MindAntix Study

How Gender Bias Limits Innovation And What Technology Leaders Can Do About It

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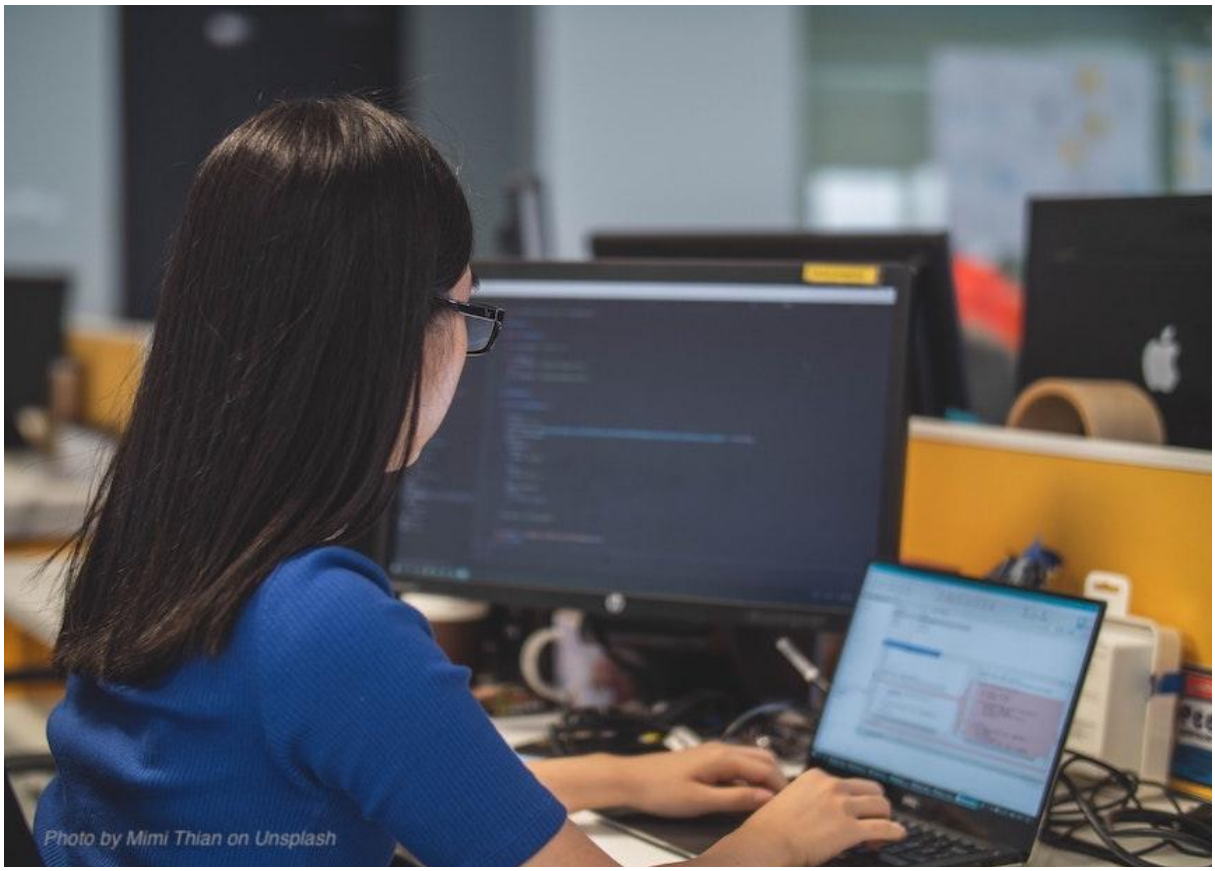

Abstract

In the rapidly changing environment of the 21st century, organizations have to be innovative and adapt in ways that they had previously not imagined. Diverse organizations have the potential to be more innovative but without the right mechanisms in place, they fail to capture employee innovation. In this study, we look at how gender biases impact innovation in the technology industry and suggest strategies leaders can adopt to make their cultures both innovative and inclusive.

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Introduction

In a technology-driven, fast-paced VUCA (Volatile, Uncertain, Complex and Unambiguous) world, products and business models face the constant threat of replication or irrelevance. In order to survive the fierce competitive pressures, organizations have to rely on innovation. The better an organization is able to harness employee innovation, the stronger its competitive advantage over others.

One of the most touted methods to improve organizational innovation is by increasing diversity. Diverse groups generate more novel ideas and have a higher potential to be innovative. However, simply increasing diversity numbers is not sufficient to ensure that outcomes will be more innovative.

The presence of unconscious biases in diverse groups complicates the process. Every bias acts like a filter that clouds cognition and impairs decision making. While day to day decisions made in small groups might seem small, they have a cumulative effect at an organizational level. Understanding how these routine interactions impact innovation can lead us to strategies that create smarter and more inclusive cultures.

In this study, we look at one type of unconscious bias – gender stereotypes – and how they impact organizational innovation. While many companies are taking DEI (Diversity, Equity and Inclusion) issues seriously to improve gender and other diversity measures, our study indicates that these measures aren't enough from an innovation perspective.

Gender bias not only disproportionately impacts women's growth but it also costs companies in terms of lost revenue, lower efficiency and reduced innovation. Our study shows that organizations grossly underestimate this cost, in part because they don't track these issues.

By taking deliberate actions to improve group norms and decision making processes, companies can recoup this cost. The advantages of doing so are two fold - organizations not only become more innovative and productive, they also become more inclusive for everyone.

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Methodology

We used qualitative research methods to understand the impact of gender biases on women's abilities to contribute to the innovation pipeline. We interviewed 13 women employed in the technology industry in the Pacific Northwest about their experiences with gender, innovation, culture and DEI efforts. Each interview lasted for approximately an hour.

Once the interviews were completed, all responses were coded and categorized. Themes about the challenges women face emerged when more than 30% of the respondents reported experiences in a category. We then analyzed these themes through the lens of research in creativity and innovation in order to identify organizational strategies that can mitigate the impact of gender bias in the workplace.

