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Lessons Learned — Why the Failure of Systems Thinking Should Inform the Future of Design Thinking

"You never learn by doing something right 'cause you already know how to do it. You only learn from making mistakes and correcting them." Russell Ackoff

**BY FRED COLLOPY**

06.07.09 | 3:16 AM

"You never learn by doing something right 'cause you already know how to do it. You only learn from making mistakes and correcting them."

Russell Ackoff

Design and "design thinking" is gaining recognition as an important integrative concept in management practice and education. But it will fail to have a lasting impact, unless we learn from the mistakes of earlier, related ideas. For instance, "system thinking", which shares many of the conceptual foundations of "design thinking", promised to be a powerful guide to management practice, but it has never achieved the success its proponents hoped for. If systems thinking had been successful in gaining a foothold in management education over the last half of the 20th century, there would be no manage by designing movement, or calls for integrative or design thinking.

Systems thinking, as written about and practiced by Russell Ackoff, C. West Churchman, Peter Checkland and others, contained within it many of the impulses that motivate the application of design ideas to strategy, organization, society, and management. Ideas such as engaging a broad set of stakeholders, moving beyond simple metrics and calculations, considering idealized options and using scenarios to explore them, shifting boundaries to

reframe problems, iteration, the liberal use of diagrams and rich pictures, and tirelessly searching for a better set of alternatives were all there. If the business and management community had bought it, we would not be having the many discussions about design, design thinking, and expanding management education to engage the intuitive, to embrace values, to look beyond available choices. We would already be doing all of that and more. But systems thinking, despite its wartime successes never really captured the imagination of business leaders. And we must learn from its mistakes.

I have been an enthusiastic student and teacher of systems thinking for almost three decades. I was a student of Russ Ackoff's and I did my PhD in decision theory largely because of the work of pioneers in cybernetics and systems theory. I have taught systems thinking to undergraduates, MBAs, and executives. I have heard their objections to the arbitrariness of any particular system's boundaries, to the impossibility of balancing the incommensurable objectives of a system's many stakeholders, and to the difficulty in identifying clear measures of a system's performance. Still, many of my students over the years have found much to take away. And I receive email messages years after those courses have been completed that suggest that the ideas and techniques are useful and important to some students.

Systems thinking started with an impulse that insights from Gestalt psychology and biology might be useful in understanding and affecting complex organizational and social problems. It developed into a large, highly interconnected theory that is itself a complex system. Systems thinkers remain convinced that if managers saw things through the lens of that theory, the world would become better. But the number and sequence of things that must be done has become so arcane that to master it seems all but impossible to the managers in question.

I recently spent two days at a workshop with around a dozen architects and managers. The facilitator was one of Russ Ackoff's former colleagues at the Wharton School. It is a reflection of what has become of systems thinking that it took most of the two days for the facilitator to explicate all that he thought we needed to know before we could begin either critiquing or applying the ideas. In addition to obvious material on the nature of systems, we learned about chaos theory, living systems theory, Santiago theories, the four foundations of systems methodology (holistic thinking, operational thinking, interactive design, and socio-cultural models), five systems principles (openness, emergent properties, multi-dimensionality, counter-intuitiveness, and purposefulness), the five interactive dimensions of social systems (wealth, beauty, power, value and knowledge) and the related five dimensions of an organization (throughput processes, membership, decision, conflict management, and measurement), the elements of a throughput system (time, cost flexibility, quality, measurement, diagnostic, improvement and redesign), the nature of holistic thinking and iteration, the laws of complexity, loops and feedback, and more.

All of this was presented as foundational knowledge that was necessary before we could get to what it was that brought most of us (or at least me) to this particular workshop — designing for human interaction. In addition to the number of frameworks and ideas, and the density of the interconnections among them, there was a strong normative quality to the material and its presentation. “If one hopes to make any progress at all,” we were told, “you need to both understand and accept these related ideas.”

