EXECUTIVE SUMMARY:
## The 2023 *State of Inclusion Benchmark* in Cybersecurity

Previous studies have illustrated that the representation of women in cybersecurity is much lower than it should be, but can't explain why or how we can improve matters. In collaboration with DEI firm Aleria, WiCyS spearheaded a first-of-its-kind study to discern the real causes of disparities in the experiences of women in cybersecurity, and help us understand how to best pinpoint and remove the barriers that keep women from being recruited, hired, retained and advanced at the same rate as men.

After a pilot study in early 2023 that revealed some of the key experiences impacting women in cybersecurity, we extended the project to create the first annual *State of Inclusion Benchmark in Cybersecurity* by collecting data from just over 1,000 employees representing more than 20 different organizations.

This ground-breaking study confirms the results of the earlier study, while expanding it to allow a direct comparison between the experiences of women and men. The results show that **workplace experiences of women are dramatically worse than those of men across virtually every category**, but specifically in terms of respect, career opportunities, access to resources, and recognition. When averaged across all experience categories, **the overall *exclusion index* for women is over 2 times higher than the overall exclusion index for men**.

2.1x Higher Exclusion
266 — Women
126 — Men
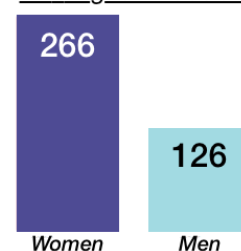
The State of Inclusion Benchmark also reveals that while workplace experiences result most frequently from leadership for both men and women, **women are roughly five times more likely than men to cite their direct managers and their peers as sources of workplace experiences that interfere with their satisfaction** and their ability to perform at their peak.

Because the workshops and data collection is open to all employees, we analyzed the impact of identity traits beyond gender, including race & ethnicity, sexual orientation and (dis)ability. **We found that every identity trait is associated with a higher exclusion index than the level enjoyed by members of the majority** (*i.e.*, a white, cisgender, heterosexual man with no disabilities). Disability in particular has a significant impact on workplace experiences, at a level comparable to the impact of gender.

We also explored other identity traits, and found that the exclusion index is directly proportional to the *degree of intersectionality*, that is, the number of identity traits by which an individual differs from a member of the majority.

In addition to the numerical results, we found several recurring themes in the shared experiences: explicit gender bias, social exclusion, professional exclusion, tokenism, lack of feedback, underutilized skills, glass ceiling, menial tasks, inadequate compensation, being passed over for promotions and inadequate recognition. This report includes salient examples of powerful experiences.

Lastly, this report illustrates that low levels of inclusion translate into financial losses for cybersecurity organizations, and organizations that create more inclusive workplaces will enjoy significant financial savings, as well as higher and more sustainable levels of diversity.

The 2023 State of Inclusion Benchmark reveals many other discouraging, but illuminating results. **Our goal is not simply to add to the list of studies showing the disadvantages faced by women: it is to shed light on what exactly is happening and why it is happening. Only with this knowledge can we hope to**

find solutions that will lead to greater inclusion, greater diversity and greater financial performance for all.

Summary of Key Findings	
Women are more excluded than men	**Beyond gender**
○ The overall exclusion index for women is over 2 times higher than it is for men	○ Compared to majority individuals, the exclusion index is higher for all other identity traits (sexual orientation, disability, race/ethnicity)
What is happening to women?	○ The exclusion index is directly proportional to the *degree of intersectionality* of individuals
○ The top four categories are *Respect*, *Career & Growth*, *Access & Participation* and *Recognition*	**The impact of WiCyS membership**
Why is it happening?	**Individuals who identify as working for WiCyS strategic partner firms report:**
○ *Leadership* is the source on 58% of experiences	○ 49% fewer experiences per person (severity)
○ *Direct Mgr.* is the source on 50% of experiences	○ 64% higher self-reported job satisfaction
○ *Peers* are the source on 39% of experiences	
○ *Policy* is only cited on 10% of experiences	

Quantifying Inclusion: What Is Happening And Why It Is Happening

During the course of 2023 we conducted a series of workshops attended by more than 1,000 individuals representing 25 firms. Workshop attendees were given the opportunity to take part in an interactive *Measuring Inclusion* activity using Aleria's confidential, online platform. Each participant anonymously entered information about themselves and their work (*Identity Traits* and *Job-related Traits*).

Participants had the option to share specific workplace experiences that impacted their satisfaction or their ability to perform at their peak. For each shared experience they were asked to specify one or more "Experience Categories" and "Sources of Experiences" that best fit each shared experience, from the lists below.

