

Information Warfare Rising (Part III)
Building an Information Warfare Culture:
Accelerating the Change Through Training

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In August of 2020, General Charles Q. Brown Jr. became the newest Chief of Staff of the Air Force. That same month, he published his vision of the future in a document titled *Accelerate Change or Lose*. Within this text, Gen Brown extolled the necessity that the Air Force must change in order to continue its storied success. This change ought to be informed by external factors and, if necessary, eschew internal traditions and culture in the pursuit of ensuring the Air Force is prepared for the “future fight”. In the same summer of 2020, Lieutenant General Timothy D. Haugh published a paper titled *16th Air Force Convergence and the Information War*. His paper details part of the external factors that General Brown spoke of. Our adversaries competing in the information and cognitive domains have redefined the concept of “combined arms” in the 21st-century and we must adjust to meet their advances. It is fortuitous, then, that these two leaders and strategic thinkers have highlighted simultaneously a need for the Air Force to change to win the future fight and our adversary’s advances in the information and cognitive domains as an external factor highlighting the area of Information Warfare (IW) in which to change. Meeting their visions will require systemic culture change, and for a public sector organization like the Air Force, that will necessitate a unique training program.

“As a Service, decisions on our missions and capabilities must be informed by how they fare against our understanding of competitors’ theories of victory, ways of war, and force development strategies. We must design our capabilities and concepts to defeat our adversaries, exploit their vulnerabilities, and play to our strengths.”

~ Gen Charles Q. Brown Jr., *Accelerate Change or Lose*

The United States Air Force remains unrivaled in its kinetic core competencies: Air and Space Superiority, Global Attack, Rapid Global Mobility, Precision Engagement, and Agile Combat Support. This dominance has been established for so long that no currently serving Airman has experienced an Air Force where it has not been assumed without second thought. However, as recent actions by our adversaries during the 2016 U.S. elections and beyond have highlighted, our non-kinetic core competency of Information Superiority is highly contested, and it is where we are currently being outcompeted. The low cost of entry into global competition within the information environment has allowed our adversaries to focus on, and excel at, Information Warfare. The Air Force’s focus, conversely, has been on furthering investment in next-generation aircraft to meet what we have deemed to be the future needs of our legacy mission set. This effectively modernizes our aircraft, missiles, and space weapon systems, but that is not where we have the greatest near peer competition. Are we hardening our Maginot Line of kinetic weapons while our adversaries fly over us via the information and cognitive domains? Without appropriate investment into our Information Warfare capabilities, we very well may be.

“If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle.”

~Sun Tzu, *Art of War*

Investment into Information Warfare capabilities alone, however, will not accelerate the change necessary to close the Information Warfare gap with our adversaries. Rather, we must institute a cultural shift by expanding the definition of what being “air-minded” means to the average warfighting Airman. Indeed, we must begin to inculcate Information Warfare into the overall culture of the Air Force itself. General Brown set the mandate for such culture change when he stated “in order to inform this ruthless prioritization, we must also consider our decisions in the context of the key competitions over time.” Almost as if in reply, Lt Gen Haugh pointed out where we are in such competition today. The external pressures acting as impetus for our necessary changes stem from our adversaries in great power competition like Russia and China. It is therefore these powers we must seek to understand better in hope that we can adequately change. We must know our enemy.

Impacting the cognitive domain has been a part of the Russian playbook for decades. In fact, it could be argued that Russia’s government views Information Warfare as its primary method of holding on to power. Timothy Thomas writes “As a result of the loss of communist ideology, a principal focus of the Russian leadership for over a decade has been on maintaining control of the flow of information in the country and measuring the impact of information flows on the conscience of the citizenry. Some still blame the fall of communism on what many Russians term the ‘information-psychological’ assault from the West...” This desire to control information flow has subordinated nearly all Russian military activity to the overarching desire to control the cognitive narrative. The Russian Security Council has made no secret of their desires, including commissioning a published book study that concludes a desired end state of writing algorithms that could inject subliminal messages into the minds of people. The Russian government’s research into cognitive impact is not limited to simply maintaining control of their own populace, but also studies how to project such power externally. Writing in a Russian journal *Military Thought*, S.G. Chekinov and S.A. Bogdanov state that a strategic information confrontation could play an important role in disorganizing a military and state’s command and control mechanisms through psychological influence by influencing or creating public opinions, organizing antigovernment demonstrations, and otherwise lowering an opponent’s will to resist. This is particularly effective against democracies who elect their representatives because it is the public that ultimately chooses their leaders to reflect their belief.

“It is our profound conviction that victory in a future war will belong not to whoever has the most sophisticated tank or the fastest and most maneuverable fighter and most powerful missile, but to whoever is able, with the greatest effectiveness and coordination, to command and control the entire array of his own—albeit not even the most advanced—land, air, sea, and space-based information armaments.”

~ Col General Arkadiy Bakhin, Russian Federation Air Force

We know what our adversaries are saying about their belief in the value of Information Warfare. We know they believe that our dominance in traditional military armaments is inconsequential in the future war. We know they subordinate their traditional kinetic military functions to ensure the cognitive domain impact is of first importance. We know our enemy, but do we know ourselves? A small survey of Air Force officers in December of 2020, solicited primarily via social media and through the Squadron Officer School email distribution list, revealed some unique data sets representative of our culture:

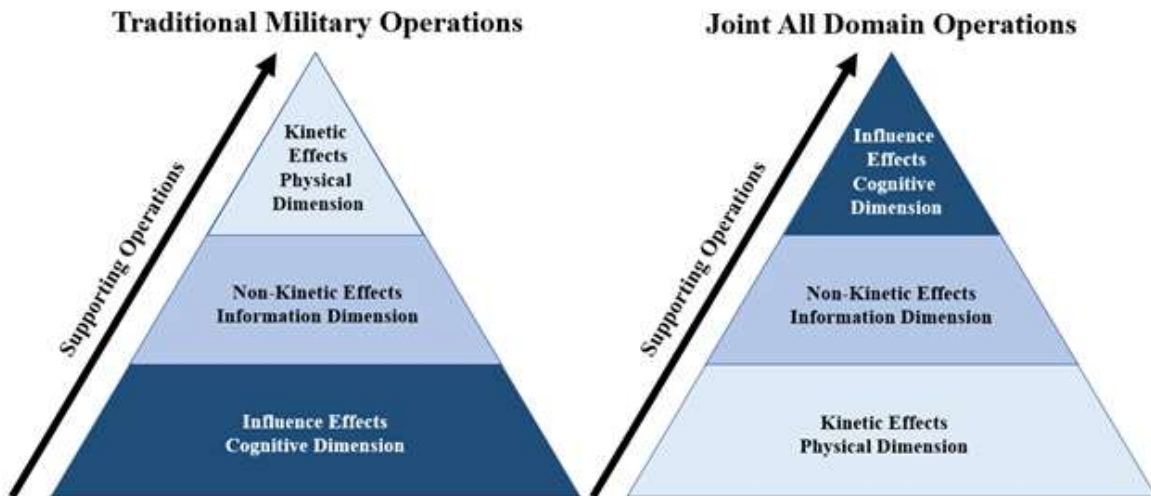
- Most officers believe our kinetic capabilities are superior to our adversaries.
- When confronted with a COIN problem set, most officers would prioritize the utilization of armed and unarmed drones and fighter jets over IW capabilities.
- When confronted with a near peer nation state adversary problem set, most officers prioritized fighters and bombers over any IW capabilities.
- When asked where the Air Force should invest resources to succeed in the “future war”, most officers prioritized offensive cyber capabilities, garrison cyber infrastructure, and next gen remotely piloted aircraft.
- Most officers believe that non-kinetic operations should support kinetic operations.
- The average non-IW officer does not believe their job’s success is dependent on our ability to create information effects against the adversary or defend against information effects from the adversary.
- Most officers believe an adversary can be held at risk via non-kinetic capabilities exclusively.
- Most officers believe our non-kinetic capabilities are inferior to our adversary.
- Most officers believe their job contributes to USAF success at information warfare.

Of course, it should be noted that the data set skews predominantly younger in career due to the dissemination among Squadron Officer School students, however, there is still valuable data to be gleaned as those same younger officers are less likely to be biased by broadened joint experience and are truly reflective of the culture established through commissioning sources and tactical level assignments. Additionally, the distribution of respondent ranks is quite reflective of the distribution of ranks within the service itself.

Reflected in this data is a reiteration of what General Brown implied: there is a legacy kinetic ethos that permeates our understanding of what it means to be in the Air Force and how we have historically solved problem sets. Respondent rated officers clearly valued aircraft-enabled solutions but so did logisticians, munitions, and finance officers. Even IW officers, those you would assume would carry bias towards their own skill sets, reflected a propensity to choose kinetic options over non-kinetic. This affinity for kinetic solutions comes despite data from those same respondents indicating that they would prioritize future Air Force budgetary investment in non-kinetic capabilities. Perhaps then the reflected choice of kinetic over non-kinetic solutions comes from the recognition that the respondents believed that the adversary had better non-kinetic capabilities while we had better kinetic.

This look into our existing culture is valuable to determine the delta from where we are currently to where we need to be to meet the pressures our adversaries are applying to us. If our culture is reflective of a kinetic bias, and that bias influences our actions and resourcing while our adversaries are busy building their lethality in the cognitive domain, we have a mismatch that could lead to dire consequences. This is not an unrecognized problem set, and as the Department of Defense lines up to determine what each service will do to bring Joint All Domain Operations (JADO) to reality, it is an

excellent time to define what it means to achieve Information Advantage (IA) and establish how to weaponize information itself. Indeed, ensuring that influence effects shift from a supporting function to a supported function will be paramount for JADO to succeed against our near peer allies.



