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Increasing Project Benefits by Project Opportunity Exploitation

– Investigating a Landmark Megaproject

ABSTRACT

Per definition, megaprojects consume numerous resources and impact numerous people, even across generations. It is therefore important that they bring excessive benefits to their stakeholders and to the society at large. The concept ‘Project Opportunity’ is of growing interest within project management research. The idea is that exploitation of project opportunities may bring more benefits than stipulated in the initial business case, and even stakeholder benefits that nobody thought of at the project initiation. In this paper, we encourage a new research area for megaprojects, i.e. the phenomenon of project opportunity exploitation as a means to increasing project benefits.

The paper is based on a single case study of an infrastructure megaproject, i.e. the construction and operation of a 50+ years old American bridge. To investigate project opportunity exploitation during the project execution and operation, data covering 60+ years was been collected, e.g. historical documents, newspaper articles, interviews, and video-recordings. Some interviewees were involved in the bridge construction – and can draw on an almost lifelong memory of the bridge’s significance.

The research indicates that (1) Exploiting all opportunities created by the project and increasing project benefits require involvement from many categories of stakeholders; (2) Stakeholders get more involved in exploiting the opportunities created by the project when they

are proud of the project; (3) For some of the project-related opportunities, it might take a long time before they can be exploited (and related benefits achieved); and (4) Celebrating achievements of the project stimulate stakeholders to exploit opportunities created by the project and contribute to further benefits of the project. In terms of managerial implications, the findings point to the necessity of continuous communication about the project from the project owner (team), also after the project execution phase, in order to enhance project opportunity exploitation and increased benefits.

KEYWORDS

megaproject, project benefits, project opportunity, stakeholders, landmark project, project history, transformational

INTRODUCTION

Every project is expected to bring value to its constituents (Martinsuo & Killen, 2014). In order for a project to be initiated, the stipulated project value (defined as expected benefits minus expected costs due to the project) in the business case analysis must be considered as sufficient by the decision makers, whether this is the initiators themselves or a funding body. This is basic project management wisdom – and basic business logic as well.

Every project management practitioner and researcher knows how difficult it is to ensure the stipulated value creation, and we find it safe to say that the *raison-d'être* for the project management discipline is to figure out how to enhance that the expected benefits can be harvested, and that the costs are not exceeding what was planned.

In this paper, we aim to bring in another stream of thinking. Instead of ‘just’ focusing on what was accepted as ‘good enough’ in the business case analysis at the project initiation, we want to discuss how to increase the project value by increasing the benefits achieved by the project.

Since the very establishment of the project management discipline, it has been commonly accepted that a project due to its uniqueness is confronted with uncertainty that needs to be managed. Defining uncertainty as anything that is not certain (Andersen, 2008), it becomes clear that uncertainty may lead to both threats and opportunities for the project (e.g. Chapman & Ward, 1996). However, Lechler et al. (2012) point to a research gap in the current literature by stating that “the nature and significance of value-related opportunities stemming from uncertainty on the project level is not well understood” (p. 60). By project value opportunities

the authors mean (while giving credit to Lechler & Byrne (2010)) “a potential to alter the quality and/or exceed the predefined stakeholder value of a project” (Lechler et al., 2012, p. 60).

Lechler et al. (2012) claim that the research gap exists due to limiting premises within the established classic project management paradigm. A core one is that the discipline is focusing on optimization within the constraints of time, costs, specifications (and up-front agreements with stakeholders, we add), and does not include the notion of value maximization. The result is that opportunity identification and exploitation is not really seen as an activity related to project management. This is in line with Kreiner (1995) who state that threats and opportunities beyond those originally projected may be seen as noise or nonsense due to the project manager’s ‘local rationality’ within the project perspective, and not something that should be taken serious. Unfortunately, risking the relevance of the project to be eroded, and missing the potential to achieving benefits that *could* have been achieve, if the project manager (and other project representatives, we add) had focused on it. Kreiner (1995) states that the underlying reason is that relevance issues are seen as an initial concern on the part of decision makers. The implication is that relevance is not really considered after the project approval has been given, neither in the project execution phase, nor in the project operation phase. This corresponds with the optimization approach in opposition to a maximization approach, as pointed out by Lechler and Byrne (2010) and Lechler et al. (2012; 2013).

As value maximization and project opportunities are not sufficiently developed within the project management discipline, we draw (in line with Lechler and colleagues) on another discipline within business and management, i.e. the discipline of entrepreneurship. In line with the original work of Joseph Schumpeter (1934), Eckhardt and Shane (2003) define entrepreneurial opportunities as “.. situations in which new goods, services, raw materials,

markets, and organizing methods can be introduced through the formation of new means, ends, or means-ends relationship” (p. 336). Translating this into the project context and combining it with project value, project opportunities can be seen as situations in which additional value (compared to the baseline stipulated value at the project approval time) can be created in the project execution phase and in the project operation phase. The project opportunities can generate positive consequences if they are identified and exploited, like for example application of a new technology that was not known at the project approval point or usage of the project deliverable(-s) to other purposes or by other stakeholder groups than intended.

Why study value creation in megaprojects?