Categories of Experiences	Sources of Experiences
● Access & Participation	● Policy
● Career & Growth	● Leadership
● Compensation & Benefits	● HR
● Communications and Information Sharing	● Direct Manager
● Respect	● Peers
● Recognition & Appreciation	● Reports
● Skills Use & Assignments	● External: Customers, Partners, Suppliers…
● Work-Life Balance	

Using the collected data we calculate the *exclusion index*, a numerical value that combines *prevalence* (the proportion of participants who shared at least one experience), *severity* (the average number of experiences shared per person) and *frequency* (one-time or recurring).

The exclusion index can be calculated at any level of analysis, from the entire dataset down to specific Categories, Sources, Identity Traits, Job-related Traits, or combinations of these dimensions. At any level of analysis, higher exclusion scores reflect more problematic areas, and therefore the greatest opportunities to create more inclusive workplaces. Specific experiences from each problem area can be used to understand what is happening, and therefore what can be done to improve.

Taken together, the qualitative (verbal descriptions) and quantitative (categorization) data provides powerful insights for the 2023 State of Inclusion Benchmark in Cybersecurity, providing guidance for the entire cybersecurity sector.

What is Happening, and How it is Influenced by Gender
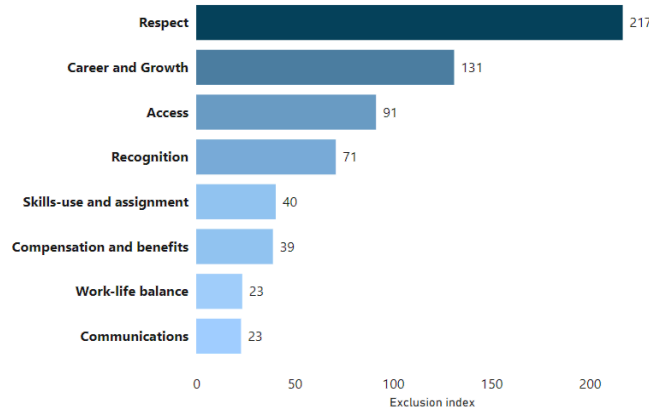
To understand what is happening, we begin with a rank-ordering of the Experience Categories as shown to the left.

We can see immediately that *Respect* is the category with the highest overall exclusion index at 217, followed by *Career & Growth* (131), *Access & Participation* (91), and *Recognition* (71).

It is very common for the *Respect* category to have the highest score, especially in technical fields. However, what is unusual is the sharp difference in exclusion index between the Respect and Career and Growth, confirming that . Respect is a major issue in cybersecurity.

A small but significant point that shows the value of measuring inclusion as a real-time measurement can be seen by comparing the results above with the results we found in the pilot study from early in 2023: the *Work-life Balance* category was at the bottom in early 2023 with a significantly lower score than *Communications*, but we have seen it inch up. This seems to reflect the growing tendency for organizations to demand that employees return to the office.

The addition of employees who did not identify as women for the complete 2023 State of Inclusion Benchmark makes it possible to separate the index scores of each category on the basis of gender.
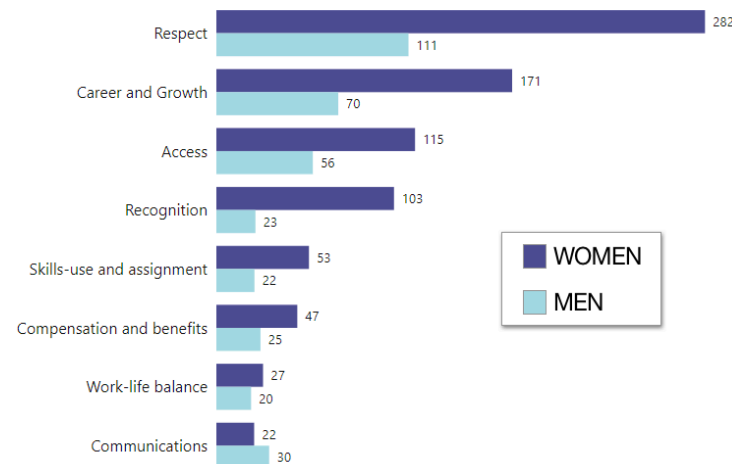
How much higher is the exclusion index for women than for men in each category?

