

# MEGAPROJECT MOTIVES: AN ALTRUISM–BENEFIT–COMMON GOOD MODEL

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**Abstract:** This paper presents a new model of megaproject motives called the ABC model (altruism, benefit, and common good) of megaproject motives drawn from 13 examples of megaprojects. The purpose of this research was to understand what drives megaprojects as existing models fit infrastructure projects but not megaprojects that are driven by compassion, such as the Exxon Valdez clean-up. Existing models such as the four sublimes also mistake vested interests for project motives. The ABC model benefits science in the discrimination, selection, and evaluation of megaprojects. This model extends into the resource allocation, staffing, and tolerance of soft factors where required in terms of variances in budget, time, and outcome.

**Keywords:** megaprojects; major project management; PETA model; iron trap; altruism–benefit–common good model; ABC model of megaprojects.

## 1. INTRODUCTION

Megaprojects are quite large transformational projects that impact millions of people (Flyvbjerg, 2014). Hirschman (1967) distinguishes megaprojects as “trait making” as they transform society. McKinsey & Co. (Garemo et al., 2015) opines that global infrastructure investment needs will exceed USD 6.3 trillion a year between 2016 and 2030. A very invisible sector is not-for-profit projects by non-governmental organizations (NGOs), which implement trillions of dollars' worth of projects annually (Miković et al., 2020). As megaprojects increase in size and complexity, they are drawn out in time, making them fail in the iron triangle of schedule, scope, and budget (The Economist, 2012, p. 55). Science on megaprojects is now searching for causes and cures for this so-called “iron trap” to increase successes and reduce failures.

Flyvbjerg (2012) has proposed four motivations for megaprojects: the political, economic, technological, and aesthetic sublimes (referred to as the “PETA model” in this paper). Since then, researchers have felt that the four sublimes alone do not represent all drivers of megaprojects (Soderlund et al., 2017). The futurist Thomas Frey (2017) adds “Community pride” and “Jobs factor” as “benefits” of megaprojects to Flyvbjerg's factors.

Notably, Flyvbjerg says that “a new project has a 90% chance of having either cost overruns, benefit shortfalls or both” (2012, p. 105) based on a study of 258 large-scale infrastructure projects from “twenty nations, five continents, and seven decades” (2009, p. 346) due to their being motivated by the four sublimes. He defines a “political sublime” as a rapture of immortality to the leaders who initiate or dedicate these monuments, an “economic sublime” as the delight businesses and other professionals get imagining the money from the projects, a “technological sublime” as the excitement of technologists at pushing new frontiers of technology and an “aesthetic sublime” as the pleasure designers get from creating iconic objects. At this stage, Flyvbjerg says that “all four sublimes are important drivers of megaproject development” (2012, p. 107; emphasis is mine). Flyvbjerg (2014) also enlarges it to “the four sublimes that drive megaproject development” (italics added) (p. 8).

The Special Issue of the Project Management Journal “inspired by the sublimes developed by Flyvbjerg” (Soderlund et al., 2017) says “Flyvbjerg's four sublimes is a relevant, but not exhaustive, framework” (p. 14; emphasis is mine). Earlier in their article, Soderlund et al. (2017) state that Flyvbjerg meant the four sublimes to be the “most important ones” (p. 6). The PETA model has waned since Frey (2017) named six the “benefits” of megaprojects. Rego et al. (2017) have added a new construct, “the symbolism intensive project,” to accommodate projects motivated by “a supreme mission, the adulation of the past or even the reification of heroes or success” (p. 17). Denicol et al. (2020) have studied 6007 titles and abstracts and 86 full papers in megaproject management and reported 18 causes and 54 cures for the poor performance of megaprojects without mentioning the four sublimes. It appears that the four sublimes model cannot fully cover all the motivations or drivers of megaprojects.

A research gap exists in the understanding of what motivates megaprojects, the closing of which could improve the selection, management and evaluation of megaprojects. A project borne out of compassion needs different managers, compared to commercial projects such as the Boeing 787, which again differs from a megaproject such as the Interstate highways. This study aims to close this research gap by identifying any motivations and drivers other than the four sublimes. We pose the following research question: Current thinking maintains that megaprojects are motivated by four sublimes—political, economic, technological, and aesthetic. Are there megaprojects that are driven by factors other than these four sublimes?