Megaprojects seem to continuously grow in scale and frequency globally, and therefore it is especially important to understand issues that accompany these constructions (Flyvbjerg, 2014; Gellert & Lynch, 2003; Winch, forthcoming, 2017). The phenomenon of megaprojects has gained tremendous interest within the project management literature the later years, and a vast number of publications have come to live (e.g. Warrack, 1993; Flyvbjerg et al., 2003; Mok et al., 2015; Flyvbjerg, forthcoming, 2017). Flyvbjerg (2014) argue that ‘Never has systematic and valid knowledge about megaprojects therefore been more important to inform policy, practice and public debate in this highly costly area of business and government’ (p. 8).

Per definition, megaprojects consume numerous resources and impact numerous people, even across generations. It is therefore especially important that they bring excessive benefits to their initiators, their stakeholders, and the society at large. This holds true regardless of the ‘currency’ in which we measure benefits. (In the next section, we look into the benefits concept in depth).

If a project is carried out as planned, and the project deliveries are put into use as planned, we would expect the planned project benefits for the beneficiaries to be the ones that were stipulated in the business case analysis at the project approval point in time. It is well known that uncertainties, as well as a longtime perspective, may make the estimations of costs and benefits indeed very difficult. The megaproject literature is full of examples of projects that unfortunately neither stayed within the project budget, but heavily exceeded the estimated costs, nor achieved the expected benefits. Flyvbjerg and colleagues (e.g. 2003; 2014; forthcoming, 2017) who have done a number of ex post evaluations, i.e. systematically compared actual with forecasted costs and benefits, report on a high number of projects that should not have been initiated based on the ex post cost-benefit analyses. Flyvbjerg (2014) labels the phenomenon as ‘the iron law of megaprojects’ and describes it as “Over budget, over time, over and over again” (p. 6).

Even with this background of numerous megaprojects that are financial failures, the aim of this paper is to contribute to the understanding of the opposite situation, i.e. on how projects sometimes generate more value than stipulated. Based on the simple definition of value above, this can happen due to the fact that either the sum of actual costs become lower than stipulated in the budget, or the sum of benefits become higher than expected. We limit ourselves to focus on the benefits, leaving the costs out of the equation. Achieving more benefits than stipulated can happen out of pure luck, i.e. major uncertainties turn out in a way that is advantageous to the project. It can also be that the project initiators are biased towards what we can call careful, conservative or pessimistic benefits estimates. These two drivers for increased benefits achievement will not be dealt with in this paper. Instead, we study the phenomenon ‘project opportunity exploitation’ as a means to increase project benefits.

Research Question

Project opportunity exploitation can be studied in any kind of project. However, it seems as especially relevant to study in megaprojects due to the fact that “the [concept of the] project life cycle, capturing the events between the start and the end date of the project (Meredith & Mantel, 2006; PMBoK, 2013), fails to capture the longer term effects that megaprojects usually produce” (Sato & Chagas, 2014, p. 625). Hence, we argue that the understanding of the longer term effects due to project opportunity exploitation in megaprojects is too limited. This is in line with Winch (forthcoming, 2017) who claims that gaps in the literature exist when it comes to (among other factors he mentions) (1) the link between megaprojects and society, specifically focusing on the societal benefits that may come out of megaprojects, and (2) the stakeholder role in megaprojects of future generations.

We argue that the identification and exploitation of project opportunities is poorly understood. To our knowledge no other publications have addressed the phenomenon by collecting historical and current data over a time period on 50+ years as we do in the empirical study underlying the paper.

With this paper, we want to contribute to the understanding of the positive effects megaprojects may produce in both the short and the long terms, based on exploitation of project opportunities that we not known or mentioned at the time of project approval. The above argumentation leads to the research question:

RQ: How can project opportunity exploitation be enhanced?

In addition to a respond for the call for research on megaprojects, the paper also addresses a call for making use of project history (Söderlund & Lenfle, 2013). More details will be presented in the methodology section.

We answer the question by conducting an empirical study of a 50+ years old bridge in the United States, the Astoria-Megler Bridge, that connects the states Washington and Oregon at the west coast. This bridge is relevant because it actually generated substantially more value than stipulated in the business case at the time of project approval. In the empirical study we explore how the project value is increased by identification and exploitation of project opportunities.

This paper is outlined as follows: Firstly, the theoretical framework is offered. Hereafter the research methodology is presented, including a justification of the single case studied. Next, a section on the findings is presented, followed by a discussion and finally, the conclusions.

THEORETICAL FRAMEWORK

In this section, we present theoretical concepts and frameworks that can be helpful to answer the research questions.

The concept ‘megaproject’

More definitions of a megaproject exist. Warrack (1993), for example, looks at megaprojects’ landmark roles in society, while Flyvbjerg (2014) goes beyond scale and impact, placing a watershed price tag, as he considers megaprojects to be the ones that cost over a billion USD. However, for the purposes of this paper, we will use the definition placed forth by Gellert and Lynch (2003): “[Megaprojects are] projects which transform landscapes rapidly,

intentionally, and profoundly in very visible ways, and require coordinated applications of capital and state power” (pp. 15 -16). Gellert and Lynch (2003) propose four types of megaprojects, i.e. infrastructure, including ports and water and sewer systems; extraction, for minerals or oil; production, including manufacturing; and consumption, namely massive theme parks, tourist sites and real estate (p. 16).

The concepts ‘project benefits’, ‘project value’ and ‘project opportunity’

More researchers deal with project benefits, value, and opportunities related to stakeholders, e.g. Jackson & Dutton (1988), Jaafari (2001), Olsson (2007), Perminova et al. (2008), Lechler and Byrne (2010), Oliomogbe and Smith (2012), Lechler et al. (2012; 2013), Browning (2014), Ang and Killen (2015), Fahri et al. (2015), and Heravi et al. (2015). Table 1 gives an overview of some of the core concepts selected for this paper.

