

‘Important, instructive and entertaining’

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HOW BIG THINGS GET DONE

The Surprising Factors Behind
Every Successful Project,
from Home Renovations
to Space Exploration

INTRODUCTION: CALIFORNIA DREAMIN'

How is a vision turned into a plan that becomes a triumphant new reality?

Let me tell you a story. You may have heard about it, particularly if you live in California. If you do, you're paying for it.

In 2008, Golden State voters were asked to imagine themselves at Union Station in downtown Los Angeles, on board a sleek silver train. Departing the station, the train slips quietly through the urban sprawl and endless traffic jams and accelerates as it enters the open spaces of the Central Valley, until the countryside is racing by in a blur. Breakfast is served. By the time attendants clear coffee cups and plates, the train slows and glides into another station. This is downtown San Francisco. The whole trip took two and a half hours, not much more than the time it would take the average Los Angeleno to drive to the airport, clear security, and get on a plane to queue on the tarmac, waiting for departure. The cost of the train ticket was \$86.

The project was called California High-Speed Rail. It would connect two of the world's great cities, along with Silicon Valley, the global capital of high technology. Words such as *visionary* are used too liberally, but this really was visionary. And for a total cost of \$33 billion it would be ready to roll by 2020.¹ In a statewide referendum, Californians approved. Work began.

As I write, it is now fourteen years later. Much about the project remains uncertain, but we can be sure that the end result will not be what was promised.

After voters approved the project, construction started at various points along the route, but the project was hit with constant delays. Plans were changed repeatedly. Cost estimates soared, to \$43 billion, \$68 billion, \$77 billion, then almost \$83 billion. As I write, the current highest estimate is \$100 billion.² But the truth is that nobody knows what the full, final cost will be.

In 2019, California's governor announced that the state would complete only part of the route: the 171-mile section between the towns of Merced and Bakersfield, in California's Central Valley, at an estimated cost of \$23 billion. But when that inland section is completed, the project will stop. It will be up to some future governor to decide whether to launch the project again and, if so, figure out how to get the roughly \$80 billion—or whatever the number will be by then—to extend the tracks and finally connect Los Angeles and San Francisco.³

For perspective, consider that the cost of the line between only Merced and Bakersfield is the same as or more than the annual gross domestic product of Honduras, Iceland, and about a hundred other countries. And that money will build the most sophisticated rail line in North America between two towns most people outside California have never heard of. It will be—as critics put it—the “bullet train to nowhere.”

How do visions become plans that deliver successful projects? Not like this. An ambitious vision is a wonderful thing. California was bold. It dreamed big. But even with buckets of money, a vision is not enough.

Let me tell you another story. This one is unknown, but I think it gets us closer to the answers we need.

In the early 1990s, Danish officials had an idea. Denmark is a small country with a population less than New York City's, but it is rich and gives a lot of money in foreign aid and wants that money to do good. Few things do more good than education. The Danish officials got together with colleagues from other governments and agreed to fund a school system for the Himalayan nation of Nepal. Twenty thousand schools and classrooms would be built, most of them in the poorest and most remote regions. Work would begin in 1992. It would take twenty years.⁴

The history of foreign aid is littered with boondoggles, and this project could easily have added to the mess. Yet it finished on budget in 2004—eight years ahead of schedule. In the years that followed, educational levels rose across the country, with a long list of positive consequences, particularly a jump in the number of girls in classrooms. The schools even saved lives: When a massive earthquake struck Nepal in 2015, almost nine thousand people died, with many being crushed to death in collapsing buildings. But the schools had been designed to be earthquake proof, as a

first. They stood. Today, the Bill & Melinda Gates Foundation uses the project as an exemplar of how to improve health by increasing enrollment in schools, particularly for girls.⁵

I was the planner on that project.⁶ At the time, I was pleased with how it turned out, but I didn't think much about it. It was my first big project, and, after all, we only did what we had said we would do: turn a vision into a plan that was delivered as promised.