The aims of this study are threefold: to explore whether megaprojects have been motivated by factors other than the four sublimes, show why Flyvbjerg could have missed these factors on his journey, and present 13 examples to reveal a pattern of motives and abstract it to a new model of megaproject motives covering all megaprojects. The practical application of the study is that it helps in separating the budget–schedule–scope evaluation more sensitively to the project. A deeper understanding of the motivation also helps soften judgments in resource allocation and personnel selection.

The remainder of the paper is organized as follows. Section 2 discusses the research methodology and the sample megaprojects of the study. Section 3 analyzes the findings with the origin of Flyvbjerg's sublimines. Section 4 presents a new model of megaproject motives, and Section 5 concludes the paper with the limitations of the study, the new model, and avenues for further work.

**2 MATERIALS AND METHODS**

**2.1 Design**

The research design is a case study of 13 megaprojects from different sectors, periods, and geographies that were motivated by factors other than the PETA sublimines. As the research questions required a holistic view of the field of megaproject management with a facility of discovery (Williams, 2007), a qualitative approach was selected. The case method was used as it facilitates the investigation of a little-known and poorly understood situation; it was used along with content analysis study to identify patterns, themes, and biases (Leedy & Ormrod, 2001, as quoted by Williams, 2007). The method of selection was "purposive" as suggested by Patton (2002), where the cases were selected based on their anticipated richness and the relevance of their information to the research question.

Sample size was a point of consideration between the depth of the study from fewer cases and the ability to generalize from a breadth of cases. However, Flyvbjerg (2006) shows how a single case is sufficient for such a study, while Frick (2005) proposes the technological sublime from the single case of the Bay Bridge.

A priori sampling based on pre-specified criteria requires a sampling frame (Gentles et al., 2015). As the purposive selection was used, the criteria for selection were projects valued at billions of dollars or affecting or transforming a large section of the population (Flyvberg, 2014) or biological life. Availability and access to the information required within the terms and requirements of this research question led to samples being drawn from current projects and those of the past few decades as well as from open societies. A third factor was visible and demonstrable motives and drivers for the megaproject. Over 200 past and ongoing mega programs from around the world were examined, including "mega" megaprojects such as the USD 400 billion Joint Strike Fighter, a USD 187 billion oil field in Kashgan, a USD 70 billion Saudi national housing project (Apostolos et al., 2018),

*Table 1: Program and reason for selection*

	Title	Purpose of selection
1	The Bay Bridge	Origin of the technology sublime in the PETA model-- example of chauvinism motive, not technology
2	Exxon Valdez Clean-up	Megaproject driven by compassion towards marine life suffering from the oil spill
3	Global Polio Eradication Program	Saving children and future generations across the world from polio
4	Live 8 Global Concerts	Charity towards African countries affected by famine
5	Citizen ID Program in India—Aadhar	Citizens join in altruism for national welfare
6	Human Genome Project (HGP)	Multi-country research for the health of future generations
7	Large Hadron Collider (LHC)	Multi-country scientific research for advancement of humanity
8	KRS Dam	Benevolence and common good from 100 years ago, still fully in use
9	Boeing 787	Commercial megaproject
10	US Interstate Highway	National common good for long term economic advancement
11	Beijing Olympics 2008	Chauvinism driving economics and national development
12	Joint Strike Fighter	Security of a nation
13	Suez Canal expansion	Economic advancement helped by vested interest

commercial projects such as a USD 40 billion game park in Abu Dhabi, a USD 17 billion city rebuilding project following an earthquake in New Zealand, and a USD 7 billion oil spill clean-up in Alaska. Thirty cases were selected for a first-level consideration. Cases that did not have sufficient data, were typical of a class, or could saturate the process were avoided. Of the 30 samples, 13 were selected that highlight the key points and challenges. **Table 1** lists the samples with a brief description of the purpose of selection.