This particular version of systems thinking is not unusual in this respect. Peter Senge’s 1990 edition of *The Fifth Discipline* describes one manager’s reaction to a five-day introductory workshop on his approach, which among other things, requires growing comfortable with eight archetypes: “It reminds me of when I first studied calculus (p. x).” Systems dynamics, the Soft Systems Method and other approaches face similar concerns.

Each of systems thinking’s various manifestations demands some degree of subscription to an orthodoxy (a particular view of just what systems thinking is). And each requires that the user master a large number of related ideas and techniques, most of which are not particularly useful on their own.

These requirements are at odds with how we tend to acquire new knowledge. Rather than accepting a new idea because we must, we like to try it out. A new skill is most likely to interest us if it contributes to both short-term and long-term learning objectives. And the easier it is to try out parts of a theory, the more likely we are to jump in.

The drive to nail “design thinking” down has the same normative flavor that has restricted the spread of systems thinking. The urge to create a framework that specifies what and how a design thinker proceeds seems not just futile but dangerous to the survival of a movement aimed at expanding the kinds of thinking that managers, policy makers and citizens engage in.

What is the alternative? I would suggest that we should focus instead on building and describing an arsenal of methods and techniques, many of them drawn from various extant design practices, that are applicable to the domains and problems in questions. Describing these techniques as well as the conditions under which each is of value would constitute an invaluable program of research.

You might think of the various pieces of knowledge that we produce as a component in a kind of intellectual scaffolding that can be used to support the efforts of others. Rather than having each flavor of “design thinking” rushing off to build its own comprehensive model of what “real design thinkers” do, we might better spend our energy on identifying what is useful in what we have tried or seen done, the conditions under which it seems to break

down, and so on.

In addition to engaging a much larger community in knowledge-sharing, such an approach will provide the users of design thinking with “trial-size” access to a growing body of knowledge. One wouldn’t have to buy the whole of “design thinking”, for example, to accept that there are places in management where sketching could help out, or that for a large class of problems spending more time on problem framing and reframing will pay dividends down the line. In time, each manager will do what we have learned designers do, adopt those methods, techniques and ideas that best suit their own personal style and the nature of the problems that they typically encounter. In the end then, rather than learning and subscribing to a theory or system of thought that is based on ideas from design, managers and policy makers will become designers of a sort particularly suited to their circumstances.

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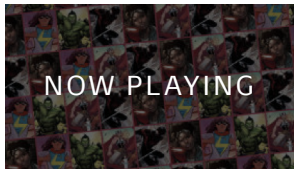
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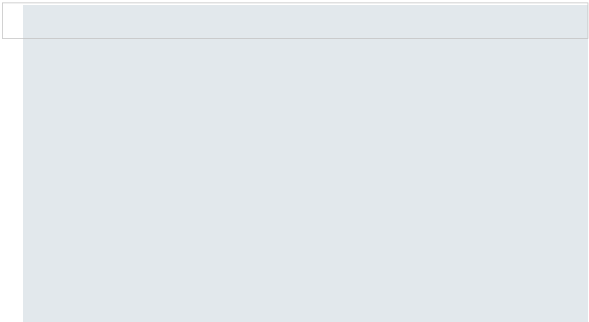