However, in addition to being a planner, I am an academic, and the more I studied how big projects come together—or fail to—the more I understood that my experience in Nepal was not normal. In fact, it was not remotely normal. As we'll see, the data show that big projects that deliver as promised are rare. Normal looks a lot more like California High-Speed Rail. Average practice is a disaster, best practice an outlier, as I would later point out in my findings about megaproject management.⁷

Why is the track record of big projects so bad? Even more important, what about the rare, tantalizing exceptions? Why do they succeed where so many others fail? Had we just been lucky delivering the schools in Nepal? Or could we do it again? As a professor of planning and management, I've spent many years answering those questions. As a consultant, I've spent many years putting my answers into practice. In this book, I'm putting them into print.

The focus of my work is megaprojects—very big projects—and lots of things about that category are special. Navigation of national politics and global bond markets, for example, is not something the average home remodeler has to contend with. But that stuff is for another book. What I'm interested in here are the drivers of project failure and success that are universal. That explains the title. *How Big Things Get Done* is a nod to my expertise in megaprojects, which are big by anyone's standards. But "big" is relative. For average homeowners, a home remodeling can easily be one of the most expensive, complex, challenging projects they ever tackle. Getting it right means as much or more to them as the fate of megaprojects means to corporations and governments. It is absolutely a "big thing."

So what are the universal drivers that make the difference between success and failure?

PSYCHOLOGY AND POWER

One driver is psychology. In any big project—meaning a project that is considered big, complex, ambitious, and risky by those in charge—people think, make judgments, and make decisions. And where there are thinking, judgment, and decisions, psychology is at play; for instance, in the guise of optimism.

Another driver is power. In any big project people and organizations compete for resources and jockey for position. Where there are competition and jockeying, there is power; for instance, that of a CEO or politician pushing through a pet project.

Psychology and power drive projects at all scales, from skyscrapers to kitchen renovations. They are present in projects made of bricks and mortar, bits and bytes, or any other medium. They are found whenever someone is excited by a vision and wants to turn it into a plan and make that plan a reality—whether the vision is to place another jewel in the Manhattan skyline or launch a new business, go to Mars, invent a new product, change an organization, design a program, convene a conference, write a book, host a family wedding, or renovate and transform a home.

With universal drivers at work, we can expect there to be patterns in how projects of all types unfold. And there are. The most common is perfectly illustrated by California's bullet train to nowhere.

The project was approved, and work began in a rush of excitement. But problems soon proliferated. Progress slowed. More problems arose. Things slowed further. The project dragged on and on. I call this pattern “Think fast, act slow,” for reasons I’ll explain later. It is a hallmark of failed projects.

Successful projects, by contrast, tend to follow the opposite pattern and advance quickly to the finish line. That’s how the Nepal schools project unfolded. So did the Hoover Dam, which was completed a little under budget in fewer than five years—two ahead of schedule.⁸ Boeing took twenty-eight months to design and build the first of its iconic 747s.⁹ Apple hired the first employee to work on what would become the legendary iPod in late January 2001, the project was formally approved in March 2001, and the first iPod was shipped to customers in November 2001.¹⁰ Amazon Prime, the online retailer’s enormously successful membership and free

shipping program, went from a vague idea to a public announcement between October 2004 and February 2005.¹¹ The first SMS texting app was developed in just a few weeks.

Then there's the Empire State Building.

A NEW YORK SUCCESS STORY

The vision that became arguably the world's most legendary skyscraper started with a pencil. Who held the pencil depends on which version of the story you trust. In one, it was the architect, William Lamb. In another, it was John J. Raskob, a financial wizard and former General Motors executive. In either case, a pencil was taken from a desk and held vertically, point up. That's what the Empire State Building would be: slim, straight, and stretching higher into the sky than any other building on the planet.¹²

The idea to erect a tower probably came early in 1929 from Al Smith. A lifelong New Yorker and former New York governor, Smith had been the Democratic presidential candidate in the 1928 election. Like most New Yorkers, Smith opposed Prohibition. Most Americans disagreed, and Smith lost to Herbert Hoover. Unemployed, Smith needed a new challenge. He took his idea to Raskob, and they formed Empire State Inc., with Smith acting as the president and face of the corporation and Raskob as its moneyman. They settled on a location—the site of the original Waldorf-Astoria hotel, once the pinnacle of Manhattan luxury—set the parameters of the project, and developed the business plan. They fixed the total budget, including the purchase and demolition of the Waldorf-Astoria, at \$50 million (\$820 million in 2021 dollars), and scheduled the grand opening for May 1, 1931. They hired Lamb's firm. Someone held up a pencil. At that point, they had eighteen months to go from first sketch to last rivet.