Marshall et al. (2013) and Stake (2006) suggest that a sample size of seven is adequate for such studies, but the variety of motives is better exposed with 13 cases. The next section studies the samples for motives and evidence of the PETA factors. The Bay Bridge case by Frick (2005) is presented first to reconstruct the situation from which the idea of the technological sublime was formed.

**2.2 Case studies**

The Apollo moon landing was the first example that came to mind in terms of a megaproject driven by national pride. The United States of America had lost the space race, and the President declared that the USA would put a man on the moon before the turn of the decade (Noll, 1982). When viewed together, the 13 cases reveal a canvas of motives other than the PETA sublimines.

**2.2.1 Pride of the Oakland Bay**

Frick (2005) finds that the reconstruction of the Bay Bridge exceeded budget and was delayed owing to the technology aspirations of those in charge. He says that the concept of the technological sublime provides a tool for understanding some of the motives and rhetoric of political leaders and participants to advocate for such a landmark. However, his writing reveals that technology was not the driver behind the Bay Bridge reconstruction project. The Oakland Tribune had said, "We see this as a rare opportunity for the East Bay to insist on a graceful, even majestic design that the entire region can be proud of" (Frick, 2005, p. 40) and "...the bridges spanning San Francisco Bay are a world-class attraction that have made our Bay Area a living postcard. Let's keep them picture perfect" (Frick, 2005, p. 41). The motivation to build the Bay Bridge "to be like the Golden Gate Bridge" does not make technology a motive.

**2.2.2 Compassion toward all life**

In 1989, the super tanker Exxon Valdez ran aground, spilling 11 million gallons of crude oil, damaging 1,500 miles of shoreline and killing around 500,000 birds from 90 species, 150 bald eagles, 4,500 sea otters, 14 killer whales, and other marine life ("Exxon Valdez Disaster—Root Cause Analysis," n.d.; Smith, 2007). No human lives were lost in the accident (Exxon Valdez Oil Spill Trustee Council, 1990), but the concern and response worldwide to the loss and suffering to marine and land life were enormous. Thousands of workers and volunteers helped to clean up after the oil spill. Armies of clean-up crews worked on the beaches with steam cleaners and scrubbed oil from rocks ("Case Study: The Exxon Valdez Oil Spill," n.d.). This was a megaproject motivated by a spontaneous selfless sympathy for the welfare of all living beings and nature.

**2.2.3 Welfare of the next generation**

The Global Polio Eradication Initiative (GPEI) is an example of concern on a worldwide scale, drawing 20 million volunteers from 200 countries in a megaproject that has attracted a USD 16 billion investment over the past three decades (GPEI, 2019). The GPEI aims to eradicate polio from the world "such that no child ever again suffers paralytic poliomyelitis." The goodness and sacrifice are evident in that the project continues to run despite setbacks where terrorists halted the vaccination drive, shot dead some volunteers, and used children as viral suicide bombers ("The Spies Who Sabotaged Global Health," 2013).

**2.2.4 Charity to "end poverty now"**

This megaproject harnessed the altruism of people of many different nationalities, compelling their leaders to commit USD 50 billion to end global poverty. Live 8 was a series of benefit concerts held by more than a thousand top musicians. The concerts broadcast to a potential audience of 5.5 billion people worldwide. Ten simultaneous concerts in the G8 states and in South Africa were broadcast on 182 television networks and 2,000 radio networks worldwide ("Live 8," 2020).

Flyvbjergian factors were alive in the background when the government of Ethiopia used aid money from Live 8 for military objectives and eliminated its opponents (Guccione Jr, 2015; Keller, 1992). Hague et al. (2008) state that Bob Geldof, through his political and aesthetic ideology,

presented himself as an expert and a legitimate representative to campaign to alter economic and political relationships between the developed and developing worlds, and that Geldof and the musicians benefited personally through increased record sales and a campaign calling on them to donate to the cause.

