PAPERS

Stakeholder Value Constructs in Megaprojects: A Long-Term Assessment Case Study

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ABSTRACT

By definition, megaprojects consume numerous resources and impact numerous people, even across generations; it is therefore important that they bring considerable value to their initiators and other stakeholders. Based on stakeholder value construct frameworks identified in the literature and a single case study of the construction and operations of an over 50-year-old American highway bridge, we identify ways to understand, classify, and express megaproject stakeholder value. The research links different stakeholder types to types of value constructs. Knowing which types of value constructs matter to different stakeholder types could potentially help project representatives communicate more efficiently and effectively.

KEYWORDS: megaproject; stakeholder; value constructs; value opportunities; benefits

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INTRODUCTION

Megaprojects have been growing in scale and frequency globally (Flyvbjerg, 2014; Gellert & Lynch, 2003); therefore it is important to understand issues that accompany this particular project type. Winch (2017) argues that "considerable effort needs to be put into extending project stakeholder management theory for megaprojects both empirically and theoretically" (p. 14) and he points to more gaps in the literature, which, among these, include (1) the link between megaprojects and society, in other words, society as an important stakeholder of megaprojects; and (2) future generations as another important stakeholder due to the long-term impact of most megaprojects.

Chang, Chih, Chew, and Pisarski (2013) state that the key to megaproject success is found in the value created and captured during and post projects, both for the funding organization as well as for the stakeholders. Project success needs to be considered as an ongoing and long-term (emergent) process of value creation in contrast to the traditional output measures of cost, time, quality, or financial value returns. Shenhar and Dvir (2007) agree, as they state that value created for end users and other stakeholders needs to be addressed. Researchers (e.g., Ika, 2009; Fahri, Biesenthal, Pollack, & Sankaran, 2015) emphasize that many project success criteria (e.g., satisfaction of clients, end users, and other stakeholders, as well as the strategic objectives of the client organization) can only be understood a long time after the project has been finalized. Acknowledging that megaprojects can impact a society years and decades after project completion, Sato and Chagas (2014) suggest that the measurement of project success should incorporate "[1] the time between the initial idea of the project and the time when success is being assessed and [2] the stakeholders [should be allowed to] apply whatever success criteria that are relevant for them in terms of utility at that moment in time" (p. 633). The first part of their suggestion is in line with Fahri et al. (2015) who state that research about measurements of the long-term impacts and outcomes are scant, and they therefore suggest a project close-out phase (i.e., the stage when project outputs have been delivered) is added when assessing project impact (e.g., on the environment and the community). The second part of the suggestion is in line with Oliomogbe and Smith's (2012) statement that research on project stakeholder value should reveal '[the] understanding [of] how stakeholders value different things' (p. 617).

In order to address the gaps and suggestions identified above, we aim to identify ways to understand, classify, and express megaproject stakeholder value, while simultaneously acknowledging that different types of stakeholders may relate to different kinds of values; in other words, they

may place emphasis on different kinds of consequences of the megaproject at hand. By allowing stakeholder value constructs to be defined as positive consequences of the megaproject perceived and appreciated by stakeholders, our research question (RQ) is the following:

> *Which stakeholder value constructs matter for different types of megaproject stakeholders?*

We answer the question by identifying the theoretical frameworks on stakeholder value offered in the literature, and by conducting an empirical study of stakeholders of an over 50-year-old highway bridge in the United States—the Astoria-Megler Bridge (hereafter referred to as "Astoria Bridge")—which connects the U. S. states of Washington and Oregon on the west coast. The bridge was chosen for the study because (1) it has generated substantially more value to the stakeholders than stipulated in the business case at the time of project approval, and (2) abundant material is available on use of the bridge and the value perceptions of various types of stakeholders due to the fact that material had been collected and generated for the bridge's 50th anniversary in 2016 and was made publicly available on the internet.

This research is relevant for theory and practice for two different reasons: an instrumental reason and an ethical one. Insights into the combination of certain stakeholder types and types of perceived value can help project representatives communicate with the various stakeholder types in more efficient and effective ways, thereby enhancing the likelihood that they will continuously support the project as well as deem the project successful. This is the instrumental reason. By definition, megaprojects consume numerous resources (often based on public funding) and impact many people, even across generations. As a consequence, it is of ethical importance that they bring considerable value to their initiators and other stakeholders.

The limitations of this research are: (1) The case study concerns only five specific stakeholder types (i.e., project owners, project members, local businesses and non-profit organizations, local citizens, and the general public). Other stakeholder types that might be relevant (e.g., legal authorities or regulators, non-local, non-governmental organizations [NGOs]—e.g., environmentalist groups, and the press—are not included in the empirical study); and (2) the case study does not contain quantitative analyses of economic value generated or of environmental impact to the bridge.

The article is structured as follows: First, the theoretical framework is presented, followed by the research methodology. Next, a section on findings is presented and, finally, a conclusion and suggestions for managerial implications.

Theoretical Framework

The Concept of Stakeholders and Stakeholder Types

Since Cleland's early work about ongoing project evaluation (1985, 1986), stakeholder management has been a topic in the project management literature. (An overview of this subject can be found in Eskerod, Huemann, and Savage, 2015). Even though no consensus exists on the definition of a project stakeholder, most researchers build on Freeman's (1984) seminal work, which also holds true for the definition chosen for this article: "[Project stakeholders are] the persons and entities that can affect or be affected by the project" (Eskerod & Jepsen, 2013, p. 1).