Concept	Definition or Contents
Value (basic understanding)	Sum of benefits minus sum of costs
Value (advanced understanding)	Complex phenomenon due to multiple expectations, multiple assessments of value by multiple stakeholders
Project value	The value a project creates for its stakeholders. The project value could be defined by one or any combination of performance criteria, such as efficiency, technical effectiveness, and the satisfaction of a project's stakeholders, with emphasis on clients and shareholders
Nature of value and benefits	Relativistic, contextual Tangible and intangible Hard benefits, soft benefits Subjective - not a fixed entity, varies in how it is perceived by various stakeholders
Realms of value and benefits	Preplanned Unexpected, unforeseen Emergent Serendipitous Positive or negative (the negatives are called disbenefits)

Table 1: Multiple conceptual definitions, nature and realms of value and benefits (Ang & Killen (2015), Lechler & Byrne (2010), Lechler et al. (2012; 2013))

Value in itself is a complex phenomenon due to the multiple expectations and multiple assessments of value by multiple stakeholders. This multiplicity often makes value and benefits a subjective notion – the concepts are not a fixed entity, and they vary in how they are perceived and influenced (Ang & Killen, 2015). In this paper, we don't differentiate between project benefits and project value. It is to some extent a subjective concept. It should be measured in broad terms, not only moneywise, but also as improved efficiency, improved sustainability, an emotional component, e.g. feeling proud, etc.

The core theoretical framework underlying this paper is to some extent inspired by the work by Lechler and colleagues (Lechler & Byrne (2010), Lechler et al. (2012; 2013)) on project uncertainties, project value maximization, and project opportunities. Leaving the more basic definition of value presented earlier (value = sum of benefits minus sum of costs), we here see a more advanced definition: “A project's value is defined as the value a project creates for its stakeholders. The project value could be defined by one or any combination of performance criteria, such as efficiency, technical effectiveness, and the satisfaction of a project's stakeholders, with emphasis on clients and shareholders” (Lechler et al, 2013, p. 12). Striving for project value maximization in opposition to just obtaining the preplanned value, it is important to understand that the value concept is defined in a relativistic sense, meaning that we are not trying to calculate the maximum value of the project as this can never be done accurately. Instead, we are interested in value going beyond what was preplanned, hereby also satisfaction beyond preplanned satisfaction, i.e. enhanced project value (Lechler et al., 2013). As we don't differentiate between value and benefits, it also means enhanced, i.e. increased, project benefits, compared to the preplanned.

Applying the concept of project value on megaprojects, we realize that a core differentiation between what we can call regular project and megaprojects is, that the megaproject for certain will have a major impact on numerous people and very often the society at large, and not only clients and shareholders.

In order to maximize project value, i.e. project benefits, it is important to focus on unexpected or unforeseen project situations (i.e. project uncertainties) that potentially can impact the value of the project significantly in a positive direction (Lechler et al., 2013).

Lechler et al. (2013) refer to Schumpeter's (1934) concept of 'entrepreneurial profit' within the field of entrepreneurship, when they explain that a project opportunity, e.g. an unconventional solution to a specific project situation that was not known or foreseeable at the planning stage, represents the potential for creating extraordinary project value.

The core concept Project Value Opportunity (PVO) is defined as "Project opportunities that provide the potential to exceed the predefined stakeholder value of a project during that project's implementation" (Lechler et al., 2013, p. 17). In other words, the potential for creating value that is beyond the project stakeholders' initial requirements and expectations.

A core message in Lechler et al. (2012; 2013) is that project opportunities, i.e. potentials to improve the initial value proposition of the project, do not occur automatically. They have to be sought and identified. Only hereby they can be exploited. This search for innovative solutions to improve the project's value proposition is a management challenge – and this challenge is related to a change in mindset. The traditional mindset (i.e. satisfying the project initiators/stakeholders by ensuring that the project is 'on time, within budget, and to specifications' so that the preplanned value is obtained) should be replaced with a mindset for maximizing the value of the

project. This mindset should lead to identification and exploitation of business opportunities during the executions phase of the project, but also beyond the execution project, i.e. project lifecycle opportunities, e.g. in the lifetime of a construction that is the result or deliverable of a construction project, in other words, the project operation phase. When dealing with megaprojects, we realize that we should not only focus on a project's execution phase but during the whole project lifecycle, i.e. also on the usage phase of the project deliverables, meaning the operation phase which may be really long, counting more human generations.

An interesting question related to the discovery and recognition of the potential value opportunities is the who-question. Who is actually involved in the search and identification? In their research, Lechler et al. (2013) identify project managers as the roles or stakeholders that most often discover opportunities for increased value during project implementation. Other stakeholder groups that directly or indirectly represent the interests and perspectives of the project owners and sponsors (and have a business perspective on projects) are also occasionally involved in discovering value opportunities.

Lechler et al. (2012; 2013) point to two types of value opportunities:

1. achievement of stakeholder benefits that nobody thought of or mentioned at project initiation; and
2. fulfilling the intended stakeholder benefits to a larger extent than expected.

For our study, it is the first type that is relevant.