#### 2.2.5 Welfare megaproject riding on patriotism

The Indian government will spend almost USD 250 billion over the next five years on subsidies and poverty alleviation programs, of which almost 85% is expected to be siphoned away (Saksena, 2017). The next megaproject arrested this corruption in one shot by providing a unique identification number to a billion plus residents of India, solving the problems of identity, financial inclusion, direct transfer of benefits, and reforms in subsidy. A small patriotic group of elite software engineers, tech-savvy bureaucrats, and biometric experts of Indian origin left their comfortable living in Silicon Valley and volunteered to help without pay to be a part of this initiative (Gerdeman, 2012; Sharma, 2010), under the auspices of the Unique Identification Authority of The Wall Street Journal (Sharma, 2010) says that the project is considered by many specialists to be the most technologically and logistically complex national identification effort ever attempted. This case is an example of patriotism and altruism on the part of the core group to facilitate the government's desire for public good.

#### 2.2.6 Science projects for healthcare

To improve the healthcare of future generations, more than 20 research laboratories from five countries have joined a scientific collaboration megaproject, the Human Genome Project (HGP) (National Human Genome Research Institute, 2019). It is an inward voyage of scientific discovery with a "\$3.8 billion investment that drove \$796 billion in development" (Tripp & Grueber, 2011). This 15-year project started in 1990 but was completed two years ahead of schedule in 2003 and within budget. This megaproject was motivated by the benefits expected of it and the sharing of these benefits with all humanity.

#### 2.2.7 Large hadron collider of mega-science

This project is different from the HGP in that the benefits are nebulous and open-ended. Constructed at USD 8 billion, the Large Hadron Collider (LHC) is a mega-science project

conducted to find the elusive god-particle and answer questions such as "How did the universe form?" "What exactly is dark matter?" and "Are there extra dimensions in space?" More than 10,000 researchers, engineers, and students from 60 countries on six continents contributed to the LHC's six standing projects (CERN, n.d.) and managed the USD 1 billion invested annually to run it. Certainly, there are questions about whether the LHC is worth the spending and effort (Sample, 2009).

#### 2.2.8 Benevolence in the KRS Dam

This piece of infrastructure was political, economic, and social welfare. This dam was driven by the benevolence of the Queen. The KRS Dam in Karnataka State, India was completed in 1931 to be the biggest reservoir in Asia ("Krishna Raja Sagara," 2020). In 1875–1876, a severe drought wiped out one-fifth of the population of the Kingdom of Mysore. In 1911, construction of a dam commenced across the River Kaveri. To raise money, the Queen Mother pledged her jewels. Six months from completion, the funds were exhausted (Ayupp, 2020). The King appealed to his subjects and requested they all contribute by working free for four weeks. All the people agreed and worked to finish the dam (Ayupp, 2020). Today, a century later, the KRS Dam is the principal irrigation source for millions of people.

#### 2.2.9 Commercial megaproject in the Dreamliner

Holzman et al. (2017) present the Boeing Dreamliner 787 as a purely commercial megaproject. Boeing wanted to be ready with a successor to the Boeing 747 by reinventing the traffic model. The budget was USD 20 billion and involved innovation in every aspect from technology, new business methods, and a paradigm shift in supply chain and management. The project was delayed, over budget, and underperformed. A decade later, however, Boeing has sold over 1000 planes, and they are flying well (Beresnevicius, 2020).

#### 2.2.10 Economic driver in the US Interstate Highway system

The US Interstate Highway system is one of the largest public works projects in the history of the world. It was initiated in 1916 with only USD 5 million available in the first year (Weingroff, 1996), to facilitate people and material

movement for World War I and cost USD 521 billion in current money (Hernandez, 1990) by the time it finished in 1992. In the 1930s, the Great Depression moved the motive from transportation to creating jobs for the unemployed, later extended to the economy enabling people to travel faster to work; the number of large trucks and semis grew substantially, making the highway system a cheaper option for transporting goods, and the idea of living in the suburbs became a preferred choice. This project was driven by the economic benefits it provided the people and the country.

#### 2.2.11 Vanity with the Olympics

China hosted the Beijing Olympics to boost its image and appeal as a highly modern, efficient, and increasingly prosperous nation as well as an attractive destination for international tourists, professionals, and students (Latham, 2009). It aimed to embed China more fully within international society, according to Chinese international relations expert Pang Zhongying (2008). It was a major attempt at tackling the substantial soft power deficit that China held, particularly on issues relating to the environment, political freedoms, legal rights, the treatment of minority nationals, and China's role in Tibet and Xingjian. The motives were vanity to explore soft power and to announce to the world that they had arrived.