Freeman's (1984) core message was that managers should consider more individuals and groups than their company's shareholders in order to be successful when conducting strategic management. Freeman (1984) pointed to the following generic stakeholder types of a very large organization: "owners, financial community, activist groups, customers, customer advocate groups, unions, employees, trade associates, competitors, suppliers, government, political groups" (p. 55). In other parts of his book, Freeman (1984) mentions more stakeholder types (e.g., the media and special interest groups, such as environmentalists). His message is that no general list of relevant stakeholder types can be created. Any manager or organization must identify specific stakeholder groups and decide how to deal with them. A list of generic stakeholder types should only be viewed as a starting point for a dialog among the parties involved in strategic management. This line of reasoning has been followed by other researchers, even though many of them also list generic stakeholders as a source of inspiration. Dröge, Germain, and Halstead (1990), for example, pointed to shareholders, customers, voters, the general public, financial community, lawmakers, communities, the press, higher education, employees and their families, labor unions, company distributors, and other companies, including competitors, as sources of inspiration; and Turner and Zolin (2012) who pointed to the investor or owner, project executive or project sponsor, consumers, operators/users, project manager and project team, senior supplier (design and/or management), other suppliers (goods, materials, or services), and the public. As can be seen, some generic stakeholder types are overlapping, whereas others are not. For the purpose of this research, the contribution from this part of the literature review is that stakeholder types will differ across projects, and that relevant stakeholder types should be identified by management in each specific case. Lists of the generic types, however, can be referred to for inspiration.

The Concept of the Project Life Cycle

Because every project, per definition, is temporary, its course can be viewed as a life cycle (Lundin & Söderholm, 1995). The classical project life cycle consists of four stages: (1) starting the project; (2) organizing and preparing; (3) carrying out the work; and (4) closing out the project (Project Management

Institute, 2013). A life cycle model specifically dealing with the management of infrastructure megaprojects is offered by Priemus (2010) and is comprised of: (1) problem analysis; (2) compilation of a functional program of requirements; (3) elaboration of the technical, practical, and economic aspects and preparation of the project until it is ready for execution; (4) realization of the project from start to finish; and (5) operation of the infrastructure after completion. An advantage of this model is that it includes the time after completion, whereas the classical project life cycle "fails to capture the longer term effects that megaprojects usually produce." (Sato & Chagas, 2014, p. 625). The time after project completion is also in focus, when Fahri et al. (2015) suggest that a project close-out phase (i.e., the stage when project outputs have been delivered) should be included when assessing project impact.

The Concept of Megaproject Stakeholder Value

Acknowledging that any project goes through a life cycle, Turner and Zolin (2012) suggest in a conceptual article that the consequences of a project can be differentiated by three types: project outputs, project outcomes, and project impacts. Project outputs are defined by Turner and Zolin (2012) as "the new asset delivered by the project, commissioned at the end of the project" (p. 90); whereas project outcomes are defined as "the new capabilities that operation of the new asset gives to the investing organization . . . [and] its successful achievement can be judged in the months after the project" (p. 90); and project impacts are defined as "the long-term performance improvement that it is expected the new capabilities will enable the parent organization to achieve . . . [and] it will be judged years after the end of the project" (p. 90). Turner and Zolin (2012) suggest that different stakeholder types (eight different types are mentioned) place different emphases on the various consequence types. For example, the owner or investor paying for the project, is focused on (1) whether the project's outputs are delivered on time, within budget, and with appropriate features and levels of performance; (2) whether the asset delivered (i.e., the project outputs) continues to perform, makes a profit, enhances a good reputation and customer loyalty and, in general, that the stipulated project outcomes are achieved; and finally (3) whether new technology, competence, capability, a new class of product or similar, as a result of the asset, materialize. In other words, this stakeholder type has a vested interest in all of the three consequence types. The end users may also be interested in all three types, but for different reasons; they may focus on the timely delivery and quality of the project outputs in order to be able to start using the asset, for example, a bridge; the project outcome for them may be that they spend less time on transportation, whereas the project impact may be that they will have less stressful workdays and be able to spend more time on the job and/or with family. When it comes to the general public, they may be concerned with the environmental impact in the years to come after project finalization, but interested neither in the project outputs nor the project outcomes.

In line with Turner and Zolin (2012), Harrison and Wicks (2013) acknowledge that various (types of) stakeholders may appreciate the different consequences of strategic efforts and even refer to one of the classical economic thinkers Adam Smith (1776), who has claimed that "individuals know—what is best for them—that value is something that individuals should define for themselves and not allow governments or others to choose in their stead" (Harrison & Wicks, 2013, p. 101). The authors define value as "anything that has the potential to be of worth to stakeholders" (pp. 101–102) and point to utility as another important concept related to stakeholder value, when stating that "utility [is understood as something] to reflect value a stakeholder receives that actually has merit in eyes of the stakeholder and it is a function of the stakeholder's utility function, which express the stakeholder's preferences for particular types of values" (p. 102). The authors developed a four-factor model of the types of value that stakeholders seek from their relationships with an organization: (1) stakeholder utility associated with actual goods and services; (2) stakeholder utility associated with organizational justice; (3) stakeholder utility from affiliation; and (4) stakeholder utility associated with perceived opportunity costs (Harrison & Wicks, 2013, p. 103).

As Harrison and Wicks (2013) point to the perception of utility (e.g., related to organizational justice), Chang et al. (2013) state that perceived value of a project will not only relate to something functional or commercial but also to something experiential, whether cognitively or emotionally.

Other researchers (e.g., Flyvbjerg, 2012, 2014; Ang & Killen, 2016; Ang, Killen, & Sankaran, 2016; Davis, 2014, 2016) have offered conceptual frameworks related to megaproject stakeholder value perceptions (or sometimes referred to as "project success dimensions"). Many of the authors of conceptual papers agree that various stakeholder types focus on different project success dimensions; in other words, they value different elements generated by the project and suggest that this should be incorporated into megaproject stakeholder management. The researchers differ, however, when it comes to suggestions on how to deal with the multi-faceted value perceptions. For example, Davis (2016) proposes that dimensions should be incorporated into a project success measurement, thereby allowing all stakeholder groups to share the same perception of project success, whereas Flyvbjerg (2012, 2014) and Ang and colleagues (Ang & Killen, 2016; Ang et al., 2016) point to the importance