Respect: **2.5 times**

*Career*: **2.4 times**

Access: **2.1 times**

Recognition: **4.5 times**

The figure shows a staggering difference in the overall experiences of women compared to men, with the most pronounced discrepancy seen for *Recognition*, where the exclusion index for women, at 103, is 4 1/2 times larger than it is for men (23). In fact, if we were to rank the categories for men, *Recognition* would be the second-lowest category, only slightly higher than bottom-ranked *Work-life Balance*.

These results should be a wake-up call for the entire industry. Aleria's research shows conclusively that inclusion is directly related to satisfaction, and significantly impacts employee productivity and the intent to leave.. This means that organizations are incurring financial losses from lost productivity and unwanted attrition.

Why it is Happening

When participants share an experience they select one or more sources of experiences from the list shown earlier. We can calculate the exclusion index in the same fashion as for the experience categories to understand what or who is causing experiences to happen. Our overall results match those from the pilot: *Leadership* is the main source, followed by *Direct Manager* and *Peer*. All the other sources are much smaller, confirming a universal finding that **workplace experiences that have a negative impact on employees result primarily from people, not policies**.
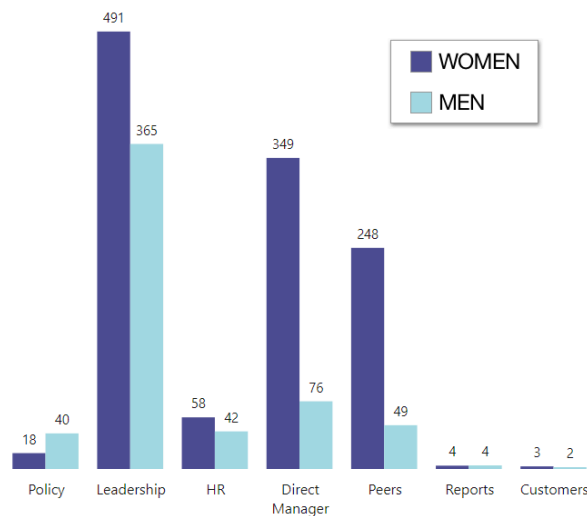
How much higher is the exclusion index for women than for men in each source?

Leadership: **1.3 times**

Direct Manager: **4.6 times**

Peers: **5.1 times**

These discrepancies are staggering, and speak clearly to a pervasive problem in this field: women have much worse experiences than men, especially when it comes to the most frequent interactions, which typically take place with Peers and Direct Managers.

Because of the substantial amount of data collected, we can combine category, source and gender information to understand who is causing what types of experiences.
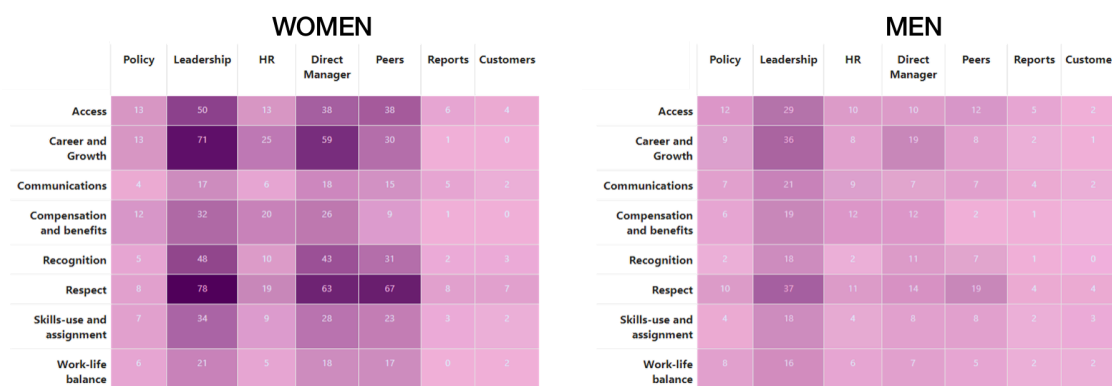
These "heatmaps" show the exclusion score for every combination of category (rows) and source (column) for women (left) and men (right). The darker the shading, the higher the score. It is immediately obvious that women, much more so than men, struggle with lack of Respect from

Leadership, Direct Manager and Peers. They also show much higher scores for Career & Growth, Access and Recognition.

These findings speak of a problematic culture in which men in the organization see women (and treat them) as inferior, exhibiting behaviors that weigh heavily on their colleagues across many aspects of their daily work, as well as impacting their long-term success. It is not surprising that women are not sticking around… which explains the low levels of representation.