About The Participants

For this study we selected mid-career women, with a demonstrated record of high competence who are making substantial contributions to their groups. They came from diverse career paths - from staying with one company and building deep expertise in an area to founding startups after leaving mature companies. All of them consider themselves to be comfortably above-average when compared to their peers. A few examples showcase the type of participants in the study:

- ***A*** is currently working in a mid-size technology company and was hired by her team for her expertise in a cross-platform technology stack. She is an industry expert in that space and has presented her work in technology conferences. Prior to hiring her, the team had struggled for over 2 years to re-architect their product to use the latest technology and had not been able to make concrete progress. Once ***A*** joined, she successfully re-architected the technology stack, built a thorough proof-of-concept while training others on her team, all within six months.
- ***B*** is an engineer currently working on a new startup after successfully exiting her last one. At one point, she was brought in as a growth expert to help another startup experiencing scaling issues. ***B*** understood the problem right away and recommended collecting specific data to prove/disprove her hypothesis, but was

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repeatedly ignored. After 2 months on the project, ***B*** went ahead and implemented the instrumentation herself and showed the data to the founding team. The founders then sharply pivoted to the direction she had proposed all along.

- ***C*** has worked with a Big Tech company for most of her career and has built substantial expertise in a deeply technical area of security. She has become a 'go-to' person in this space for all strategic decisions irrespective of organizational boundaries. ***C*** routinely uses her subject matter expertise and industry contacts to do the right thing and benefit her company.

General Observations

Before we do a deep dive into the study, a few observations that came up multiple times are worth highlighting:

- Almost all the women we talked to were appreciative of current DEI efforts that their companies and the industry in general have undertaken. These efforts have raised awareness and they see instances of leaders and peers being more deliberate in their actions (e.g. being conscious about not interrupting women). However, women expressed that the focus of DEI efforts has been more on public facing metrics (e.g. number of women overall and in leadership) but not enough concrete steps are being taken to address systemic issues that impact women.
- Women in our study were confident in their abilities and competence. They expressed a need for strategies that make things fair for everyone (including other marginalized groups) and not special concessions for women.
- Due to gendered perceptions of women's competence in technology, the impact of unconscious biases were much more pronounced in core technology areas. Women in the technology industry working in non-engineering roles reported significantly less bias, while women in software development faced the most. One woman leader, who interacts with both engineering and non-engineering teams, noted the difference in bias levels between the two teams she sees. Immigrant women, especially women with an accent, faced more bias than others.
- Women (and others) have a hard time figuring out if a negative interaction is gender motivated or not. Gender bias becomes clear only when you zoom out and take a statistical approach. Women tend not to escalate individual incidents for three

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reasons: one, attributing it to gender bias is not obvious as people can always find some way to rationalize the behavior; two, the high frequency of such incidents makes it impractical to raise every issue; and three, women don't want to feel like the victim all the time and often find alternate explanations to take the focus away from gender issues. As one participant put it, "*I try not to delve into these issues. If I focus less on them, then it's better for my mental health.*"

Organization Of The Report

This report is organized as follows. In the first section of the report, we outline the challenges that women in technology report from an innovation perspective and the coping mechanisms they use to overcome them. We then analyze the cost – ***Gender Innovation Tax*** – that organizations and employees pay as a result of these issues. Next, we discuss the mechanisms underlying these challenges in order to demystify why some strategies fail to work adequately (e.g. *"I keep coaching junior women to speak up more but it's not working", "Women aren't using the raise-hand feature to speak in meetings"*). We explain this through cognitive and psychological mechanisms that underlie creative thinking. Finally, we identify strategies organizations can use to move towards sustainable and innovation-focused cultures, that additionally reduce the impact of gender bias in the workplace.

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Section 1: Challenges Women Face In Innovative Work

In our study, many women reported that while current DEI efforts are a step in the right direction, the focus has been quite narrow. The primary metric most organizations use to measure progress is the number of women hired, because it is an easy, public-facing metric to track. Women also expressed that internal efforts are geared more towards raising awareness and how to talk about issues, but not enough on actions. As a result, they find that people often say the right things but their actions show bias. Overall, women conveyed a need for an expanded set of metrics including retention, growth and experience past the hiring phase.

From our interviews we found that gender biases still impact women's ability to contribute effectively towards group innovation and problem solving. These barriers start from the earliest phase of ideation all the way to implementation and beyond, and make it harder for women to be an integral part of the innovation cycle. This creates a stressful environment for women as they have to overcome a higher friction in order to get their work done.

To Say, Or Not To Say

One of the biggest barriers faced by most women we interviewed was being able to effectively share their ideas in a group setting. The more male-dominated and technology-focused the group, the harder it was for women to participate in ideation and brainstorming.

Women often brought up the physical advantage that men have - being larger, men's presence is more noticeable and louder voices also tend to dominate conversations. Introverts, petite women, and women with accents had the hardest time bringing their ideas to the table.

Women also hesitate to ask clarifying questions lest they be considered naive or incompetent by others in the group. One participant, a software engineer, explained this behavior through a fairly routine situation that occurs in her group. When a man asks clarifying questions during troubleshooting, his competence is not questioned and others

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jump in to provide him the context. Overall, he comes across as a problem solver. The women, on the other hand, don't get the same courtesy. If a woman asks a clarifying question, she is considered naive and schooled about the underlying technology. As a result, women have to think twice before asking questions and they have to make sure their question is worded in a way that doesn't make them appear ignorant.

The worry around sounding impractical occurs in product ideation as well. A woman leader shared an incident where her team was brainstorming about future product ideas and had already established the basic ground rules (being non-judgemental, sharing crazy ideas). Yet, the women in the team barely spoke for the entire meeting. Towards the end of the meeting she explicitly asked the women if they had anything to share and was surprised when they suggested several useful ones. Their ideas turned out to be more immediately applicable (and ended up getting implemented) compared to men's which were more futuristic and risky.

> “
>
> Women still have to be 200% sure before offering their idea.

Coping Strategies

How are women making sure that their ideas land? Almost all the women we talked to reported having to resort to one or more of the following methods in order to be taken seriously in meetings.