Lt Gen Haugh advocates for the development of a new tradecraft that can recognize and counter these new information domain threats, and that tradecraft must be supported by new methods of collection, analysis, decision making and command and control. However, attempting to build new tradecraft with historic cultural biases favoring kinetic operations will result in a half-hearted insufficient solution. Culture change must come first, or at the very least, simultaneously.

Leaders have long sought the key ingredients of how to change the culture of their organization to facilitate the achievement of peak performance. There have been countless studies on how leaders can best effect cultural change, and as expected, the larger the organization and more entrenched the culture, the more difficult it is to alter. The culture of an organization has a profound influence on the behavior of individuals. This explains why young officers in the Air Force default to seeing traditional air-centric kinetic solutions to problems. Studies indicate that in a unique chicken-and-egg type of scenario a company's culture significantly affects how an organization is run and how the organization runs significantly affects the culture. These two components are inseparable and intrinsically linked to an organization's leadership. The historic valuation of kinetic operations has created a culture of kinetic bias, and that kinetic bias has subsequently created a culture that values kinetic operations.

"The types of behaviors that are valued and devalued influence the shaping of an organizational culture significantly. People respond to behaviors, good or bad, that are valued and rewarded, while they avoid behaviors that are not valued or rewarded or are devalued. Understanding this makes it important for leaders to be discerning about the desired behaviors and the behaviors they are actually motivating in their subordinates."

~ D. D. Warrick, *What leaders need to know about organizational culture.*

Changing this culture to one that values and promotes information warfare in order to meet the pressures applied by our adversaries will not be easy. Institutional biases beget institutional inertia, and rerouting as large of an organization as the Air Force will require training. Studies of public-sector governmental organizations, like the Air Force, have determined that training programs assist employees in accepting new norms, values, and designs. Intentional use of training and symbolism plays a vital role in systemic culture change. We see this reiterated in the DoD's focus on eliminating sexual harassment and encouraging inclusion and the special mandatory training those efforts continue to supply. Of particular note is that exercises are the best method of training reinforcement. A properly created exercise built to reinforce the training of new ideals and values will encourage participants to think critically and prepare themselves for the inevitable reality of leader decisions that will bring about cultural change.

In addition to providing insight into how our officers are biased towards kinetic operations, the survey also captured data on when and how officers interact with their peers in the IW community. As rank increases, individuals seem to have had more exposure to IW Airmen, but in the CGO ranks it was very limited. Additionally, while the 16th Air Force is the identified point of IW convergence, it is unlikely that those filling staff positions for the NAF have ever completed an exercise or planned a mission with someone of a different IW pillar previously. Prior to arrival at the NAF, most IW Airmen are insulated into their own tactical stovepipes. As such, any newly developed training program must be multi-faceted since it must reach four key audiences: IW Airmen pre-staff, IW Airman on staff, non-IW Airmen, and current Senior Leaders.

This paper is not meant as a detailed plan of what training plan to implement, rather, it is to advocate for which culture change should be prioritized based on external influences and to provide a framework for what should be included in any training program that is subsequently created. Any future IW convergence and integration training plan must:

- **Have all operational officers interact with IW early:** Exposure to other mission sets is paramount, and while in the early days of an officer's career they are focusing on gaining expertise in their own discipline, casting their discipline as a component to Information Warfare is a must. If the first time an officer interacts with a different AFSC to tackle an IW problem set is on staff at 16th AF, then we are not building Airman with value added IW experience. Accession curriculum should be infused with IW.
- **Have all operational officers interact with IW often:** Planning and exercising Information Warfare and cognitive effect generation should occur frequently in an operational Airmen's career. Problem solving as a team is a proven method of getting individuals to think critically about how their own role fits into the overall exercise goal and more importantly how they must interact with the roles others provide. The survey results collected indicate that participation in an IW exercise was not the norm for any officer category.
- **Senior leaders must demonstrate IW value:** As we see Russia intentionally subordinate its kinetic operations to its cognitive operations, we must see our Senior Leaders elevate the role IW plays in the Air Force's mission set. Leaders actions and decisions are just as impactful as training programs for those of lower rank, as senior leaders set the priority that others attempt to meet. As such, Senior Leaders must be better trained in the tenets of IW and must purposefully demand the inclusion of cognitive impact assessment in any operational debrief or battle damage assessment. By increasing the demand signal and visibility of operational IW

impact, subordinate briefers and decision makers will ensure they too are thinking about such things as they present them to Senior Leaders. This cascade of demand will fall to the lowest echelon and begin ensuring all levels of leadership focus on it.

- **Internal IW staff training should be far more rigorous:** There is currently no consistent IW specific staff training that Airmen receive at either the 16th Air Force or other staff organizations. This is particularly impactful inside of organizations who have critical Information Warfare roles and can lead to a staff being told to meet a desired end state without the tools necessary to do so. This will lead to individuals defaulting to the area they have most expertise in, and as has already demonstrated, that is likely to be their own specialty with an associated kinetic bias.

“Culture can be built by design or default. In other words, culture can either be built in a purposeful way or left to chance. Leaders play a key role in building and sustaining cultures.”

~ D. D. Warrick, *What leaders need to know about organizational culture.*

The future fight is at our doorstep. Gen Brown has demanded that the Air Force begin to accelerate its change or risk losing that future fight. Lt Gen Haugh has detailed that the future fight is in the information and cognitive domains. Our adversaries have written extensively about achieving victory in the future fight without having to compete in the kinetic arena, but through exploitation of the cognitive and information domains. The need has never been more obvious, the time has never been more opportune, and the impact of immediate action will never be greater. We must accelerate the change in the definition of what it means to fly, fight, and win. We must recognize that subordinating traditional military operations to ensure a holistic cognitive narrative is paramount. To do so, we must create a new culture and the best way to instill that new culture is through a robust, ubiquitous, hands-on exercise-centric training program.

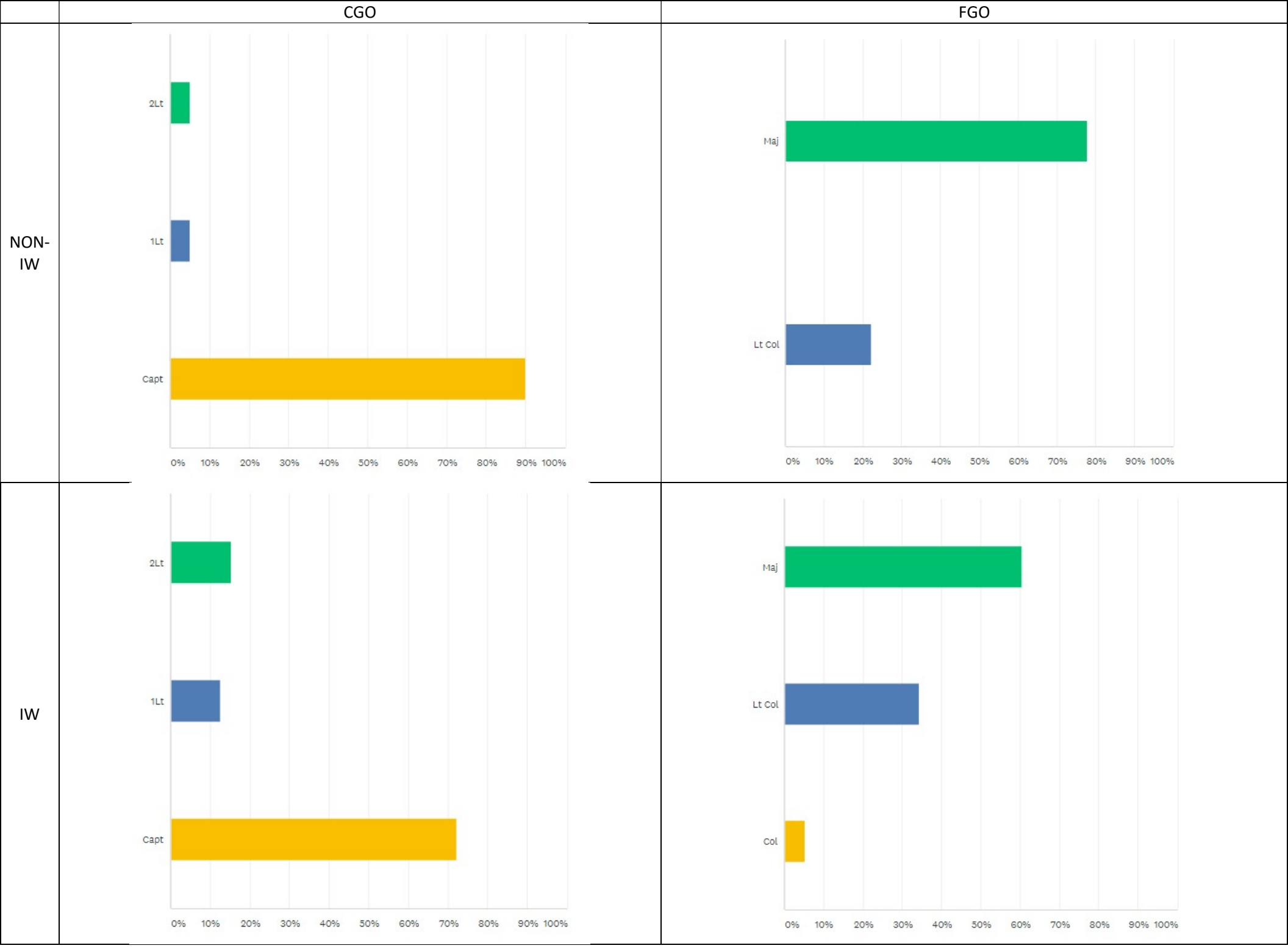
References:

- Brown, C. Q. (n.d.). *Accelerate Change or Lose* (pp. 1-8) (United States of America, United States Air Force, Chief of Staff).
- Haugh, T. D., Hall, N. J., & Fan, E. H. (n.d.). *16th Air Force and Convergence for the Information War* (pp. 29-43) (United States of America, United States Air Force, 16th Air Force). The Cyber Defense Review.
- Schraeder, M., Tears, R. S., & Jordan, M. H. (2005). Organizational culture in public sector organizations: Promoting change through training and leading by example. *Leadership & Organization Development Journal*, 26(6), 492-502. doi:10.1108/01437730510617681
- Thomas, T. (2014). Russia's Information Warfare Strategy: Can the Nation Cope in Future Conflicts? *The Journal of Slavic Military Studies*, 27(1), 101-130. doi:10.1080/13518046.2014.874845
- Warrick, D. D. (n.d.). What leaders need to know about organizational culture. *Business Horizons*, 60, 395-404.