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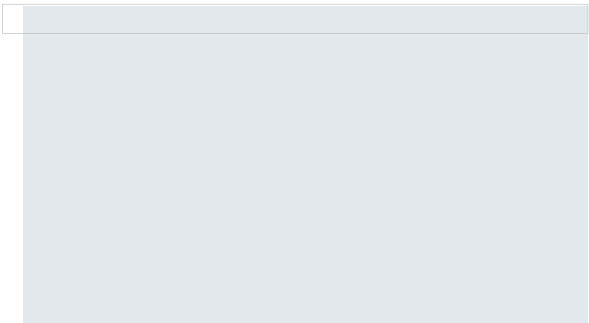
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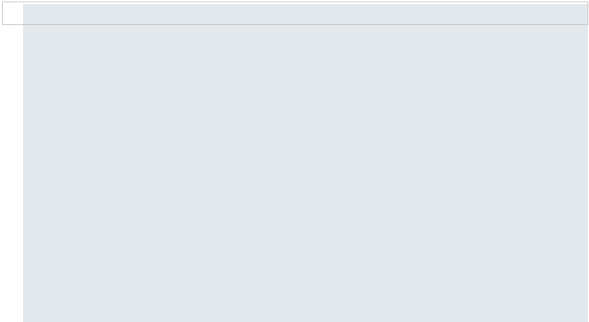
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Five Things I've Learned As A New Manager At Google

One Googler explains how she's learned not to (just) be a “crap umbrella” for her team members.



[Photo: David Marcu via [Unsplash](#)]



BY AMBER YUST

04.16.17 | 5:00 AM

Nine months ago, I became a people manager for my team of privacy engineers here at Google. Since then, I've learned a lot about what it takes to be a manager. As it turns out, there are some things that aren't necessarily obvious when you step into a management role for the first time. Here are a few of the biggest lessons I've learned firsthand.

IT'S OKAY NOT TO KNOW EVERYTHING

Before I became a manager, I felt pretty secure in the knowledge that it wasn't my job to know everything. I had my own areas of focus and could rely on others to deal with things outside my own scope. But once I became a manager, I felt much less sure about this conviction. Were my reports going to expect me to know everything I'd earlier considered beyond my scope?

Fortunately, they didn't. I've started to take a broader view of what's going on in my own engineering organization, but that still doesn't mean I need to know everything myself. Instead I've focused on knowing the *people* who know things. My team knows that they can bring questions to me, and I'll get them an answer or point them to somebody who can.

NEVER HESITATE TO LEAN ON YOUR PEERS

Advancing as an individual team member usually means doing the same stuff at an ever-increasing scale, bit by gradual bit. Becoming a manager isn't like that. You're more or less dropped into the deep end. Suddenly, there are lots of things you've never had to do anything remotely similar to before. But I found that my fellow managers were an invaluable resource for getting myself up to speed—as long as I was willing to ask.

I've had run-ins with [imposter syndrome](#) before, and being a woman in a male-dominated industry hasn't always helped. Coping with that required convincing myself I could “fake it 'til I make it” (in retrospect, I had definitely *already* “made it”—it just didn't feel that way at the time). As a manager, I wasn't willing to employ the same strategy—the stakes were too high. My overriding need to “get it right” helped me to just ask those “stupid” questions. I'm glad I did.

Related: [3 Crucial Things I've Learned In My First 30 Days As A Manager](#)

LISTEN MORE, NOT LESS

After becoming a manager, you might expect others to spend more time listening to you. My experience so far is that the best results come from doing the exact opposite: spending more time listening to *others*. I try to spend as much time possible in my one-on-ones, listening to what my team members have to tell me. Meanwhile I try to keep my own feedback and advice to them as concise as I can.

Amber Yust [Photo:Tory Putnam]

The single most insightful concept I picked up during Google's training for new managers was how to be an effective coach. One non-obvious key to getting that right, I learned, is letting the person you're coaching discover their own answers. That takes a lot of [active listening](#) and very little speaking. In the past few months, I've gotten a lot better at resisting the strong temptation to just tell someone what they should do, and I've already seen how it pays off in the long run by helping others sharpen their own instincts and become more self-guided.

DON'T (JUST) BE A "CRAP UMBRELLA"

I've heard effective managers described as "crap umbrellas," shielding their team members from the stuff that prevents them from doing useful work. The best managers I've ever had were extremely effective at shielding me from crap, so that made a lot of sense when I heard it. The thing that *truly* made them great, though, was that they didn't just put up a brick wall. They made sure to keep me involved in the important parts of whatever we were working on together, while filtering out the distractions.