- **The Pre-Meeting Meetings**: One strategy women use often to have their ideas considered seriously, is to have offline meetings with key stakeholders where they can discuss their ideas and garner support before a bigger group meeting. As one participant commented, without doing this extra leg-work, "*in the moment you can be overpowered and overruled.*"

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- **Back Up With Research and Data**: Women also reported spending a lot of time gathering data or research to back up their ideas before proposing them. One participant said that she proposes only concrete, measurable ideas and "*without data I get exponentially more pushback.*"
- **Using Managerial Support**: Keeping supportive managers informed about challenging personalities and inviting them to key meetings was another approach women used to make progress on their work. As one woman put it, "*with the support of a senior person, others quickly fall in line.*"

Women's Ideas Are Treated Differently

Once women go past the initial barrier of getting others to listen to their ideas, the next obstacle they face is the differential scrutiny their ideas invite. Research shows that women's ideas are more often devalued and dismissed. Our interviews confirm that - in some cases women's ideas are challenged more and in other cases they are dismissed without sufficient debate. Two examples below showcase this problem:

- One interviewee shared her experience driving consensus on a big and tricky architectural change that she was proposing to her peers for which she had built a proof of concept (see profile ***A*** in 'About The Participants' section). While everyone acknowledged the big contribution she was making ("*we were not able to do this before*"), they nitpicked on little details or gave gratuitous advice ("*make sure to capture this in the design doc*", the next step in the process that she was well aware of). Their collective behavior came across to her as passive-aggressive. Her manager was equally shocked at the way she was challenged for relatively trivial things and asked her later "*do you think it's because you are a woman?*"
- Another interview expressed frustration at how men tend to rally around other men's ideas while women's ideas get a lukewarm reception. When women present ideas, they get a polite "*It's an interesting idea*" and the group moves on, but when a man presents an idea it immediately gets more momentum with "*yeah, that's a really good idea - we should definitely think about this more <followed by more discussion>*". This creates a challenge as you rise up to senior levels in the organization. As the participant explained, "*Senior women have to influence more and if your idea is dismissed more often, it directly affects your ability to create impact.*"

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> Pay is no longer a gender issue, at least in Big Tech. The bigger discrimination now is opportunity of ideas - which ones get sponsored and which ones don't.

Coping Strategies

The primary way women deal with this is through relationship building. Men get away primarily on the merit of their idea while women have to build supportive relationships in addition to focusing on ideas. One woman leader pointed out that you have to start building relationships and allies early as the process takes time. When you start with a new team, your effectiveness at driving ideas is lower because you don't have the relationships built up. This is different from the "pre-meeting meetings" or managerial support type of advocacy, which were specific to the task at hand. This relationship-building has more to do with reducing women's outsider status (see Section 3 for more details).

Another participant shared that she works really hard to establish good relationships with her managers through her strong work ethic. As a result, she has had a few instances where her managers have stood up for her when needed.

> Women have to create more advocates for themselves.

Women's Accomplishments are Undervalued

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Women's accomplishments don't always get the credit they deserve both formally and informally. The cost of formal lack of credit is obvious - it leads to fewer promotions, merit-based bonuses and slower career growth. The lack of social recognition on the other hand, is also equally harmful. It demoralizes women and negatively impacts their intrinsic motivation, an important ingredient for creative thinking.

The examples below showcase different ways this problem manifests:

- One participant, a solo startup founder, had a conversation with an investor after a pitch event. In her pitch she had shared statistics indicating the initial success of her app. However, the investor flat out told her, "*I don't believe that you got 100K downloads - you must have bought downloads from offshore*". Her app went on to become one of the most downloaded apps in that category and she successfully exited her startup a few years later.
- Even when women are the subject matter experts, others on the team don't reach out to them for advice. This creates a problem especially when leadership looks at social proof to gauge competence. One interviewee, who was denied promotion, was told by her VP that she was not the go-to person (based solely on their observation). This becomes a chicken and egg problem - gender bias gets in the way of others acknowledging women's expertise and this lack of social acknowledgement further gets used as proof of their lack of expertise. Another woman shared that she used to get frustrated that her opinion would be sought last, after the men couldn't answer, even though she is the subject matter expert. It doesn't bother her as much anymore because, "*ultimately, when their ideas don't work, they will have to come to me*."
- Male peers will acknowledge other men's work more readily in public facing meetings even for relatively small things but not women's bigger accomplishments. One woman shared how a male peer would privately message her in Slack with "*Hey, great work!*" but in public would be either passive or critical.

There were also many instances of women being actively dissuaded from taking leadership roles. Gendered notions masquerading as helpful suggestions were used in order to deny women advancement opportunities. This is very frustrating for women as on the one hand, leaders complain that they can't find talent and on the other hand, they actively hinder

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competent women from rising up in the organization. Women also find it hard to imagine men being on the receiving end of such comments. Here are some examples that women shared:

- After several years of excellent review history, one woman wanted to be considered for a lead role. Her manager responded with "*I see you as a strong IC but not as a lead*" and did not offer any specifics when pressed further.
- A woman was passed over for promotion in favor of a peer who had less experience. When she raised that issue with her manager, he acknowledged that she was the most valuable person but "*I did not know that you were aspirational*"
- In another instance, a woman was told by her manager "*You are so technical, why do you want to be a people manager?*"
- After an interview, a woman candidate was offered a role but at a lower level. A woman VP advised her to take the lower position because given the stage in her life, "*You want to take it easy*."

Coping Strategies

Calling out the double standards is one strategy that women used to handle such issues, although success was not always guaranteed.

The woman, who was receiving appreciative messages in private but not in public, called out the behavior with her male colleague. He started acknowledging her contributions more publicly for a short period of time but eventually stopped both public and private recognition.

In another instance, a participant called out her manager who was asking her to do additional things around documentation and consensus building that her peers were not asked. In this case, the managers acknowledged the problem and created a consistent protocol for everyone to follow.

One participant shared her preferred way to call out double standards. The question, "*Would you still say this (about me) if I was a man?*", if asked gently, can be very effective in cutting down negative bias.

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Finally, another strategy that women have used is to be their own salespeople and sell their own accomplishments. They often have to preface their ideas with their experience or expertise in the subject to establish their credibility and be taken seriously by others.

