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Implications of a Multigenerational Workforce for Insider Threat Programs

Spring 2019 OSIT In-Person Meeting

Software Engineering Institute
Carnegie Mellon University
Pittsburgh, PA 15213

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Objective

The goal of this presentation are to begin a conversation about managing a multigenerational workforce and how that might impact insider threat program operations.

In furtherance of that goal, we will address research relevant to insider threat program practitioners.

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Agenda

- Generations in the Workforce
- Identify Potential Challenges
- Data from CERT Insider Threat Incident Corpus
- Questions for Consideration

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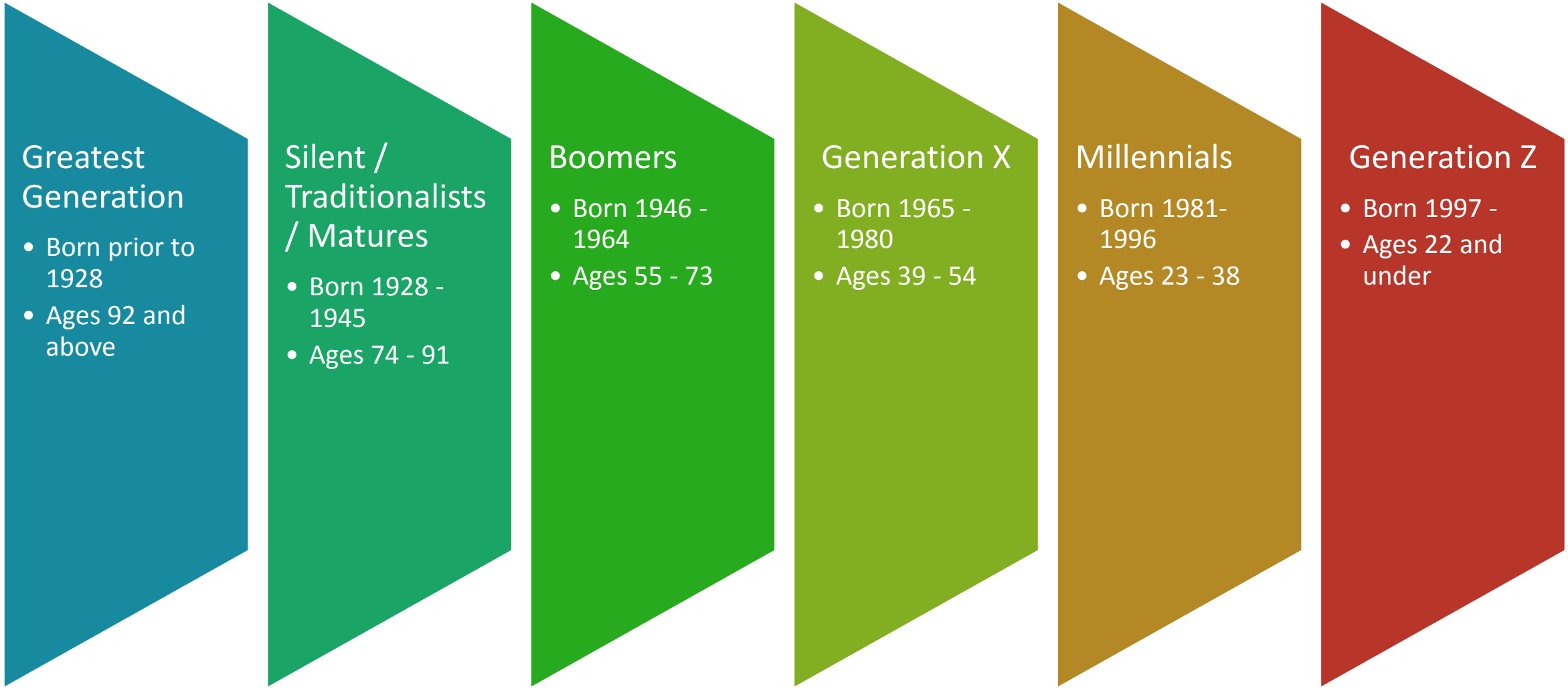
Generations and Age



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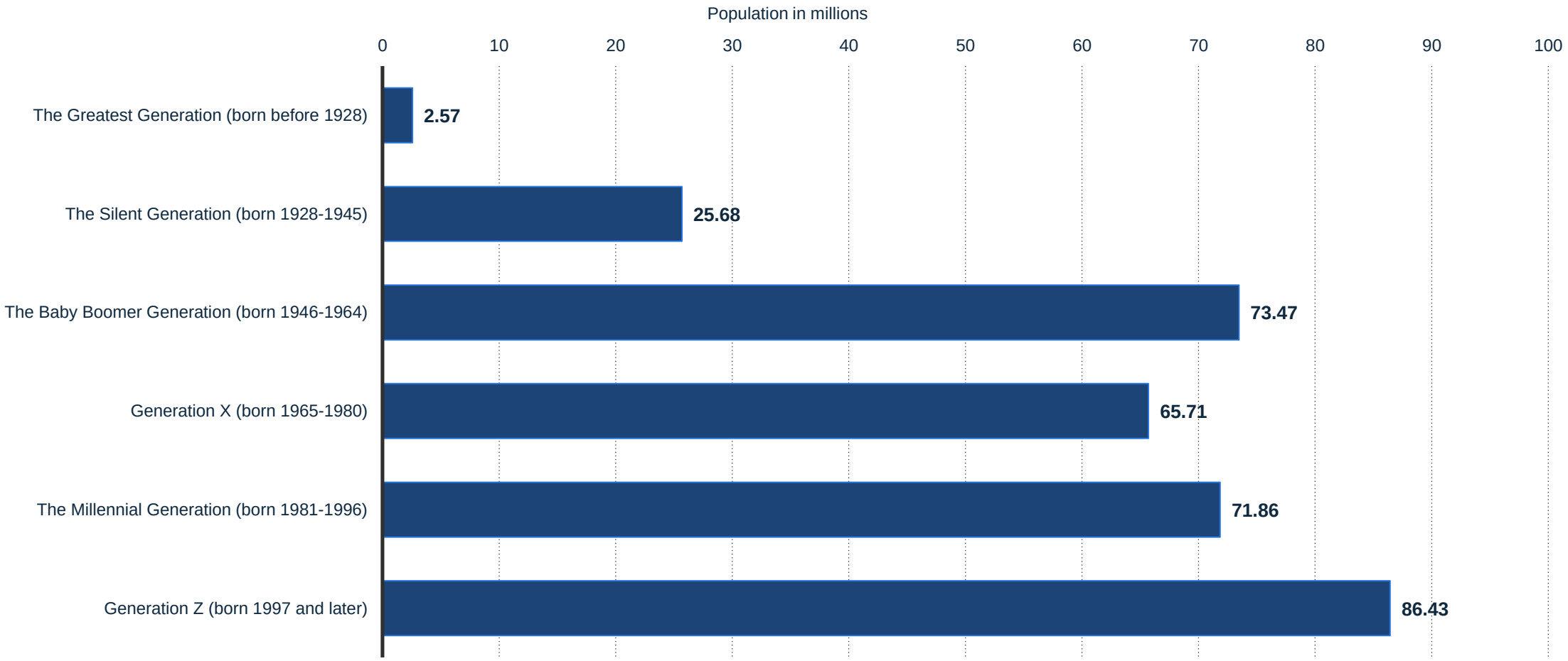
Resident population in the United States in 2017, by generation (in millions)

U.S. population by generation 2017



Note: United States; As of July 1, 2017
Source(s): US Census Bureau; ID 797321

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Five generations

are in the workforce

at the same time…

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...this has never happened before.

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Both younger and older employees may find themselves **frustrated** by a multigenerational environment.

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The Silent Generation and Boomers

The Silent Generation is moving out of the workforce, with Boomers close behind them.

However, Boomers are retiring later than previous generations.

- For Boomers born after 1960, they will not have full Social Security benefits until age 67 – keeping them in the workforce longer.
- Boomers largely do not have sufficient savings for retirement.
- Many Boomers continue working after formal retirement.