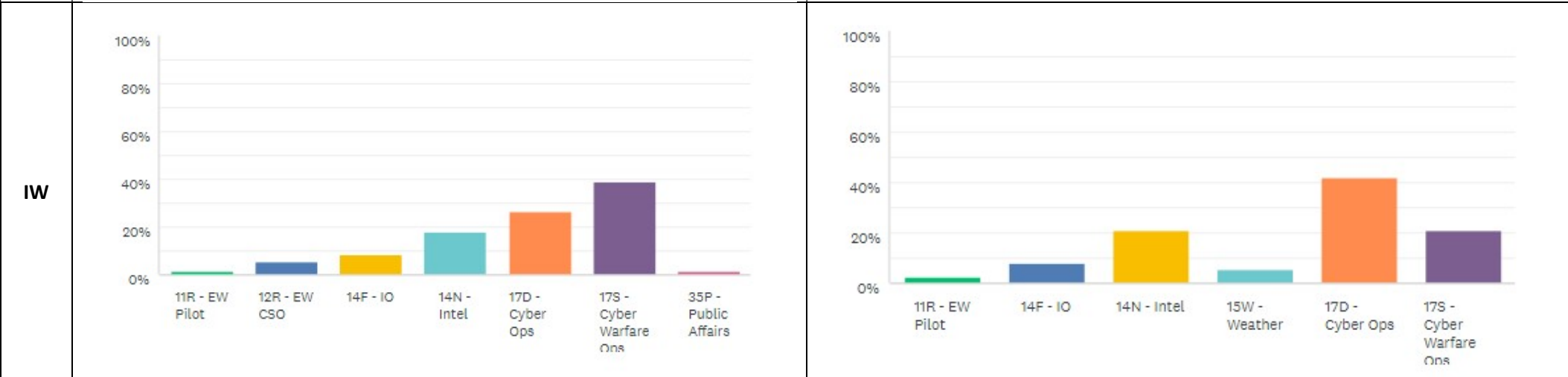
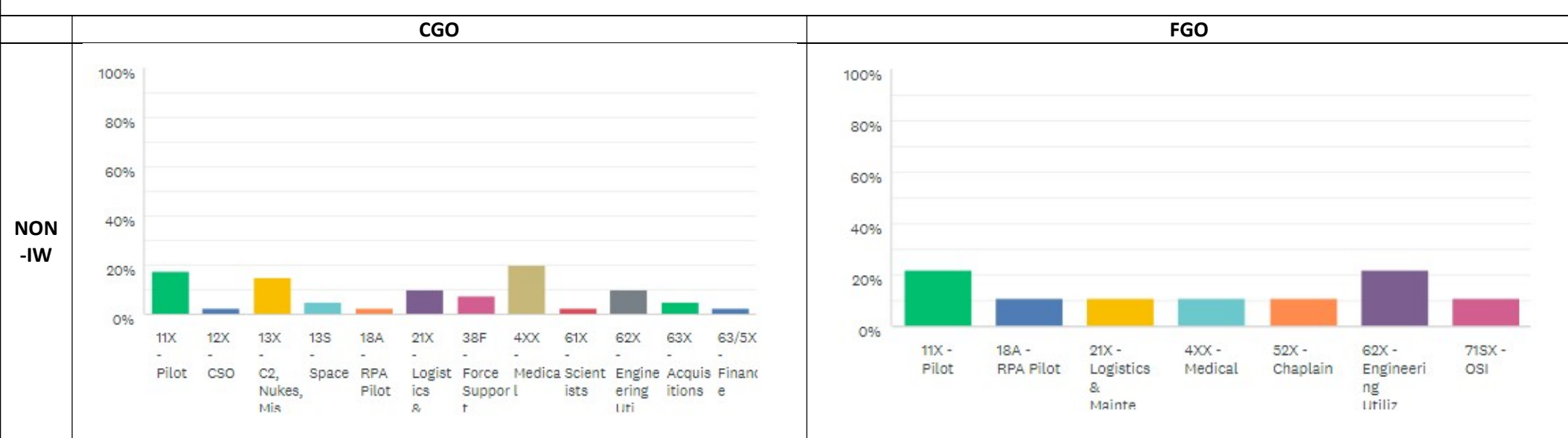
Survey Results:

The results below are visualizations from 159 respondents. The respondents were sourced from the Squadron Officer School mailing list, an Information Warfare Officers Facebook page, a generic US Air Force Officers Club Facebook page, a Cyber Officers Facebook page, and any manual sharing any of those previous sources may have done. Visualizations are shown here based on whether the respondents fell within an IW career field or not, and whether they were a CGO or an FGO. The survey was open for two weeks in December of 2020. Though not explicitly referenced within the text of the paper above, the survey results also demonstrate valuable insights that further support the paper's point.

Q1: Identify your rank:



Q2: Choose the closest AFSC series to what you've primarily worked throughout your career (Note some IW related AFSCs are broken out of their larger grouping):