> “I just assume that people will think that I don’t have the background in what I am talking about, so I mention my years of experience in the topic proactively first.

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Section 2: The Gender Innovation Tax

Women have to work harder than their male peers to get their ideas considered and accepted. In many instances, their ideas are initially dismissed and only accepted after considerable time and effort was spent on failed alternatives.

Unfortunately, this points to a "lose-lose" situation. Women bear a significant cost but companies pay an equally high price. This cost, which we call the ***Gender Innovation Tax (GIT),*** includes wasted hours and poor decision making that has financial impact.

Since companies don't track how ideas are managed and how decisions get made, it's not easy to accurately measure this cost. However, the examples and estimates below paint a picture of what this cost entails.

Organizational Overhead Of GIT

The direct cost to women is obvious - they spend more time and effort in each task compared to men, they spend more hours in relationship building and they spend more cognitive resources in self-monitoring their ideas and how they present themselves.

Women spend significant cognitive resources in evaluating whether they should say something or not in meetings. It's not just the idea itself that requires analysis but also the environment. Would this make me look ignorant or incompetent? Will I have to endure more mansplaining? This can get exhausting pretty quickly and when the women in our study didn't have the energy to deal with it, they almost always chose to hold back.

Women also estimated the extra prep work before meeting to be a significant cost. One engineer said that it takes her somewhere between one hour and one day to prepare for a group meeting. Another interviewee who has worked for several years each at two Big Tech companies estimated that at one company about 50% of her time was spent in this overhead and in the other around 20%. As a side note, her experience indicates that there is a difference between the two cultures, with one better equipped to manage innovation.

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When you add up all the different costs, it becomes clear that women are putting in much more time and effort at work than their male peers. They are quite literally, as the popular adage goes, working twice as hard to be considered half as good.

So, how does this cost in terms of extra time and effort, look at the broader organizational level? Assuming a task overhead of 20% (the lower estimate in our sample) and an average of 25% women in technical roles, the organizational overhead for technical women comes to 5%. The overall organizational overhead is twice that as pre-meeting meetings or relationship building also take up men's time, although it gets amortized over the larger number of men. (It might be tempting to think that reducing the number of women will improve this cost, but as the next section will show it will only lead to poor decisions being made, but just faster)

Imagine if a company required 10% fewer people to accomplish the same, or more likely better, work. Companies can save millions of dollars every year by establishing a more efficient and inclusive environment.

Revenue and Time Cost Of GIT

Companies also pay a price when groups make a poor decision without carefully considering all alternatives. Most often the alternatives that get ignored come from women and other marginalized groups. A few examples illustrate this issue.

One participant (profile ***B*** in 'About The Participants') was brought in as a growth expert for a startup. Despite being hired for her expertise, the founders ignored her suggestions on the root cause for their lackluster growth. It cost the company $1.5M for the two months that they didn't listen to her and continued with their flawed strategy. Luckily for them, she gathered the data and proved that they needed to fix customer retention issues, allowing them to pivot in the right direction and saving the company. Had she not done that, the company was on track to burn through the cash in hand and go out of business in a few months.

Another interviewee described a time that she worked on a relatively new product at a Big Tech company, which was gaining success in the marketplace. For the next version of the

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product, her team shared the product concept with customers and conducted research which indicated that the concept would be well received. However, her engineering counterpart wanted to invest in infrastructure development instead. The broader team rallied around him even though there was no customer data to show that infrastructure issues were becoming a blocker, and in the end his idea got the go-ahead. Till then, the product had enjoyed a meteoric growth rate of 10x (900%) over a period of 3 years. After abandoning the customer-focused strategy, the growth rate sharply dropped to just 15% over the next 2 years, losing millions of dollars in the process.

One interviewee shared her experience when her team was brought in to help another team. Ostensibly, both teams had the same goal - to complete a project on time. However, the resistance she and her team faced made it much more challenging. Every time she suggested an idea, it would be put down. She hated every minute she worked on the project and described it as, "*It was one month of pure torture*". While the project ended successfully and one team member even said "*I misunderstood you - I didn't know you were trying to help*", it took double the amount of time than it should have.

These examples showcase how companies are losing money everyday - either in revenue or time to market due to poor decision making.

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Section 3: Underlying Causes For The Gender Innovation Tax

The following cognitive and psychological factors can help explain some of the challenges women face in the workplace. These factors are not completely independent and most incidents are usually due to a combination of one or more factors. Nevertheless, understanding these mechanisms will help in identifying strategies that can address gender (and other) biases at a systemic level.

Evaluation Apprehension

The traditional approach to brainstorming was developed by Alex Osborn, a marketing executive, in the 1950s. His guidelines worked well for the typical audience of primarily white men at the time. However, since then many studies have shown that there are several factors that make traditional brainstorming less effective (see sidebar for more details).

Brainstorming Traps

Alex Osborn pioneered the technique of brainstorming in the 1950s to enhance group creativity. Team members were encouraged to withhold judgement, use free-wheeling and only evaluate ideas at the end. His approach quickly took over the business world and his guidelines are still followed in brainstorming sessions.

However, research studies since then have shown that Osborn's techniques aren't effective due to three broad problems:

- **Production Blocking**: Since only one person is allowed to speak at a time, others might forget their idea while waiting or never get around to offering it.
- **Evaluation Apprehension**: People self-censor their ideas if they are not sure how they will be perceived. Simply the presence of superiors in a meeting can increase evaluation apprehension.
- **Social Loafing**: When working in groups, people can exert less effort than if they were to work independently and hide behind others' contributions.

These factors, especially evaluation apprehension, get more pronounced in the presence of gender and other systemic biases. Evaluation apprehension is the anxiety about how others in a group will perceive your idea and tends to be higher for women.

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Current DEI efforts have raised awareness of mechanisms that prevent women from sharing their ideas. Women in our study reported that team members and managers are much more careful about not interrupting women when they speak or explicitly asking women for their ideas. However, these strategies primarily address *production blocking* which is the physical reason that ideas don't make it to the table.

