Appendix L. Social Science Frameworks

The social sciences embody diverse frameworks or paradigms to approach and understand social systems.[1] These frameworks and their diversity are directly related to ontologies ("what we can know" with variations between objective-subjective approaches to the world), epistemologies ("how we know things" or the study of knowledge with distinct approaches, including positivism), philosophical perspectives (a set of underlying assumptions that guide the research process, including how it is approached and conducted), and methodologies (how will the research proceed via various step-by-step elements) (Bennett et al. 2017; Charnley et al. 2017; Della Porta and Keating 2008; Dodge et al. 2005; Leavy 2017). These frameworks are often broken down into four distinct, yet sometimes overlapping approaches, which include: (1) positivist, (2) post-positivist, (3) anti-positivist (often referred to as interpretivist), and (4) humanistic (Charnley et al. 2017; Della Porta and Keating 2008) (**Figure 1**).

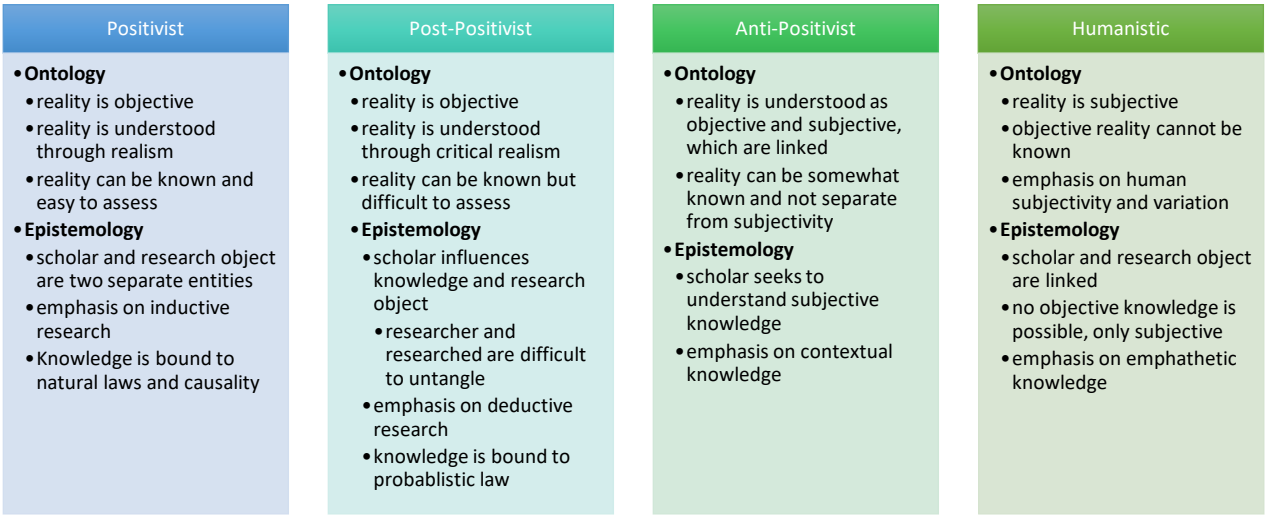

Figure 1. Common Interdisciplinary Social Science Frameworks (altered from Della Porta and Keating 2008)

These frameworks also tend to be associated with one or more theoretical schools of thought that stem from or build upon these various frameworks (Leavy 2017). While framework details may be unnecessary for the purpose of this protocol, this diversity and these distinctions should be recognized, as the social sciences are not homogenous. Additionally, this diversity may play a role in the types of social science expertise sought out by an IS or integrated into a starter package, whether that includes a social science field/subfield, social scientist, or social science literature and research. These frameworks and distinctions may inform what kinds of social science(s) are integrated and ultimately contributing to the IS under development.

[1] Note that some social sciences, scientists, and approaches may not use "systems" or systems-related terminology or approaches. Systems is integrated into this protocol due to the Partnership's adoption and usage of an integrated socio-ecological systems conceptual model to their ongoing ecosystem recovery efforts (see Appendix F).