of emphasizing different aspects when dealing with different stakeholder types. Flyvbjerg (2012, 2014) suggests that megaproject proposals are perceived as attractive by project initiators and other stakeholders due to four so-called sublimes (technological, political, economic, and aesthetic dimensions of the megaproject proposal), and that different project stakeholder types can be convinced to support the proposal by different dimensions of the megaproject. The technological sublime relates to the excitement engineers and technology-oriented people derive from the potential opportunity of being part of something uniquely new in terms of a 'longest-tallest-fastest' type of project. The political sublime relates to the excitement politicians derived from the possibility of generating 'legacies' on themselves and their efforts and receiving positive visibility in the media and with the public, thereby enabling them to be re-elected and/or honored in the present and the future. The economic sublime relates to the prospect of creating jobs and business opportunities in the project phase as well as after project termination. In addition to politicians, stakeholder types that can relate positively to this sublime include business people, trade unions, contractors, construction and transportation workers, consultants, bankers, investors, landowners, lawyers, and developers (Flyvbjerg, 2014). The fourth sublime—the aesthetic sublime—'talks' to stakeholders who appreciate artefacts and structures such as buildings and bridges, which are considered iconic and beautiful from a design point of view. This group includes designers, artists, area residents, and other interested parties.

Ang and Killen (2016) offer another framework to discuss stakeholder value constructs. In their research, they identified seven value perspectives employed by stakeholders and an eighth perspective was added in Ang et al. (2016) (see Table 1 for an overview of the eight perspectives).

Table 1 shows that project stakeholders employ numerous ways of expressing and demonstrating both the tangible and intangible value contributions of projects.

Since publication of the *Brundtland Report* by The World Commission on Environment and Development (WCED) in 1987, values related to sustainability have also been on the research agenda when it comes to stakeholders. In this report, sustainable development is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (WCED, 1987, p. 46). The definition especially emphasizes the long-term perspective of sustainable development as well as values

Value Perspective	Characteristics of the Perspectives for Value Identification
Singular/transactional value	Relationship drawn between labor (provider) and output (recipient) (Smith, 1776). Routine activities, simple, found mainly in task-oriented activities, or operational supervision. Value or deliverables derived are usually planned (deliberate), expected, and articulated upfront.
Generative value	Value that is generated through projects and activities is not static but flows on (ripple effect) to deliver value in other areas, in the present and future to benefit different stakeholders. Value derived could be planned (deliberate) or unplanned (emergent). Value is generated in the longer time horizon, and generative value emerges as work unfolds.
Transformational value	Ability to change circumstances, magnitude, or quality of project, portfolio, or organization. Adds value through reputation, publicity, morale, and reinforcing the strategic purpose of the portfolio. Likely to have a longer term time horizon. Includes facilitating changes to stakeholder mental models or the way project management is practiced in the system.
A value spectrum (range)	When value runs along a range, e.g., through time-based expressions (short to long term), cognition (rational to emotional) viewpoints (individual to multi-perspectival or collective) and function (operational to strategic).
Retrospective-reflective-future oriented value	Involves rolling hindsight in sensemaking (Weick, 1995). Value is not static, it shifts (Grönroos & Voima, 2012) based on past experiences, present realizations, and future anticipations. Value realized in the past may pave the way for present and future opportunities.
Value networks and relationships	Includes relationships that are collaborative or cooperative (Agarwal & Selen, 2009). Describes the ability of stakeholders to engage and add value through their own experiences and connections with others.
Preventative value	Used in decision making under conditions of risk and uncertainty, where project investments are about prevention or minimizing negative consequences to the portfolio or organization. Business case is built around the endpoints to risk reduction, demonstrates the downside of not investing where the resulting outcomes could be major and sufficiently devastating as opposed to the often invisible upside (normality, maintaining the status quo of the investments).
Personal reward	Emotional expressions such as pleasure, inspiration, satisfaction, and enhanced personal identity from a stakeholder's involvement in a project as a member or beneficiary.

Table 1: Value perspectives (based on Ang & Killen, 2016; Ang et al., 2016).

such as solidarity and fairness across generations. The first publications on sustainable development focused on issues related to protection of the environment and natural resources (i.e., ecological issues), whereas recent literature emphasizes the need for integrating ecological, economic, and social dimensions (Eskerod & Huemann, 2013). Meadows, Meadows, Randers, and Behrens (1972) state that the sustainability dimensions are interrelated and influence each other; however, AlWaer, Sibley, and Lewis (2008) point to the fact that various (types of) stakeholders may have different and subjective perceptions when undertaking sustainability assessment.

In addition to the mentioned conceptual articles on frameworks for stakeholder value, researchers have also conducted empirical studies on stakeholder value. In Table 2, we list the articles containing empirical studies reviewed, which are relevant to our study.

When reviewing Table 2 it can be seen that, even though they are sources of inspiration, none of the papers answers the research question we have set out to investigate. They do not relate perceived stakeholder value to megaproject stakeholder types as we have aimed to do in our study. None of the papers relates to the RQ as well as those of Flyvbjerg's (2012, 2014) and Ang and colleagues' (Ang & Killen, 2016; Ang et al., 2016) frameworks. Flyvbjerg (2012, 2014) directly relates name-given stakeholder types to the various dimensions of a megaproject, whereas Ang and colleagues (Ang & Killen, 2016; Ang et al., 2016) emphasize that perceived value can be expressed in many different ways, incorporating more ways than Flyvbjerg (2012, 2014). In addition, these authors cover perceived value in the whole project life cycle.

In our study it is relevant to clarify whether Flyvbjerg's (2012, 2014) framework can be applied to the megaproject's close-out phase (Fahri et al., 2015), not only the project proposal phase, and to investigate whether Ang and colleagues' (Ang & Killen, 2016; Ang et al., 2016) framework can be tied to different stakeholder types.