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Generation X

Sometimes referred to as the “sandwich generation” because they are

- Outnumbered by both Baby Boomers and Millennials.
- Caretakers for both older parents (or grandparents)
- Caretakers for their Millennial or Generation Y children.
- Experience crises and financial strain as a result

Initial findings from the CERT Insider Threat Incident Corpus shows that they may commit insider threat disproportionate to the population.

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Millennials and Generation Z

A common misconception is that Millennials are the teens of today – but in reality the people referred to as Millennials are in their twenties and thirties.

Not all Millennials are “digital natives” in the same way as Generation Z.

There is no end date yet for Generation Z – but generations tend to be defined in 15 year increments.

The oldest members of Generation Z are graduating from college this year – they are becoming the workforce.

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Limitations

Applicability

- No one person is going to be a perfect representative of their generation – we can use findings as general guidance.

Research

- While we reference some more widely used start and end years for generations, some studies will have variation in these dates.
- Generation X has gone largely unstudied – there is an acknowledged lack of research focusing on this group.
- Many studies will take an approach of “Boomers vs Millennials,” “Millennials vs everyone else,” or similar approach, which limits more nuanced findings.

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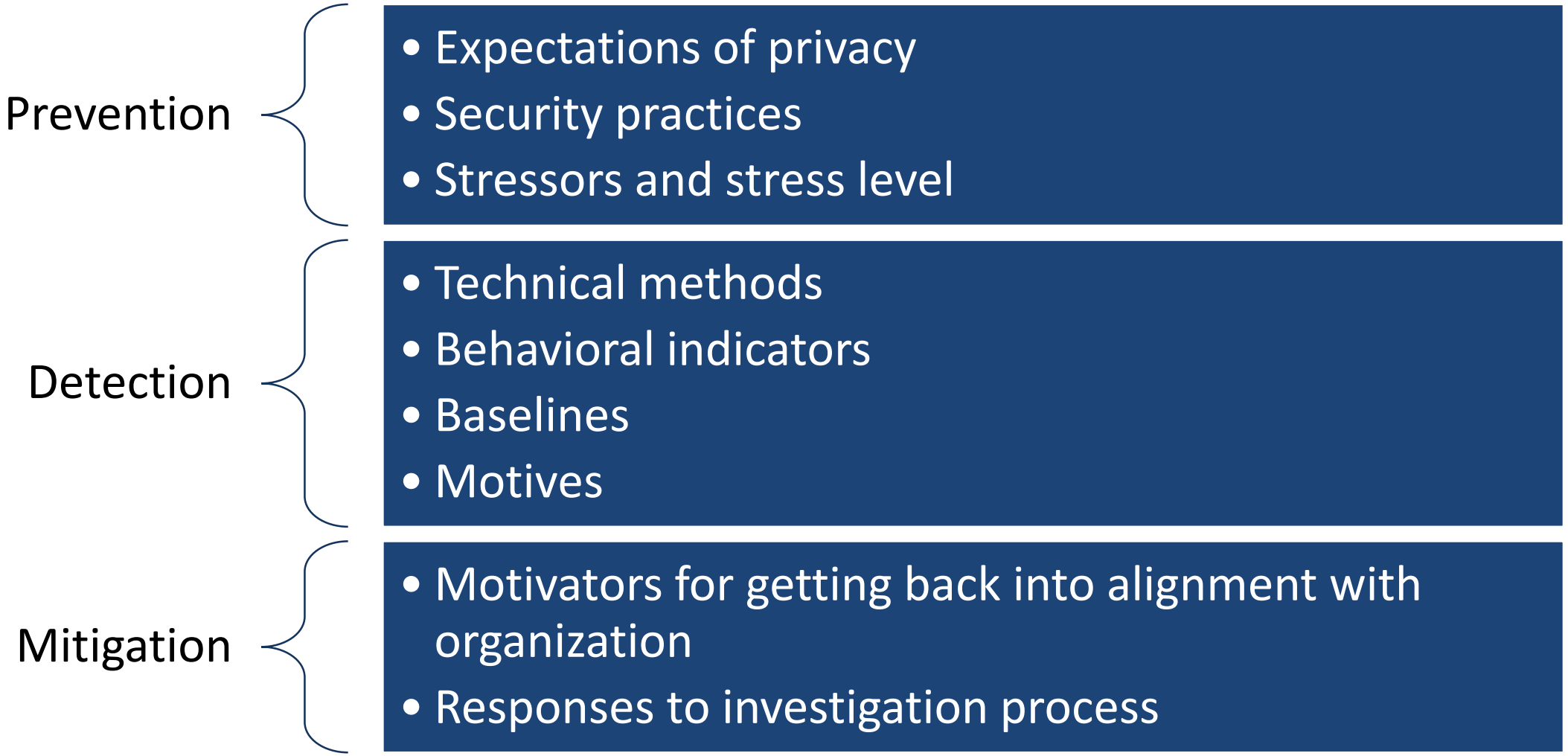
Potential Impacts to Enterprise-Wide Insider Threat Programs Operations



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Multigenerational Workforce Research

Notable Research

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Foundations for this Discussion

- Various models and factoids
- Counterproductive Work Behaviors (CWB) literature
- Gallup workforce research
- Pew Research Center generational research
- Statista
- CERT Insider Threat Incident Corpus

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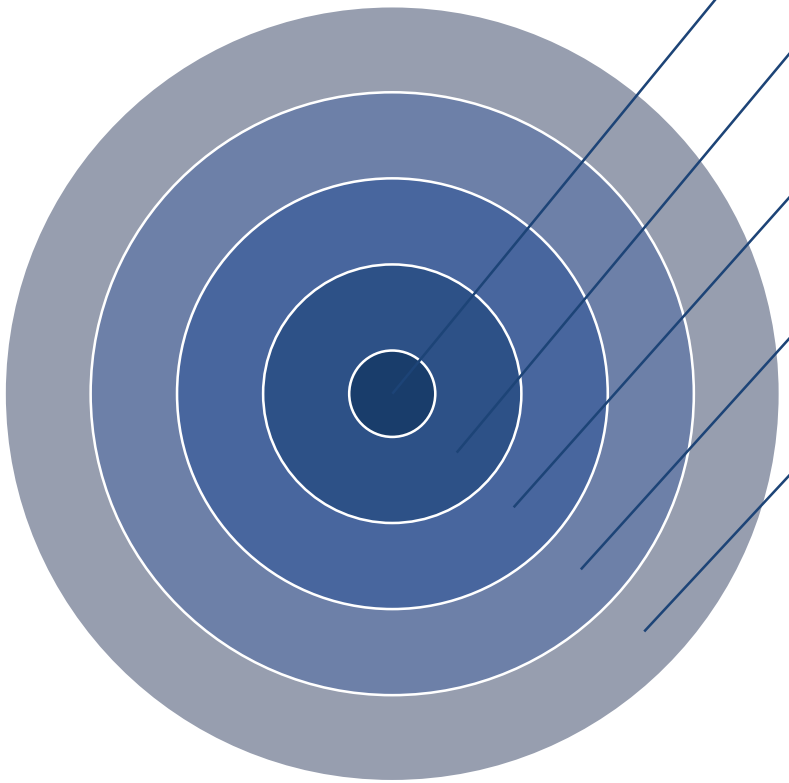
Bronfenbrenner (Bio-)Ecological Model (1977 – 2005)



Individual

- Sex, age, health, etc.

Microsystem

- Family, school, peers, neighborhood, religious institutions, social services, etc.