Now that I'm a manager, I try hard to do the same. Listening to my team members helps me figure out where they do and don't want to be involved. That way I can be an effective shield for my team without isolating them from the larger organization.

Related: [I Joined Google At 19—Here's What I Learned](#)

LOOK FOR SMALL WAYS TO LEND SUPPORT—BEFORE YOU'RE ASKED TO

Finally, I've learned quickly how to be more proactive in the way I offer support. Instead of waiting for my team members to ask me for something, I try to anticipate what they need to know. This isn't limited to strictly work-focused needs, either—it also extends to emotional support and quality-of-life issues. During a particularly stressful week for the LGBT community a while back, my own manager proactively reaching out with a word of sympathy meant the world to me. I knew I wanted to try and do the same for my own team once I became a manager.

Even small gestures, like asking a new report if they have any dietary requirements before planning a team lunch, can go a long way in building psychological safety. In fact, [Google's re:Work effort identified psychological safety](#) as the foundation on which all other qualities of high-performing teams are built. So simple gestures like these are deceptively powerful opportunities I've tried to take advantage of wherever I can.

I've found out firsthand how important it is for new managers to continue to learn and grow. When you're in charge of a group of other people, you're a force-multiplier for your team; every way you yourself can improve has a disproportionate overall benefit. That responsibility can be a bit scary, but seeing your team succeed is incredibly satisfying. I'm glad I took the leap.

Amber Yust is a privacy engineering manager at Google.

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Three Habits Of The Best Job Candidates I've Ever Interviewed

Take it from an experienced recruiter: Making a great impression isn't rocket science, but it's easy to get wrong.



[Photo: Rawpixel Ltd/iStock]



BY SARA MCCORD—THE MUSE

Tell me if this sounds familiar: You continually make it to the interview stage, and then—crickets. You have the skills to get in the door, but for some reason, you stall out when it comes to getting the offer. It's super frustrating, and you can't help but wonder why.

As someone who was responsible for recruiting and interviewing applicants for fellowship openings at organizations nationwide, I can tell you it's true that being qualified isn't always enough to edge out the competition.

So how do you become one of those people the hiring manager will fight for when it comes down to just two qualified people? The answer is simple: Build a real connection with your interviewer. Without a doubt, that was what made me pick one similarly qualified applicant over another. (I'm only human, after all.)

Doing this is easier than you think—in fact, all the applicants who “connected” with me during the process only had to do the following:

1. THEY MAKE IT CLEAR WHY THEY FIT THE ORGANIZATION

It's fair to think of an interview like a test. After all, someone's asking you questions and judging you based on your answers.

However, this mind-set will backfire. That's because you ace a test by studying up and giving the right answers. But the “perfect” answers are almost never the best in an interview situation, because they make you sound like everyone else. If you say you want to work at a company because it's number one in its field—and leave it there—odds are you're giving the same answer as others.

The trick is to push yourself a step further and make sure you figure into your reply. For example, I interviewed a candidate, who in discussing her commitment to public interest work talked about efforts to raise awareness about sexual assault on her campus. While it wasn't directly relevant to the role she was applying for, it showed that she volunteered on causes she cared about—and that's the sort of civically engaged applicant we were looking for.

So work into your answers a few stories that show why you're interested in the company. Often when you relay a story, you share more about how you think—and that helps the other person feel like he or she's getting to know you. Plus, it feels like a more genuine way to talk about yourself.

2. THEY SHOW THEY'RE LISTENING

You know that asking questions at the end of your interview is a great way to build a connection. However, posing them is not enough.

The crucial next step is to actually listen to the answer. I know, it sounds obvious. But you wouldn't believe how many people asked me something, and then when I finished dove right into an unrelated next question without even taking a breath. This made me feel like they had no interest in what I had to say, and just wanted to score points.

