

Research Questions and Hypotheses

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The *Journal of Space Philosophy* was launched in the Fall of 2012 within the framework of the Kepler Space Institute's mission and values. One of the overarching goals of the Journal is to gather together a community of space scientists, experienced academics and professionals, young scholars, and practitioners in relevant disciplines and to offer a platform for a dynamic dialogue, ideas, and practices exchange. For this reason, the Research Questions and Hypotheses section of this Journal is particularly important, as the assumptions and research queries collected from the Journal contributors help to guide its future scientific focus and to design future issues of the magazine.

Thus, the current section of the Journal additionally represents a depository of future research ideas, suggestions, questions, and notes or conclusions on the remaining gaps in today's science, which could be consulted, analyzed, and used in the future for more focused inquiries in all aspects of basic and applied research in space and Earth sciences, including theory, data analysis, and modeling. The "depository of questions" of our Journal may thus assist young researchers in shaping their future scientific inquiries and increase their opportunities for gaining financial support for their initiatives from such bodies as NASA.¹

The first issue of our Journal (Fall 2012) focused primarily on the task of defining space faith and/or philosophy and their links with policy science, astrophysics, biology, and others. A number of pertinent research questions and hypotheses were proposed by the authors. They covered a large array of issues in space engineering, science, management, governance, and policy.

The Research questions and hypothesis proposed for the current issue of the Journal fall under a common theme of "Competence and Capacities of Human Civilization." This is because all of them focus either on such features of human civilizations as their life-cycles, the cost of civilization's loss, their extension or spiritual component, or the ability of *homo sapiens* to reach out to other planets and assure survival of the species existing on Earth.

As an editor of the Research Section of the *Journal of Space Philosophy*, I would like to say a special thank you to the authors Dr. John Bossard, Dr. Lawrence Downing, Dr. George Robinson, and Dr. Bob Krone for the submission of the research questions and hypotheses presented below.

¹ See the list of funding opportunities at cce.nasa.gov/cce/announce.htm#post2013_09

Competence and Capacities of Human Civilization

Dr. John Bossard

Hypothesis:

Throughout history, human civilizations have been largely confined to the Earth's surface. These civilizations come and go, undergoing rises and falls of a cyclical nature, with time periods that may cover millennia. Sometimes their collapse is self-induced; other times it appears to be caused by environmental factors. In either case, the collapse of human civilizations comes at a great cost in terms of loss of treasure, knowledge, and history. By remaining on the Earth's surface, these cycles can be expected to continue. One hope for transcending these cycles of collapse is to extend human civilizations off of this planet's surface and out into the neighboring solar system and beyond. While this is still no guarantee of the long-term survival of human civilizations, the development of extra-terrestrial human civilizations may greatly extend the time period prior to the next collapse.

Research Question:

- Will humankind be able to extend itself off-planet in a permanent, self-sustaining way in this current cycle of civilization before a widespread systematic collapse delays this extension once again?

Dr. Bob Krone

Research Question:

- What is the optimum set of philosophy, leadership needs, and resource management tools to include in the design of "Good" (i.e., negative entropy) Space settlements?

Dr. Lawrence Downing

Research Questions:

- What manifestations of the human spiritual component are found among those whose life-philosophy is guided by scientific principles and the laws of science?
- How are the spiritual components evidenced?

Dr. Kseniya Khovanova-Rubicondo

Hypothesis:

Resource distribution has been always a burning issue for human beings, although we tend to agree on what resources are valuable for us and what are not. Given that some material and immaterial resources highly valued by human beings – such as gold (material) or time (immaterial) – may be valued differently or may not represent any value at all for other civilizations existing beyond the Earth, our bargaining power over the resources existing beyond the Earth as well as their value to other civilizations is unknown. This value-uncertainty puts human beings at risk of being misunderstood and

even rejected at their first contact with the inhabitants of space.... I hypothesize that such features as curiosity, i.e., eagerness to learn more about odd, novel, strange, or even unexpected phenomena, could serve as a basis for a first contact with other civilizations.

Research Question:

- Could simple curiosity bridge different civilizations?

Dr. George Robinson

Research Question:

- All relevant issues considered, how much time would be necessary to ensure permanent off-Earth habitation of *homo sapiens* as a means of reasonable assurance of species survival?