Once you are past the production blocking, the next big hurdle is *evaluation apprehension* which is the psychological reason ideas aren't shared. As the previous section showed, women face heightened levels of evaluation apprehension due to gendered perceptions of technology. Before suggesting an idea, they have to evaluate if their suggestion will make them look less technical or incompetent. It's akin to the feeling of being in an interview - a feeling of being under high scrutiny where you have to actively monitor what you can say.

Higher evaluation apprehension also explains behaviors that women leaders in our study found both puzzling and frustrating. The following quotes from our interviews can be explained by the fact that these strategies may help production blocking but don't mitigate evaluation apprehension.

- "*I have been talking to women in my team to speak even if the idea is not fully fleshed out, but it's not happening*"
- "*Women aren't using the raise-hand feature to speak in meetings*"
- "*Even if you speak up in women's groups, it doesn't help speak up in male-dominated groups*" (on why she finds women circles in her company meaningless)
- "*Women hold back sharing bold ideas but bold ideas attract people. If you are too risk-averse then people are not impressed*"

The last point merits further elaboration. Asking women to offer bold ideas puts more pressure on them and increases evaluation apprehension. But beyond that, women also face higher backlash when they propose bold ideas. In his book, The Hidden Brain, Shankar Vedantam recounts the case of two Stanford biologists, Joan and Ben, who transitioned from one gender to the other late in their careers. Ben, who was previously Barbara, found that people became more receptive to his ideas after the transition. After delivering a lecture at the prestigious Whitehead Institute in Cambridge, Massachusetts, an audience member who was unaware that Ben and Barbara were the same person commented, "*Ben*

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Barres gave a great seminar today, but, then, his work is much better than his sister's." Joan, previously Jonathan, had the opposite experience. After delivering a talk at Loyola University where she proposed a controversial theory, a scientist started screaming at her for being irresponsible. Joan told Vedantam, "*I had never had experiences of anyone trying to coerce me in this physically intimidating and coercive way. You really think this guy is really going to come over and hit you.*" This kind of behavior became much more commonplace for Joan especially when she proposed bold ideas, forcing her to acknowledge that she no longer felt that she had the "right to be wrong".

This puts women in a double bind. Without bold ideas they don't get the right opportunities to advance their careers, but with bold ideas they face a different kind of career-threatening backlash.

Groupthink

Section 1 listed some of the common coping mechanisms, like pre-meeting meetings, that women use to have their ideas and perspectives taken seriously. When women do this extra work, it leads to better decision making for the group. This is because by default, most groups suffer from *groupthink* and women inadvertently help the group snap out of it.

Groupthink

Irving Janis developed the theory of groupthink to capture the flawed decision making process that occurs in cohesive groups. In such groups, members sacrifice debate and discussion for maintaining friendly relationships.

Janis identified three types of conditions that lead to groupthink, with the first one being a necessary one.

- **Cohesion**: Cohesiveness arises when team members are connected with each other emotionally and is higher in homogenous groups.
- **Organizational Structural Faults**: Structural faults in decision making result from not doing research, operating under directed leadership, lack of diversity and insulation from experts.
- **Situational Factors**: This refers to decision making under provocative situations where external stress, recent failures and moral dilemmas can impair the process.

Groupthink makes the group overconfident about their decision and dominant members tend to "outgroup stereotype" those within the group who do no concur.

Groupthink, first identified by Irving Janus, is the failure of team members to consider alternatives to the dominant view when making decisions. It leads to often poor and sometimes catastrophic outcomes. Some of the symptoms of poor decision

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making that Janis identified include incomplete survey of alternatives, failure to examine risks of preferred choice, poor information search, selective bias in processing information and failure to reappraise initially rejected alternatives.

As Section 1 showed, the coping strategies that women use to get their ideas considered, inadvertently align with suggested strategies to reduce groupthink. By engaging in private discussions prior to group meetings women reduce the impact of cohesiveness allowing team members to independently evaluate ideas. The additional research they bring to the table enhances the overall information search for the group. In short, women's ideas get accepted because they have merit.

Women's "outsider" status places a high psychological pressure on them, but when they push for alternate viewpoints to be considered, they reduce groupthink and help their teams arrive at better decisions.

Tokenism

Tokenism as a concept became popular in the late 1970s based on the work of Judith Laws and Rosabeth Kanter (see sidebar for more details). It explained some of the negative effects experienced by minorities in a group. Kanter's proposed solution to addressing this, which is still the primary approach adopted by organizations, was to focus on balancing numbers. Her premise was that once the minority members are no longer a minority, then the problems would start to fade away.

Tokenism

The concept of "tokenism" became popular with the publication of Rosabeth Kanter's book, *Men and Women of the Corporation*. Kanter's work can be traced back to Judith Laws who analyzed problems women faced in male dominated settings and developed some of the concepts behind tokenism.

Token, in Kanter's work, refers to any minority member in a majority group. Token members experience three negative experiences:

- **Visibility**: A feeling of being in the public eye and a resulting pressure to perform well.
- **Boundary Heightening**: The tendency of the majority group to highlight differences and treat Tokens as outsiders.
- **Assimilation**: The tendency of the majority to ascribe limited stereotyped roles for Tokens to fit into.

More recently, tokenism has come to refer to the hiring, appointing or promoting of minorities *because* of their minority status, as a proof that the group does not discriminate against them.

Kanter's theory was gender-neutral – she believed that the results would apply to any minority-majority situation. That turned out to be incorrect. In occupations where men are

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a minority (like nursing and education), their experience is not nearly as negative as women in roles where they are a minority. Simply increasing numbers does not always work (and might even backfire) due to broader sexist attitudes. As the article notes, "*Men's negative behavior toward women in the workplace, then, seems to be much less motivated by women's presence in a numerical minority than by men's evaluation of women as a social minority – an opinion based on notions of inferiority rather than scarcity.*"

A big challenge with focusing solely on increasing numbers by creating explicit hiring goals is that it exacerbates the perception of tokenism. People implicitly assume that the woman in the role is not there because of her ability but because of an arbitrary rule. It forces interactions that women have with their team members to start with a credibility deficit.

> "Tokenism has taken over in the US. People assume you got in because of your gender and not competence. As a result women get fewer opportunities to prove themselves.