Another interesting contribution to the theory on stakeholder value is the so-called project value opportunity (Lechler, Edington, & Gao, 2012; Lechler, Gao, & Edington, 2013); in other words, "project opportunities that provide the potential to exceed the predefined stakeholder value of a project during that project's implementation [i.e., execution]" (Lechler et al., 2013, p. 17), which we also add in the project close-out phase. The topic of encouraging exploitation of project opportunities to maximize project stakeholder value is, however, outside the scope of this article, but is presented in our other publications (Eskerod, Ang, & Andersen, 2017; Eskerod, Ang, & Andersen, forthcoming).

The conclusions of the literature review are that (1) stakeholder value is a multifaceted concept; (2) various types of stakeholder value constructs exist; (3) the perception of value or importance of value seems to be contingent on the types of stakeholders; and (4) there is a gap in the existing literature when it comes to stakeholder value constructs in the close-out phase of the megaproject life cycle, as the existing literature focuses on the pre-project phase, during which a project proposal is developed, and the project execution phase.

Research Methodology

As we position ourselves within the scientific approach of social constructivism (Berger & Luckmann, 1966), our contribution concerns the understanding of megaproject stakeholder value constructs; in other words, which megaproject consequences they appreciate and perceive as valuable.

Single Case Study

The research is based on a single case study (Eisenhardt, 1989); in other words, stakeholder value constructs related to the proposal, construction, and operation of the Astoria Bridge on the west coast of the United States, which is the longest continuous truss span bridge in North America (Great Columbia crossing celebrates, 2006) (See Figure 1).

The case is selected because it is rich and powerful (Siggelkow, 2007) for the topic at hand. This single case study addresses the statement by Flyvbjerg (2006) that "a discipline without exemplars is an ineffective one" (p. 219) and it also responds to Söderlund and Lenfle's (2013) call for investigation of historical projects, due to the fact that the first recorded proposal of the bridge was in 1928 (Bridge Timeline, 2016) and in 2016 it celebrated its 50th anniversary. Analyzing stakeholder value constructs related to a megaproject whose outputs have been in operation for over 50 years, allows us to directly address one of the literature gaps, which Winch (2017) identifies: future generations as a stakeholder. It is worth further mentioning that the bridge was constructed within budget, ahead of schedule, and with unexpected benefits. Such projects are few and far between and therefore need to be studied carefully as especially revealing cases for potentially useful lessons (Flyvbjerg, 2014).

In 1953, 25 years after the project proposal, a partnership was formed between the Port of Astoria, Oregon State Highway Department, the Washington Toll Bridge Authority, and Pacific County, Washington, to assess the feasibility of building a joint bridge (Bridge Timeline, 2016). In 1961, the legislatures of the states of Oregon and Washington agreed to fund the project. In summary, the project phases of the bridge were: pre-project phase (1928–1961); construction (1962–1966); and operation, in other words, close-out phase (1966–present). The costs of construction (US$24 million) would translate to half a billion U. S. dollars in 2016 (according to MeasuringWorth.com, accessed 27 January 2016).

The originally intended stakeholder value was an infrastructural improvement for people crossing the Columbia River. This improvement was for locals traveling from the state of Oregon to the state of

Studies (in chronological order)	Context and Method	Key Contributions	Key Gaps in Relation to the Phenomena in Our Study
Olander (2007)	• Construction industry • Sweden • Qualitative method • Three longitudinal case studies	• Suggests a method for project stakeholder analysis that considers that different stakeholders may have different needs and expectations • Points to the usefulness of differentiation between proponents and opponents • Demonstrates how a wide variety of stakeholders can be included in analysis (e.g., the municipality, the country's administrative board, the national government, residents in the vicinity, interest group for the preservation of the city's image, interest group for senior citizens, the media)	• The method does not examine and evaluate application of the method across different stages and levels of project execution, which includes both external and internal stakeholders.
Rowlinson and Cheung (2008)	• Real estate and construction industry • Hong Kong and Australia • Triangulated approach (qualitative and quantitative methods)—semi-structured interviews, observation, document examination, and case studies	• Point to different kind of stakeholders (upstream, downstream, external) • Success in achieving project performance and client satisfaction • Longer term objectives cannot be achieved without additionally focusing on stakeholder management issues	• The authors do not match the stakeholder types explicitly to the longer term objectives.
Li, Ng, and Skitmore (2012)	• Major infrastructure and construction (MIC) project • Hong Kong • Diverse research method (literature review and content analysis, questionnaire survey, face-to-face interviews, mean score ranking, and fuzzy comprehensive evaluation)	• Proposes a method of analyzing stakeholder concerns • Results indicate a significant divergence of views among stakeholder groups • Conflicts arise when there is a mismatch between peoples' different perceptions of the issues • Policy and decision makers should strive to resolve the majority of conflicts arising throughout the project life cycle to maximize chances of success • Allows a thorough assessment taking the views of all concerned (i.e., the general public, government, pressure groups, and people affected by the project) into account	• Even though concerns also can be seen as related to our concept of stakeholder value, the focus on concerns does not fully cover our focus on stakeholder value.
Hartmann and Hietbrink (2013)	• A road maintenance project (an arterial highway ring road) • The Netherlands • Questionnaires • Stakeholder groups that are directly affected by the highway section: highway users, people living close to the highway, and companies located along the highway.	• Suggests that road agencies should redirect their efforts from trying to determine and meet stakeholder expectations to allowing stakeholders to experience the improvements of a maintenance project by providing sufficient information before and during the project • Helps to determine whether high but realistic expectations about certain road impacts should be stated or overstated about what can be expected from the maintenance in order to gain satisfied stakeholders • Implies that maintenance projects should lead to noticeably improved road infrastructure, since the value of a road will emerge at the moment of its usage • Indicates that the duration of a project might be adjusted to experiences or stakeholders might be not able to recall their expectations after project termination	• The article is very closely related to our topic as it investigates how expectations, experiences, and satisfaction interrelate in a road maintenance project. However, the focus on expectations does not fully correspond with our focus on stakeholder value. • In our data collection, we focus on the current perception by each informant of value generated due to the megaproject. This incorporates stakeholder value (types), which were not thought of at project initiation. So it is not relevant for our study whether our informants can recall their initial expectations or not.