Mesosystem

- Interactions between microsystems

Ecosystem

- Context and social setting, e.g., industry, mass media, local authorities, parents' work experience impacting children

Macrosystem

- Cultural context, e.g., values, identities, socioeconomic conditions

Chronosystem Historical circumstances and transitions throughout life

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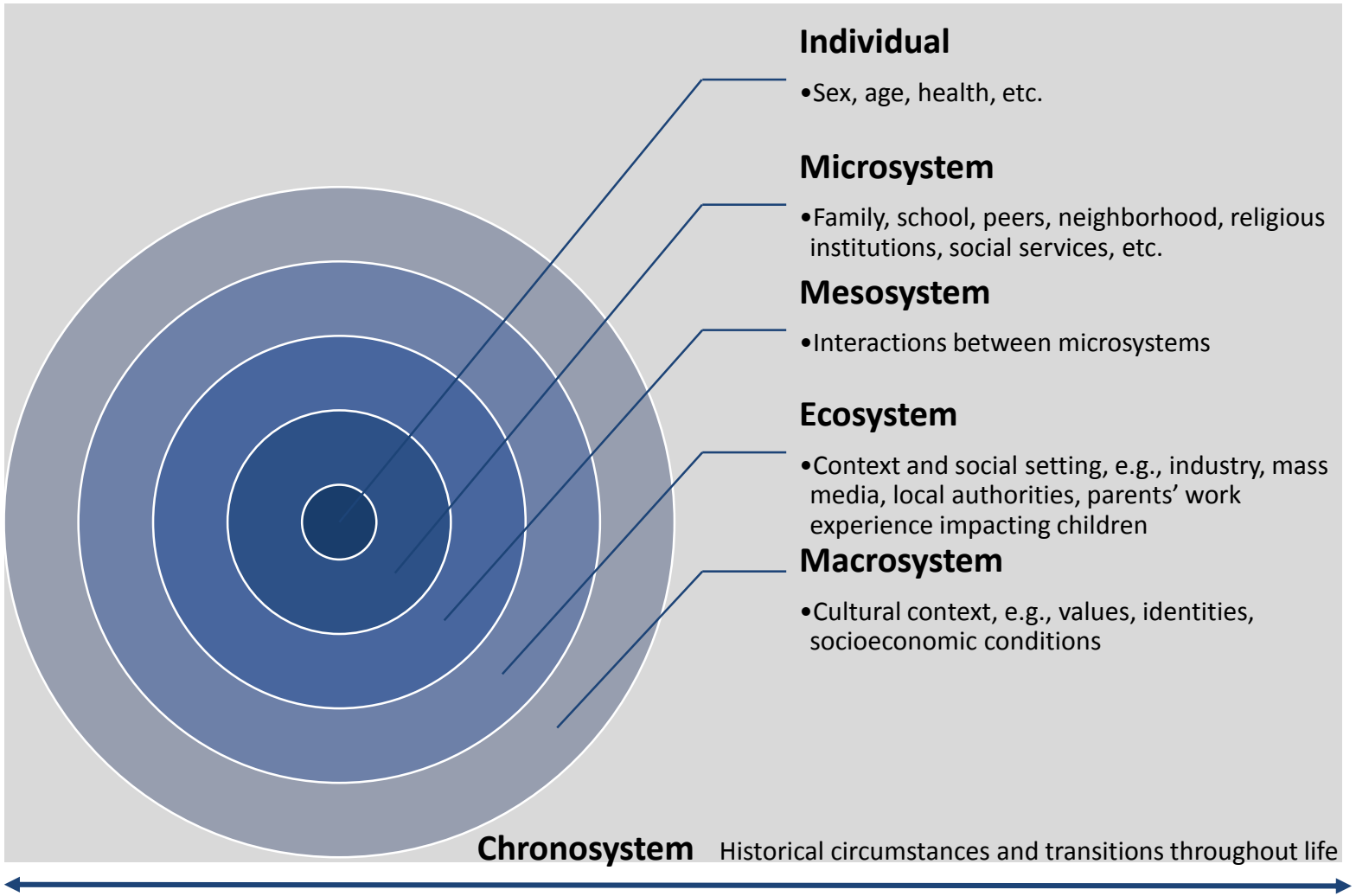
Bio-Ecological Model in Context



The Bio-Ecological model can give us a frame for understanding the macro-forces that shape individuals within a given generation such that they may share some common experiences and potentially values, biases, etc.

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Multigenerational Workforce Research

Motivations and Values

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Motivation and Recognition Preferences

	Silent / Traditionalist	Boomers	Generation X	Millennials	Generation Z
Motivation	• Financial rewards • Respect / status • Adding value to organizations and society	• Financial rewards • Peer recognition • Promotions • Positions of authority	• Bonuses and stock • Flexibility • Prefers to work independently • Career progression based on competence	• Stock options • Feedback • Skills training • Mentoring • Feedback • Workplace culture	• Mentorship • Constant feedback • Workplace flexibility and diversity • Contributing to the "big picture"

Source: Gurchiek (2016)

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Motivation and Recognition Preferences

	Silent / Traditionalist	Boomers	Generation X	Millennials	Generation Z
Preferred Recognition Style	Subtle, personalized recognition and feedback	• Acknowledgement of their input and expertise • Prestigious job titles • Parking places • Office size	• Informal, rapid and publicly communicated • Recognition from the boss	• Recognition from the boss • Regular, informal communication	Regular in-person public praise
Welcomed Benefits	• Long-term care insurance • Retirement funding	• 401(k) matching funds • Sabbaticals • Retirement funding • Professional development	• Telecommuting • Tuition reimbursement • Gift cards • Experiential rewards • Flexible schedules	• Time off • Flexible schedules • Continued learning	Online training and certification programs

Source: Gurchiek (2016)

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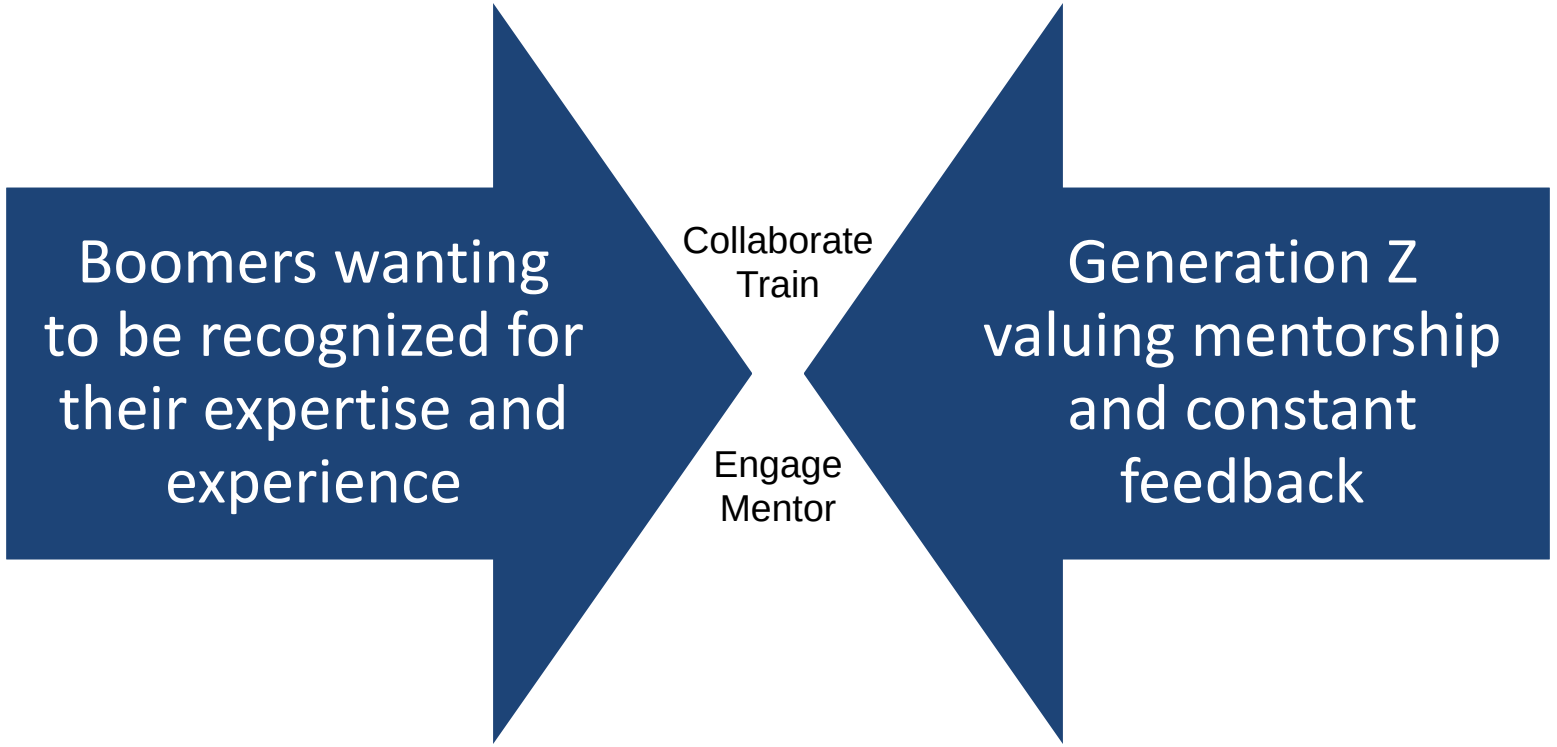
Potential Mitigation?