Even though the women in the study asserted that they had not seen the bar for women lowered to satisfy numbers, they did acknowledge that there is a perception problem. They have heard male colleagues make snide comments like:

- "*I am not going to get the role, that's going to go to a woman*"
- "*If I was a woman, I would have become a Partner*"
- "*You had the perfect minority card to get the promotion*"

However, an example offered by one interviewee provides a ray of hope towards improving the perception of tokenism. The interviewee came from a Middle East country, not known for its progressive views on gender issues. She studied Computer Science at one of the most prestigious colleges in her country for which she had to pass a hard SAT-like test and was one of 8 women in a class of 80 students. After graduating college, she worked for a

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few years before coming to the US to work at a Big Tech company. She saw a big contrast between the work culture she experienced there and the culture at the US company. Back in her home country, she never once was made to feel less competent than her male peers whereas in the US she had to keep proving herself over and over again. She attributed this difference to the observation that in her home country her colleagues knew that the criteria to enter the prestigious college was completely objective. In other words, once she had "proved" herself, there was no further need for anyone to question her abilities. She found it ironic that women in the US have more freedom socially but face more bias at work.

Cognitive Dissonance

Daniel Kahneman in his book, *Thinking, Fast and Slow*, popularized the concept of two cognitive systems in our brain. System 1 operates automatically and quickly on deeply rooted heuristics with no voluntary control, while System 2 gets engaged when we make conscious effort to analyze and reason based on data. When we make snap judgements about people based on race, gender or other similar characteristics, it's our System 1 that gets engaged.

When our System 1 and System 2 provide conflicting information, like when our gut says something but the information in front of us contradicts that, it leads to cognitive dissonance. Cognitive dissonance creates a tension in our minds and because it feels uncomfortable, we try to resolve it as quickly as possible. We either update our beliefs based on the new data or we dismiss the new information as flawed.

Due to gendered associations of women's competence in technology, when people encounter high quality work from women they face cognitive dissonance. To resolve the dissonance people might downplay women's work, attribute their performance to luck, and attribute promotions to affirmative action and not to personal ability.

One interviewee shared an eye-opening account of cognitive dissonance when she manned her company booth at a conference for a technical product she helped build. She was wearing her conference T-shirt when a colleague (who was dressed casually) from the adjacent booth came over to talk to her and stood across the table from her (like any other conference attendee). When other attendees came to her booth to learn about the product or ask questions, they ignored her and addressed her male colleague instead. Her male

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colleague passed the question on to her, but even after she finished explaining the visitors looked at the male colleague for validation. Her male colleague was astonished by the absurdity of this behavior so they decided to make a game out of it. They started to track how many people would overcome their gender bias, recognize her as the expert from the various cues and engage directly with her. For the next 2 hours, about two dozen people came over to the booth to talk and *not a single one passed the test*! When faced with cognitive dissonance, the attendees ignored all the evidence in front of them and went with their flawed gut response.

> “
>
> Do they think I am just a booth bimbo?

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Section 4: Leadership Takeaways

One of the most popular individual interventions is “fix the women”, which coaches women on how to adapt to the prevailing male-oriented cultures. Companies invest lots of money on leadership training for women, yet the results haven’t been very effective. Simply asking women to speak up more or be more confident is not enough unless organizations also address the systemic ways that lead to high evaluation apprehension or other ways women are held back. Training only women not only places an unfair burden on them (and exacerbates the time overhead problem they already face), but it doesn’t help fix dysfunctional group norms that lead to groupthink and other issues.

Several women relayed that there is a declining enthusiasm among their peers to attend women-only mentoring or networking events as they don’t find them particularly useful anymore. Others acknowledged that such training might be useful early in your career when you are junior, but isn’t effective beyond that. A more robust approach would be to address both individual training (targeted to men and women) and systemic changes that improve team cultures.

> “
>
> Women are over-mentored and under-sponsored.

Leadership programs that focus on leaders’ values and behavioral styles are much less effective than those that focus on concrete acts and activities that leaders can undertake to boost business performance, as explained in Blue Ocean Leadership. As one executive in the study put it, “*Without years of dedicated efforts, how can you transform a person’s character or behavioral traits?*” In that same vein, we believe that establishing concrete mechanisms and group norms will be far more effective in harnessing employee innovation in the face of existing biases than focusing on values based training.

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The rest of the section highlights strategies that can help companies create a more wholesome and innovative culture. The strategies suggested below are not gender specific – they focus on improving decision making and making organizations smarter – but they do impact women more and can help level the playing field. While the study focused on gender, these strategies should help other minorities as well.

Lower Evaluation Apprehension

Without reducing evaluation apprehension, especially among minority groups, leaders will find it hard to get truly diverse perspectives.

Spotting Evaluation Apprehension

To detect if evaluation apprehension is indeed a problem in your team, watch out for the following signs among team members:

- Hesitating to offer ideas and perspectives even when asked
- Offering fewer ideas overall
- Playing it safe by not proposing risky ideas, or only supporting others' ideas

Strategies To Lower Evaluation Apprehension

There are multiple ways to lower evaluation apprehension and make it psychologically safe for everyone to contribute their ideas. Here are a few approaches that can be used alone or in combination that go beyond the current brainstorming guidelines:

- Instead of asking people to suggest bold ideas, have them focus on the underlying cognitive processes (e.g. associative or reverse thinking) and let the bold ideas emerge from them. Since the focus shifts towards problem solving in specific ways, it takes away some of the performance anxiety.
- Use a more structured approach to brainstorming based on categories by asking people to come prepared with a few ideas in each category depending on the need. The categories could be based on cognitive processes or other dimensions like short-term, medium-term and long-term.

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- The group leader or facilitator could also anonymize the initial set of ideas and have the group analyze each of them thoroughly. When anonymizing ideas is not practical, having a consistent mechanism to discuss suggested ideas can ensure that all alternatives are discussed adequately.

In our experience, using these techniques can lead to an increased number of ideas (often 2x-3x) as well as better quality of ideas (more original). Not every meeting requires a heavy-weight structure and leaders can choose the most appropriate format that will help them arrive at good decisions with the least effort.