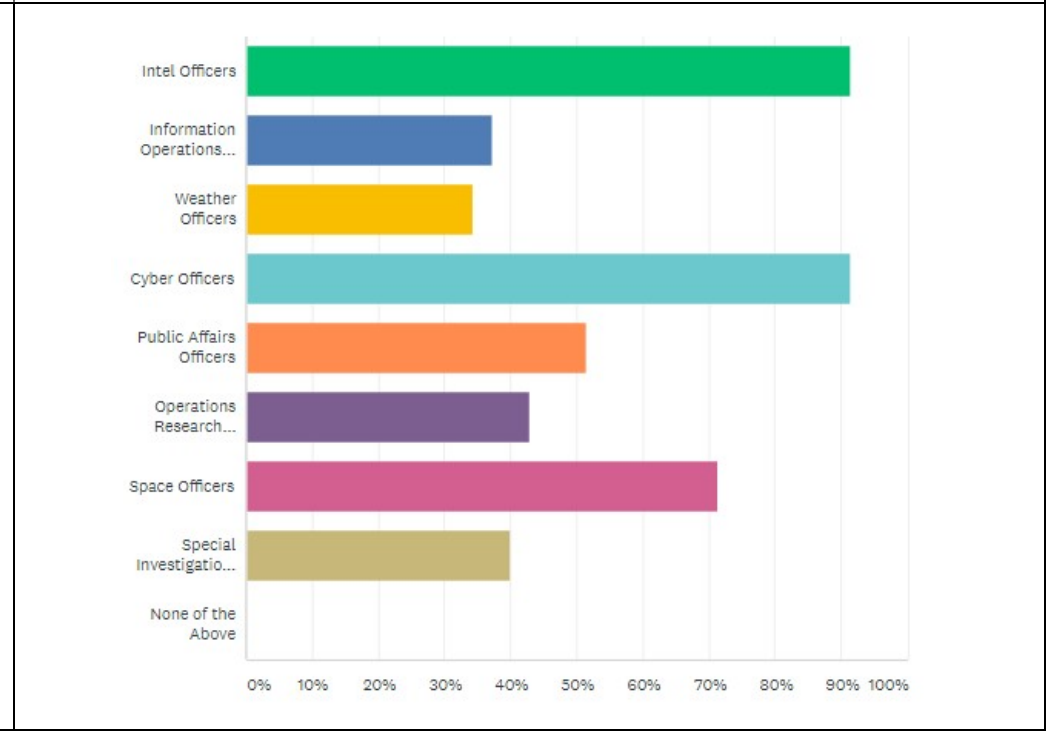
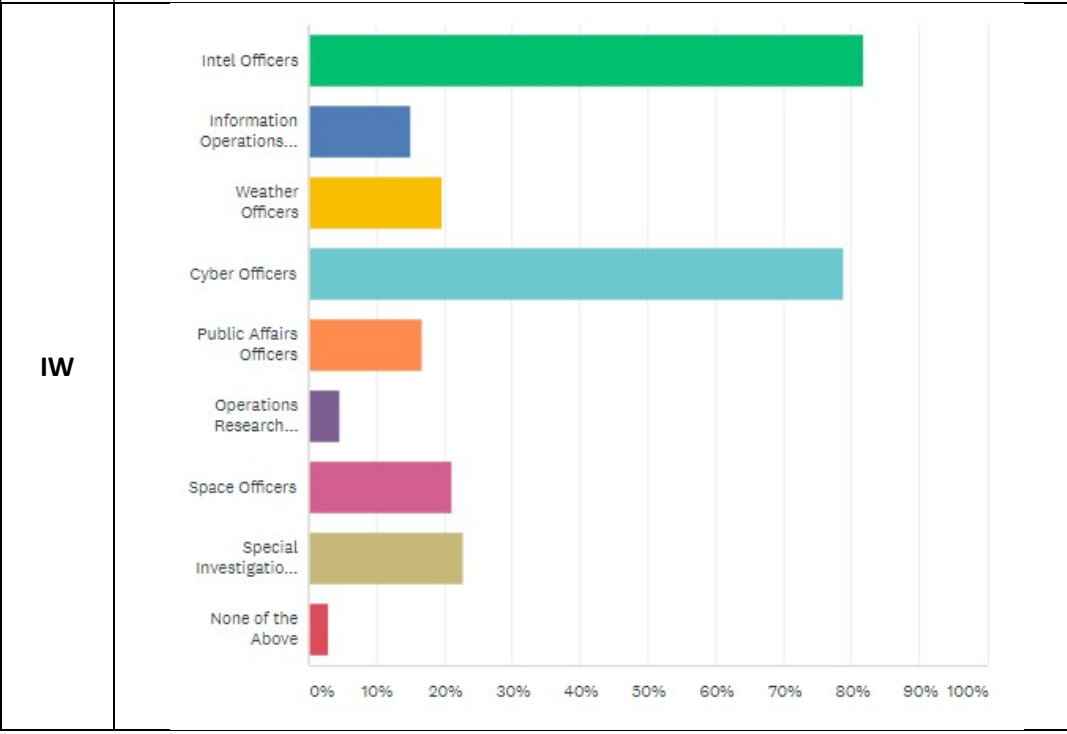
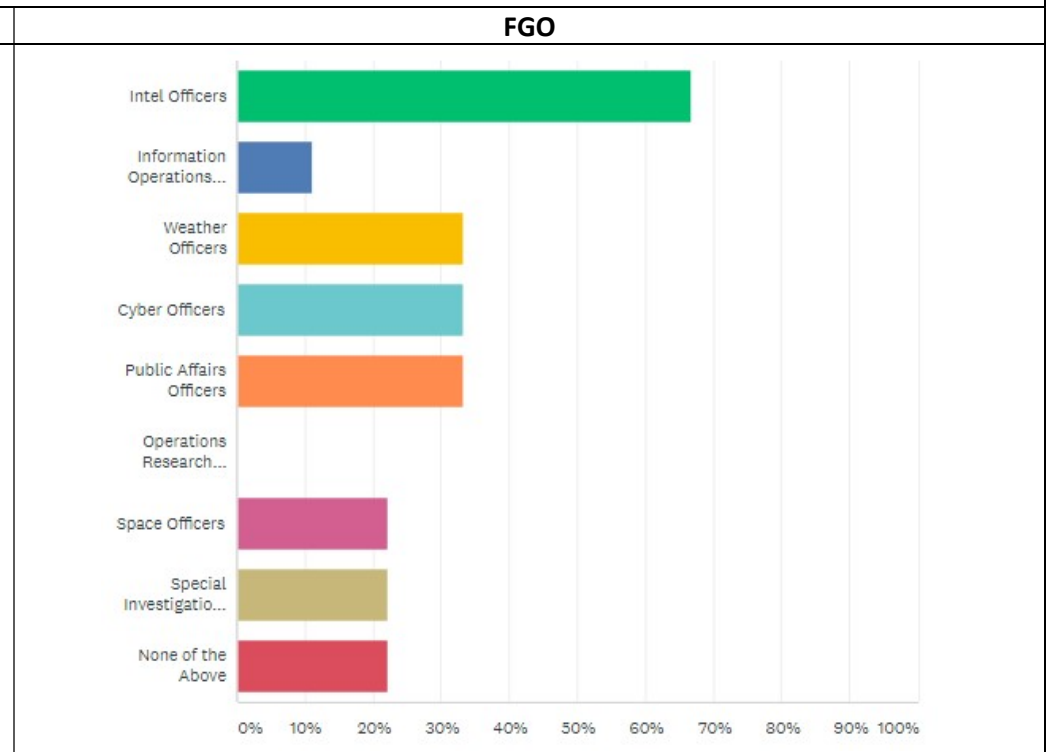
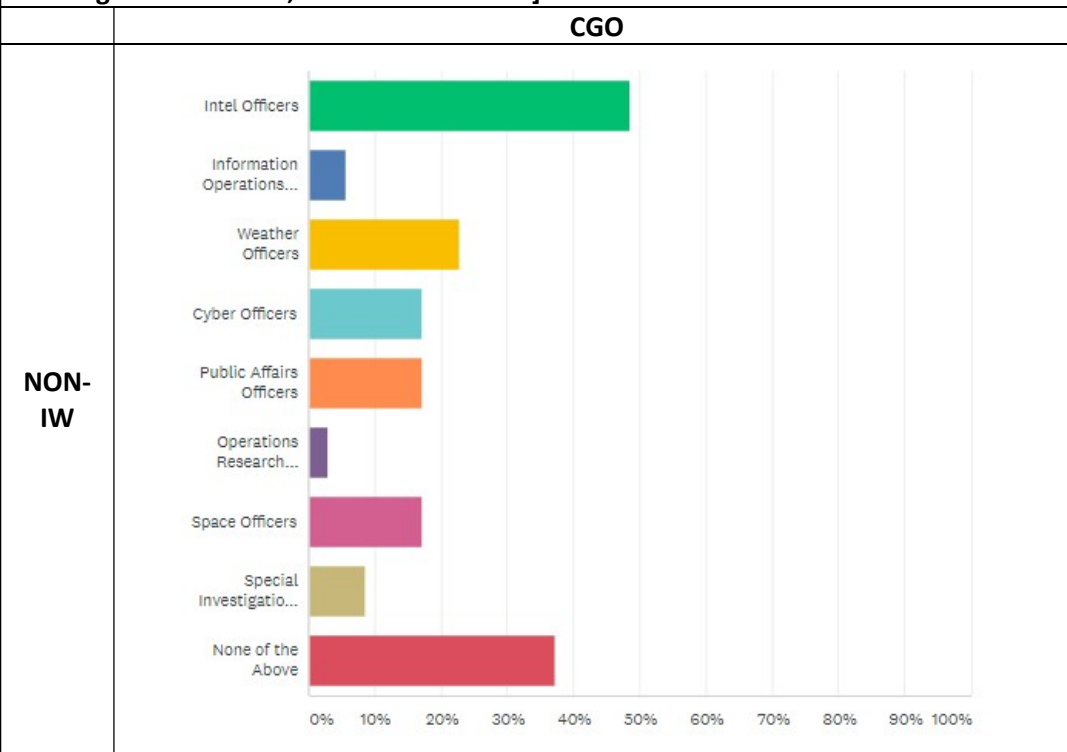
Q3: I have worked in the same operational unit/task force as the following career fields (Select All That Apply):

[Intel Officers; Information Operations Officers; Weather Officers; Cyber Officers; Public Affairs Officers; Operations Research Officers; Space Officers; Special Investigations Officers; None of the Above]