Considering what we know broadly about these different generations in the workforce, what are different ways that we can bridge gaps and find opportunities to mitigate potential frustrations?

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Multigenerational Workforce Research

Stress by Generation

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Stress Scale

APA (2015) “Stress in America” survey

Scale from 1 (“little to no stress”) to 10 (“a great deal of stress”)

National average was 4.9

Everyone seems to have more than the healthy level of stress.

High stress can weaken the immune system and cause exhaustion in the body.

Work is one of the most common sources of stress for adults.

Source: https://www.nydailynews.com/life-style/health/millennials-feel-stressed-older-adults-article-1.1258297

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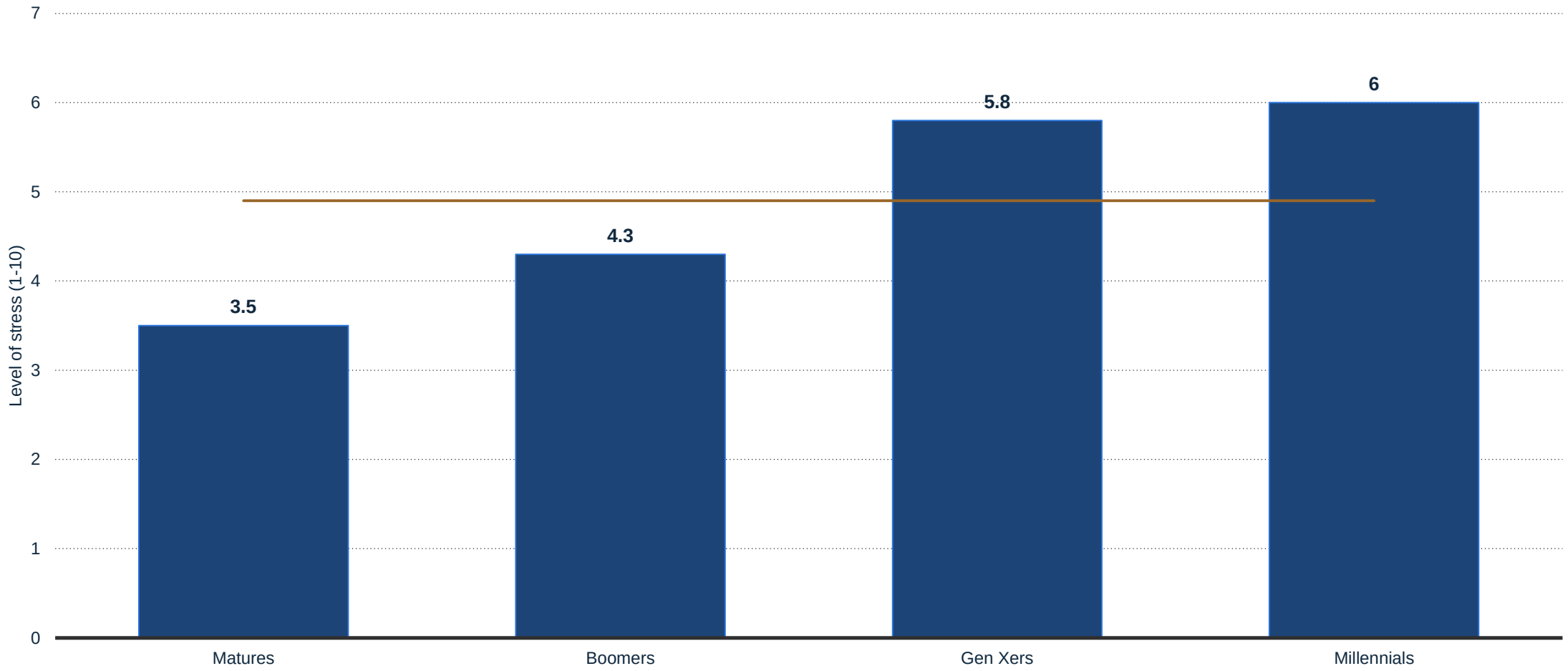
Stress levels by generation among U.S. adults in 2015*

Level of stress among U.S. adults by generation 2015



Note: United States; August 3 to 31, 2015; 18 years and older; 3,361 Respondents
Source(s): APA; ID 418089

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Millennial Findings

- Millennials are more stressed, but have more maladaptive coping mechanisms (largely sedentary habits).
- In comparison, “Millennials’ parents” are more likely to engage in exercise.
- Millennials were concerned about “work, money concerns and job stability.”
- Half of millennials self-assessed that they were not managing stress well – with many finding that they had inadequate support to manage their stress.

Potential Mitigation: Incorporate detailed Employee Assistance Program (EAP) or other workplace wellness initiatives into onboarding or even insider threat awareness training.

Sources: https://www.nydailynews.com/life-style/health/millennials-feel-stressed-older-adults-article-1.1258297
https://www.apa.org/news/press/releases/stress/2012/generations

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Gallup (2013)

Traditionalists were smallest proportion but most engaged.

Boomers and Gen X were a majority (88%) of the workforce.

- Despite making up most of the workforce, Boomers and Gen X were actively disengaged.
- Stress of approaching retirement for Boomers – 1 in 4 actively disengaged

Gen X are generally pessimistic, but can be engaged by new opportunities tied to mission.

Millennials, despite being more engaged, were more likely to want to job hop.

Source: https://news.gallup.com/businessjournal/163466/generation-gap-workplace.aspx

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Multigenerational Workforce Research

Views of Security

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Security and Cyber Hygiene

Boomers

- Most precautious with regards to security
- Spam-conscious
- Most likely to use unique passwords
- Least likely to share passwords
- More confident in workplace security training than Millennials

Generation X

- Perhaps most concerned with security
- Not always sure of the actions that can be taken

Millennials

- More likely to keep up with security technology, like tools or apps
- Adopters of two-factor authentication
- Conscientious about social media presence
- Sharing passwords despite using technology

Generation Z

- Confident in online activity
- More likely to put less thought into passwords
- Least concerned with security

Sources: https://staysafeonline.org/blog/look-online-security-ages/
https://www.securityroundtable.org/millennials-an-urban-legend-in-cybersecurity/
https://www.securitymagazine.com/articles/88390-study-says-baby-boomers-more-concerned-about-cybersecurity-than-millennials

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Potential Implications for Expanding Security & Awareness Efforts

Boomers

- Since Boomers are confident in workplace security, consider offering additional optional training that challenges what could be complacency in this regard.

Generation X

- Identify action items that can be used both personally and professionally to better protect data.
- Consider developing collateral related to cyber hygiene that can be placed in work and break spaces.

Millennials

- Consider what security applications could be incorporated as younger employees / users may be more willing to use them.
- Add a focus on the dangers of sharing passwords to security and insider threat training.

Generation Z

- Enforce strong password rules for all users.
- Incorporate regular security training across the employee lifecycle starting with onboarding.

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Multigenerational Workforce Research

Counterproductive Work Behaviors (CWB)

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Gruys & Sackett (2003) – 11 Dimensions

theft of property

destruction of property

misuse of information

misuse of time and resources

unsafe behavior

poor attendance (absenteeism)

poor quality of work

alcohol use

drug use

inappropriate verbal action

inappropriate physical action

If your organization has specific use cases that they are concerned with, there is a wealth of research within the domain of CWB that may provide additional context on potential mitigations, etc.