Conversely, I was always impressed with the applicants who listened close enough to what I said to ask an unrehearsed follow-up question. Too nervous to think on your feet? It can be as simple as saying "Can you tell me more about [something the interviewer just said]?"

When you listen, it becomes a two-way exchange. That makes your interview feel more like a conversation, which boosts the likelihood of feeling connected.

3. THEY WRITE THOUGHTFUL THANK-YOU NOTES

Another way I knew a candidate was listening was if they referenced something I said in their follow-up.

Some people will tell you that all that matters about thank-you notes is that they're sent. And it's true that simply following this rule would put you leagues ahead of those who forget. However, I always appreciated one that went the extra mile and discussed something specific to the conversation.

Ask yourself: Did you learn anything new during the discussion? Was there a story they seemed especially interested in (by asking more)? Or something you feel you only touched on that you could've discussed further?

Let these answers guide your message. It'll give you something meaningful to say between "Thank you for taking the time..." and "I look forward to hearing about next steps." Plus, it'll reinforce the connection you started to build.

Pro tip: In addition to sending an email within 24 hours, also send a handwritten one so the hiring manager will be reminded of you fondly a few days after the fact.

It's not enough to just have the skills or passion. The candidates who rose to the top of my list also took the time to connect with me, to make it clear they saw me as a person, and not just an obstacle standing between them and the position. And because of that, it was easy to say

to my team, “This person is the right one for the job!”

A version of this [article](#) originally appeared on [The Daily Muse](#). It is adapted and reprinted with permission.

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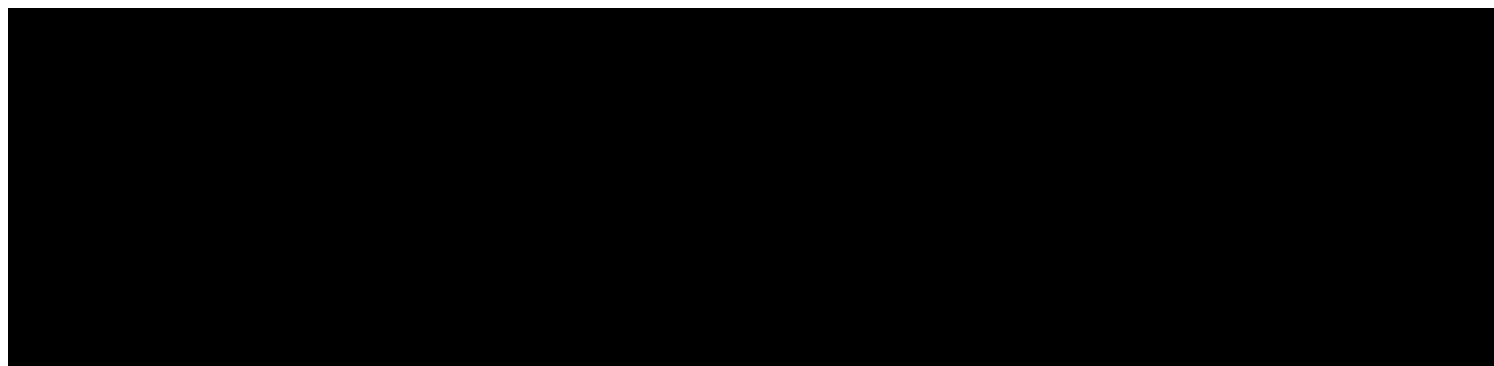
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4 MINUTE READ

Before-And-After Photos Show How Horrifically Fast The World's Glaciers Are Melting

Climate change becomes a lot less theoretical when you can see it happening before your eyes.





1/10 The Mendenhall Glacier, Alaska. [Photo: James Balog/GSA Today/Geological Society of America]



BY ADELE PETERS

04.06.17 | 6:30 AM

In 1850, there were 150 glaciers in Glacier National Park. Now there are 25. Within 15 years, scientists project, all the glaciers may have melted away.

