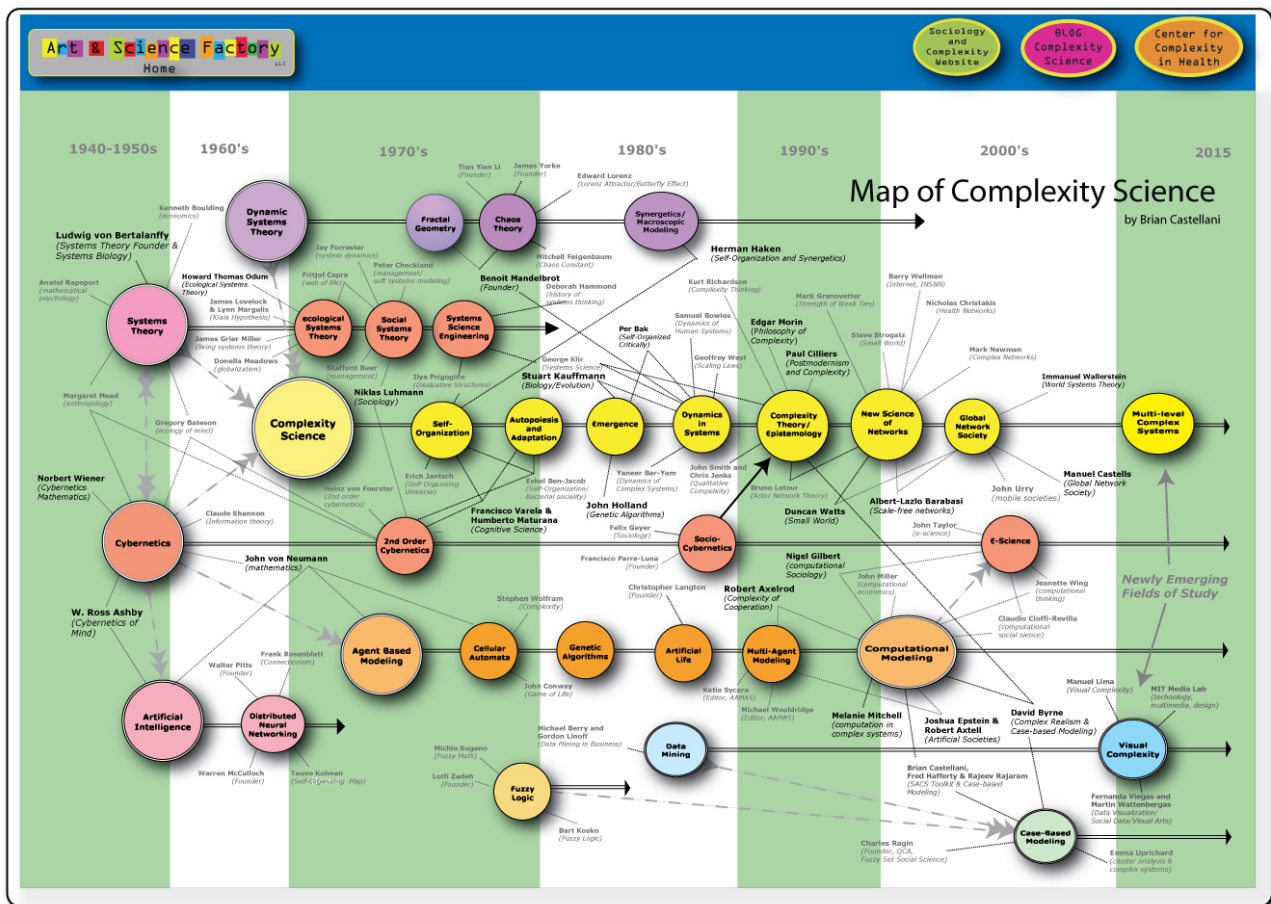




HOW TO READ MAP:

The above map is a conceptual and historical overview of complexity science and complexity theory. It has been around, now, for almost four years. During that time, a number of colleagues have emailed us explaining how we misspelled someone's name or forgot this key person or did not link a particular area of study with another, or placed a scholar historically ahead of another, when we should not have. We have tried to take into account all of these excellent points and improve the map every several months. However, we have also received a lot of emails thanking us for the map, as it really is the only one of its kind—providing a good, macro-level introduction to complexity theory and complexity science. As such, we do not want to tamper with the map too much—following the old adage: *if it ain't broke, don't fix it*. The current map was last updated January 2011.

The Map is to be read as follows:

First, the Map is roughly (and we mean roughly) historical, working as a timeline that is divided into six major periods that one can read from left to right: 1) old-school, 2) percolation, 3) the new science of complexity, 4) recent developments, and 6) examples of potential areas of study—we recognize that not everyone agrees these are new areas, that is why they are listed as tentative; we also cannot include every new area.

Each fields of study is represented as double-lined ellipse, with a double-lined arrow moving from left to the right. The relative size of these ellipses is meaningless, and is strictly a function of the space needed to write the name of each field. Double-lined arrows represent the trajectory of each field of study. Space constraints required that the length of these arrows be limited; readers should therefore assume that all of them extend outward to 2011.

The decision where to place the various fields of research relative to one another was a major challenge, given the map is 2-dimensional. We therefore tried to position similar areas next to one another. For example, those sciences oriented toward the study of systems are located at the top of the map; the sciences that tend to extend outward from or around cybernetics and artificial intelligence and are oriented toward the development of computational method are located at the bottom.

Areas of research identified for each field of study are represented as single-lined circles. As with the fields of study, the size of these circles is strictly a function of the space needed to write the different names.

The intellectual links amongst the fields of study and amongst the areas of research are represented with a bold, single-lined arrow. The head of the arrow indicates the direction of the relationship. In some cases, the relationship is mutual. To keep the map simple, rather than draw this link to the trajectory for a field of study or area of research (as in the case of the reciprocal relationship between complexity science and agent-based modeling), we draw it to the ellipse representing the field of study or area of research. Note: we recognize that we have simplified many lineages and that not everyone will be happy.

For each area of research, we also include a short list of some of the leading scholars. This list is not exhaustive; but it tries to be representative, based on number of citations, general recognition, and importance in the historical development of the area of research. For each scholar we provide the following information: name, most widely known contribution, and links to key areas of research. The links amongst the scholars and their respective areas of research are represented by a dashed line. One will also note that the names of the scholars differ in font size. This was done to demonstrate their relative importance within complexity science. Again, some will disagree, and so we apologize if anyone feels slighted. But, for a model to work, it has to be somewhat wrong—all theories are under-determined by their evidence. And, this model seems to be working rather well, at least for now.