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Implications of a Multigenerational Workforce for Insider Threat Programs

Exploring Data from CERT Insider Threat Incident Corpus

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Context

The statistics and figures represented in the following slides are limited to:

- Domestic incidents with publicly available information
- Malicious technical insiders
- Cases identified as Fraud, Sabotage, Theft of IP, or Misuse

The information that follows is not intended to be exhaustive of what is documented in the CERT Insider Threat Incident Corpus, but provide a snapshot.

Additional incidents have been added to the CERT Insider Threat Incident Corpus since this analysis was performed that may have altered some of the trends in the aggregated data.

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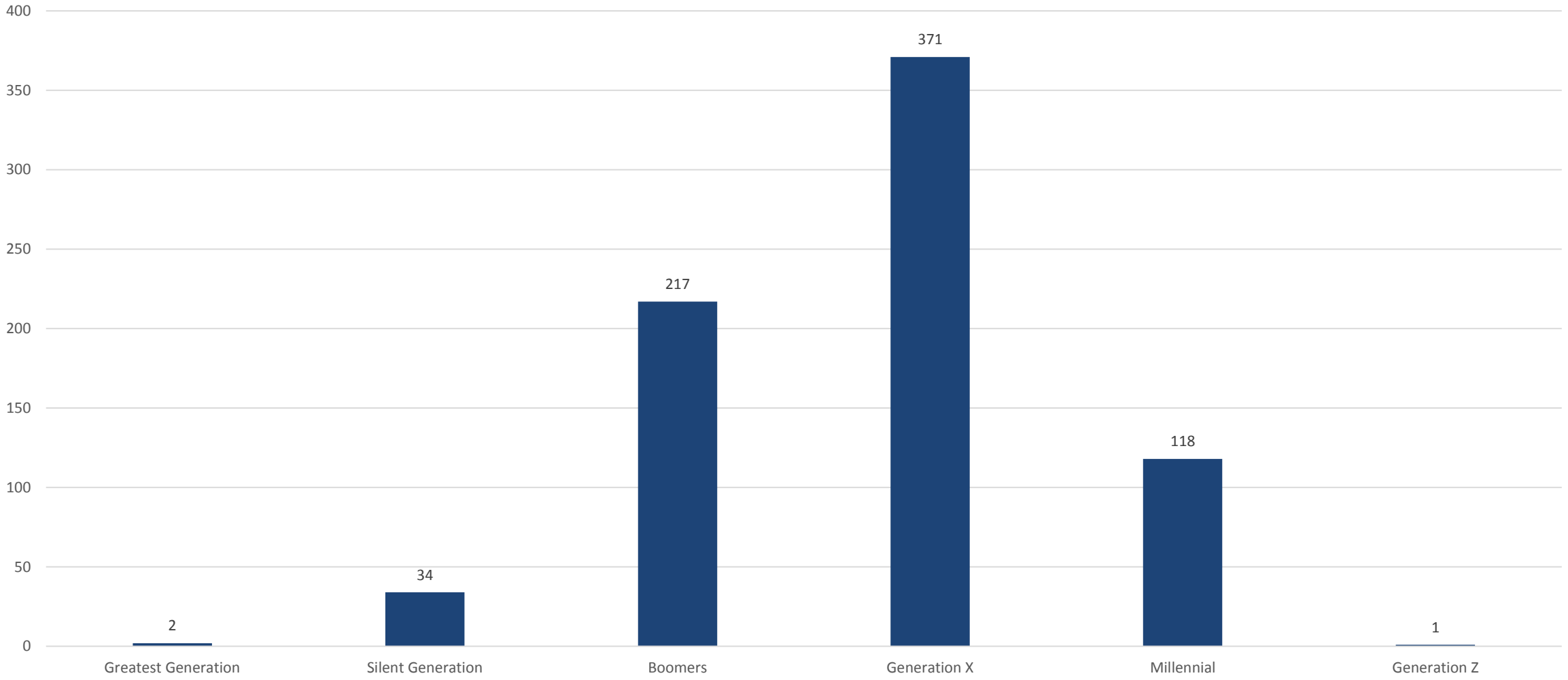
Generations of Insiders with Known Ages



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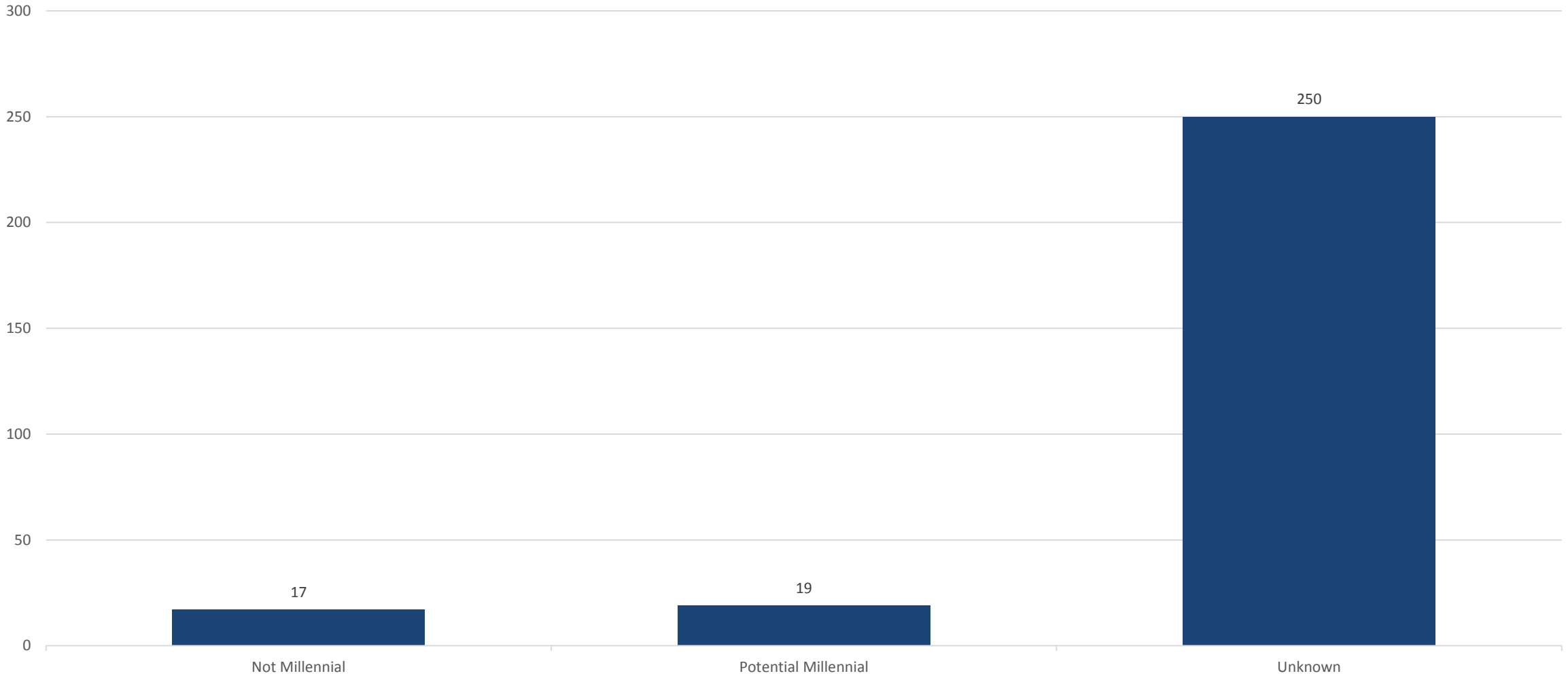
Insiders with Undetermined Generations