Similar melting is happening around the rest of the world (though other glaciers may survive a bit longer). A set of before-and-after photos [published](#) in the Geological Society of America's *GSA Today* journal documents some of the changes. In Alaska, the melting Mendenhall Glacier shrank nearly 1,800 feet between 2007 and 2015. In Switzerland, the Trint Glacier retreated twice as much over roughly the same period. In Peru, the Qori Kalis Glacier shrank more than 3,700 feet between 1978 and 2016.

The Trift Glacier, in Switzerland, retreated about 1.17 kilometers from 2006 to 2015. [Photo: James Balog/GSA Today/Geological Society of America]

Researchers collaborated on the paper with photographer James Balog—featured in [the documentary *Chasing Ice*](#)—who began traveling to photograph glaciers in 2007 in the [Extreme Ice Survey](#).

“It’s very hard to cast the photographic evidence aside as being an opinion,” co-author Patrick Burkhardt, a geology and geography professor at Slippery Rock University, tells *Fast Company*.

The Extreme Ice Survey team has placed cameras in 36 remote locations in the Rockies, the Andes, the Alps, the Himalayas, Iceland, South Georgia, Antarctica, and Alaska. The custom

kits are designed to automatically take photos every half hour during the day. The team periodically travels to collect the memory sticks inside.

Some of the photos have been used by researchers studying glaciers, though Balog began taking them as a way to viscerally communicate the effects of climate change to the public.

The Solheimajokull glacier, in Iceland, retreated about 625 meters from 2007 to 2015. [Photo: James Balog/GSA Today/Geological Society of America]

“I realized that, yes, glaciers are the canary in the global coal mine, and they’re definitely a way we can see and touch and hear and feel climate change in action,” he says. “I want to make that immediate and comprehensible for the general public. A lot of the climate change that goes on in the world is not very visual—it’s subtle. The air is changing around you, this invisible substance, and weather conditions around you change, but they’re changing over time. They’re changing over a lot of time. It’s hard to express climate change visually.”

The photos make the speed of change in the cryosphere—the portion of Earth covered in ice—obvious. Those changes are happening faster than researchers initially predicted. “Our thoughts from a decade ago are being exceeded by what’s happening today,” says Burkhart. “Our thoughts from two decades ago were being exceeded by what was happening a decade ago. The loss of ice is accelerating.”

“There’s the old expression ‘glacial pace’—you know, that glaciers aren’t supposed to do much,” says Balog. “Nothing much is supposed to happen when you look at a glacier. But these pictures have demonstrated that that’s an oxymoron. There isn’t any such thing as glacial pace because they can be quite reactive and quite responsive to the environment around them.”

The glacial retreat is being driven by climate change, primarily warmer air temperatures. For glaciers that flow to the ocean, warmer sea water and changing ocean currents also play a role.

As the ice melts, some of it contributes to rising seas. It also shrinks a critical source of drinking water in some communities. Burkhart has studied the risk in the Andes in particular.

The Stein Glacier, in Switzerland, retreated about 550 meters from 2006 to 2015. [Photo: James Balog/GSA Today/Geological Society of America]

“The people who pull their drinking water from rivers fed by glaciers are very cognizant that

when these rivers are gone, they're going to get drier during drought and during summer months," he says. "Those people look at the loss of ice really with desperation, knowing that tremendous challenge is coming their way. Because if they had an alternative water supply, they probably would have turned to it already."

While glacial retreat may be difficult to stop now, even if the world takes aggressive action to cut climate pollution, the photographs of disappearing ice can help convince the minority of people who doubt that climate change is occurring.

"I've had people who were in the oil and gas industry come up to me and say, 'Well, I really just thought this whole thing was a bunch of liberal progressive stuff . . . and I didn't believe it because I thought it was tied to those sorts of agendas,'" says Balog. "But you seem like a straightforward guy and you brought me information I can understand, and I'm converted. I get it."