Positivism posits that within the social world or systems, there are objective truths and a reality that can be known that is external to and removed from the observer (and scientist). A positivist would approach a social system or topic as something that can either be verifiably and objectively known or falsified through empirical inquiry and causality. Positivism stems from traditional and normative understandings of science. Positivism is most closely aligned with the natural sciences and may seem familiar to natural scientists or resource managers involved in the IS process; however, positivism is only one framework or approach to social science.

Post-positivism shares similarities with positivism, including that reality is objective and can be understood through empirical inquiry; however, a post-positivist acknowledges that understanding reality or a social system is challenging and causality may be difficult to untangle due to uncertainties, thus, may be more inclined to think in terms of probability (Charnley et al. 2017; Della Porta and Keating 2008; Leavy 2017). Post-positivists, as scientists or researchers also recognize their relationship and potential influence on the researched (whether that be a particular topic, person, or community).

Anti-positivism, also often referred to as interpretivism, approaches social systems and reality as bound to human subjectivities, as humans, "engage in processes of constructing and reconstructing meaning through daily interactions," which make defining, measuring, and sharing an objective reality difficult (Leavy 2017, p. 262). Anti-positivism reflects a perspective that makes it challenging to disassociate the objective from the subjective. An anti-positivist may approach social systems or a particular topic or concept as a human-derived or social construct that is given shared meaning(s) by humans.

A **humanistic** framework goes one step further from anti-positivism, by placing an emphasis on subjectivity, as objectivity is not knowable and reality is subjective. A humanistic social scientist cannot disconnect the researcher-researched relationship and focuses on human subjectivities and variations within those subjectivities.

These frameworks illustrate the substantial and ongoing changes that continue to take place within the social sciences. These differences are also connected to longstanding disagreements and disconnects associated with different worldviews or frameworks that structure how a social scientist engages the social world or social systems. These changes and variations can be difficult to understand and relate to ongoing fundamental discussions around what constitutes the social sciences, how social scientists engage social systems through various approaches, ethical considerations, methodologies, theories, tools, analyses, and/or even the representation or visualization of findings.

These frameworks also tend to be associated with one or more **theoretical schools of thought** that stem from or build upon these various frameworks (Leavy 2017). Schools of thought or shared theoretical foundations, include, but are not limited to: Empiricism, Symbolic interactionism, Modernism, Postmodernism, Structuralism, Poststructuralism, Phenomenology, Feminism, and Critical theory (Leavy 2017). While these theoretical school of thought may not be necessary for the purpose of IS starter package development, these various schools of

thought have likely informed or impacted in some capacity the array of social science literature, research, data, or social scientists who are being integrated into the IS development process.

While challenging, it is important to acknowledge such diversity, as it may inform how one approaches or integrates social science into IS, including when it comes to the specific social science research, data, materials, and content that are included in starter packages. Some changes or variations in social science diversity may be more pronounced and considered important in some social science disciplines or fields (or subfields) than in others. This variation is partly due to various theories and theoretical positions or backgrounds that inform the social sciences. Additionally, social scientists or specific social science (sub)fields or areas of interest may integrate or overlap when it comes to frameworks. For example, the notion and Partnership identified HWB Vital Sign of Sense of Place is derived from humanistic and anti-positivist social science (e.x.: humanistic geographies) (Cresswell 2012); however, it has evolved and changed to be used as a notion and metric within positivist and post-positivist social sciences.

These frameworks differ and are often associated with specific theories, questions, tools, topics, and notions. Additionally, some disciplines have integrated these approaches or frameworks more than others, often leading to variations in how different disciplines understand or address social phenomena, problems, or processes. These approaches are also associated with various "turns" or major shifts within fields that inform the current status and popularity of specific methods, approaches, concepts, or philosophies within a field. While this may seem like a challenge to social science integration, consider this an opportunity to better understand the diversity of social science approaches and frameworks that could potentially benefit your own efforts.