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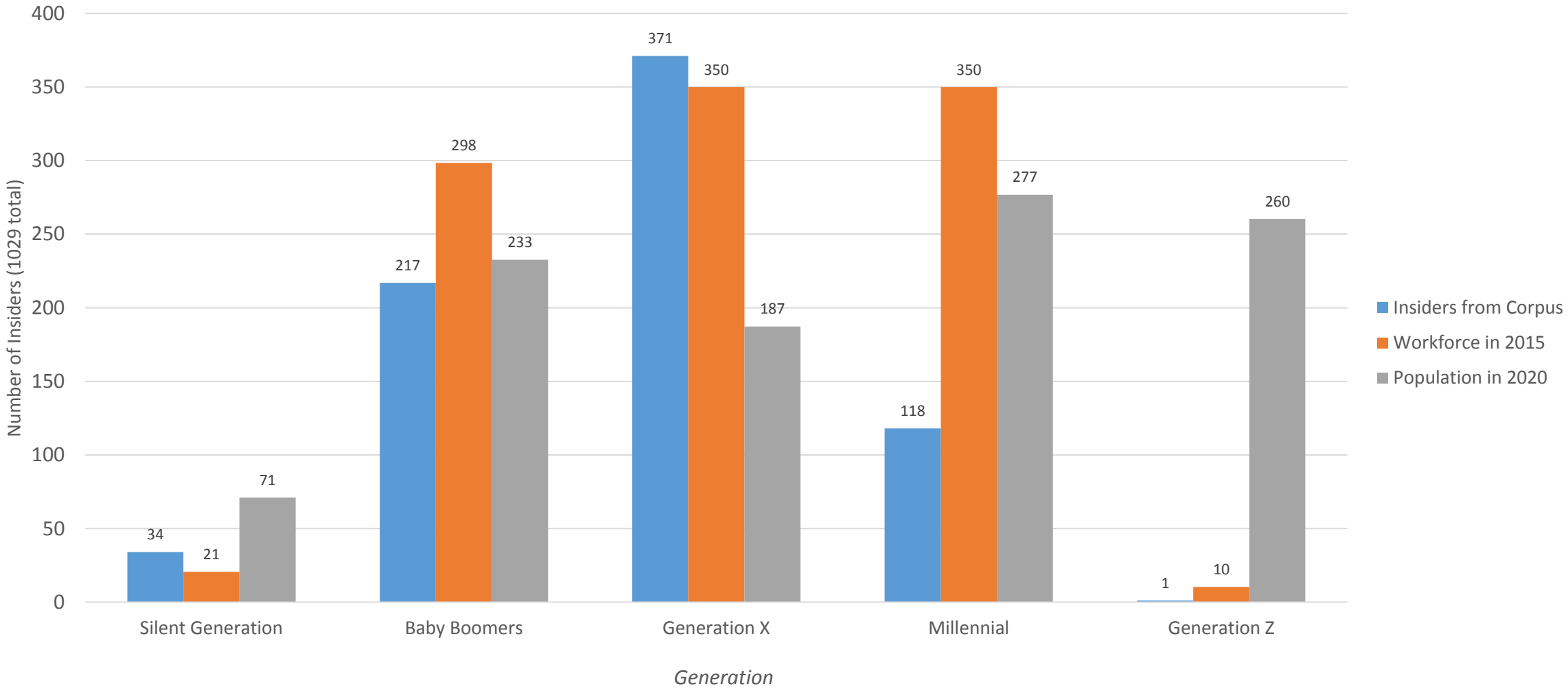
Intentional Insiders by Generation



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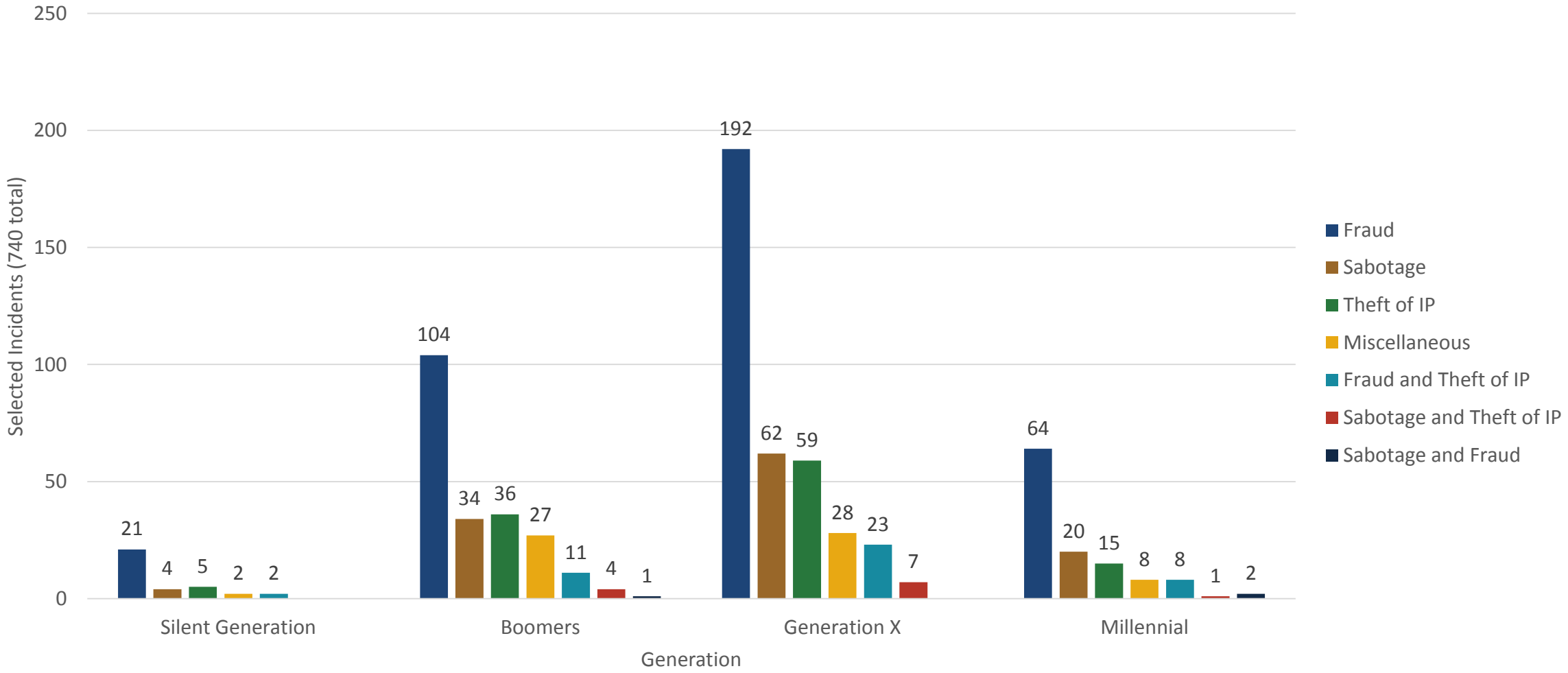
Case Type by Generation