If everyone is thinking alike, then no one is thinking

One of the most important factors in making smart decisions as a group is to ensure independence of thought. Without independence, teams quickly fall into groupthink.

Spotting Groupthink

Leaders should watch out for telltale signs of groupthink during group discussions:

- Few voices dominating the discussion
- Individuals championing for their idea (trying to "win" the discussion) and not being able to take other perspectives into account
- Quick consensus without discussing all alternatives thoroughly
- Decisions made without adequate data and/or research for each idea
- Support for ideas falling along gender lines (men rallying behind a man's idea or women rallying behind a woman's idea)

Strategies To Avoid Groupthink

Traditional brainstorming falters when it comes to independent thinking, as most people jump into meetings without adequate preparation. When people are asked to think of ideas independently before sharing with the group, the number and quality of ideas significantly improves. This kind of brainstorming, also called nominal brainstorming, is more effective with diverse groups where the pressure to conform to dominant ideas is higher. But beyond that, it can be a lifesaver for companies that rely on constant innovation.

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An example can help illustrate how nominal brainstorming is useful at the highest levels of decision making. Suppose an organization is trying to determine applications for a latest technological trend, and asks its employees to submit ideas. As long as everyone submits their ideas independently, leaders can gain useful insights. Ideas that many people suggest are not that creative and leaders can be sure that their competitors are likely thinking along the same lines. From a strategy perspective, it might be important to implement some of them to meet customers' future expectations. On top of that, evaluating the original ideas that only a small fraction of people suggest, can give leaders the extra differentiation to make their product offering stand out from their competitors.

Women's experiences also indicate that all ideas are not debated and discussed equally. This is a key factor, as identified by Janis, that leads to groupthink. Establishing a consistent protocol where all ideas are captured and debated in the same fashion can further remove biases from the picture. Most organizational cultures place a heavy emphasis on successfully "defending your idea", and confidently championing your ideas is viewed as a strong leadership trait. Unfortunately, this makes groupthink *worse* by increasing myside and one-sided thinking biases, where people offer arguments in favor of their idea but not those that contradict, and fail to take multiple perspectives into account. Intelligent people (as measured by IQ) are just as likely to be victims of these biases as anyone else. The BTR technique described in the Appendix, can help leaders establish a group discussion norm that avoids these biases.

Managers should also set expectations for everyone to think through their ideas more thoroughly and do additional research before bringing them to the table. They should stay alert during meetings and detect when discussions start drifting towards groupthink, like when a dominant viewpoint emerges too quickly, and push for creating balance again. Women have reported that sometimes they are the only ones advocating for a particular point while the others line up behind a few dominant male voices. Managers can play the Devil's advocate, in such situations, and help discussions get back on a healthier track.

Neutralize Perceptions of Tokenism

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When the perception of tokenism is high in an organization, it reduces women's credibility and makes it harder for them to have their ideas taken seriously.

Spotting Tokenism

Leaders can recognize if perception of tokenism is an issue from:

- Cynical comments about women's achievements
- Women getting smaller scope for the same role compared to male peers

Strategies To Avoid Tokenism

Women start with a credibility deficit in the workplace and relying solely on subjective mechanisms to improve diversity can increase the perception of tokenism. Organizations need to balance subjective mechanisms with objective ones to counter such impressions.

One potential opportunity is during hiring. If the hiring process is double-blind, it can counter the perception that women are not technically competent. We believe that it will also improve overall hiring numbers for women based on precedents in technology and other industries. Using blind auditions in orchestra increased the likelihood of women advancing to the final stage by 50%, and a several fold increase in getting hired. In software development, code written by women was approved on GitHub at a higher rate than that written by men, but only when their gender could not be ascertained.

One woman participant indicated that she sees a big difference in interview results between male and female interviewers. For a position that they were hiring for recently, she interviewed a female candidate who solved the technical problem faster than anyone she had seen before, and explained her thought process well. The woman interviewer gave her a strong hire recommendation. Her male peers on the other hand gave her either a no-hire or weak-hire. When interviewing a male candidate the situation reversed. The woman interviewer felt that the male candidate did not display clear reasoning and didn't address the question, so she gave him a strong no-hire. Her male peers gave the candidate weak-hires. It is very likely that biases play a larger than expected role in hiring decisions.

In the current age of advanced technology like the metaverse, or even not so advanced technology tools, it should be relatively easy to implement a hiring process where the

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technical part of an interview is conducted in a double-blind fashion. Passing that stage of the interview would give a clear indication of an applicant's technical competence and reduce the perception of tokenism.

Who Is The Subject Matter Expert?

Even when women have expertise in an area, it often goes unacknowledged and impacts their ability to contribute meaningfully. One way to mitigate the effect of the double standards that women face is to explicitly acknowledge their status as a subject matter expert in group meetings. When clear evidence of a woman's competence is presented before a task, others in the group take her ideas more seriously and she is more effectively able to influence the group. A uniform and consistent approach where subject matter experts, regardless of gender, are identified during problem solving meetings and their opinions sought either before or after others propose their ideas can help level the playing field for women.

Recognizing people's expertise and contributions is also an effective way to build their intrinsic motivation. Extrinsic rewards like monetary compensation improve performance only when the underlying task is simple. For more complex problems, tasks that require creative thinking, relational rewards work much better in motivating people. Leaders can inspire their entire teams to be more innovative and productive by tapping into social recognition mechanisms. Explicitly calling out subject matter experts is one such way, and coupled with other ways (e.g. supportive feedback, calling out impact) leaders can create more energizing environments.

The Future Of Leadership Is Androgynous

Psychological androgyny refers to the ability of an individual to associate with both stereotypically male and female traits, like being aggressive and nurturing or sensitive and rigid, regardless of gender. Psychologically androgenous people are more creative than their peers and recent research shows they make better leaders too.

Cooperation is a key element in uniting people towards a common goal or vision, and a leader's effectiveness depends on their ability to foster cooperation among their followers. However, stereotypically masculine male leaders promote less cooperation than

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stereotypically feminine male (androgynous) leaders as they focus less on relationship building and engage in more competitive behaviors. As the researchers explain, "*Because cooperation requires displaying many communal qualities that are female-typed, such as offering help, being receptive of others' emotions and opinions, and working toward consensus for the good of the group, cooperation may be hindered by the prevalence of stereotypically masculine qualities in leadership*."