After 10 years of working on the Extreme Ice Survey, the team plans to continue. Earth Vision Institute, the nonprofit that runs the program, is currently trying to raise money to return to some of the areas the team hasn't been able to document in recent years (each journey is both expensive and dangerous). It hopes to add more cameras in some locations to help researchers better calculate the loss of ice. Balog also travels giving lectures, trying to share the images and story with as many people as possible.

"People are always saying, 'Do you believe in climate change?'" he says. "My answer is always, 'I do not believe in climate change. Belief is about ideology. Belief is about dogma and doctrine. And the problem with the climate change discussion in this country is that the reactionary forces have been extremely eager to turn it into a question of dogma, doctrine, and belief. I think climate change is an issue with evidence. And if we look at the evidence rationally we can comprehend it. We can see what's happening.'"

ABOUT THE AUTHOR

Adele Peters is a staff writer at Fast Company who focuses on solutions to some of the world's largest problems, from climate change to homelessness. Previously, she worked with GOOD, BioLite, and the Sustainable Products and Solutions program at UC Berkeley. [More](#)

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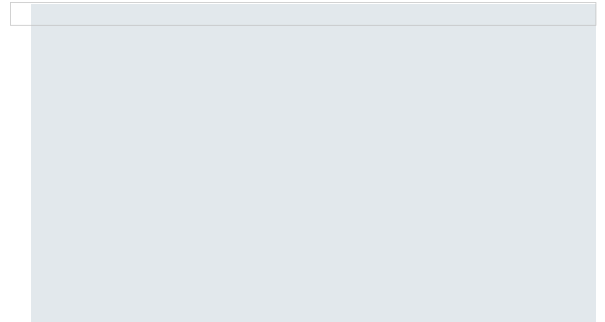
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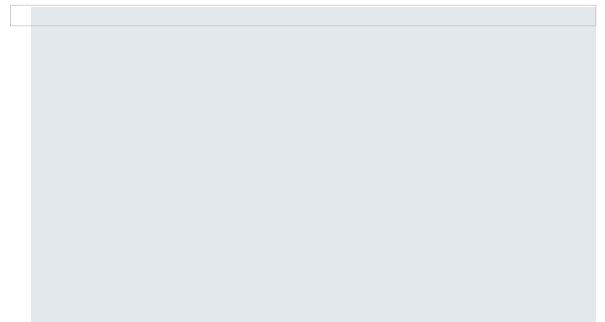
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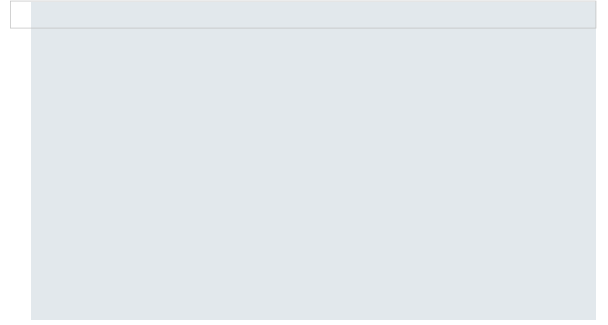
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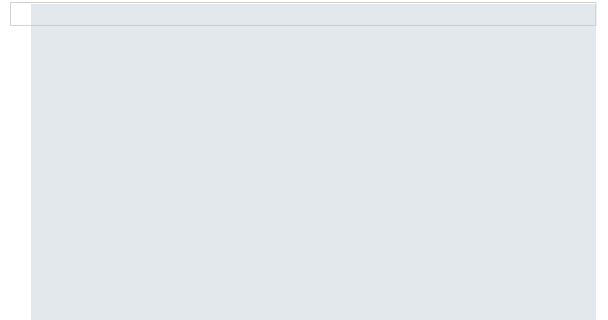
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