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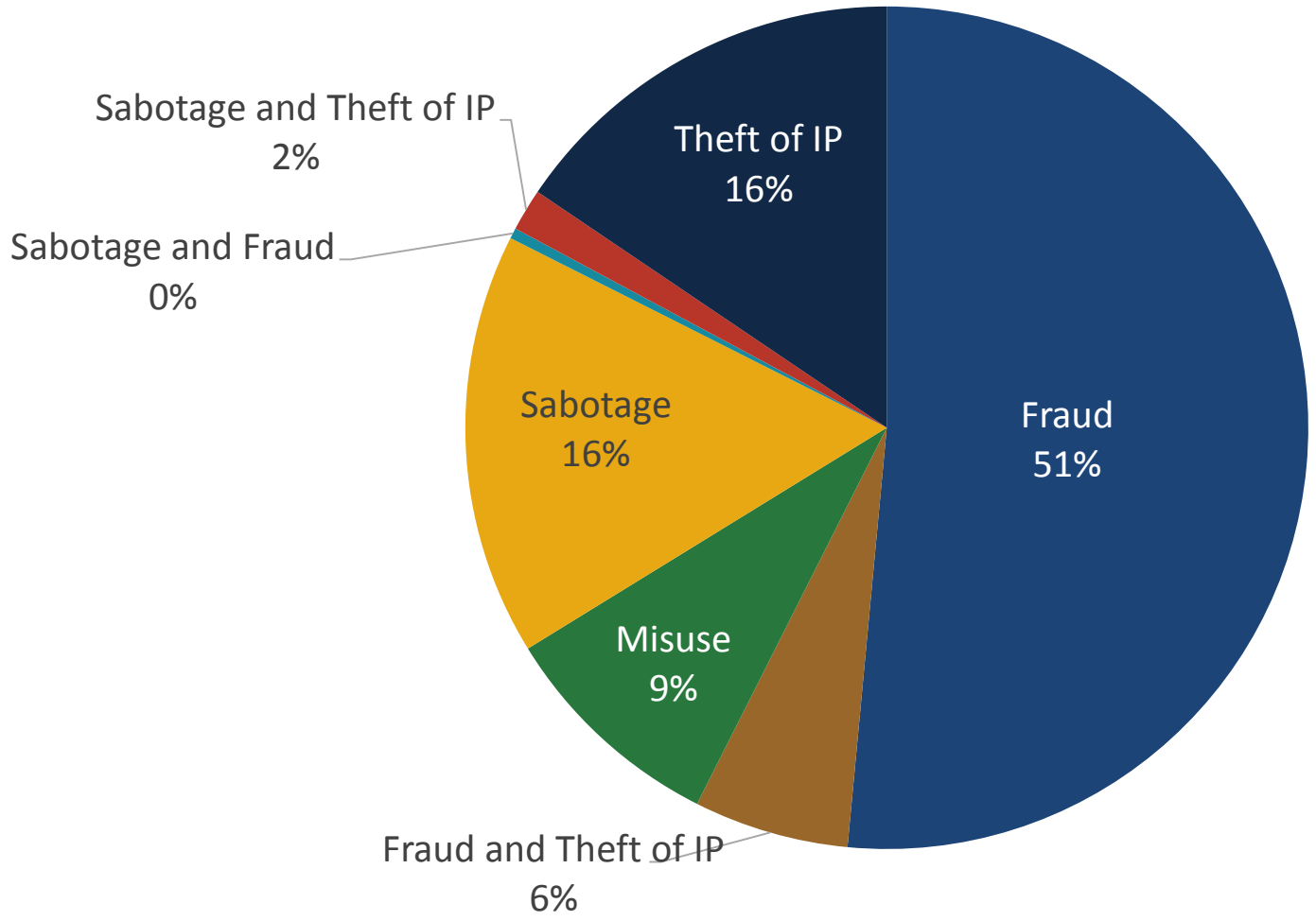
Case Type – Limited to Four Generations



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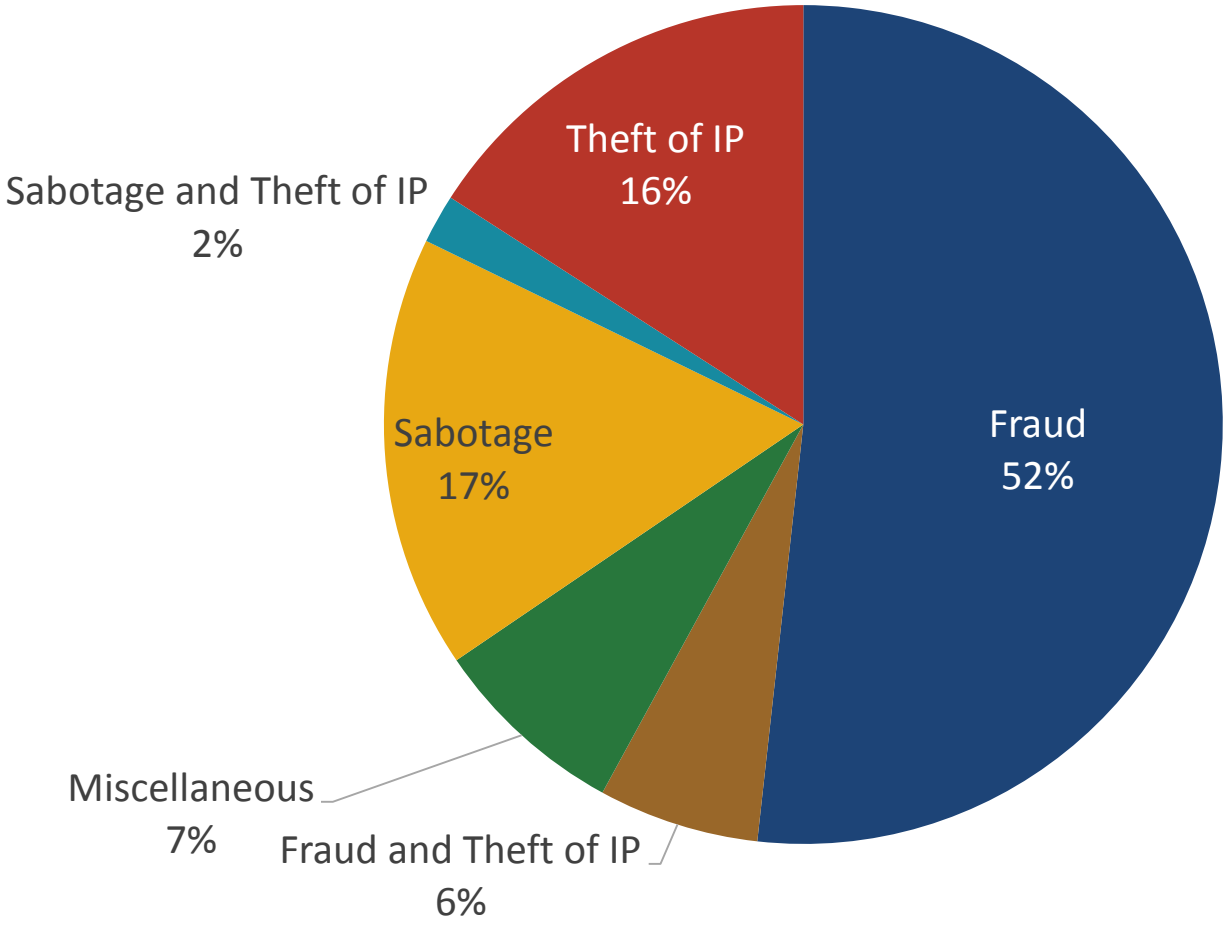
Generation X by Case Type



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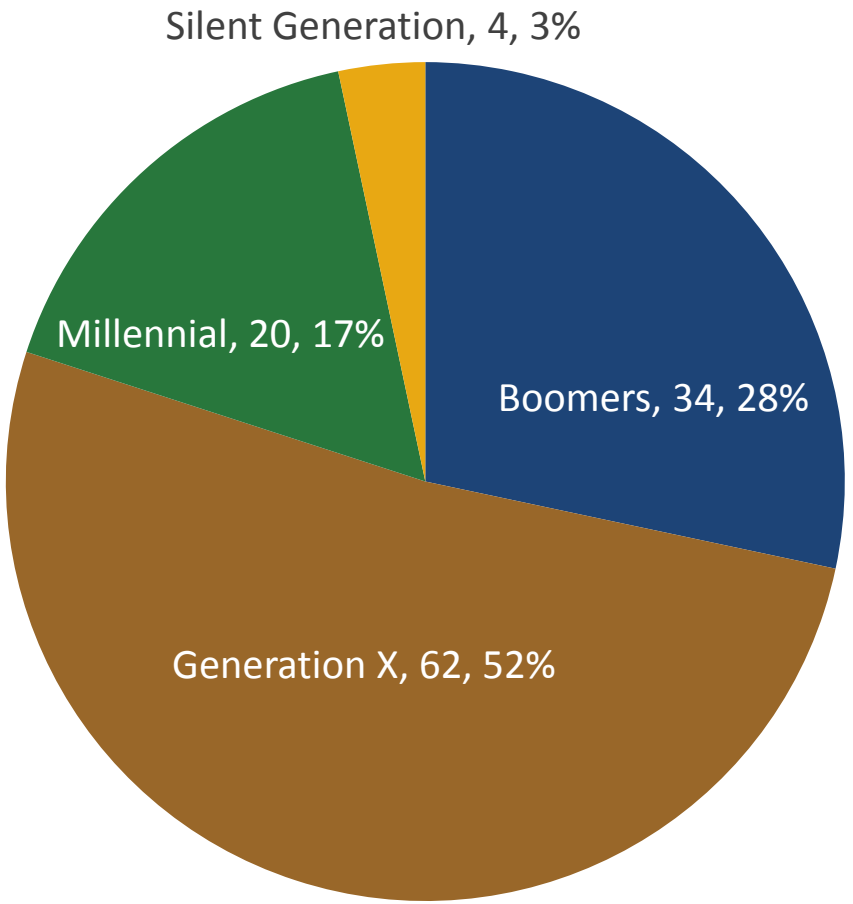
Sabotage by Generation