#### 2.2.12 National security, as in defense

The Joint Strike Fighter (JSF) is the USA Department of Defense's most expensive and ambitious aircraft acquisition; it replaces hundreds of legacy aircraft at a lifecycle operating and support cost of USD 1.1 trillion (Hodge, 2011). The primary motive for defense spending is national security. The JSF has globalized industrial partnerships with many countries (Vucetic & Nossal, 2012). Defense spending has many motives and justifications, such as arms races, the patronage demands of politically powerful military establishments, or in the case of developing countries, ongoing internal rebellion or the need to deter them (Collier, 2006). It seems to have been conducted for public good along with political alliance for the advantage of the countries, the economic benefit of offset manufacturing contracts, and the benefit to technology from the program development.

#### 2.2.13 Politics and economics in the Great Egyptian Dream

The New Suez Canal project, an USD 8 billion project (Iskander, 2018), was part of an effort to boost Egypt's economy by President Sisi. It was the centerpiece of a grand agenda to cement his tenure as the man who brought stability and prosperity to Egypt (Atef & Frenkel, 2014). It was completed in an impossible period of one year with a capital investment of USD 8 billion tapped in just eight days (Golia, 2014) from the uninvested savings of the Egyptian population. It created jobs for young people living in the Canal Zone, Sinai, and surrounding areas. The new channel costing USD 4 billion will earn the country more than USD 13 billion a year in toll fees by 2023 (Said & Parasie, 2014). This is an example of a megaproject that had political and economic objectives that helped the vested interest of the President. This megaproject differentiates the real political and economic factors from the vested political and economic factors of Flyvbjerg.

### 3 RESULTS

The 13 cases reveal a variety of motives such as chauvinism, compassion, and charity, not explainable by the PETA sublimations. The limitation of the PETA model is better understood if the origin of the model is analyzed. This section first analyzes the PETA model and follows it with what the model shows and what it misses. A short analysis also explains the inapplicability of the word "sublime."

#### 3.1 Birth of the PETA sublimations

Flyvbjerg (2012) describes his journey in "Why mass media matter and how to work with them: phronesis and megaprojects." He had recently won the "European Planning Prize" for his work that exposed corrupt city management in his hometown of Aalborg. At that time, Denmark's first megaproject, the "Great Belt Project," suffered a major accident during construction, making project continuance unviable. He started inquiring into the practice of megaprojects "to help change things for the better" (p. 109). He received a large research grant for the study, but it was followed by a threat that the grant would dry up if his research reflected badly on the government and the ministry. When he pointed out that the promoters, including the Danish government, had misrepresented or incompetently estimated the cost of two of Denmark's megaprojects, the Danish Minister of Transport tried to intimidate Flyvbjerg into



silence. Following his professional disobedience, the well-staffed public relations offices of the promoters and the government tried to diminish the credibility of Flyvbjerg's research. The planning meetings were then held in secret outside Denmark to hide the facts from other researchers and circumvent the Danish Freedom of Information Act. Perhaps the combination of the research and these experiences hardened his view, leading him to conclude with an unusually strong statement that the promoters and professionals behind megaprojects had to be "either fools or liars to keep underestimating costs and risks, and overestimating benefits and viability, on project after project, decade after decade" (p. 105).

The chief winners in megaproject development, Flyvbjerg says, are the project promoters who profit from the large amounts of money and the prestige of executing megaprojects. Following them are the contractors who benefit from the multi-billion-dollar contracts. The other group is politicians who make the projects monuments to themselves. There is also an axis with engineers and technologists, who receive an opportunity to push the boundaries of their science "such as building the tallest building or the longest bridge or the largest aircraft and so on" (p. 107). He says that a complex coalition behind these politicians all benefit monetarily. These include local developers, landowners, labor unions, and consultants to the megaproject. He classifies these factors into four groups—the political, economic, technological, and aesthetic aspects of projects. Following Frick's (2005) "technological sublime," he christens the four factors as "the four sublimines."