(continued)

Studies (in chronological order)	Context and Method	Key Contributions	Key Gaps in Relation to the Phenomena in Our Study
Panahi, Moezzi, Preece, and Wan Zakaria (2017); Panahi, Preece, and Wan Zakaria (2016)	• Construction industry • Malaysia • Quantitative method using questionnaire survey	• Contributes to the extant literature of organizational behavior in construction • Suggests that a personal–organizational value conflict is a better and stronger predictor of job satisfaction • Shows the importance of value-based management • Suggests that project managers in the organizational setting pay more attention to the construct of "values" • The expected result is a reduction in the conflicts in projects and an increase in the job satisfaction of construction stakeholders	• The articles are both very relevant as they deal with value constructs as well as value conflicts in construction companies. However, the focus on job satisfaction of the internal stakeholders is too narrow for our topic, as it neither includes the stakeholder types we need nor the life-cycle perspective, in which project outcomes and impact can first be measured after project completion.
Mok, Shen, Yang, and Li (2017)	• Major public engineering projects (MEPs) • China • Initiated and funded by the government • Four primary research methods (case study, interviews, survey, and network-theory based analysis)	• Diversities of stakeholder concerns and interdependencies between stakeholder concerns add complexities to major public engineering projects • Illustrates how a network perspective can be used to analyze stakeholder concern interdependencies	• This article contributes to our work by pointing to the relevance of incorporating multiple concerns (which is an aspect of stakeholder value) and to address the interdependencies between the concerns, adding to complexity. All these concepts provided inspiration for our study. • However, the importance level of stakeholder concerns and the identification of major challenges faced by stakeholders are not solely related to the network analysis result of concern interdependencies. • In addition, the concept of concern does not fully match our concept of stakeholder value, even though it can be viewed as a sub-element.

Table 2: Relevant empirical literature on megaproject stakeholder value constructs.

Washington or vice versa, and for non-local travelers on U. S. Route 101, as the bridge was the completing segment of this highway, which links the state of Washington to California, and hence also Canada to Mexico (Astoria-Megler Bridge, n. d.).

Data Collection

To ensure the quality of the research, more data collection methods were utilized (Yin, 2014). The data consisted of interviews, online videos of speeches, newspaper articles, books, website texts, and photographs (see Table 3). In addition, one of the authors made onsite observations during a six-day stay in a hotel in Astoria, close to the bridge.

Twenty-one individuals provided direct input to the case study; 14 were interviewed (45–90 minutes), using a semi-structured interview guide, whereas the remaining seven delivered their input through public speeches. The 14 individuals were selected partly through their formal roles mentioned in our published material on websites, for example, the public information officer of the Oregon Department of Transportation, and partly through snowball sampling (Goodman, 1961), in which interviewees recommended additional participants. Some of the interviewees were family related (i.e., parents and son, father and daughter), thus accounting for subsequent generations being involved in construction of the bridge.

The individuals were categorized into the following stakeholder types (however,



Figure 1: Astoria Bridge, 2009 (Photo courtesy of Ron Reiring, Creative Commons Attribution 2.0).

some of them belonged to more than one type, for example, interviewee #6, who is both a project owner and a citizen), as this made sense for the stakeholders in the actual project (applying Freeman's [1984] advice that the relevant stakeholder groups should be defined in the specific setting):

- Project owners (i.e., Oregon Department of Transportation, Washington Department of Transportation, a state governor, Astoria's mayor);
- Project members (involved in the bridge construction, e.g., construction workers);
- Local businesses and NGOs (e.g., chamber of commerce, an historical society);
- Local citizens (living and/or working in Astoria); and
- The general public (e.g., non-locals from other parts of Oregon or Washington, a member of congress, and representatives from the 'sister city' of Waldorf in Germany)

All interviews and speeches were recorded and transcribed.

Data Analysis

Recognizing that different researchers may produce findings that are not identical and that have non-overlapping components (Thomas, 2006), the data were iteratively analyzed by both authors who ultimately converged their individual analyses. This study utilizes a recursive deductive–inductive analysis approach (Miles, Huberman, Saldaña, 2014). Deductively, a common analysis framework guided by Flyvbjerg's four sublimes (2012, 2014) and the value perspectives typology framework by Ang and colleagues (Ang & Killen, 2016; Ang et al., 2016) were used by both researchers. The deductive analyses were balanced by inductively exploring new themes that emerged from the data. Important concepts, categories, and patterns were identified, coded, built up, and revised as new and different codes emerged. The collaborative experience amounted to a dynamic dialog, as the researchers interrogated and revisited the data iteratively, compared new concepts with the frameworks and data, and then built abstractions and more 'what ifs' with any new pattern that emerged (Stake, 1995). Furthermore, the thematic analysis of the data was conducted using a combination of manual and CAQDAS (QSR NVivo) approaches (Bazeley & Jackson, 2013). The use of CAQDAS enabled the codes to be organized, revised, merged, and reconstructed more flexibly and efficiently (Miles et al., 2014).

The authenticity of our analysis is demonstrated through the representation of a range of value perspectives (multiple realities) by the different stakeholders being studied. Triangulation of different data sources added strength to the data quality (Miles et al., 2014). Consequently, our conclusions are based on several different sources of information following converging lines of inquiry (Yin, 2014), where they all triangulate on the same RQ.

Findings

An overview of the empirical findings; in other words, the stakeholder value constructs associated with the various stakeholder types identified in the interviews and speeches, are presented in Table 4. The levels 'Nil, Low, Medium, High, and Very High' are based on the frequency of coded mentions associated with each sublime and stakeholder type.