In interviews women told us that over the course of their careers, they have adopted some leadership styles that are stereotyped masculine (e.g. being assertive and pushing their idea when it seems appropriate) to complement their natural style. As a result, their leadership styles are closer to being androgynous. Since we didn't interview any male leaders we do not know if and how much their leadership styles have evolved. However, an insight provided by one participant indicates that men don't value feminine leadership styles as much.

The participant recounted the time when a junior man in her organization asked her to be a mentor. That's when it hit her - in all these years when she had mentored countless women, not a single man had ever approached her for mentoring! It made her wonder, "*Do men really think that I have nothing to offer them?*"

Women leaders do have a lot to offer when it comes to creating healthy teams. One woman leader (from Healthcare, not Technology) shared her experience in shifting her team's culture from a highly toxic and competitive one to a cooperative one. She inherited a team that was well known within the company to be highly dysfunctional. Individual team members could not stand each other and there were too many interpersonal conflicts. She realized that without fixing the team culture, she would not make much progress and so she got down to business. First, she created safety for her team by assuring them that they would not be penalized. Then she had offline conversations each time a behavioral issue cropped up (for example a team member sabotaging others or saying inflammatory things in meetings). After several months of intense coaching, she saw an amazing shift - people started getting along and even started to advocate for each other. In case you think that all this 'soft' work led to a loss of productivity, you couldn't be more mistaken. Over the next 6 years, her team grew over 3x in revenue and 2x in headcount (with the biggest gain in the

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first year), and became the largest and most productive department in the company. Culture matters.

Encouraging employees on leadership tracks to seek out mentorship from both men and women can help build androgynous leaders who build better team cultures. These values then filter down the organization and can further reduce gender stereotyping.

Conclusion

DEI efforts are often treated as an overhead – a necessary evil – disconnected from the real work of building innovative products and services. However, our study shows that this is a false dichotomy. Diversity and inclusion are much more closely intertwined with innovation. When companies don't address barriers to innovation, gender bias being one, they pay a high cost that they might not even be aware of.

In the current economy, innovation is the primary goal for any organization in order to remain competitive. A leader's role is to maximize the creative productivity of their teams and ensure that they make the best decisions for the company. This cannot happen without a fair and inclusive environment where diverse voices are empowered. By focusing their efforts on dismantling barriers that get in the way of creativity, leaders can increase innovation levels and at the same time reduce the impact of gender and other hidden biases.

About The Author

Pronita Mehrotra is the Founder of MindAntix, a company that develops tools and programs for creative thinking and organizational innovation. Her work focuses on the neuroscience behind creative thinking and leverages cognitive thinking patterns in ideation and decision making. She has participated in several global conferences and conducted creativity workshops for organizations and leaders.

Her work has been featured in leading publications like Harvard Business Review, Geekwire, ASCD and Education Week. She is also a featured columnist on EdCircuit where

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Apart from MindAntix, Pronita brings over 15 years of experience in research and software development in the technology industry. Prior to starting MindAntix, she worked at Microsoft in both development and program management. Pronita earned her Ph.D. in Electrical and Computer Engineering from North Carolina State University and her integrated Bachelors and Masters degree from Indian Institute of Technology, Mumbai.

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Appendix

Build, Tear Down, Rebuild (BTR) Method to Reduce Groupthink

Typical group discussions suffer from two common cognitive biases – myside and one-sided thinking. Myside bias occurs because people are more inclined to reason in ways that support their opinion or idea while ignoring or minimizing contradictory viewpoints. One-sided thinking is our preference for arguments that are one-sided rather than those that offer multiple perspectives.

It's easy to see why these biases occur frequently and why they lead to flawed decisions especially in an intense, fast-paced organizational environment. Due to myside bias, people tend to only offer arguments that support their idea in any discussion. Organizational cultures that value "defending your idea" as an important trait accentuate this bias. Due to one-sided thinking bias, leaders are more easily swayed by a person who presents one-sided arguments than someone who presents a more nuanced view that considers multiple perspectives. A one-sided solution *appears* simpler and cleaner, and because it causes less cognitive strain, it becomes more persuasive. In an organization that favors quick, decisive leadership, managers tend to go with these solutions further amplifying this bias. These biases are not correlated with measures of cognitive ability like IQ – intelligent people are just as prone to them as others.

A structured approach to brainstorming and group discussions can eliminate the effect of these biases. Leaders can use the Build, Tear down, Rebuild (BTR, pronounced *better*) technique described below to help their teams arrive at more unbiased and intelligent decisions. Here is one way to run a BTR session:

- Prior to the group session, ask team members to send their ideas to you privately (nominal brainstorming). You can choose to keep the ideas anonymous for the next part if you suspect gender or other biases might come into play.
- At the start of the group meeting set expectations that the goal of the exercise is to make each idea the best version of itself. This shifts the tone in the group from competitive to collaborative.

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- Take one idea at a time and have the group discuss the following aspects (use a whiteboard to capture all information in a table format). By asking the following questions, you first build up an idea (pros), then tear it down (cons) and then rebuild (mitigations) it again to arrive at a superior version of the initial idea.
    - Pros: What are the advantages of this idea?
    - Cons: What are some drawbacks of the idea?
    - Mitigations: Are there some ways to mitigate the cons by changing something about the idea?
- After all ideas have been thoroughly discussed, have the group look at all ideas together to see if different ideas can be combined to give a better solution overall. This step tends to happen organically as the discussion progresses, so leaders may not need to ask explicitly.
- After the meeting, send the information captured to meeting attendees and ask them to reflect some more. This step gives an additional incubation time for new insights to emerge.

The building up phase (finding pros) helps to expand the potential of the idea. The original proposer may have missed some scenarios or markets that others identify. The tear down phase (identifying cons) helps identify current limitations or boundaries where the idea will work and not work, and starts to shrink the potential of the idea. Finally, the third phase (finding mitigations) tweaks the idea so that some of the limitations are overcome. It re-expands the idea and places it in a more realistic zone.

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