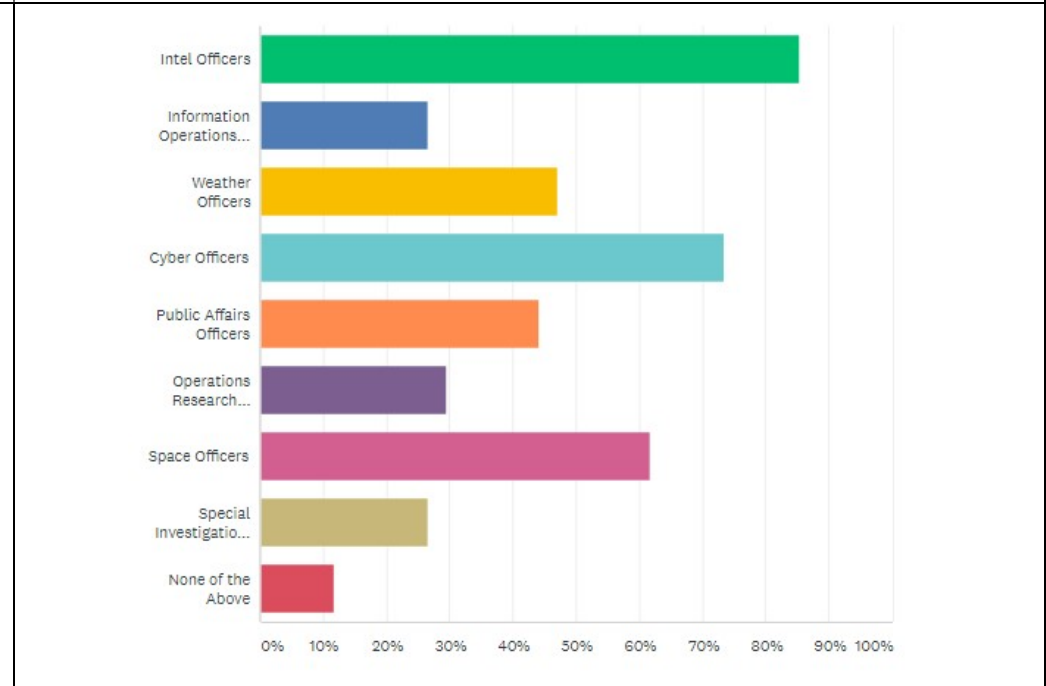
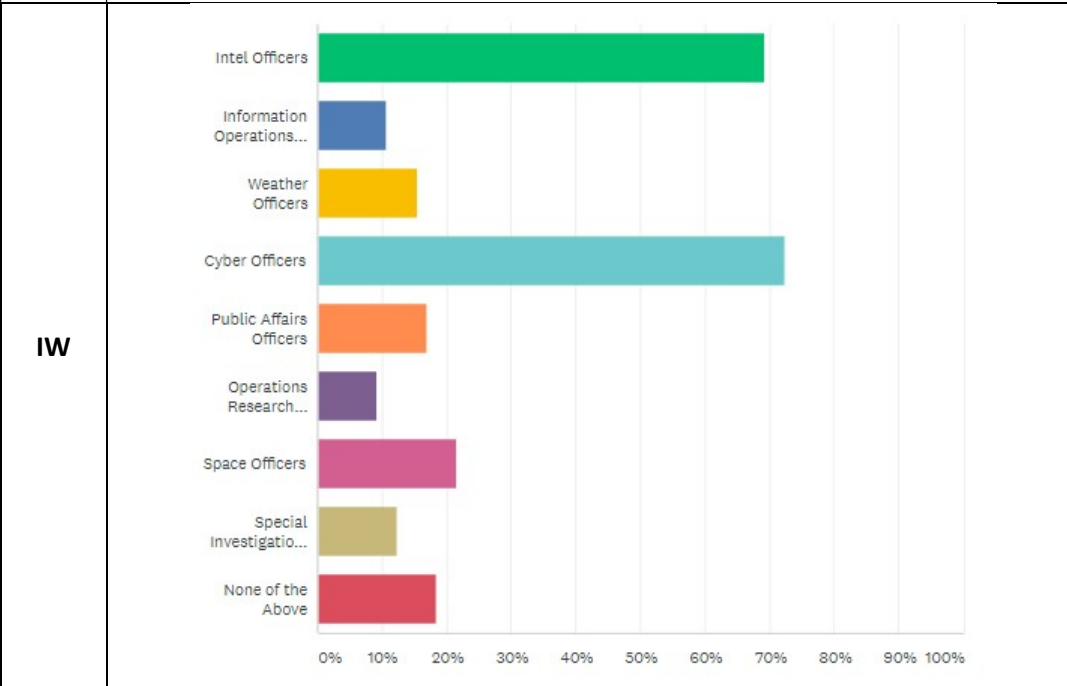
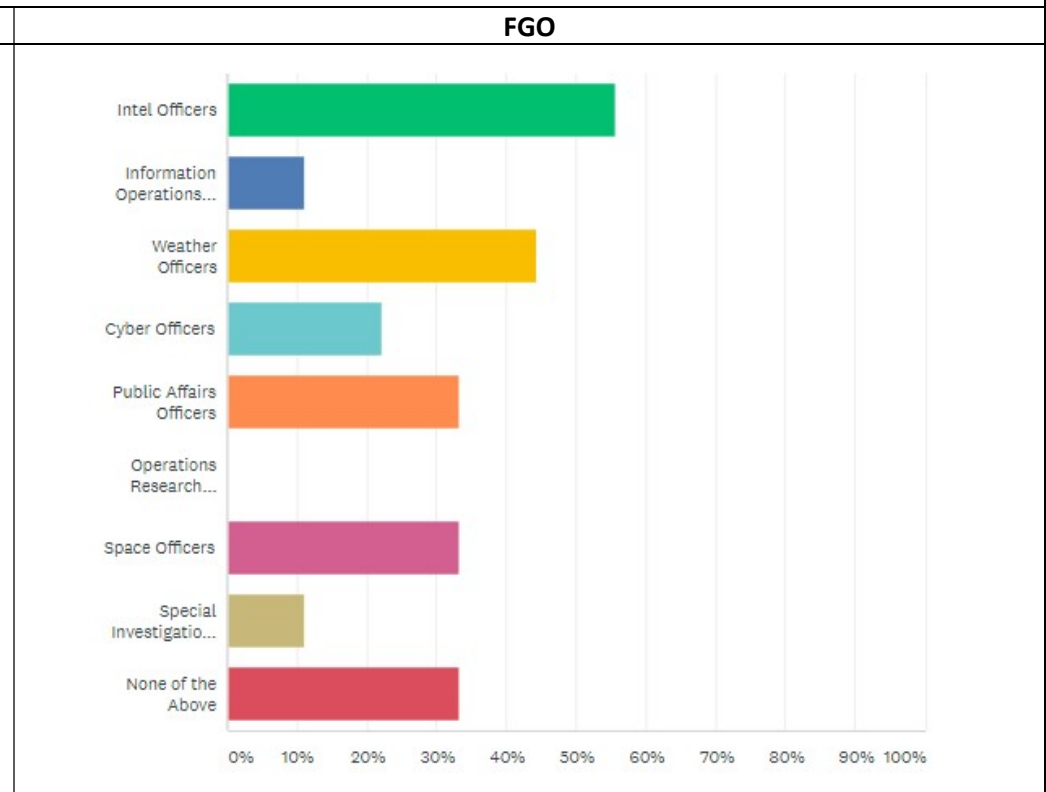
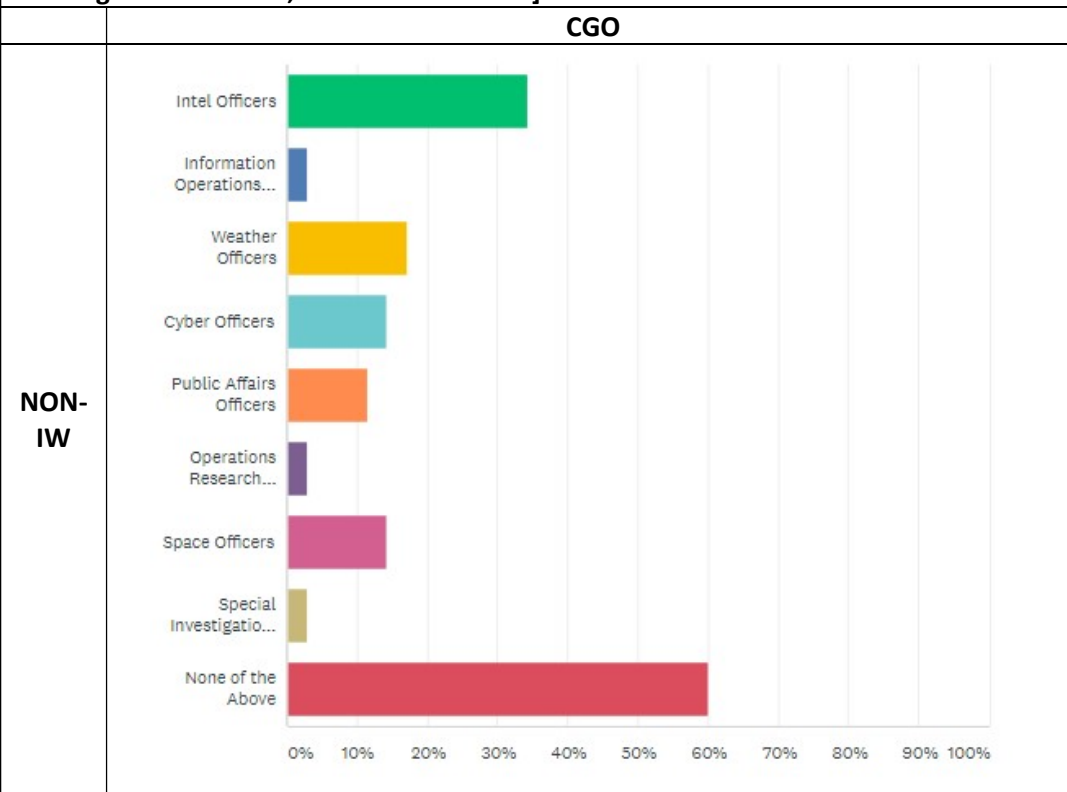
Q4: I have accomplished a mission alongside the following career fields (Select All That Apply):

[Intel Officers; Information Operations Officers; Weather Officers; Cyber Officers; Public Affairs Officers; Operations Research Officers; Space Officers; Special Investigations Officers; None of the Above]



