Implications of a Multigenerational Workforce for Insider Threat Programs

Spring 2019 OSIT In-Person Meeting
Implications of a Multigenerational Workforce for Insider Threat Programs

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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.
Agenda

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

Greatest Generation
- Born prior to 1928
- Ages 92 and above

Silent / Traditionalists / Matures
- Born 1928 - 1945
- Ages 74 - 91

Boomers
- Born 1946 - 1964
- Ages 55 - 73

Generation X
- Born 1965 - 1980
- Ages 39 - 54

Millennials
- Born 1981 - 1996
- Ages 23 - 38

Generation Z
- Born 1997 -
- Ages 22 and under
Resident population in the United States in 2017, by generation (in millions)

U.S. population by generation 2017

- The Greatest Generation (born before 1928): 2.57 million
- The Silent Generation (born 1928-1945): 25.68 million
- The Baby Boomer Generation (born 1946-1964): 73.47 million
- Generation X (born 1965-1980): 65.71 million
- The Millennial Generation (born 1981-1996): 71.86 million
- Generation Z (born 1997 and later): 86.43 million

Note: United States; As of July 1, 2017
Source(s): US Census Bureau; ID 797321
Five generations are in the workforce at the same time…
...this has never happened before.
Both younger and older employees may find themselves frustrated by a multigenerational environment.
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.
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.
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.
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.
Potential Impacts to Enterprise-Wide Insider Threat Programs Operations

- **Prevention**
  - Expectations of privacy
  - Security practices
  - Stressors and stress level

- **Detection**
  - Technical methods
  - Behavioral indicators
  - Baselines
  - Motives

- **Mitigation**
  - Motivators for getting back into alignment with organization
  - Responses to investigation process
Multigenerational Workforce Research

Notable Research
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

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

<table>
<thead>
<tr>
<th>Silent / Traditionalist</th>
<th>Boomers</th>
<th>Generation X</th>
<th>Millennials</th>
<th>Generation Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Financial rewards</td>
<td>• Financial rewards</td>
<td>• Bonuses and stock</td>
<td>• Stock options</td>
<td>• Mentorship</td>
</tr>
<tr>
<td>• Respect / status</td>
<td>• Peer recognition</td>
<td>• Flexibility</td>
<td>• Feedback</td>
<td>• Constant feedback</td>
</tr>
<tr>
<td>• Adding value to</td>
<td>• Promotions</td>
<td>• Preferences to work</td>
<td>• Skills training</td>
<td>• Workplace flexibility and diversity</td>
</tr>
<tr>
<td>organizations and</td>
<td>• Positions of</td>
<td>independently</td>
<td>• Mentoring</td>
<td>• Contributing to the “big picture”</td>
</tr>
<tr>
<td>society</td>
<td>authority</td>
<td>• Career progression</td>
<td>• Feedback</td>
<td></td>
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<td></td>
<td></td>
<td>based on competence</td>
<td>• Workplace culture</td>
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</tbody>
</table>

Source: Gurchiek (2016)
## Motivation and Recognition Preferences

<table>
<thead>
<tr>
<th>Preferred Recognition Style</th>
<th>Silent / Traditionalist</th>
<th>Boomers</th>
<th>Generation X</th>
<th>Millennials</th>
<th>Generation Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtle, personalized recognition and feedback</td>
<td>• Acknowledgement of their input and expertise</td>
<td>• Informal, rapid and publicly communicated</td>
<td>• Recognition from the boss</td>
<td>Regular in-person public praise</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Prestigious job titles</td>
<td>• Recognition from the boss</td>
<td>• Regular, informal communication</td>
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<td></td>
<td>• Parking places</td>
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<td></td>
<td>• Office size</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Welcomed Benefits</th>
<th>Silent / Traditionalist</th>
<th>Boomers</th>
<th>Generation X</th>
<th>Millennials</th>
<th>Generation Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Long-term care insurance</td>
<td>• 401(k) matching funds</td>
<td>• Telecommuting</td>
<td>• Time off</td>
<td>Online training and certification programs</td>
<td></td>
</tr>
<tr>
<td>• Retirement funding</td>
<td>• Sabbaticals</td>
<td>• Tuition reimbursement</td>
<td>• Flexible schedules</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Retirement funding</td>
<td>• Gift cards</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>• Professional development</td>
<td>• Experiential rewards</td>
<td>• Continued learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Flexible schedules</td>
<td></td>
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</tr>
</tbody>
</table>

Source: Gurchiek (2016)
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?