The Impact of WiCyS Partner Status

During our pilot study we found that employees of WiCyS strategic partner firms enjoyed greater inclusion. The annual benchmark also found this trend: the overall exclusion index for non-partner employees, at 289, is roughly 1.5 times the exclusion index of WiCyS partners, at 193.

Looking at individual categories, we see that employees of WiCyS partners enjoy greater inclusion (lower exclusion) in all categories, especially in *Respect* and *Recognition*.

The Day-to-Day Experiences of Women in Cybersecurity

Beyond the statistics, the detailed experiences shared by participants offer poignant examples of the day-to-day experiences that impact women. The table below shows a few representative "shareable" experiences drawn from some of the recurring themes we have encountered.

Generally disrespectful behaviors	"After introducing myself, I have had individuals ask to speak to a 'guy who works in IT' instead of me." "I work in an environment that is at least 80% male. Some of my male colleagues curse too much, belch, and joke about inappropriate things for an office."
Sexually inappropriate behaviors	"I don't feel comfortable wearing the clothing I feel my best in, because when I do, men in my department stare at my body." "Colleagues would play pornographic movies as I arrived to meetings. One time a colleague played a movie like this when we were meeting with a customer." "A male manager took me to a strip club and then kissed me."
Social exclusion	"Male peers would have important work conversations at lunch when I was not with them… ignoring my absence, hence my potential contribution." "I was not invited to lunch, whereas other white colleagues were included." "Work and industry 'social' events are oriented towards the majority (males), e.g., whisky tasting and golf days. "
Underappreciated skills and experience	"As a software engineer I was being assigned business analyst work only. I told my manager I wanted to do engineering work and not administrative work. My manager then went to my department and complained that I was not being a team player and was too 'emotional' in the workplace." "I was the main subject matter expert at a meeting but some attendees directed substantive discussion and attention gestures at the men in the room instead of talking to me."

Lack of proper recognition	"When you come up with an idea, it's met with silence, then someone else repeats your idea and everyone gets all over it."
	"A previous boss told me that I should draft a document because I was good at it but gave the credit to someone else so they could get promoted"
Requests to do menial tasks	"Male leaders regularly decide to host lunches for employee appreciation, then expect the female employees who were also in leadership, to do the ordering/setting up/clean up."
	"Peer continues to make comments indicating their work is harder and more important than mine. Then asks me to schedule meetings for them as I have more time and I am 'good at organizing'."
Tokenism	"When I was promoted to Level 6 as a Chief Engineer, male colleagues talked behind my back saying that I only got the position because I was a woman. "
	"Was advised that I was assigned to a task force because they needed/wanted someone who 'didn't have something between their legs'."

Sadly, these are only a few examples. Overall we collected approximately 1,300 experiences, nearly 1,000 of which included explicit permission to be shared. Some of the experiences described specific situations that should never be tolerated and, if made public, would lead to immediate termination of the offending party. Beyond the more egregious examples, shared experiences provide invaluable insights into the kinds of workplace interactions that are at the heart of exclusion.

## Beyond Gender: The Impact of Diversity Along Other Identity Traits

While our focus is about women in cybersecurity, we believe that everyone should be treated fairly and respectfully regardless of their identity. Thanks to the large sample size, we have been able to do some analysis of our data on the basis of identity traits beyond gender.

Aleria's prior research found that many of the situations experienced by women tend to happen to others whose identity differs from the majority. However, focusing on specific groups within each identity trait or combinations of traits (e.g., women who have a visible disability) is not often feasible because of insufficient samples. Instead, Aleria has developed the concept of *relative diversity:* calculating the impact of each overall identity trait (gender, race/ethnicity, sexual orientation, (dis)ability).

Specifically, we calculate the score for the group of individuals who identify as cisgender, heterosexual men with no disabilities, and use it as the "majority baseline." We can then calculate the score of any other group relative to this group.

The *identity impact* scores are shown in the figure to the right. (Dis)ability shows the highest relative score at 153%, meaning that the exclusion index for everyone who identifies as having a disability is 153% higher than the majority baseline. The Gender relative score is very close at 149%, followed by Sexual Orientation at 113% and Race / Ethnicity at 82%.