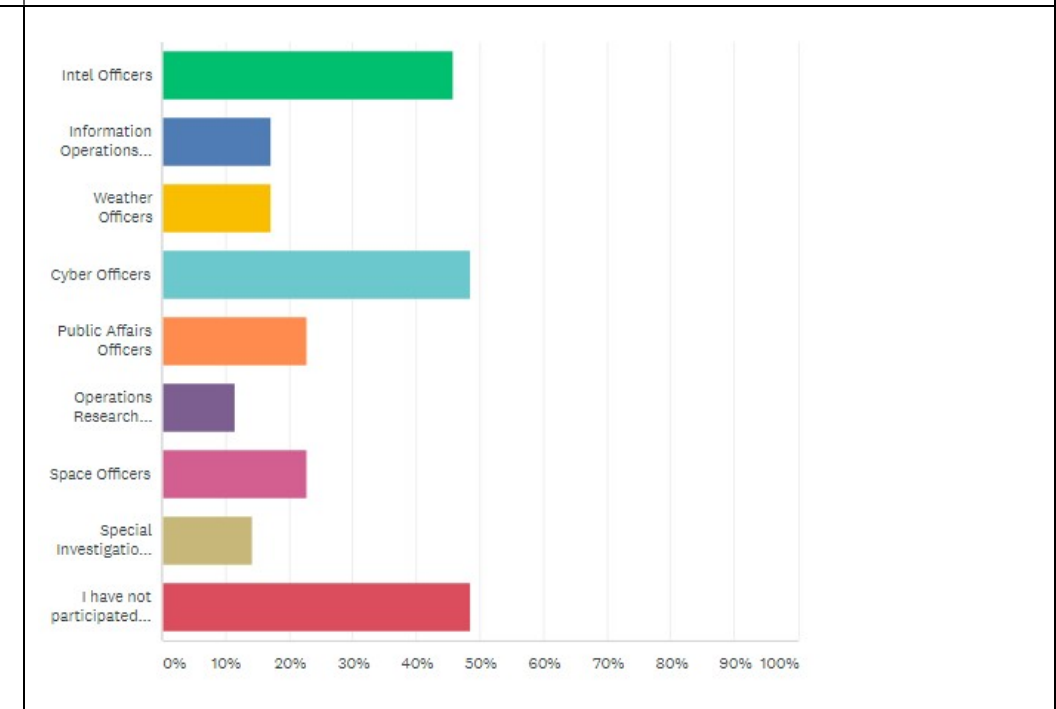
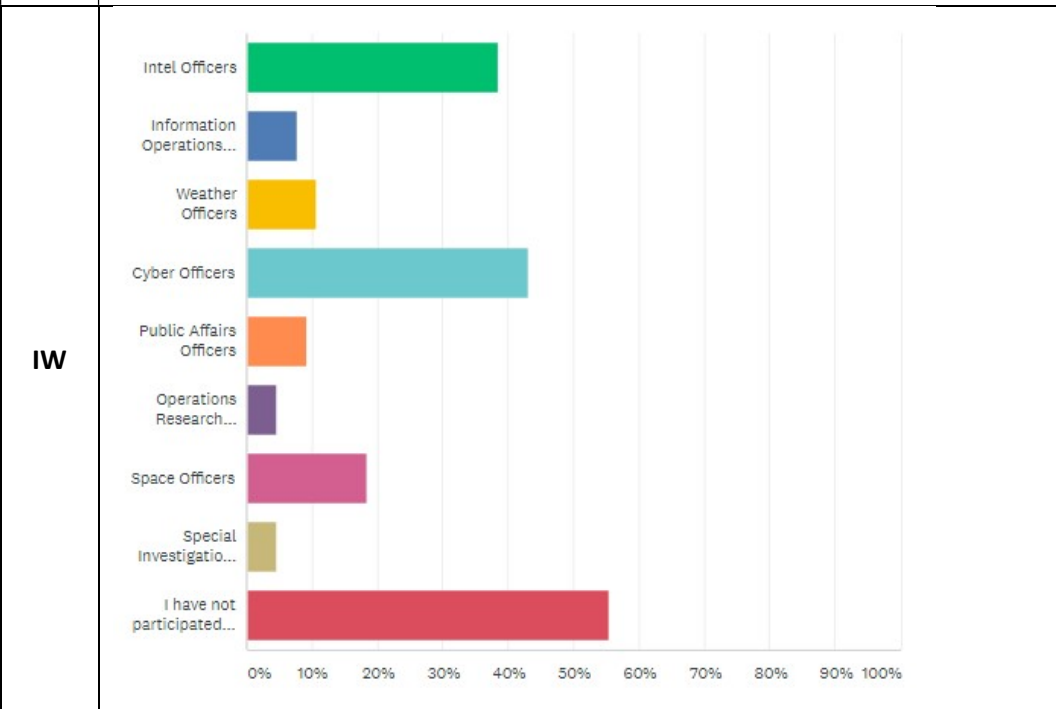
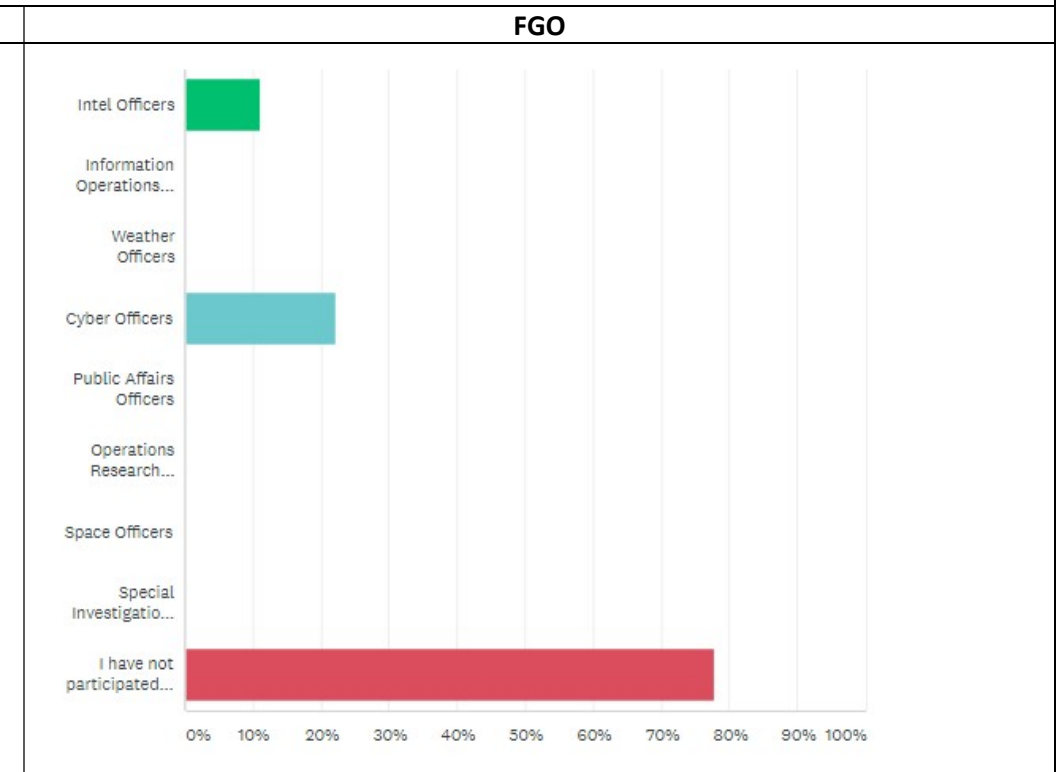
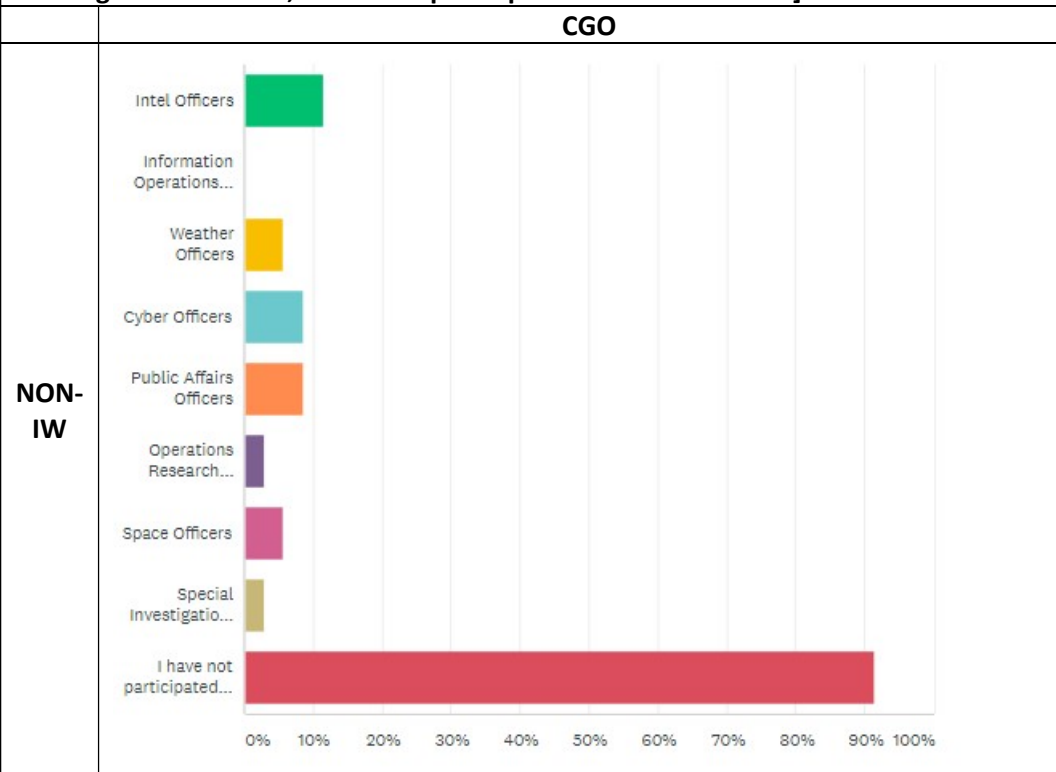
Q5: I have been a part of an operational planning team with the following career fields (Select All That Apply):

[Intel Officers; Information Operations Officers; Weather Officers; Cyber Officers; Public Affairs Officers; Operations Research Officers; Space Officers; Special Investigations Officers; None of the Above]



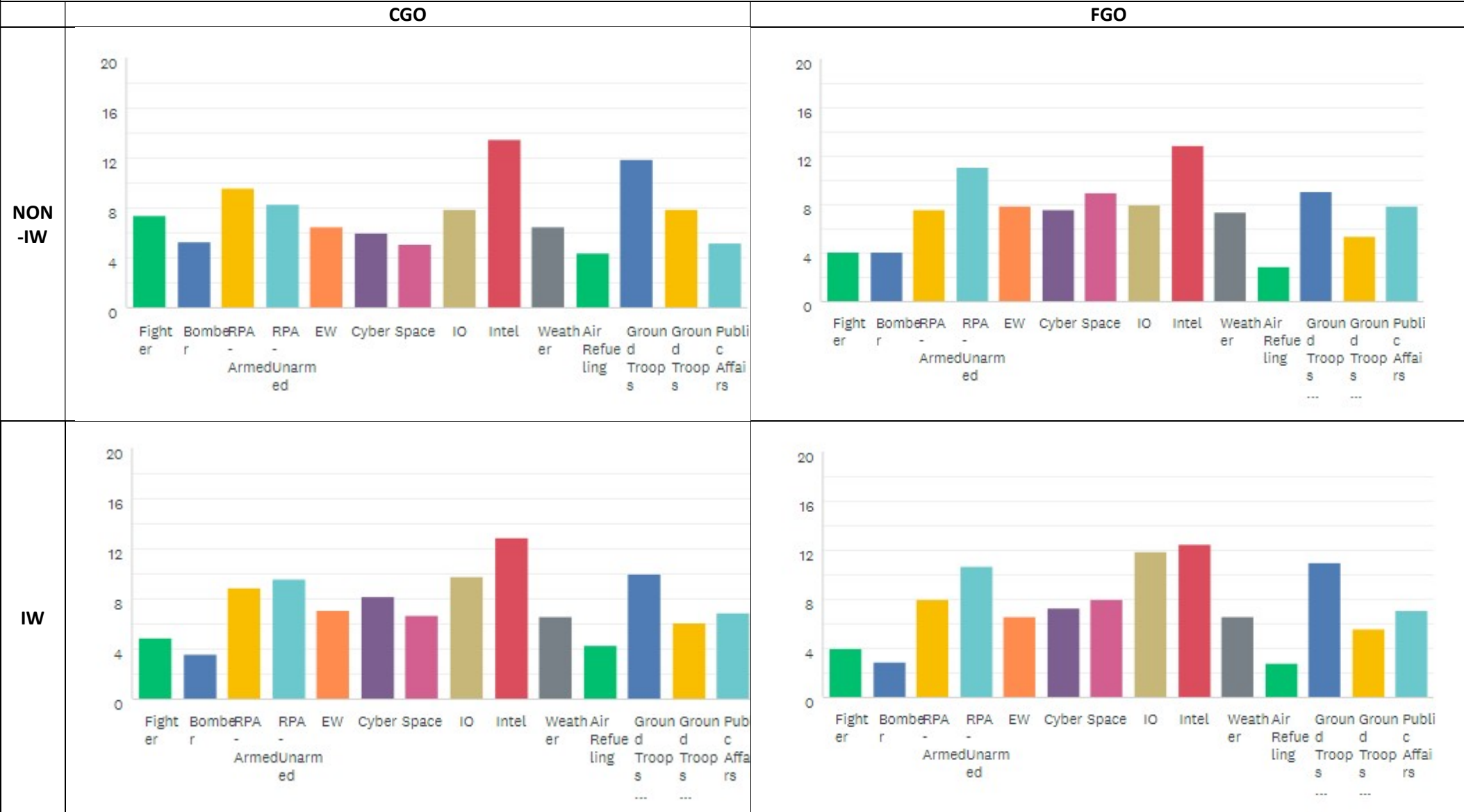
Q6: I have participated in an IW exercise with (Select All That Apply):