- **Boomers** wanting to be recognized for their expertise and experience
  - Collaborate
  - Train
  - Engage
  - Mentor

- **Generation Z** valuing mentorship and constant feedback
Multigenerational Workforce Research

Stress by Generation
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
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
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
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
Multigenerational Workforce Research

Views of Security
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://staysafeonline.org/blog/look-online-security-ages/)
[https://www.securityroundtable.org/millennials-an-urban-legend-in-cybersecurity/](https://www.securityroundtable.org/millennials-an-urban-legend-in-cybersecurity/)
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.
Multigenerational Workforce Research

Counterproductive Work Behaviors (CWB)
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.
Implications of a Multigenerational Workforce for Insider Threat Programs

Exploring Data from CERT Insider Threat Incident Corpus
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.
Generations of Insiders with Known Ages
Insiders with Undetermined Generations

- Not Millennial: 17
- Potential Millennial: 19
- Unknown: 250
Intentional Insiders by Generation

- **Silent Generation**: 34 (Insiders from Corpus), 21 (Workforce in 2015), 71 (Population in 2020)
- **Baby Boomers**: 217 (Insiders from Corpus), 298 (Workforce in 2015), 233 (Population in 2020)
- **Generation X**: 371 (Insiders from Corpus), 350 (Workforce in 2015), 187 (Population in 2020)
- **Millennial**: 118 (Insiders from Corpus), 350 (Workforce in 2015), 277 (Population in 2020)
- **Generation Z**: 1 (Insiders from Corpus), 10 (Workforce in 2015), 260 (Population in 2020)
Case Type by Generation

<table>
<thead>
<tr>
<th>Generation</th>
<th>Fraud</th>
<th>Sabotage</th>
<th>Theft of IP</th>
<th>Miscellaneous</th>
<th>Fraud and Theft of IP</th>
<th>Sabotage and Theft of IP</th>
<th>Sabotage and Fraud</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silent Generation</td>
<td>21</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Boomers</td>
<td>34</td>
<td>36</td>
<td>27</td>
<td>11</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Generation X</td>
<td>62</td>
<td>59</td>
<td>28</td>
<td>23</td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Millennial</td>
<td>64</td>
<td>20</td>
<td>15</td>
<td>8</td>
<td>8</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Case Type – Limited to Four Generations

- Theft of IP: 16%
- Sabotage: 16%
- Misuse: 9%
- Fraud and Theft of IP: 6%
- Fraud and Sabotage: 0%
- Sabotage and Theft of IP: 2%
- Sabotage and Fraud: 0%

Fraud: 51%
Generation X by Case Type

- **Fraud**: 52%
- **Sabotage**: 17%
- **Theft of IP**: 16%
- **Sabotage and Theft of IP**: 2%
- **Fraud and Theft of IP**: 6%
- **Miscellaneous**: 7%
Sabotage by Generation

- Boomers, 34, 28%
- Generation X, 62, 52%
- Millennial, 20, 17%
- Silent Generation, 4, 3%
Generation X by Age at Outset of Incident

Number of Insiders (371 total)

Age at Outset Range

- 0-20: 3
- 21-30: 97
- 31-40: 198
- 41-50: 73
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?
Implications of a Multigenerational Workforce for Insider Threat Programs

Questions for Consideration
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?
Implications of a Multigenerational Workforce for Insider Threat Programs

Wrap-Up
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.
References


Additional Reading

- Sunjanski & Ferri-Reed. *Keeping The Millennials: Why Companies Are Losing Billions in Turnover to This Generation - and What to Do About It*
- Multi-Generational Impacts on the Workplace: [https://www.bentley.edu/files/2017/11/01/Bentley%20CWB%20Generational%20Impacts%20Research%20Report%20Fall%202017.pdf](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/](https://www.pewresearch.org/fact-tank/2014/06/05/generation-x-americas-neglected-middle-child/)
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<tr>
<td>National Insider Threat Center Email</td>
<td><a href="mailto:insider-threat-feedback@cert.org">insider-threat-feedback@cert.org</a></td>
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<tr>
<td>SEI Digital Library</td>
<td><a href="https://resources.sei.cmu.edu/library/">https://resources.sei.cmu.edu/library/</a></td>
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</tbody>
</table>
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- Moore, Andrew; Savinda, Jeff; Monaco, Elizabeth; Moyes, Jamie; Rousseau, Denise; Perl, Samuel; Cowley, Jennifer; Collins, Matthew; Cassidy, Tracy; VanHoudnos, Nathan; Buttles-Valdez, Palma; Bauer, Daniel; & Parshall, Allison. *The Critical Role of Positive Incentives for Reducing Insider Threats.* CMU/SEI-2016-TR-014. Software Engineering Institute, Carnegie Mellon University. 2016.
Contact Information

Sarah Miller
Insider Threat Researcher
CERT National Insider Threat Center
Email: semiller@cert.org

Software Engineering Institute
Carnegie Mellon University
4500 Fifth Avenue
Pittsburgh, PA 15213-3890