3.2 Factors or vested interests?

Flyvbjerg (2014) terms the behavior of politicians "monuments for themselves," "making lots of money ... off megaprojects" as "political," and the profiteering of businessmen as "economic." The language in these descriptions of the political and economic sublimines reveals the players as influencing a project for personal gain, and possibly to the detriment of the project. This is not sublime. Working for a personal gain or agenda is called having a vested interest. High-level kickbacks, career progression, influence, low level bribes for information leaks, and expediting, delaying, or deflecting the course of action of a project (Flyvbjerg & Molloy, 2011) all come under corruption.

The word "political" means relating to how power is obtained and used in a group or country, and economics is the study of how society uses its limited resources and wealth. Professionals and politicians relish additional money, as in the case of the Sochi Olympics, where newspapers carried a report that up to USD 30 billion was siphoned by Putin's associates (Carbonnel, 2013; Monaghan, 2014). These are vested interests or corruption, not political or economic factors.

3.3 Motivations other than the PETA sublimines

The cases show that megaprojects are driven by many motives other than the factors hitherto discovered in the literature. It would be naive to believe that any of these projects lacked the Flybergian factors of glory seekers, profiteers, and opportunists. The Bay Bridge project itself was driven by chauvinism in the Bay area, not technology. The words of the Oakland Tribune and other influential voices from the community wanted to rise to the sublime of the Golden Gate Bridge and make the beauty of the East Bay area picture-perfect. The driving force was the pride of the region, not the technologists or the designers.

In the Exxon Valdez case, the sight of marine life and animals drenched in crude oil made thousands of people rise spontaneously to help in any manner they could. It was universalism and sympathy toward all life that drove the project. The polio eradication program was driven by a desire to save the next generation from the sickness of polio. Worldwide, 20 million volunteers have been working over the last three decades since its inception. The Live 8 concerts were triggered by altruism and an inclination to raise awareness for the famine in Africa. The Aadhar program is a combination of selflessness where a group of successful professionals returned to their homeland with an urge to give back to their country. These megaprojects were not driven by the PETA factors.

Projects also benefit from vested interests: President Sisi had a vested interest to establish himself and his regime, and so he completed the Suez expansion in one year, drawing on the capital of USD 8 billion from the Egyptian public, an astonishing achievement by any standard. A leader who sets up a project for the vested interest of election money, immortality, or to satisfy his ego, but that benefits his group or society, would still be known as the

man behind the idea, architect of the project, or savior of the country. According to Frey (2017), people "don't care about the poorly calculated cost-benefit statements, squandered money along the way, or the political wrangling necessary to get the green light" (Frey, 2017, para 19)." He further notes that they just want something significant to happen in their community: "As a rule of thumb, history books don't spend time memorializing the critics and project-killers, only those who succeed" (Frey, 2017, para. 20).

Can a nation show a vested interest? Just as nations show sympathy during a calamity, they can also have a vested interest. Defense projects have brought countries together for mutual political and economic benefit. Mega-science projects do not offer immediate benefits, but they have united many countries on a long-lasting partnership in discovery. Vested interests also develop from conviction of what is right even if that belief itself may be wrong in the larger interest, as in political and economic philosophies. Megaprojects have been used by countries to announce

their arrival to the world, "The life of nations merely repeats, on a large scale, the lives of the component cells" (Proust, 2010 p. 100).

**Table 2** summarizes the motives in the cases as per the PETA model and the other motives not covered by the PETA model as observed in the case studies.

3.4 Sublimines

Are the PETA factors "sublimines"? A sublime is similar to a religious feeling that is aroused while confronting impressive objects that affect the intimate hopes and fears of people (Nye, 1994). Its effect is universal, repeatable, and available to everyone irrespective of background, time, and the number of times they experience it. Nye states the Golden Gate Bridge as an example, and Frick applies the term to the Bay Bridge, a term that neither fits the bridge nor the chauvinism in the reconstruction. Incidentally, Simon (2001) also prognosticates the demise of the technological sublime. Few people realize the complexity of the Airbus 380 or the mobile phone that has about 2 billion transistors—the first transistor in 1953 was larger than today's smartphone.