When studying value opportunities to megaprojects that have a long lasting lifecycle, potentially over more human generations, the who-question gets really interesting. Who of potential stakeholders are actually discovering value opportunities of the project? – and how is

the value realized? This question is also asked by Ang, Sankaran and Killen (2016), '*value for whom, by whom*' when exploring value constructs in multi-stakeholder project environments. The authors found that the understanding of value stems from multiple "micro-constructs" of value emanating from a variety of stakeholders. The ability to capture the various stakeholders' views of value can assist project managers with identifying further opportunities and enhance decision making for future outcomes and value maximization (Ang & Killen, 2016).

Another interesting issue is in which 'currency' to measure the project value. Based on their own research, Lechler et al. (2013) claim that 'exploited opportunities may have an impact on multiple aspects of project value. Schedule, budget, quality, financial returns, non-financial returns, stakeholder satisfaction, and shareholder satisfaction are all potential benefactors.' (p. 59). What they see is that management is especially focused on improving the level of satisfaction of the stakeholders and the shareholders.

"Earlier research also indicates that positive uncertainties such as synergies and learning are not always exploited in project portfolios even if they may generate significant opportunities" (Martinsuo et al., 2014, p. 735).

The need for focusing on opportunities and not only risks has already been addressing by e.g. Kreiner (1995), Ward & Chapman (2003; 2008), Atkinson et.al. (2006) and Perminova et al. (2008). However, the implications of incorporating opportunity management in project management have not yet been investigated in any detail.

RESEARCH METHODOLOGY

The research is based on a single case study (Eisenhardt, 1989), and the selected case is chosen because it is rich and powerful (Siggelkow, 2007) for improving our understandings of added value creation based on identification and exploitation of opportunities related to a megaproject.

The particular megaproject studied falls in the group of infrastructure megaprojects. Further, it relates to Söderlund and Lenfle's (2013) call for studying project history, e.g. by studying single landmark projects and their narratives. This includes documenting the project in-depth by describing its background, what happened during project implementation, as well as the various effect of the project. This is for example done by the following authors identified in Söderlund and Lenfle (2013): Hewlett and Anderson (1962) on the Manhattan project; Sapolsky (1972) on the Polaris Project; Brooks et al. (1979) on the Apollo Project, Morris and Hough (1987) on the Concorde project, the Channel link project, and more; and Hughes (1998) on the Atlas project, the SAGE project, and more.

Justifications for Selection of the Case

The Astoria-Megler Bridge (hereafter Astoria Bridge) is the longest continuous truss span bridge in North America (Great Columbia Crossing celebrates, 2006), and, having celebrated its 50th anniversary in 2016, it is also a historical landmark of economic, touristic and aesthetic significance. A photo of the bridge can be seen in Illustration 1.



Illustration 1: Astoria Bridge in 2009, Photo by Ron Reiring (Creative Commons Attribution 2.0, 2017)

The first recorded proposal of the Astoria bridge was in 1928 (Bridge Timeline CCHS, 2016). 25 years later, a partnership was formed between Port of Astoria, Oregon State Highway Department, the Washington Toll Bridge Authority, and Pacific County, Washington, to assess the feasibility for building a joint bridge. Finally, in 1961, the legislatures of the states of Oregon and Washington agreed to fund the project.

The original intended benefit was an infrastructural improvement for people crossing the Columbia River, in order to go from the state of Oregon to the state of Washington or the opposite route. The bridge was completed in 1966, and was the completing segment of U.S.

Route 101, which links Washington to California (and hereby also Canada and Mexico), running along the West Coast of the United States (Astoria-Megler Bridge, n. d.).

While the Astoria Bridge does fall well into Gellert and Lynch's (2003) description of a megaproject, two things set it apart from the majority of projects Flyvbjerg (2014) analyzed – the first is its budget, which only ran in the millions, and the second, perhaps more notable distinction, is that it was constructed on budget, on schedule and with unexpected benefits. The latter is one of the reasons we chose this particular project – as Flyvbjerg (2014) laments such successful projects are few and far between - and they therefore need to be studied carefully as especially revealing cases for any useful lessons.

Even though the bridge does not fully live up to Flyvbjerg's (2014) price tag of over a billion USD to be considered a megaproject, it is worth noting that according to different calculation methods the then-value of the project (USD 24 million) would translate in up to half a billion USD in 2016 (according to MeasuringWorth.com, accessed January 27, 2016), and thereby to some extent comply with present-day megaproject concepts.

This project is also interesting due to the fact that its construction followed a somewhat reversed trend – instead of a megaproject that started in fanfare and ended in embarrassment, this project was ridiculed from the start, but constructed nevertheless and ended up defying critics. At the time of construction, both the project's scale and budget were met with opposition (Associated Press, 1962; Associated Press, 1978; Associated Press, 1994; Astoria Bridge, n. d) and it was even called a 'bridge to nowhere' (Associated Press, 1978, p. 11c). However, it ended up – surprisingly - surpassing even the expectations of its proponents as the toll taxes covering

the construction costs could be lifted two years ahead of schedule, due to unexpectedly high traffic volumes (McCorkle, 2006).

Furthermore, choosing a project that has celebrated its 50th anniversary is also a response to Söderlund and Lenfle's (2013) call for investigating historical projects that can reveal interesting information.

Analyzing a megaproject which outcome, i.e. the bridge, has been in operations for 50+ years, allows us to directly address one of the literature gaps that Winch (forthcoming, 2017) identifies – accounting for future generations as a stakeholder, because the value adding of some of the project opportunities identified and exploited are already visible.