While the identity impact scores do not capture the important nuances of how experiences differ between groups within each identity, it's a very useful way to show that any difference from the majority has an impact on workplace experiences.
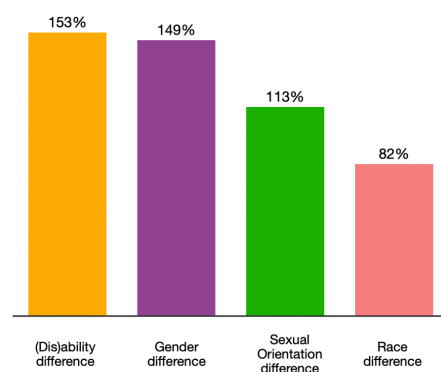
The impact of intersectionality

The idea of treating identities as individual dimensions can also be used to explore the impact of *intersectionality*, that is, when someone differs from the majority along more than one identity trait.
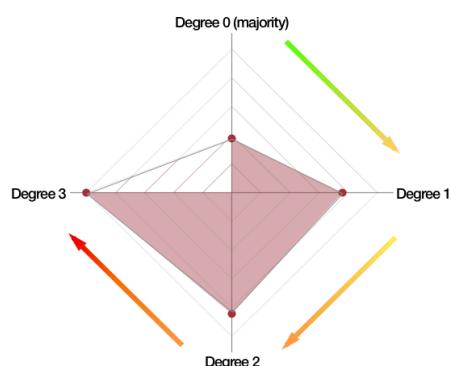
Using a similar approach, we calculated the exclusion score for anyone who is one degree away from the majority, e.g., a white heterosexual woman with no disabilities, a white man with a disability, a gay white man. We did the same for everyone who is two degrees away (e.g., an Asian woman with a disability, a Black woman, a bisexual white man with a disability), and also three degrees away.

The "radar chart" on the left shows the exclusion score as a function of degree of diversity, with Degree 0 at the top and the other degrees in clockwise increasing order.

The chart clearly illustrates that there is a very strong relationship between the degree of diversity and the level of exclusion: relative to Degree 0, the score for Degree 1 is 2.0 times larger, for Degree 2 it is 2.2 times larger, and for Degree 3 it is 2.6 times larger.

These results align with the general understanding that increasing levels of intersectionality mean that an individual is likely to be the subject of exclusion as a result of more than one identity trait, thus the increasing exclusion with degree of diversity.

Conclusions: Why Measuring Inclusion Really Matters

The 2023 State of Inclusion Benchmark in Cybersecurity is the first study to report extensive inclusion data across an entire industry sector. We see this as a watershed moment, not only for cybersecurity, but how organizations in general think about the impact of DEI on their employees.

Our partner, Aleria, has shown conclusively through other studies that **inclusion is what you do, diversity is what you get**. In other words, inclusion is about how policies, activities and behaviors shape the day-to-day experience of individual employees. These experiences impact each employee's level of satisfaction and sense of inclusion or belonging. In turn, we know that lower satisfaction leads to lower productivity and increased attrition.

From an organization's perspective, decreased productivity results in reduced revenues, while increased attrition results in greater costs of rehiring. Aleria has created an interactive calculator[1] that, given an organization's revenues, number of employees, and level of diversity, can estimate the total loss resulting from some groups having lower levels of inclusion. For instance, consider a company generating $1 billion in revenues with 4,000 employees, of whom 25% identify as women and 10% as people of color. Using average exclusion scores, **we can estimate that the company is losing roughly $12 million per year from productivity losses and another $11 million from unwanted attrition, for a total annual loss of $23 million** *simply because it is treating women and people of color differently than white men*.

Put in a more positive light, anything that an organization can do to identify and mitigate issues that cause exclusion can expect to see a significant boost in its bottom-line financial results. Furthermorethe organization will experience an increase in the overall satisfaction of all its employees, and higher, more sustainable levels of diversity as the employees most impacted by exclusion will enjoy the largest gains.

The primary purpose of our State of Inclusion Benchmark is to help the cybersecurity sector understand how their actions and behaviors prevent women from having greater participation and greater success in their careers. This complements our mission to provide many forms of support to women in the industry.

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[1] Visit https://www.aleria.tech/inclusion-calculator to try the calculator yourself.

However, it should be clear that measuring inclusion can also show organizations how much money they are losing every year, and how much money they could save by embracing initiatives to support their women—and every other employee who is not a member of the majority.

As this report should make clear, **supporting WiCyS is not just the right thing to do, it is also a smart business decision**.

We plan to repeat this benchmark annually, and hope that many of our strategic partners will participate actively in the 2024 benchmark by assessing the state of inclusion of their individual organizations. We are optimistic that finding out exactly what is happening will provide further motivation for each organization to support greater inclusion, driving meaningful and lasting change for the entire sector.