Analysis Using the Four Sublimes Framework

When constructed, the Astoria Bridge was the longest continuous truss span in the world (Astoria Bridge, n. d.), thus reflecting the technological sublime for at least two stakeholder groups—the designers, namely architect William A. Bugge; and the constructors DeLong Corporation, American Bridge Company, and Pomeroy Gerwick (Astoria-Megler Bridge, n.d.). The second sublime was the political one. The stakeholders in question were the political proponents of the bridge, who originated from two U. S. states (Oregon and Washington), even though the building of the bridge was mostly championed by Oregon representatives (Associated Press, 1978). The political sublime was no doubt a factor, as can be seen in a 1966 campaign advertisement by the Governor of Oregon at the time, Mark Hatfield, who was running for state senator and whose platform mentioned

Type of Document	Sources	Scope or Context	Content
Semi-structured interviews	Interviews with 14 key stakeholders classified under project owners (public services and politicians), project members, local businesses and non-profit organizations, local citizens, and the general public Eight interviewees lived in the area for over 40 years, 5 had lived there for under 40 years, and 1 was undisclosed	Locals and non-Astorians From the states of Oregon or Washington Pre-during-post construction accounts Years lived in the area Accounts recalled as a child, teenager, or adult	*Demographics and personal*: Living in Astoria or surrounding areas, recollection of experiences with the bridge (pre-during and post construction), significance of bridge to the individual, perceived public sentiments, earliest and best memories of the bridge, anecdotes *Bridge construction*: Memory about construction and media, incidents, Astoria Clowns, recollection about the local sentiments *Bridge operations*: Changes, positive or negative impacts and effects (during and post construction), concerns, desired changes upon reflection (if you could go back in time), tolls, perceived sentiments of future generations
Newspaper articles	Associated Press (1962); Inkster (1966); Judge what he will do (1966); Sherman (1967); Associated Press (1978); Associated Press (1994); Hauser (2004); Webber (2011)	Key incidences based on the timeline of the bridge construction, post construction	Bridge's cause by Oregon representatives (political debates between Astorian leaders and the states), oppositions on scale and budgets, completion of the bridge, political sublimes evident during the conceptualization and pre-construction periods
Book	Stark (2014)	Chronological description of the development of the area	Historical background of the area and stakeholders
Online videos (transcripts of speeches and open letters presented in the speeches)	Goicochea (2016): Speeches by governor, mayor, public services officials, non-profit organization historical representatives, representatives from German sister city; included open letters (to be read out load at the event) from members of congress and more	50th anniversary celebration of the bridge	Speeches by current government representatives and open letters from a congress member and more imply the technological and political sublimes; evidence for the 'generative perspective' of value; economic and symbolic impacts of the bridge, and maintenance of the bridge
Web-based articles	*The Daily Astorian* by DePledge (2015); *The Oregonian* by Read (2015); Clatsop County Historical Society by Daly (2016); *The Daily Astorian* by Spurr (2016); *The Oregonian* by Hale (2016)	Astoria Bridge turns 50, bridge timeline	Historical account for the purpose of promoting the 50th anniversary celebrations, a historical timeline since the proposal in 1928
Photographs	Provided by interviewees and through websites (1962–2016)	Photo illustrations of events and stakeholders	During and post-construction periods; stakeholders, including the public, politicians, and promoters
Reports	Alternative Uses (2012), Monday Study Club Report by Isaacson (2015)	Bridge to Astoria—historical account of the bridge outlined as well as alternative uses	Highlights the historical accounts and issues with the proposed project and funding sources, stakeholder groups involved Points to alternative uses of the bridge

Table 3: Summary of data collected on Astoria Bridge.

the completion of the bridge among his achievements ("Judge what he will do," 1966). The third sublime was the economic sublime, which included growth in tourism businesses; fourth was the aesthetic sublime. The relevant stakeholders included not just local groups (e.g., home and business owners, architects, and so forth) but also tourists (then and now), who believed the bridge was reason enough to visit the area, as well as future generations (i.e., the current generation who is left with this aesthetic legacy).

Table 4 demonstrates that the local citizens and general public stakeholders tend to express their views through the aesthetic and economic expressions of delight, whereas the business representatives tended to appreciate the political and economic sublimes. Those who worked on the bridge, as well as business representatives, also appreciated the bridge's technological achievements.

Speeches presented by current government representatives at the recent 50th-year anniversary tended to describe the bridge through technological and political sublimes. Speech phrases associated with the technological sublime include: '*marvel of human innovation and engineering power' (#10, Local business and NGO), 'man-made wonder' (#6, Project owner), 'engineering marvel; built with the strength to support the more than 6,000 daily crossings of today; resilience to withstand every changing coastal weather conditions*; *longest continuous trans-bridge in the world*' *(#5, Project owner).* Meanwhile political rapture is manifested through how the bridge is a living embodiment of state collaboration, good government, and team work, and a *'landmark achievement.' (#6, Project owner)*. There were also praise for and acknowledgment of the previous government officials involved during the time of construction, with phrases such as: '*This is one of his many contributions to the state of Oregon.' (#4, Project owner)*; '*a testament to the foresight of an earlier generation that recognized that a well-managed transportation system is the backbone of a thriving regional economy; visionary transportation advocates.' (#5, Project owner).*

Analysis Using the Value Perspectives Framework

Analyzing the data through the value perspectives framework (Ang & Killen, 2016; Ang et al., 2016) (see the middle part of Table 4) showed that 'generative value' is a value perspective that is found to be strongly associated with all stakeholder types, for example: '*It helps us to officially move goods from our ports, from our fishing boats, from our farms, fields, factories to national and international markets. Make no mistake, a healthy tourism industry depends on a healthy transportation system.*'

		Stakeholder Types				
		Project Owners	**Project Members**	**Local Businesses and NGOs**	**Local Citizens**	**General Public**
Ang and Killen's Value Perspectives	Generative value	Nil	Med-High	Very high	High	Very high
	Personal reward	Nil	Medium	Very high	Very high	Low
	Preventative value	Low	Nil	Low	Medium	Nil
	Retrospective-future value	Low	Low	Medium	Low	Low
	Singular or transactional value	Nil	Low	Low	Low-Medium	Low
	Transformational value	Nil	Low	Med-High	Low	Medium
	Value networks and relationships	Low	Medium	High-Very high	High	Low
	Value spectrum	Nil	Nil	Low	Low	Low
Flyvbjerg's Four Sublimes	Aesthetic	Low	Low	Low	High	Very high
	Economic	Low	Medium	Medium	High	Very high
	Political	High	Low-Medium	High	Low	Nil
	Technological	Low	Low-Medium	Medium	Low	Low
Quality of Life—Contribution	Connecting places and people	High	Low	High	Very high	Medium
	Symbolic value	Medium	Low	Low	High	High
	Functional or practical value, e.g., time savings	High	Medium	Very high	High	Low
	Unexpected benefits	Medium	Low	Med-High	Med-High	Low

Table 4: Empirical findings on the value frameworks associated with stakeholder types.