Data Collection and Analysis

The case study explored stakeholder perspectives of the impact of the Astoria Bridge by evaluating the stakeholders' value perceptions and lived experience of their environments as a result of the bridge as a megaproject. Multiple data collection methods were utilized in the case study to strengthen the quality of the research (Yin, 2014), incorporating both historical and current data, using in-depth interviews and publicly available documents including historical documents, photographs and websites. In order to provide the necessary historical perspective, secondary data from newspaper articles published around the time of construction and opening of the bridge (e.g. Associated Press, 1962; Judge what he will do, 1966; Sherman, 1967; Associated Press, 1978) were collected. The aim was to identify opportunities identified and exploited at that time and the arguments for and against exploitation. Newer articles (e.g. Associated Press, 1994) provided an overview of how the bridge was used by the users and later generations.

Multiple informants at various levels provide multiple perspectives on the focus of study. Informants were asked about their experiences before, during and after the construction of the bridge where relevant. The informants have been classified under the following stakeholder groups:

- Local public (living and/or working in Astoria)
- General public (from the states of Oregon or Washington but not locally in Astoria)
- Local business (has a business or represents the local business sector)
- Project member (was involved in the bridge construction)
- Public services (e.g. state departments of transportation).

Fourteen individuals from the states of Oregon and Washington were interviewed in 2016, using a semi-structured interview protocol (see Appendix 1) to develop a multi-perspective understanding of the Astoria Bridge. Interview durations ranged from 45-90 minutes.

Appendix 2 outlines the profile classifications of the stakeholder groups by local or non-local resident, respondent's experience based on pre, during or post-construction observations, age range and gender. For confidentiality purposes, the actual identities of the interviewees are not disclosed, but generically labeled in Appendix 3.

The interviews contribute to thick description of the case studies that allow for depth of understanding, and are triangulated with the analysis of documents, videos and photographs.

Data Analysis

This paper mainly builds on the interview data. A thematic analysis of the interview data was conducted using a combination of manual and CAQDAS (QSR NVivo) approaches.

Recognizing that different researchers may produce findings that are not identical and that have non-overlapping components (Thomas, 2006), the data was iteratively analyzed by both authors to identify project opportunities mentioned by the interviewees that led to project value higher than stipulated at the project approval time. The authors ultimately converged their individual analyses. This collaborative experience amounted to a dynamic dialogue as the researchers interrogated and revisited the data iteratively, compared findings, and then built abstractions and more ‘what ifs’ with any new patterns that emerged (Stake, 1995). The findings result from multiple interpretations made from the raw data by both researchers.

ANALYSIS

Our data shows that several opportunities to increase the project benefits have been identified and exploited in the execution phase and in the operation phase of the construction project of the Astoria Bridge. Opportunities that brought stakeholder benefits that nobody thought of or mentioned at project initiation (Lechler et al., 2013):

- “A lot of people, not local people, but a lot of people thought this was 'The Bridge to Nowhere' and [that] it was just a terrible waste of taxpayer money. Well, we have certainly proved them wrong on that! It's been a huge economic boon to our entire area, both Oregon and Washington.” (Local business 9)
- “That bridge ... put a lot more people in the Long Beach area for tourism ...”. (Worked on bridge 10)
- “Astoria has become a destination.” (Local business 9)

- the area (and the strive for building a bridge) got well-known through an activist group, the Astorian Clowns, who travelled up and down the coastline to participate in small city fairs and other events.
- “In 2002, which is not that many years ago, 2002 we had \$365,000 dollars in room tax dollars collected in Astoria. This year, we had \$1.5 million!” (Local business 9)
- “Our bridge is also a movie star! Not only has it had lots of commercials filmed on it for Chevy and Ford, they've had their cars and trucks on the bridge being filmed, but it also had a role in the movies 'Short Circuit', 'Kindergarten Cop', and 'Goonies', all three of which were filmed here in Astoria!” (Local business 9)
- “I know that there is a sales tax in Washington, and Oregon does not have sales tax. Those fifteen thousand people that live on the Peninsula across the river, many of them will come over the bridge and stop at the groceries and shop here but they don't have to pay the sales tax.” (Local public 4)
- The bridge is also used by utility companies to span the Columbia River with communications and fiber-optic cables." So, it does more than just carry people! It directs ships, it tells the weather, and it aids in communication. It's a pretty good partner for what we've built, I'll tell you! These were things that we didn't know about when we started original construction!” (Local business 9)
- In addition, the bridge is used for an annual event in the form of a run that attracts many runners and walkers (Great Columbia Crossing celebrates, 2006).
- Further, the celebration of the 50 years’ anniversary 50 years after the project completion gave stakeholders in Astoria as well as the states of Oregon and Washington a unique opportunity for organizing several events and collection of material (DePledge, 2015). Even

a delegation from Astoria's sister city in Germany, Waldorf, sent a delegation of 18 people to the rededication celebration event (Goicochea, 2016). It all helped to build and sustain the pride and identity of Astoria for all stakeholders, i.e. a benefit that first materialized after 50 years.

The data shows that the project is generating revenue and creating employment to a much higher extent than stipulated. The bridge works as a connector of people to places. The access and connectivity generates opportunities for economic growth and consequently transforms the surroundings. The bridge enables and enhances networks and relationships between the two states and this greatly results in an economic 'boom' in the regions. This has especially benefited the generation of stakeholders that came after the project initiators and other people at that time.

