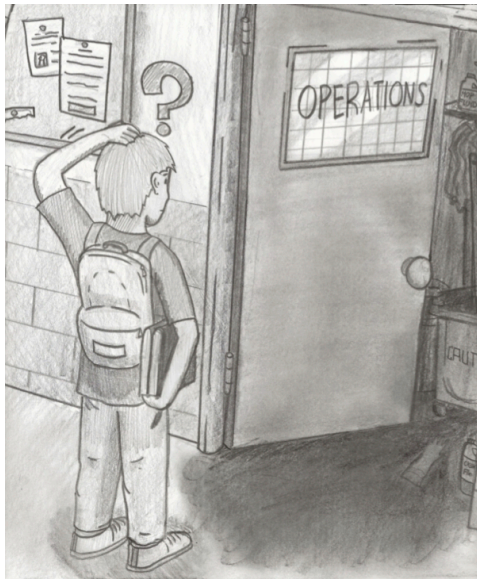


In praise of the name “Operations Research”

Christopher Thomas Ryan, August 25, 2025
with original art by Alexander Xiong

As far as I know, very few kids grow up saying, “I want to be an operations researcher one day.” They probably have no idea what that even means. I certainly didn’t.



As a math undergrad in the 2000s, I heard a strange rumor: the business school had a group doing applied math. Wasn’t business all about suits and PowerPoint? Still, I applied to their PhD program. When I got in, I bought a suit, just in case.

When I arrived, I was confused: everyone I talked to in this “applied math” group called themselves “Operations Researchers”, not applied mathematicians. When I asked what that meant, I was told, “Operations Research is applied mathematics to business.” But if that’s all it was, why not just call it “Applied Math for Business”? Maybe “applied math” sounded too academic, too abstract, too ... mathy. Maybe “Operations Research” was a rebrand? If so, it backfired. Here’s why.

Let’s break it down: “Operations” and “Research”. First, “Operations”. Does it mean mathematical operations like arithmetic? Maybe surgery?¹ I thought I understood

better after teaching a course called “Operations Management”. There, operations meant repeated tactical decisions—processing orders, answering calls. I accepted that (I had to—I taught it), but did it mean the same thing for “Operations Research”? I still don’t know.

This still leaves the second word of the phrase: “Research”. Odd choice. “Research” seemed redundant—like calling physics “Physics Research”. At best, it sounded like “Market Research,” where you gather info before others make decisions. But OR used math to make decisions. Math is deductive. Truth-telling. Final.

I was not the only one confused and disappointed by the name “Operations Research”. As I talked to more and more OR people, I heard a similar sentiment: “OR is a great field, but it’s badly named”. Despite this, “Operations Research” seems to have stuck.

For now, let’s agree it’s a bad name. So why was it used? Early on as an operations researcher, I had a vague sense that the name “Operations Research” had historical roots—something to do with World War II. I thought I knew the basic story: there were military operations like bombing runs or naval deployments, and people used fancy math to optimize them. The story I’d heard—and probably repeated—was

¹In 1958, the following was published in a letter from W. M. Chow in Volume 6 Issue 1 page 130 of *Operations Research*: “The following bit of information was discovered by accident: ”Directory of Newspapers and Periodicals,” 1957 Edition, published by N. W. Ayers and Sons, Philadelphia, lists on page 1458, Operations Research, Journal of the Operations Research Society of America, under the classification of “Medical and Surgical”.

that “OR started when linear programming won the Allies the war.” Turns out, linear programming was only invented *after* the war.

I overcame these misperceptions by reading the book *Rational Action* by Will Thomas.² Thomas tells the story far better than I can here, but let me give it a shot.

Science and technology didn’t just matter in World War II—they defined it. Blitzkrieg on one end. The atomic bomb on the other. Any country hoping to contribute to their side of the conflict needed to invest in—and deploy—new technologies of war. Moreover, World War II was a *total war* for Britain. Everyone in that country participated in the war effort—scientists, lawyers, engineers, mathematicians. This deployment of technology wasn’t a one-step affair. It was a relay race with multiple hand-offs. Since everyone in the society was involved, there were a lot of people eager to take on the work. Take the example of radar during the Battle for Britain. Physicists designed it. Engineers built it. But someone had to place the radio towers, aim the beams, and train the operators. Finally, someone had to ask: Did it work as intended? Were planes spotted sooner? Did it save lives? Answers to these questions shaped strategy and sometimes redesign of the radar systems themselves. This final step—the on-the-ground evaluation and experimentation—was called “Operations Research”.³

Many early operations researchers weren’t mathematicians. Indeed, many of the earliest successful applications hardly involved any math. Arguably the most famous early operations researcher, Patrick Blackett, was an *experimental* physicist, not one for chalkboard theory. In his own words, Blackett describes operations research as

... the analysis of actual operations using as data the material to be found in an operations room, e.g. all signals, track charts, combat reports, meteorological information, etc ...[T]hese data are not, and on secrecy grounds cannot, in general, be made available to the (service) technical establishments. Thus, such scientific analysis, if done at all, must be done in or near operations rooms.⁴

Blackett draws a clear line: theory stayed in labs; operations research lived in the field. The domain of the “operations room” was data and lots of it. Blackett sometimes even embedded members of his operations research team with military personnel on missions to collect *even more* data.

One of Blackett’s most famous wartime studies was deceptively simple. Allied ships were dropping depth charges to sink German submarines—but they weren’t hitting much of anything. The charges were set to explode too deep. Blackett’s team pored over battle reports, diagrams, and debris patterns. They noticed that submarines were often damaged nearer to the surface than assumed. So they ran a field experiment: set the charges to explode at shallower depths. Hits improved. So they adjusted again. Then again. No math model. Just data and experimentation.

Early operations researcher Omand Solandt, reflecting on his experiences of operations research during the war, said it plainly:

I have ... described a very simple method of operations research, one in which the essential features are observation, measurement, and experiment, and I have also emphasized that

²Thomas, William. *Rational Action: The Sciences of Policy in Britain and America, 1940-1960*. MIT Press, 2015.

³Or more accurately, “Operational Research”, as it is still known in Britain.

⁴P.M.S. Blackett, *Studies of War: Nuclear and Conventional*, Hill & Wang, 1962, page 171.

very often the most difficult part of the process is first to find out what should be measured and then to devise a means for measuring it.

I have been quite disturbed at some recent meetings on operations research to hear so much talk about the mathematical methods for the manipulation of data; to my mind, I have heard far too little discussion of methods for collecting data and of new data that have been collected. At one meeting that I attended not long ago, I felt as though someone had advertised a school for carpenters, but then, when the students turned up to learn carpentry, they were being taught how to make a saw or a hammer.⁵

At the beginning, the word “operation” did not refer to a mathematical operation or a hospital procedure, but to a military “operation”—a mission, a maneuver, a coordinated effort. Think “Operation Rolling Thunder” or “Operation Overlord”. Each one was a planned sequence of actions in the field that needed to be studied carefully. It was the data that could inform the next mission. Operations research studied the results of these operations *in action*. If a strategy failed, they’d suggest a new one based on data *from the field*. They’d look for patterns, test hypotheses, and apply scientific reasoning to improve outcomes. It wasn’t “applied mathematics to business”. It would be a stretch to call it applied mathematics at all.

They were field scientists.

Observers.

Experimenters.

They were researchers of operations!

The name fits. What else could you call it?



⁵O. Solandt, 'Observation, Experiment and Measurement in Operations Research', *Journal of the OR Society of America* (now *Operations Research*), Vol. 3 (1955), 1-15.