[Intel Officers; Information Operations Officers; Weather Officers; Cyber Officers; Public Affairs Officers; Operations Research Officers; Space Officers; Special Investigations Officers; I have not participated in an IW exercise]



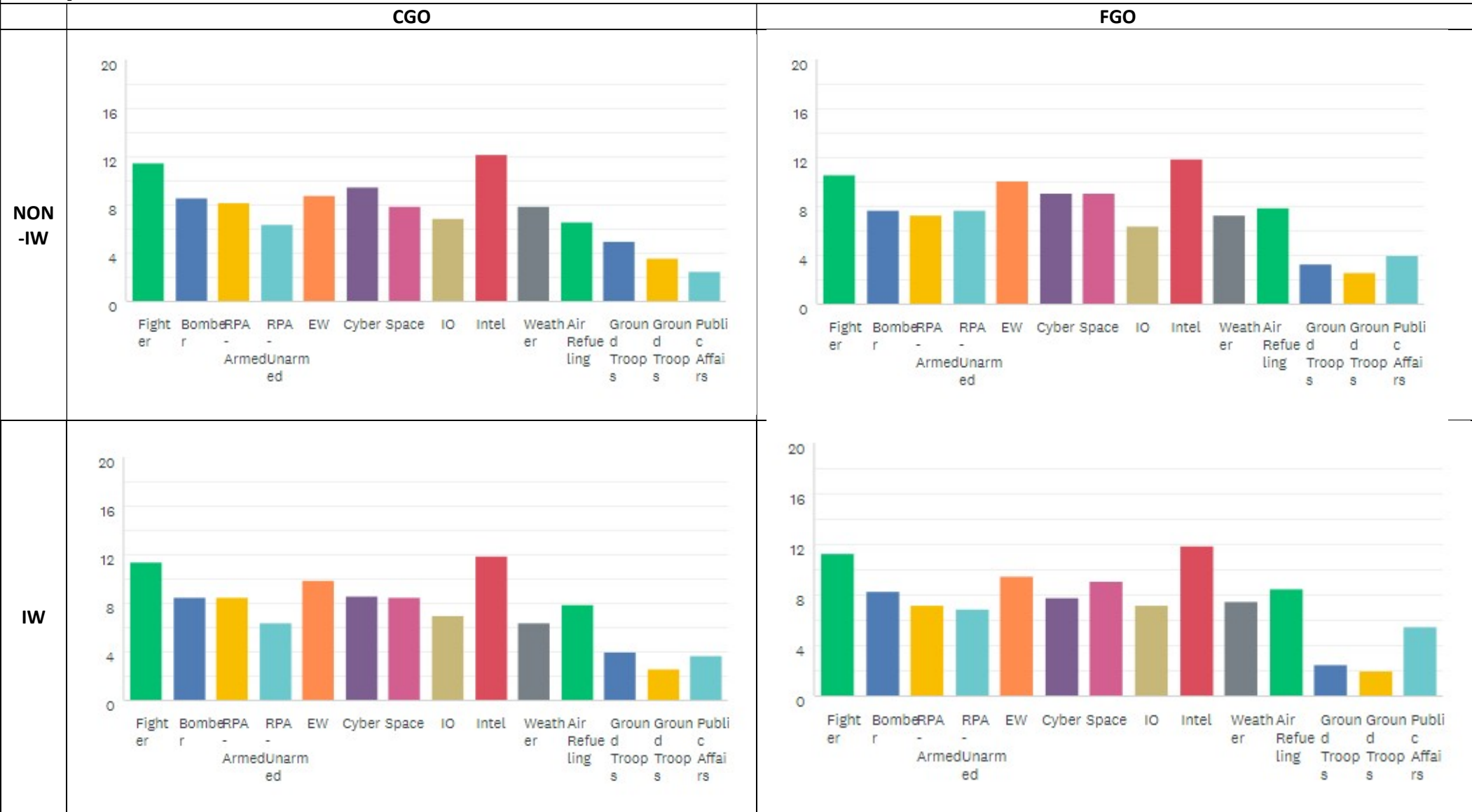
Q7: An insurgent adversary has taken over a local village in an underdeveloped nation rife with tribal politics. The host nation's security forces are wanting to take the city back from the adversary and request our help. The city is filled with non-combatants making imprecise strikes higher risk. Please rank order what capabilities are most needed to solve this problem:

[Fighter; Bomber; RPA – Armed; RPA – Unarmed; EW; Cyber; Space; IO; Intel; Weather; Air Refueling; Ground Troops – Special Forces; Ground Troops – Infantry; Public Affairs]



Q8: A near peer adversary nation has annexed a portion of a strategic ally we have a mutual defense agreement with. Diplomacy has failed, armed conflict has begun. The Air Force is tasked with maintaining Air Superiority in the ally's air space and to conduct missions in a contested environment within the borders of the adversary nation. Please rank order what capabilities are most needed to solve this problem:

[Fighter; Bomber; RPA – Armed; RPA – Unarmed; EW; Cyber; Space; IO; Intel; Weather; Air Refueling; Ground Troops – Special Forces; Ground Troops – Infantry; Public Affairs]