The expressions of political delight in the bridge constructions were less obvious from the interviews but are visible from the newspaper articles from the time before the construction (Judge what he will do, 1966) and speeches from the 50 years celebration (Goicochea, 2016). In the 1950s (conceptualization and pre-construction period), there were strong political debates between the Astorian leaders and the states on whether such an investment should proceed. Actual public engagement, however, came through an unknown unknown at project initiation, the Astorian Clowns, who had a key role as 'city ambassadors' in marketing the project in order to obtain buy-in from both the states of Oregon and Washington (Daly, 2016). The clowns were reportedly '*instrumental in garnering support for the building of the Astoria Megler Bridge. Naysayers called it "the bridge to nowhere," but that didn't bother these guys who, clearly, were men of vision – leaders in their community – clown suits notwithstanding.*' (Jeff Daly, interview, Hipfishmonthly, 2011).

A business representative mentioned that the clowns played a key role in promoting the bridge project to the community, as follows, ‘the bridge decision was being bantered about by politicians in Salem and Olympia, our state capitals of both states. That is where a lot of the work was being done, but the clowns brought it to the masses. They brought it to the common people on the streets.’ (Business representative 9). This is confirmed by an article contributed by a local, Jeff Daly whose father was an original Astorian Clown (Daly, 2016). Afterwards, the clowns continuously played a role in getting Astoria known in a positive way.

Illustration 2 (Daly, 2016) shows the clown car painted with an image of a bridge and the slogan “Let’s build the bridge”. This car made its appearance in the parades in the states of Oregon and Washington.



Illustration 2: Astoria Clowns of the 1950s, Photo courtesy of Jeff Daly

What made this interesting is that the clowns were an anonymous entity in the early days (Daly, 2016). They also played a key role in meeting with key stakeholders like the city officials and the legislature about the bridge proposal. *“They’d do a parade and then get invited to a dignitaries’ ‘do’ at night. Twelve guys would show up in snappy red blazers and ties... no clowns in sight. Talk about making stuff happen. They’d be talking to governors and heads of state. Wow!”* (interview with Jeff Daly, by Hipfishmonthly, 2011).

The launch of the bridge in 1966 was a major milestone for the Astorian leaders, the local community and the clowns.

“Without the Astoria Clowns, we would not have the Astoria bridge ... There’s no doubt about it.” Former Astoria Mayor, Willis Van Dusen.

The magnitude of success was beyond the expectations of the stakeholders. More commuters used it than was initially projected. The tolls were taken off the bridge once the cost of the bridge constructions were recuperated, in accordance to the state legislature.

From the interviews, most stakeholders observed that the bridge has had a much greater positive impact on the community than expected at the time of project approval. For instance, the local public tended to comment that the bridge impacted positively on their lives, and could observe that the business and economy was affected positively. Being local to the area, time savings and convenience are key benefits the bridge provides to the local communities. Those who were involved in its construction perceived that the bridge strongly impacted on the lives of the locals and economy, whilst the 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. They were also more likely to discuss how some of the benefits from the bridge were

unexpected or beyond their expectations. From the government speeches transcribed (Goicochea, 2016), government representatives focused on the impact the bridge has had in terms of the economy and what the bridge represented.

Dis-benefits

Acknowledging that a megaproject also may impact some of its stakeholders in negative ways, we have identified dis-benefits related to the Astoria Bridge in the data set.

The informants generally admit to very few dis-benefits compared to benefits and value. The bridge replaced the Astoria-Megler ferry. Upon retrospection, a fragment of the community viewed the closure of the ferry services as a disbenefit as it affected local complementary businesses in the area like cafes and hotels servicing ferry users. However, as the bridge was being constructed, the businesses received new clientele in the form of construction workers and suppliers. Today, most favor the bridge over the ferry for its time savings and convenience. However, one of the historic ferry services will be revived and operated as a tourist attraction. The ferries and the bridge are connected in the hearts and minds of its community, as stated, “Before the bridge, ferries shuttled folks between Astoria and Washington. Their histories are connected, as the beginning of the bridge was the end of the ferries.” (The Ferries, CCHS, 2016).

DISCUSSION

Applying a process model, e.g. inspired by Andersen (2008) with the following phases:

- Project Initiation (incl. Planning and Organizing)
- Project Execution
- Project Operation

reveals that the time from the first idea of a bridge to the start of the Project Execution phase was 33 years (1928-1961). The Project Execution phase took five years (1961-1966). The Project Operation phase has now lasted more than 50 years (1966-now).