Table 2: Summary of findings in megaproject motives.

	Title	Motive in PETA model	From the research
1	The Bay Bridge	Technology	Chauvinism
2	Exxon Valdez Clean-up	None from PETA	Compassion
3	Global Polio Eradication Program	None from PETA	Empathy
4	Live 8 Global Concerts	None from PETA	Charity
5	Citizen ID Program in India—Aadhar	None from PETA	Altruism and welfare
6	Human Genome Project (HGP)	None from PETA	Concern for health
7	Large Hadron Collider (LHC)	None from PETA	Scientific development
8	KRS Dam	None from PETA	Benevolence
9	Boeing 787	None from PETA	Business growth
10	US Interstate Highway	None from PETA	Economic in the development sense
11	Beijing Olympics 2008	Political and economic motives as vested interests	Vanity and chauvinism
12	Joint Strike Fighter	Vested interest of the Military, Industry and Technology complex	National security
13	Suez Canal expansion	Political and Economic motives as vested interests	Economic in the development sense

4 DISCUSSION

The cases reveal a pattern in the objectives of megaprojects: the Dreamliner was driven by a business strategy and profit motive, while most megaprojects by governments and institutions aim to provide facilities or common benefits. Some science projects are implemented with a long-term benefit in mind and are perhaps not directly relatable to humans or life in general, such as space research, a tiger sanctuary, or a biosphere reserve. There are megaprojects that are driven by altruism or selflessness as a national motivation, such as those following a great disaster. These projects are not driven by the monetary arithmetic of returns. The most puzzling are megaprojects that are motivated by sheer selfless behavior starting from an individual level, such as the Polio initiative of a single person to the altruism of a nation as that during a major disaster. The cases show a new model of megaproject motives: the altruism–benefit–common good model or the ABC model.

4.1 Altruism motive

This aspect is the selfless motive of megaprojects. The word altruism was coined by French philosopher Auguste Comte from the French word “altruism” meaning unselfishness, devotion to the welfare of others, and the opposite of egoism. The companion is universalism, concern for the welfare of those in the larger society, the world and nature, social justice, equality, and protecting the environment (Schwartz, 2012).

The GPEI is an example of altruism by private and public agencies concerned with the suffering of children today and the generations of the future. The Live 8 concerts are a unique megaproject reflecting a worldwide effort to alleviate global poverty and hunger. The Exxon Valdez clean-up rises to a nobler plane known as universalism—concern for all life, be it animals on land, air, or water or plants. Megaprojects spurred by altruism differ from those of the other two categories, as the people engaged in the activity perform it as a selfless cause without any expectation of personal benefit or reward from the activity or from those they help. The sight of a helpless bird covered with crude oil moved thousands of volunteers to risk their lives helping them.

4.2 Benefit motive

These megaprojects are motivated by definite benefits in a definite time frame. The Boeing Dreamliner was a commercial megaproject driven by a direct commercial benefit. All commercial megaprojects are examples of the direct and unalloyed Benefit class. On the other hand, the KRS Dam is an exemplary case of the Benefit motive with the selfless behavior of the monarch and sacrifice of the subjects. The Queen Mother pledged her jewels for the welfare of her subjects. The subjects worked without salary to complete the dam. The Benefit motive may include the Altruism motive also: selflessness on the part of the actors from immediate quid-pro-quo reward.

Mega-science projects such as the HGP come under this Benefit category as they are initiated with a defined benefit. The cases show global megaprojects involving the governments of many countries and thousands of scientists seeking breakthroughs in science (Ramesh, 2020) that will improve healthcare. The motive is societal welfare. The second example is the Olympics and sports such as football. In economic terms, these events are multi-billion-dollar festivals with an array of corporate sponsors, enabling host cities and nations to “sell themselves” before potential investors, customers, and tourists.

