



Revisiting the construction of the Empire State Building: Have we forgotten something?

Mattias Jacobsson ^{a,b,*}, Timothy L. Wilson ^a

^a Umeå School of Business & Economics, Umeå University, Umeå, Sweden

^b School of Engineering, Jönköping University, Jönköping, Sweden

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Abstract What's past is prologue. Or is it? The construction of the Empire State Building (ESB) was not only the fastest erection of a skyscraper ever, but the construction company that took on the job allegedly began with no equipment or supplies that would be adequate for the job. The project was completed ahead of schedule and under budget; instead of 1 year and 6 months as anticipated, it only took 1 year and 45 days. The costs totaled \$24.7 million instead of the estimated \$43 million. So, we ask, how was this possible and is there something we could learn? Based on a review of existing literature describing the history and construction of the ESB, we outline strategic, operational, and contextual explanations for what appears to be a truly successful megaproject. We illustrate how, for example, inspiration from Henry Ford's assembly line technique, the uniqueness of the logistics during the construction period, the economic decline of the Depression, and early ideas of concurrent engineering and fast-track construction enabled the success. Our conclusion is that there are lessons to be learned in going back to basics when tackling a megaproject.

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1. Introduction: A successful megaproject

Megaprojects fail. They are big and bold, but they almost always overshoot in cost and time. Take, for example, the Verrazano-Narrows Bridge in New York (built in 1959–1964) that had a 280% cost overrun,

the Sydney Opera House in Australia (built in 1959–1973) that had a 1,400% cost overrun, or the Scottish Parliament Building in Scotland (built in 1999–2004) that ended up with a 1,600% cost overrun (Flyvbjerg, 2014). Two out of the three also took more than the promised time to complete. These examples are not uncommon. In fact, industry expert Bent Flyvbjerg (2011, p. 321) has called it the 'iron law' of megaprojects: "over budget, over time, over and over again."

While the number and scale of failed megaprojects is considerable, the Empire State Building (ESB), a massive and iconic structure built between

* Corresponding author

E-mail addresses: mattias.jacobsson@umu.se, mattias.jacobsson@ju.se (M. Jacobsson), tim.wilson@umu.se (T.L. Wilson)

1930–1931, was actually completed under budget and faster than anticipated. The construction took merely 13 months (Tauranac, 2014a; Wagner, 2003), which was 5 months faster than initially anticipated. The final cost of the project was 25% under budget; clearly, something was at work here. Over time, it seems as if the construction industry and the management of megaprojects has somehow become less efficient instead of more. Consequently, we took a retrospective look at the effort that went into the completion of the ESB—the fastest erection of a skyscraper to date. Based on a review of existing literature, we aim to take stock of the construction of the ESB and answer the following question: How was the success of the Empire State Building possible and is there something we can learn from it? In our analysis, we outline strategic, operational, and contextual explanations to what appears to be a great success from a project management (PM) perspective and a unique megaproject.

2. Megaprojects and their failures

Megaprojects are characterized as large-scale, complex projects that are delivered through various partnerships and attract a high level of public or political interest (Flyvbjerg, 2011, 2014; Van Marrewijk, Clegg, Pitsis, & Veenswijk, 2008). According to the McKinsey Global Institute (2013), such projects will supposedly deliver about 4% of the total global gross domestic product each year until 2030. Beyond the expected appropriateness to deliver large-scale investments, megaprojects are driven by the four sublimates: “political, technological, economic, and aesthetic” (Flyvbjerg, 2014, p. 6). These sublimates, however, not only explain the attractiveness but also the failure or disappointing performance of a megaproject. Recent studies on why megaprojects tend to fail also suggest factors such as: impacts on local environment, laws and regulations related to planning, insufficient funding, changes in the scope and design of a project, government bureaucracies, overly optimistic expectations (optimism bias), organizational structure development, and the absence of an effective public sector champion (Flyvbjerg, 2011; Lundrigan, Gil, & Puranam, 2015; Mišić & Radujković, 2015; Plotch, 2015).

3. An icon in perspective

Even if the focus of the article is not on the iconic nature of ESB per se, but rather on the

construction process and the circumstances thereof, some general facts and background information are still relevant. The ESB was erected in the beginning of the Great Depression (1929–1939), the deepest and longest-lasting economic downturn in modern history. One of the central initiators of the project was John J. Raskob, a businessman, DuPont treasurer, and former vice-president in charge of finance of General Motors (Tauranac, 2014b). Raskob, who had long harbored the dream of building a skyscraper, had made a lot of money during his career and in the process became a well-connected man (Bascomb, 2004; Walsh, 1928). Together with Coleman du Pont, Pierre S. du Pont, Louis G. Kaufman, and Ellis P. Earle, Raskob formed Empire State Inc. (ESI) and gave Alfred Emanuel “Al” Smith, former governor of New York and Democratic U.S. presidential candidate, the responsibility of leading the operation (Empire State Realty Trust, 2016; Tauranac, 2014a, 2014b). To design the building, they commissioned the architectural firm of Shreve, Lamb, and Harmon. Headed by chief designer William F. Lamb, the ESB was designed in a distinctive Art Deco style, with its characteristic and sleek form allegedly inspired by the shape of a pencil. The site of the construction was that of the original, and at the time outdated, Waldorf-Astoria Hotel on Fifth Avenue between West 33rd and 34th Streets. With the words “Gentlemen, stand back,” Smith officially initiated the demolition of the hotel in late September 1929 to leave room for the new building (Bascomb, 2004, p. 188; Reis, 2009, p. 26). The main contractor, Starrett Bros. & Eken, started the excavation on January 22, 1930, and the actual construction began less than 8 weeks later on March 17. The 60,000 tons of steel used for the framework were manufactured in Pittsburgh and transported 400 miles to the Manhattan construction site via train and trucks (Bascomb, 2004). At the peak of construction, 3,000–3,500 workers were involved.

The building was completed on April 11, 1931, and it officially opened on May 1 the same year. The cost totaled \$24.7 million (approximately \$390 million today), well below the initial estimate of \$43 million (approximately \$670 million today). With its antenna included, the building stands a total of 1,454 feet high, which made it the world’s tallest building, a title it held until 1972 when it was surpassed by the Sears Tower (known today as the Willis Tower) in Chicago. With its 102 floors, the ESB also became the first skyscraper to have more than 100 floors (Empire State Realty Trust, 2016) (Table 1).

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