They moved fast because the moment was right. In the late 1920s, New York had overtaken London as the world's most populous metropolis, jazz was hot, stocks were soaring, the economy was booming, and skyscrapers—the thrilling new symbol of prosperous Machine Age America—were leaping up all over Manhattan. Financiers were looking for new projects to back, the more ambitious the better. The Chrysler Building would soon become the tallest of the titans, garnering all the prestige and rental income

that went with the title. Raskob, Smith, and Lamb were determined to have their pencil top them all.

In planning the building, Lamb's focus was intensely practical. "The day that [the architect] could sit before his drawing board and make pretty sketches of decidedly uneconomic monuments to himself has gone," he wrote in January 1931. "His scorn of things 'practical' has been replaced by an intense earnestness to make practical necessities the armature upon which he moulds the form of his idea."

Working closely with the project's builders and engineers, Lamb developed designs shaped by the site and the need to stay on budget and schedule. "The adaptation of the design to conditions of use, construction and speed of erection has been kept to the fore throughout the development of the drawings of the Empire State," he wrote. The designs were rigorously tested to ensure that they would work. "Hardly a detail was issued without having been thoroughly analyzed by the builders and their experts and adjusted and changed to meet every foreseen delay."¹³

In a 1931 publication, the corporation boasted that before any work had been done on the construction site "the architects knew exactly how many beams and of what lengths, even how many rivets and bolts would be needed. They knew how many windows Empire State would have, how many blocks of limestone, and of what shapes and sizes, how many tons of aluminum and stainless steel, tons of cement, tons of mortar. Even before it was begun, Empire State was finished entirely—on paper."¹⁴

The first steam shovel clawed into the Manhattan dirt on March 17, 1930. More than three thousand workers swarmed the site, and construction advanced rapidly, beginning with the steel skeleton thrusting upward, followed by the completed first story. Then the second story. The third. The fourth. Newspapers reported on the skyscraper's rise as if it were a Yankees playoff run.

As workers learned and processes smoothed, progress accelerated. Up went three stories in one week. Four. Four and a half. At the height of construction, the pace hit a story a day.¹⁵ And a little more. "When we were in full swing going up the main tower," Lamb's partner Richmond Shreve recalled, "things clicked with such precision that once we erected fourteen and a half floors in ten working days—steel, concrete, stone and all."¹⁶ That

was an era when people marveled at the efficiency of factories churning out cars, and the Empire State designers were inspired to imagine their process as a vertical assembly line—except that “the assembly line did the moving,” Shreve explained, while “the finished product stayed in place.”¹⁷

By the time the Empire State Building was officially opened by President Herbert Hoover—exactly as scheduled, on May 1, 1931—it was already a local and national celebrity. Its height was daunting. The efficiency of its construction was legendary. And even though practicality had been at the front of Lamb’s mind, the building was unmistakably beautiful. Lamb’s drive for efficiency had created a lean, elegant design, and the New York chapter of the American Institute of Architects awarded it the 1931 Medal of Honor.¹⁸ Then, in 1933, King Kong climbed the building on the silver screen while clutching the glamorous Fay Wray, and the Empire State Building became a global star.

The Empire State Building had been estimated to cost \$50 million. It actually cost \$41 million (\$679 million in 2021). That’s 17 percent under budget, or \$141 million in 2021 dollars. Construction finished several weeks before the opening ceremony.

I call the pattern followed by the Empire State Building and other successful projects “Think slow, act fast.”

At the start, I asked how a vision is turned into a plan that becomes a triumphant new reality. As we will see, that is the answer: Think slow, act fast.