(#6, Project owner); and 'projects like the Astoria-Megler Bridge bring significant benefits to local communities and unlock key economic development opportunities.' (#5, Project owner).

The value perspective 'networks and relationships' appears more highly associated with business representatives as well as the local citizens, compared with the other stakeholders, whereas the value perspective depicting 'personal reward' is highly expressed by the local citizens and business representatives. The value of the bridge is weakly associated with a transactional perspective and is recognized more as a transformational value mainly by business representatives. The business representatives also appear more likely to reflect on the value of the bridge retrospectively or further consider future value from the bridge. We also found evidence, however, of retrospective-reflective-future value constructs in the speeches, specifically in the expressions of acknowledgment of the foresight and vision of their predecessors, as well as what the future might hold, through remarks such as: '*inspire a renewed commitment to creating a shared vision for our future, one that meets the needs of Oregon communities, Washington communities and all their people' (#5, Project owner);* and '*as it was 50 years ago, as it is today, the Astoria-Megler Bridge is a shining example of this type of investment, and stands symbolic of what one generation can do for the next.*' (#6, *Project owner).*

Overall, although stakeholders tended not to express project value in 'preventive terms,' there were a few isolated expressions from the local citizens who discussed safety and maintenance as part of the preventive value construct, as well as the value through avoiding exposure to health risks, the prevention of delays, and inconveniences.

Further Findings

At the bottom of Table 4 we present coded mentions, which did not fit into the deductive analyses with the two selected frameworks.

In the longer term, the megaproject contributed positive social value by transforming the community's quality of life. Based on our analysis, we suggest that 'quality of life' is a contributing element outside the two frameworks. This element describes the community's delight and the impact the bridge has had on their lives, both for local and non-local stakeholders.

The 'Quality of life' element is identified through the connectedness the bridge provides to the two states, which resulted in time savings for the community, freedom, the added mobility and connection with others, and access to facilities in other geographical areas, as expressed by the following stakeholder comments:

"It's just made us so much more a part of the world . . . We can go and zip out anywhere." (#8, Project member).

"There's a lot of people who go back and forth . . . who work on one side and live on the other side. There's people who can go back and forth to visit their families, relatives, and there's some really fantastic places across the river for visiting the beaches." (#12, Local citizen).

"It's an extremely important bridge for the communities of Astoria and also southwest Washington, because that really connects those communities." (#3, Project owner).

"People weren't going to come across, sit in line for a ferry that took a half hour to get here, half hour to get back. They're not going to do that to come over to shop in a penny store or shop in a grocery store, but with the bridge, it just turned everything wide open both ways. Now, our residents can go over to Long Beach and Waco and shop there or recreate there, so it's been a win/win for both sides of the river." (#9, Local business and NGO).

"One of the things . . . Pacific County on the Washington side is a very large retirement community. From the Washington side's perspective, Astoria has the larger hospitals, the more specialized doctors, and is in the process of building a cancer treatment building too. That means a lot to those retirees on the Washington side of the river. Because otherwise they have to travel 50 miles to Long View. Or 100 miles to Olympia. . . . They have more access to more specialized care over here." (#13, Local citizen).

"It meant that there were more possibilities for things to do, travel over there whenever we want." (#12, Local citizen).

Quality of life as an element was also well-founded in the speeches of the state representatives, as reflected in the following examples: '*have really contributed to the economic well-being and quality of life of our community; it improves the quality of life and the land value, so for our residents over the Long Beach Peninsula area.' (#4, Project owner);* and '*simply put, Oregon's bridges, highways, roads, and public transportation systems contribute to virtually everything of value in our economy and in our lives . . . Systems that provide choices for us citizens, systems that connect our transport to our services and a system that connects our people to work, school, recreation, and family.' (#6, Project owner).*

Phrases evident from the interviewees and speeches that demonstrate the strong symbolic nature of the project include: '*symbolic of the coastal region' (#18, General public),* '*always been an icon' (#9, Local business and NGO),* and '*collage of images I would associate with my home state.' (#18, General public).*

In addition to being a physical icon, the bridge is also symbolically associated with progress and achievement, in other words, '*it really made Astoria' (#8, Project member).* Further such evidence is expressed as: "*The bridge is a symbol of progress. It is not only a means of transporting goods and people between states, but stands as an illustration of determination and ingenuity." (#16, Local citizen),* and "*A lot of them [future generations] aren't going to pay attention to the history of this bridge, how it was really built by the little people who stood up to the politicians and said, "No, we want the bridge!" (#9, Local business and NGO).*

Relating the above mentioned findings to the two theoretical frameworks, it becomes clear that the economic delight that the business community and trade unions derived from generating revenue and creating employment is highly associated with several value perspectives: generative, transformational, and value networks. This can also be explained by its very high association with the bridge as a connector of people to places. The access and connectivity generate opportunities for economic growth and consequently transform the surroundings. What this means is that the bridge enabled and enhanced the value networks and relationships between the two states and this greatly resulted in an economic 'boom' or 'boost' in the regions, which depicts both generative (progressive) value as well as transformational value. This has especially benefited the next generation of stakeholders.

The expressions of political delight in the bridge constructions were less obvious from the interviews but are visible from newspaper articles published before the construction ("Judge what he will do," 1966) and the speeches from the 50th-anniversary celebration. In the 1950s (the conceptualization and preconstruction period), there were strong political debates between the Astorian leaders and the states on whether such an investment should proceed.