More of the opportunities identified relate to usage of the project deliverable, i.e. the bridge, in the Operation phase. The bridge became used for more purposes than originally planned, i.e. not only for transportation but also as a setting for movies and commercial filming, as a carrier for fiber-optic cables, as research venue for researching various lights, as a venue for a running event, and more. Third parties are involved in identifying and exploiting the opportunities, e.g. movie makers, researchers, communication companies, utility companies, sport organizations, and non-profit temporary event organizers in the form of the 50 years anniversary committee. Some of the extra benefits identified are for individuals (like sales tax avoidance and a role as an event committee member), while some of the benefits are for the local society as such increased tourism and Astoria as a destination. The data clearly shows that synergies are created. The 50 years anniversary was an event for the local people, but it was also an opportunity to strengthen the relationship to the friendship city, Waldorf, in Germany. It even generated increased business in Germany, as the German delegation requested a local stone-sculpture artist was asked to make an item to bring to Astoria as a gift to the community. All the interviewees seemed immensely proud of the bridge, and also surprised themselves, that the bridge was not only used only for transportation purposes but also for a number of business opportunities and non-profit/leisure-related opportunities, providing significantly increased personal benefits and societal benefits compared to what was planned at the project initiation. It became very visible in the data that some of the benefits are harvested by the project owner (team), i.e. representatives of the State of Oregon and the State of Washington, while other benefits are harvested by many other

stakeholder groups. In addition, many different types of stakeholder groups are involved in the project opportunity exploitations. Further, the generated benefits are not decreasing over the years. Instead, some of the biggest benefits were harvested due to the 50 years project finalization anniversary. Of course, these benefits could not have been harvested earlier.

From these examples, the benefits (values) for different stakeholders can be said to be multi-leveled and multi-dimensional. Benefits and opportunities reside in the short and long term horizons and in the tangible and intangible realms of the project. Project value (and therefore potential opportunities) are inter-connected and could evolve during the course of project management as found by Ang & Biesenthal (forthcoming, 2017). Typical project management approaches may fail to harness the diversities and complexities of project opportunity in these instances.

The above findings lead us to propose the following:

Proposition 1: Exploiting all opportunities created by the project and increasing project benefits require involvement from many categories of stakeholders.

Proposition 2: Stakeholders get more involved in exploiting the opportunities created by the project when they are proud of the project.

Proposition 3: It might take a long time before some of the opportunities created by the project are exploited and the related benefits achieved.

Proposition 4: Celebrating the achievements of the project stimulate stakeholders to exploit the opportunities created by the project and contribute to further benefits of the project.

As of managerial implications of the findings, it seems clear that continuous communication is very important. This may point to other project representatives than the project manager in a central role. Important contributions to a further discussion of the role of the project owner (team) can be found in Bryde and Volm (2009), Karlsen (2010) and Andersen (2012).

Project owner involvement for information and knowledge sharing seems very important in the sense that the project owner (team) must take a long term perspective (involving the project operation phase) and giving a continuous and sufficient focus within the project operation phase in order to enhance project opportunity exploitation. The reason is that to enhance project opportunity exploitation, the project needs to be so present in the minds of (potential) stakeholders so that they choose to identify and exploit the opportunity. A shared vision of a group of stakeholders, e.g. like an event committee, may be helpful. Also a focus on why stakeholders should be proud of the project seems important. In addition, the project representations must understand that multifaceted measures on project benefits must be used.

In sum, the findings point to the necessity of continuous communication about the project from the project owner (team), also after the project execution phase, in order to enhance project opportunity exploitation and increased benefits.

CONCLUSION

The research underlying this paper was guided by a research gap in the current project management literature on the phenomenon “project opportunity exploitation”. Realizing that megaprojects consume numerous resources and impact numerous people, even across generations, a better understanding on how to enhance the achievement of further project benefits than the ones mentioned and estimated in the business case analysis at the time of

project initiation, would be valuable for the megaproject's stakeholders as well as for the society at large.

In sum, this paper is advancing the understanding of megaprojects and the concept project opportunity exploitation by means of a longitudinal case study, using both archival data and primary data. The single case study of the construction and 50+ years operation of a bridge, inspires us to answer the research question "How can project opportunity exploitation be enhanced?" with the following statements.

Project opportunity exploitation can be enhanced by:

- encouraging and accepting the involvement of many categories of stakeholders that can take advantage the project for their own purposes.
- enhancing that stakeholders are proud of the project, and thereby will engage in or even initiate activities that are generating further benefits to themselves and/or others.
- realizing that project opportunities may materialize after a long time (like for example the opportunity of the 50 years project finalization anniversary to celebrate).
- celebrating achievements of the project stimulates stakeholders to exploit the opportunities created by the project, which contributes to further benefits of the project.

A key contribution of this paper is new knowledge on a phenomenon that so far only has been investigated to a very limited extent.

A limitation to the research is that the analysis mainly rests on the primary data, i.e. a limited number of interviews, whereas the rich data set needs more analyses. In addition, all interviews very clearly biased in the sense that they were very proud of the project and the bridge. We did not check out whether this positive attitude was representative for all stakeholders. A third

limitation is that only a single case study has been undertaken. It would be fruitful to undertake more studies to enrich the understanding of the phenomenon investigated. In future research, it is important to find more cases that can be studied with a long-term perspective, i.e. including project opportunity exploitation in both the project execution phase and the project operation phase, as it is done here. A fourth limitation is that the selected project was a 'rare species' due to the fact that it was completed "in time, within budget, and to specifications", i.e. complying well with the triple constraints, while at the same time exceeding the estimated benefits in the form of achieved revenue from the bridge toll years earlier than expected. So the project did not follow Flyvbjerg's "iron law of megaprojects". It could be interesting to study project opportunity exploitation in megaprojects that are not deemed so successful, e.g. because they don't meet the constraints and/or not meet the expectations on benefits.