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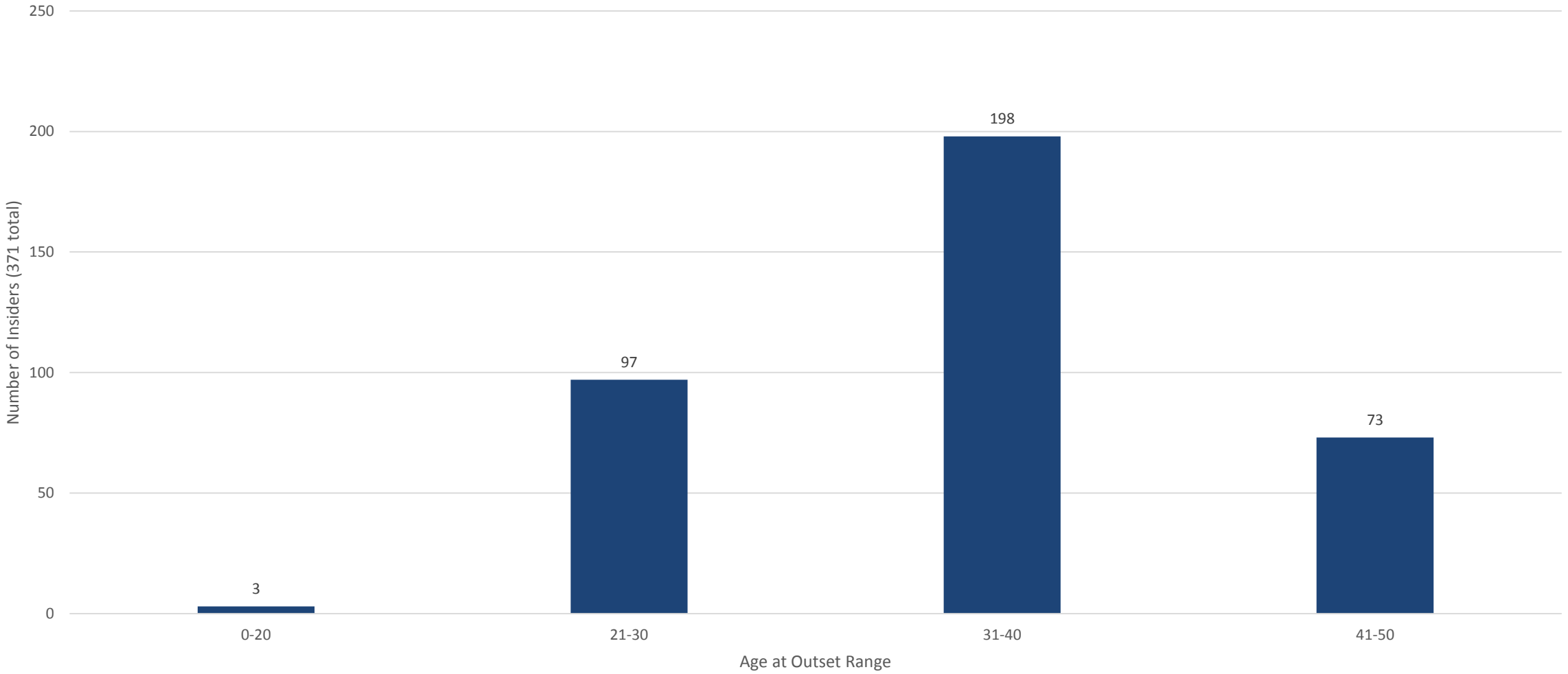
Generation X by Age at Outset of Incident



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Research Questions to Explore

- Do technical methods vary across generational groups?
  - Accordingly, are there differences in case types?
  - Are some forms of exfiltration preferred over others?
- Does motive vary across generational groups?
- Are insiders of a particular generation (or age) more or less likely to collude?
  - With other insiders? Outsiders? Both?
- Can we gain insights by looking at the positions held by insiders of a particular generational group? How can this impact how we frame these differences?
- Are some stressors observed more in some generations over others?

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Questions for Consideration

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Questions for Consideration

- Has your organization approached the idea of generational differences among employees or insiders?
- Do your analysts have access to data like an insider's age?
  - Does that get calculated into their risk score?
  - Cognitive biases related to the risk posed by an insider may come into play for analysts with access to that information.
- Aside from intentional threats, are there any generational differences related to unintentional insider threats that you have encountered?
- Is your insider threat program collaborating with employee wellbeing programs, HR, or other groups to address stressors experienced by different employee needs?

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Implications of a Multigenerational Workforce for Insider Threat Programs

Wrap-Up

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Implementation

Since detection using an insider's age poses legal challenges and may exacerbate biases (either positive or negative) towards employees, generational research can be used to develop **prevention** and **mitigation** approaches that take into account the different values and preferences of each segment of the workforce.

Generational research can help provide **context** to the possible intent (e.g., malicious or unintentional) or motivation of potential insiders.

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  - Direct Source: https://www.apa.org/news/press/releases/stress/2014/stress-report.pdf
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Additional Reading

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- Sunjanski & Ferri-Reed. *Keeping The Millennials: Why Companies Are Losing Billions in Turnover to This Generation - and What to Do About It*
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- Multi-Generational Impacts on the Workplace: https://www.bentley.edu/files/2017/11/01/Bentley%20CWB%20Generational%20Impacts%20Research%20Report%20Fall%202017.pdf
- 2018 Deloitte Millennial Survey
- How Millennials Want to Work and Live (Gallup)
- Generation X: Stuck in the Middle (Pew Center): https://www.pewresearch.org/fact-tank/2014/06/05/generation-x-americas-neglected-middle-child/
- Millennials are the largest generation in the U.S. labor force (Pew Center): https://www.pewresearch.org/fact-tank/2018/04/11/millennials-largest-generation-us-labor-force/
- Millennial Perceptions of Security (RAND): https://www.rand.org/pubs/research_reports/RR2571.html

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National Insider Threat Center (NITC) Web Resources

National Insider Threat Center	http://www.cert.org/insider-threat/
National Insider Threat Center Email	insider-threat-feedback@cert.org
Insider Threat Blog	http://insights.sei.cmu.edu/insider-threat/
SEI Digital Library	https://resources.sei.cmu.edu/library/

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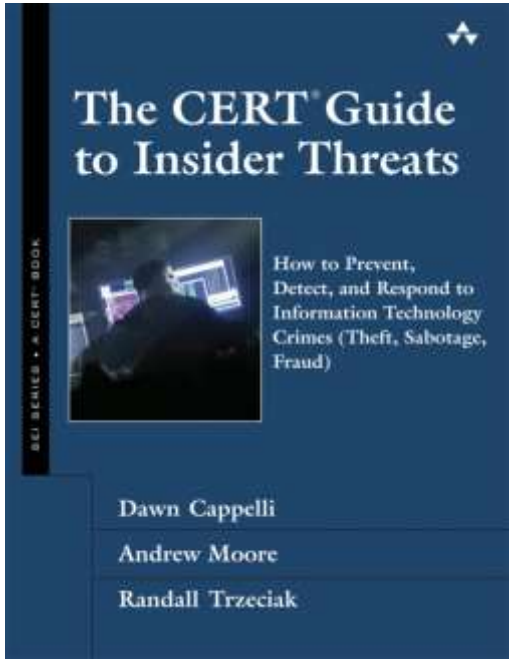

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