4.3 Common good motive

Governments have a duty to provide for their citizens through economic conditions, livelihood, and welfare, preserve internal order, and defend against external enemies (Dallas Learning Solution, 2020). Governments provide public goods or collective use goods to their citizens that they cannot purchase themselves. The motive of these megaprojects is welfare, which is different from the Benefit motive in that there may not be a directly attributable and immediate benefit. Infrastructure is the fundamental base on which everything else is built, and it is crucial to the future of cities, states, and individual livelihoods. It includes lifesaving undertakings, sewage, and water-supply systems. For example, controlling diseases such as cholera and the dykes of Holland guarding the low-lying country’s landscape (Wrike, n.d.). There is considerable debate on how to evaluate common good projects for viability and benefit, but these projects are a class in the taxonomy of megaproject motives.

4.4 Validation of the ABC model

Even without the erroneous definition, the PETA model does not explain megaprojects such as the Exxon Valdez clean-up or the polio initiative. It views all megaprojects through the tainted glass of vested interests, developed from mostly infrastructure projects that have fallen into the iron trap. The ABC model of megaprojects accepts cases such as the 13 examples that the PETA model missed. The validity of analysis of a project by cost of capital or return on investment is beyond the scope of this study, but the ability to discriminate megaprojects that are beyond the strict lens of political, economic, and financial factors is the important contribution of the ABC model.

The PETA model analyzes the Bay Bridge as a failure of technology, while the ABC model rightly identifies chauvinism that led the project to delay and budget overrun. The collateral benefit of infrastructure projects, such as highways and dams, is that they are long term, extending over decades, and the PETA misses it with the stress on the cost of capital and viability, while the ABC model has the perspective to recognize their collateral benefit to society.

The PETA model is unable to classify megaprojects such as the Live 8 concerts, while the ABC model can recognize their importance to future generations. Olympics and other games infrastructures have been considered unviable by the PETA model, while the ABC model recognizes their importance to the spirit, unity, and politics of nations. PETA observes defense projects through the lens of the influence of politicians and business people, while the ABC model separates the vested interests from the real objective of national security. Mega-science projects are not accommodated in the PETA model, while the ABC model does so for their importance as either the benefit objective in the HGP or as a common good in the Large Hadron Collider. Overall, the PETA model focuses on the failures wrought by the vested interests, missing the woods for the trees, while the ABC model corrects the misunderstanding of the political and economic motives in particular and refocuses on the larger picture of the objectives of megaprojects. **Table 3** lists the projects and their classification by the ABC model.

Table 3: Megaprojects classified under the ABC model

	Title	ABC classification
1	The Bay Bridge	Common Good
2	Exxon Valdez Clean-up	Altruism
3	Global Polio Eradication	Altruism
4	Live 8 Global Concerts	Altruism
5	Citizen ID in India—Aadhar	Benefit
6	Human Genome Project (HGP)	Benefit
7	Large Hadron Collider (LHC)	Common good
8	KRS Dam	Benefit
9	Boeing 787	Benefit
10	US Interstate Highway	Common good
11	Beijing Olympics 2008	Benefit
12	Joint Strike Fighter	Benefit
13	Suez Canal expansion	Common good

## 5 CONCLUSION

Megaprojects are increasing in importance and relevance in today's world in areas beyond the usual infrastructure projects. With the PETA model, megaprojects have had to justify themselves in dollars, years and visible goodness, which hid many megaprojects driven by softer and nobler motives—the altruistic motive where the megaproject is driven by a selfless and noble motive with no expectation of a benefit and the common good motive where projects executed by institutions and governments provide wellbeing to their members with goods and services expected of them. The ABC model shows that Flyvbjerg's four 'sublimes,' not at all sublime, are just vested interests that work on all megaprojects to the advantage or detriment of the megaprojects. The ABC model allows a clear delineation of megaprojects from their objectives which help evaluate their usefulness to the stakeholders so that investment decisions and evaluation criteria are appropriate to the megaproject. The study is limited to the objectives and does not go deeper into the various emotions that spur or drive the megaprojects. This opens new avenues for future scholars to inquire into the possible range of human and societal emotions that motivate, move, drive, and spur megaprojects within the three classes including being used for vanity, similar to when an individual buys a Gucci handbag or a luxury car to park outside his/her home!

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