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Appendix 1: Interview guide

<p>SCENE SETTING</p>	<p>As we have already discussed, we are writing an article about the construction of Astoria Bridge for a journal on symbolic megaprojects. We would like to know more about how the locals feel about the bridge now and back during construction.</p> <ul style="list-style-type: none"> • How long have you lived in Astoria? <i>(Maybe also ask about age if appropriate. Listen for any indications of where they may have been during the bridge construction).</i> • What is your current role in the city? • What does the bridge mean/signify to you personally? • What is the overall public sentiment about the bridge nowadays in your opinion?
<p>PERSONAL QUESTIONS</p>	<p><i>(if the interviewee seems too guarded, leave for the end when they may be more relaxed talking)</i></p> <ul style="list-style-type: none"> • With the 50th anniversary coming up it is time for memories, so what is your earliest memory connected to the bridge? • What is your best memory connected to the bridge? <i>(if not answered in previous questions)</i> • Can you tell us any funny or interesting stories that have to do with the bridge?
<p>BRIDGE CONSTRUCTION (only if old enough to remember)</p>	<ul style="list-style-type: none"> • Do you remember the construction of the bridge? <i>(if not answered in previous questions)</i> • If yes, was it a big thing for the community, was there a lot of media coverage? Was there an overall sense that something big was happening? • Did anyone you know work on the construction? <i>(alternatively: Was anyone you know personally involved in the construction or affected by it in any way?)</i> • Do you remember any specific incidents from the construction? Could you tell us more about this? • We read a very interesting story about the Astoria Clowns and how they were instrumental in getting the bridge built. Do you know more about this? • Apparently, the bridge was met with a lot of criticism and mocked as the bridge to nowhere. What was the local sentiment about that, do you know/remember?
<p>BRIDGE OPERATION</p>	<ul style="list-style-type: none"> • 50 years later what would you say are the changes that the bridge brought about? <i>(if not answered in previous questions)</i> • What was the impact on the local economy? During construction and after it opened? <i>(if not answered in previous questions)</i> • Did it have any positive or negative effects on the environment? <i>(If they are not sure, prompt with “on the quality of the air or the salmon population, etc.?)</i> • The slogan of the anniversary celebration is “Bridge to Everywhere” is that a sign that the bridge has defied all initial criticism? • As a local resident, what are your biggest concerns regarding the bridge nowadays? • If you could go back to the time it was first built and had the power to introduce changes, what would those be? • There have been comments in the media that maintenance and operation costs more than it cost to build and the toll should never have been lifted. What do you think about it? <i>if not answered in previous questions)</i> • What do you think future generations will make of the bridge?

Appendix 2: Summary of informants by stakeholder classification and nested demographic profiles

Local public (n=5)				Worked on bridge (n=2)		Business representative (n=2)	
Lives locally in Astoria				Non-Astorian eg Ke...		Lives locally in Astoria	
Post construction only		During construction		Pre construction time		During construction	
Unassigned	51-70 years old	51-70 years old	Post construction ...	Over 70 years old	Over 70 years old		
Female	Male	Female	30-50 years old	Male	Male		
Over 70 years old				During construction		51-70 years old	
Female					Over 70 years old	Female	
				Male			
General public (n=4)							
Non-Astorian eg Kelso, Portland, Vancouver or abroad							
Post construction only		During construction					
51-70 years old	30-50 years old	Over 70 years old	51-70 years old				
Male	Male	Male	Female				
				State representative (n=1)			
				Non-Astorian eg Kelso, Portland, Vancouver or abroad			
				Post construction only			
				30-50 years old			

Appendix 3: Descriptive profile of each interviewee

ID	Gender	Age	Occupation	Local (in Astoria) or other (e.g., Kelso, Portland, Vancouver or abroad)	Stakeholder classification	Witness pre-during-post project	Years lived in area	State belonging to	Earliest bridge memory as
1	Male	30-50 years old	Private-Academic	Non-Astorian	General public	Post construction only	11-20 years	Oregon	Child
2	Male	Over 70 years old	Retired-Business	Non-Astorian	General public	During construction	41-50 years	Oregon	Adult
3	Female	51-70 years old	Retired	Non-Astorian	General public	During construction	41-50 years	Oregon	Teenager
4	Female	Over 70 years old	Retired-Business	Local	Local public	Post construction only	41-50 years	Oregon	Adult
5	Female	51-70 years old	Non-profit-Historical	Local	Local public	During construction	Over 50 years	Oregon	Child
6	Female	30-50 years old	Non-profit-Historical	Non-Astorian	Local public (works in Astoria)	Post construction only	41-50 years	Washington	Not applicable
7	Male	51-70 years old	Private-Academic	Non-Astorian	General public	Post construction only	Less than 10 years	Oregon	Teenager
8	Male	30-50 years old	Public services	Non-Astorian	State representative	Post construction only	31-40 years	Oregon	Not applicable
9	Male	Over 70 years old	Non-profit-Business	Local	Business representative	During construction	Over 50 years	Oregon	Adult
10	Male	Over 70 years old	Retired-Bridge work	Non-Astorian	Worked on bridge	Pre construction time	31-40 years	Oregon	Adult
11	Male	Over 70 years old	Retired-Bridge work	Non-Astorian	Worked on bridge	During construction	Over 50 years	Oregon	Adult
12	Female	51-70 years old	Business owner	Local	Local business	During construction	Over 50 years	Oregon	Child
13	Male	51-70 years old	Private-Sales	Local	Local public	Post construction only	Unassigned	Oregon	Not applicable
14	Female	Un-assigned	Non-profit-Historical	Lives locally in Astoria	Local public	Post construction only	Less than 10 years	Oregon	Not applicable