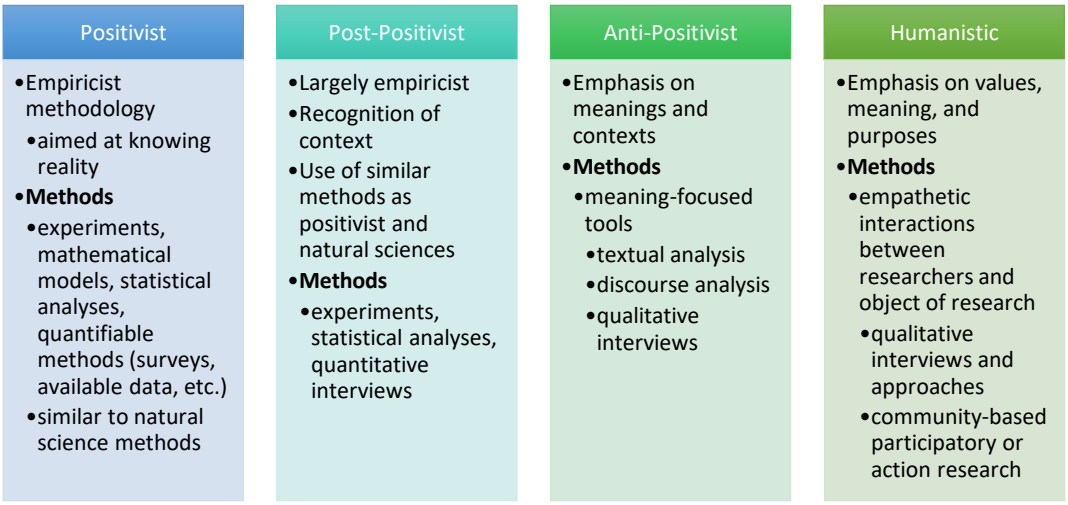

Figure 2. Methodologies by Framework (altered from Della Porta and Keating 2008)

Social science encompasses and utilizes a variety of methods and methodologies. While methods and methodologies are often used interchangeably and are connected, they are different. Methods tend to refer to tools, techniques, and research practices (actions) that

social scientists employ to collect or generate data and information, while methodology refers to the research plan a social scientist employs, which integrates various components, including methods and theory (Della Porta and Keating 2008; Leavy 2017). Methods are more of the what the social scientist will use within their research project, while methodology is the how the research project will be conducted (Della Porta and Keating 2008; Leavy 2017). Research methodologies and methods often vary depending on discipline and framework (**Figure 2**); although, many methods overlap among disciplines. For example, surveys and interviews are used within social psychology and geography. Additionally, methods and methodologies include and/or inform various types of research design types, which may vary by field, subfield, and framework. Such designs or genres may include social science projects that emphasize survey research (questionnaires), field research (field participation and embeddedness), community-based (collaborative and includes community participation), visual arts (visual arts integration, including painting, photography, comics, etc.), to mixed methods (the use of multiple tools or techniques) (Leavy 2017). Social science methods, methodologies, and research do often vary (e.x.: anti-positivist and humanistic). Some social sciences integrate components or tools to ensure scientific or empiricist standards of validity, reliability, objectivity, representativeness, generalizability, and rigor. Some other social scientists, particularly anti-positivist and humanistic social sciences or approaches, often integrate their own alternative scientific or research standards. For example, some anti-positivist or interpretivist scholars use the standards of rigor and relevance or credibility, dependability, confirmability, and transferability (Della Porta and Keating 2008; Dodge et al. 2005; Leavy 2017). While this may be contentious or controversial to some social and natural scientists alike, this distinction is something to be aware of when exploring and integrating interdisciplinary social science works into the IS development process.

Examples: When addressing Shoreline Armoring (IS and VS), different social science frameworks or approaches can play a role and can contribute varying perspectives. (1) An interdisciplinary social science project can focus on homeowner perceptions and experiences and whether they influence or cause specific types of shoreline management practices using a positivist framework (see Smith et al. 2017). (2) An anthropological study can highlight local community stories and perspectives around post-tsunami seawalls and shoreline infrastructure using a post-positive framework (see Shuhei 2016).