It appeared that the political stakeholders needed to balance the needs and expectations of public stakeholders, because the project decisions made at the time could have a long-term impact on future generations and state funding. The following comments demonstrate the decisional conflict between the need for having funds for maintenance and living up to a public promise, which could cause further problems in the longer term. *"We were very happy not to have to pay a bridge toll. Most people said we should have kept it on for maintenance so that we could keep it maintained properly. The reason that we were told that the bridge toll was discontinued was that we'd been promised that it would be discontinued when the bridge was paid off. Then our representative at the time said it is a good idea to keep the bridge toll on but it's unfair to have a bridge crossing the Columbia River with a toll on it if other bridges that cross the Columbia don't have a toll on them. There are five bridges in the Portland area that cross the Columbia and Willamette, and nobody that was in the political world at that time wanted to broach tolls on those bridges and so our toll came off." (#11, Local citizen).*

It was clear from the data that most stakeholders observed that the bridge has had a great impact on the community. For example, the local citizens tended to comment that the bridge positively impacted on their lives and observed that business and the economy were affected positively. Locals in the area benefitted primarily from time savings and convenience. Similarly, the general public that did not live near the bridge acknowledged the high impact that the bridge had on the local businesses and economy, yet they were more likely to comment from a symbolic perspective. Those who were involved in its construction perceived that the bridge strongly impacted on the lives of the locals and economy, whereas business representatives were able to recognize and relate to the high impact the bridge has had on the lives of locals and businesses, thus contributing to the economy. Project owners focused on the impact the bridge had in terms of the economy and what the bridge represented (i.e., symbolism). When asked about whether or not the bridge impacted on the environment, the informants generally stated they had not observed any detrimental impacts. This includes the current bridge maintenance projects in which great care was being taken to protect the environment.

The comments related to quality of life can be related to another conceptual framework, namely the concept of sustainable development, in other words, the ecologic, economic, and social dimensions (World Commission on Environment and Development [WCED], 1987). According to AlWaer et al. (2008), various stakeholder types placed different emphases on the project's consequences on various dimensions. The locals (businesses, NGOs, and residents) pointed to the social and economic dimensions when stating the time savings as a value of very high importance to them, whereas the general public scored it low.

What was also revealed in the analysis was that many of the stakeholder values identified relate to the project impact; in other words, the long-term consequences, according to Turner and Colin's (2012) project life cycle–based framework on project outputs, project outcomes, and project impact.

Conclusion and Managerial Implications

The research underlying this article set out to investigate how stakeholders of megaprojects construct value; as part of that, the authors investigated whether different value constructs matter differently to different types of stakeholders.

We identified ways to understand, classify, and express megaproject stakeholder value, and the research links types of stakeholders to varying types of value constructs. These findings are summarized in Table 4 and can be used strategically by project representatives. Knowing the focus of the varying types of value constructs by different stakeholder types can help project representatives communicate more efficiently and effectively with stakeholders. The references to value constructs with a High or Very High score (as shown in Table 4) are well-suited for communication with the specific stakeholder type, whereas value constructs with Nil and Low scores are not suited. References and inquiries made with respect to the stakeholder's personal value of the bridge is relevant, for example, when communicating with local businesses, NGOs, and citizens, but not when communicating with individuals from the general public.

Our findings demonstrate that the two most relevant frameworks identified in the literature—the four sublimes and the value perspectives—can be used as guidelines for the value constructs expected from megaproject stakeholders. However, more value constructs than those covered by the two frameworks were also found in the data. This led us to propose that an additional element in the form of quality of life, which focuses on values that are partly related to sustainable development dimensions (i.e., ecological, social, and economic dimensions), is also relevant for the individual (types of) stakeholders as well as life-cycle issues. The managerial implication of this is that project representatives seeking to promote value creation should communicate with the stakeholders in a way that is aligned with the particular stakeholder groups' preferred value constructs—not only in the pre-project phase in which approval and initiation of the project proposal is considered success, but also in the post-project phase, when project success is viewed. This can be in terms of impact on the customer, business success, and preparing for the future; in other words, the insights created can help inform and enrich how one could position and structure what we refer to as 'the language of value' to various stakeholders. Our findings demonstrate the richness of the case and the multiple perspectives of value occurring in the megaproject.

In summary, we suggest two ways our findings can assist organizations responsible for managing multi-stakeholder value in megaprojects: (1) an appreciation for multiple stakeholder value expressions and perspectives; and (2) a 'value-language' to enhance stakeholder engagement.

First, the frameworks allow for value identification in both the short and long term and consider value that goes beyond tangible and financial value to incorporate aspects of intangible social value.

Second, using such frameworks could improve the communication of value in megaproject processes and stakeholder engagement by providing a specific 'value language' for each stakeholder group, specifically groups with varying affections and needs. Communication is an essential part of megaproject activities. Through specific stakeholder 'value–language' nuances, value is expressed, reinforced, and channeled into current and future decisions, which, in turn, can help to further identify opportunities to improve the development, delivery, and capture of relevant value propositions and deliverables. The value perspectives typology could aid in structuring the communication and language used with different stakeholder groups in order to build and leverage relationships, experience, and expertise to seek out opportunities that can benefit the various stakeholders in a megaproject.

A limitation of this study is that we only had a few interviewees within each stakeholder type. However, by analyzing a megaproject whose outcome (i.e., the bridge) has been in operation for 50 years and with more family-related interviewees (e.g., parents and son, father and daughter), presented us with a unique opportunity to directly address one of the gaps identified in the literature—accounting for future generations as stakeholders, because the benefits (and drawbacks) they have inherited are already visible. In future research, it would be interesting to conceptualize how including this generation as a stakeholder could have changed the process of the project (e.g., deciding to continue with the toll taxes even after construction costs were repaid to account for current and future maintenance, which otherwise would become a burden on the future generations of taxpayers).

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