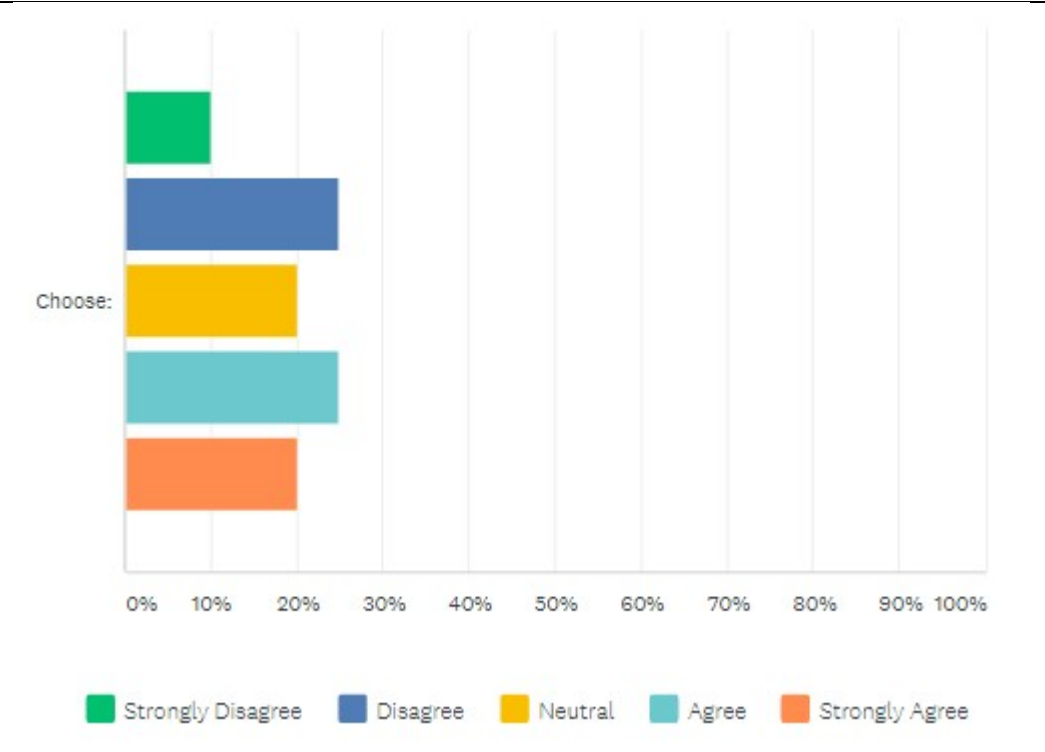
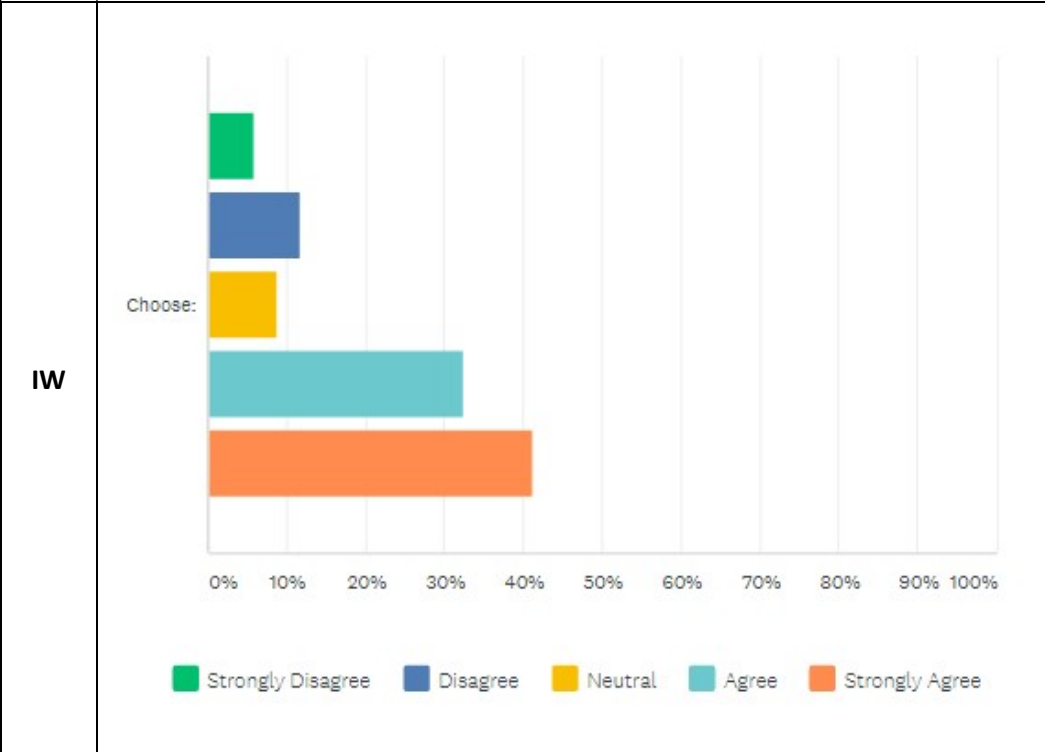
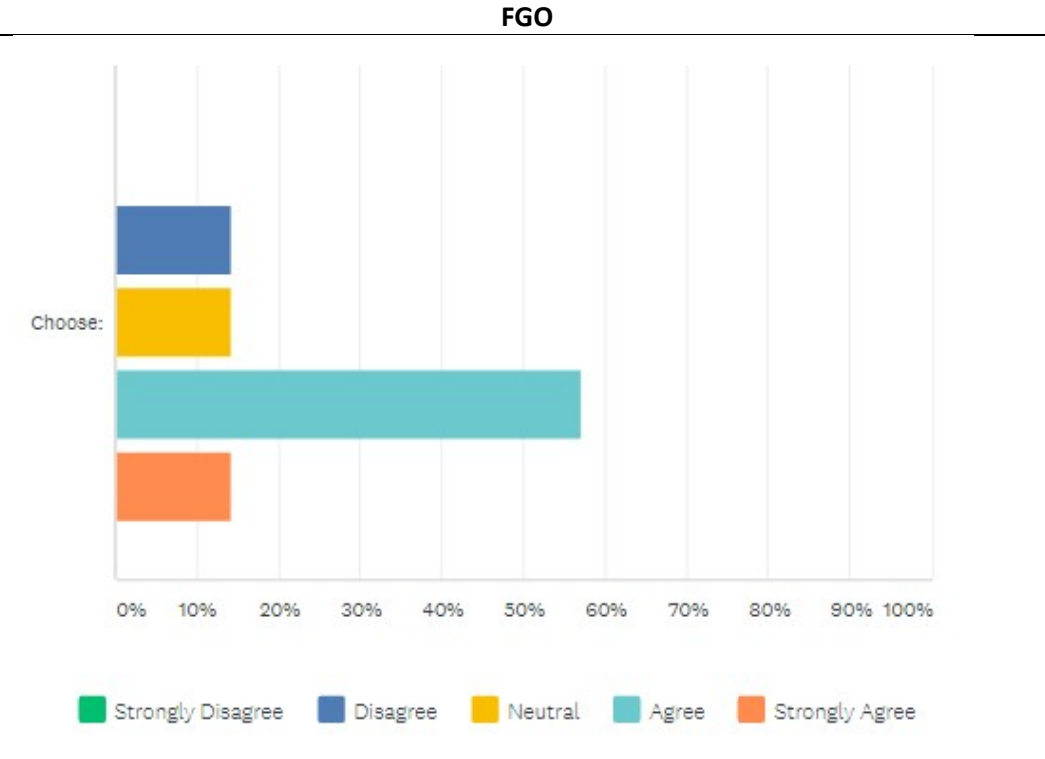
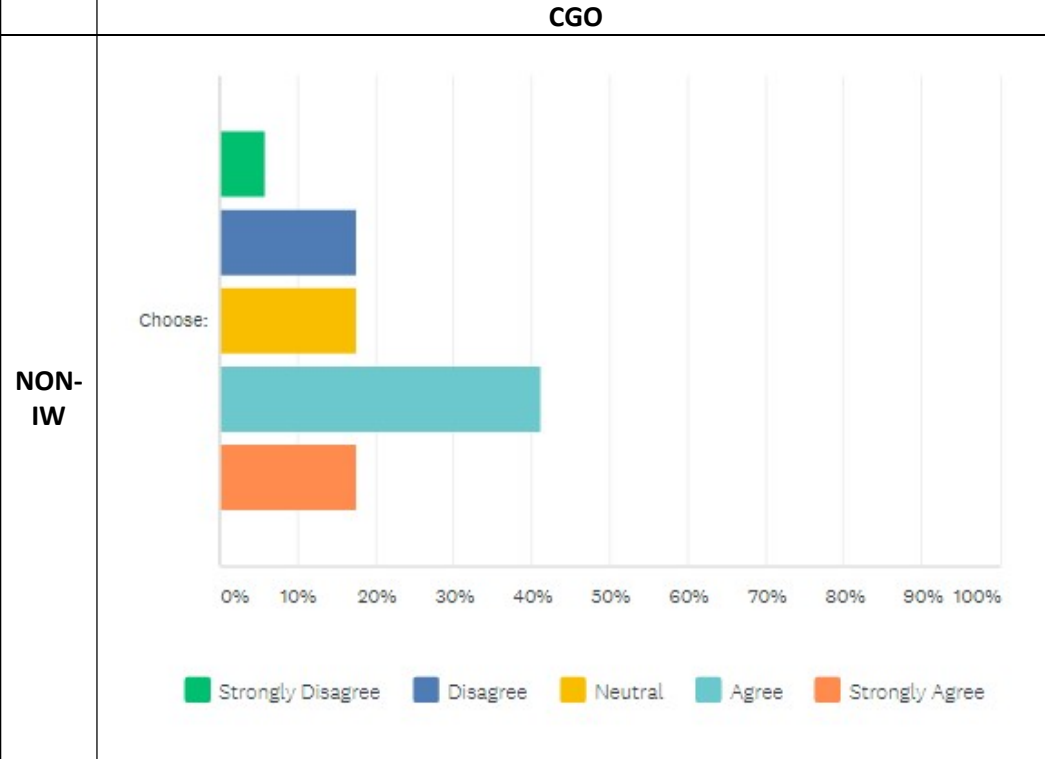


Q9: Please rank where you believe the Air Force must invest to be prepared for the “future war”:

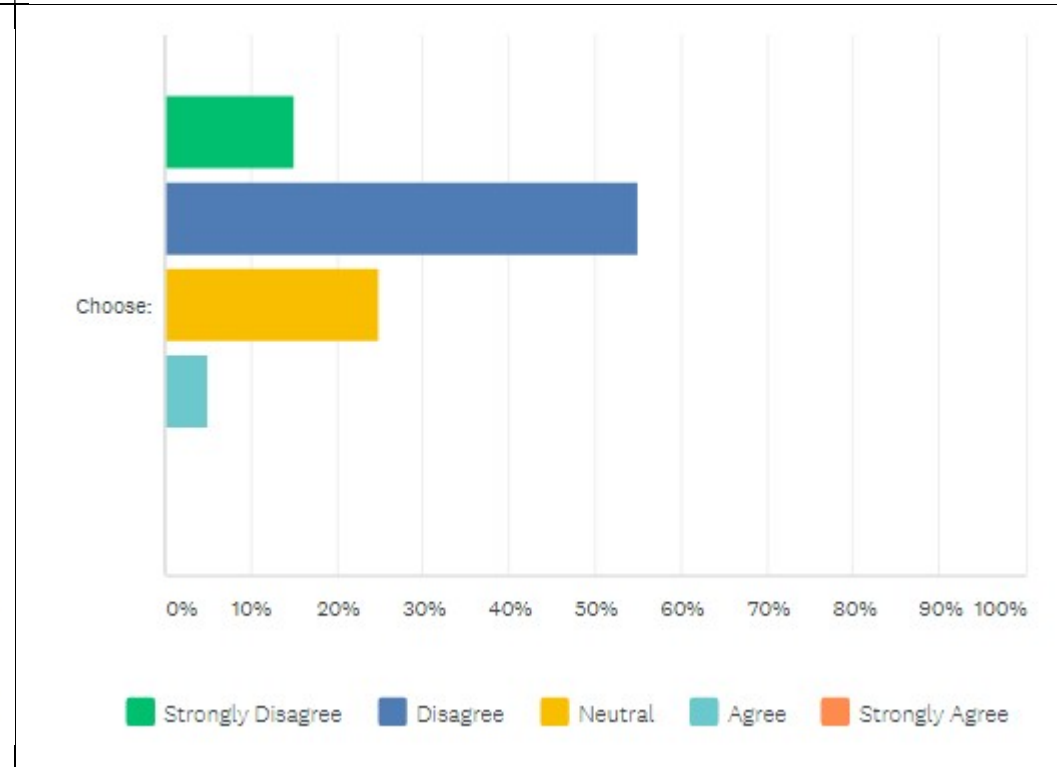
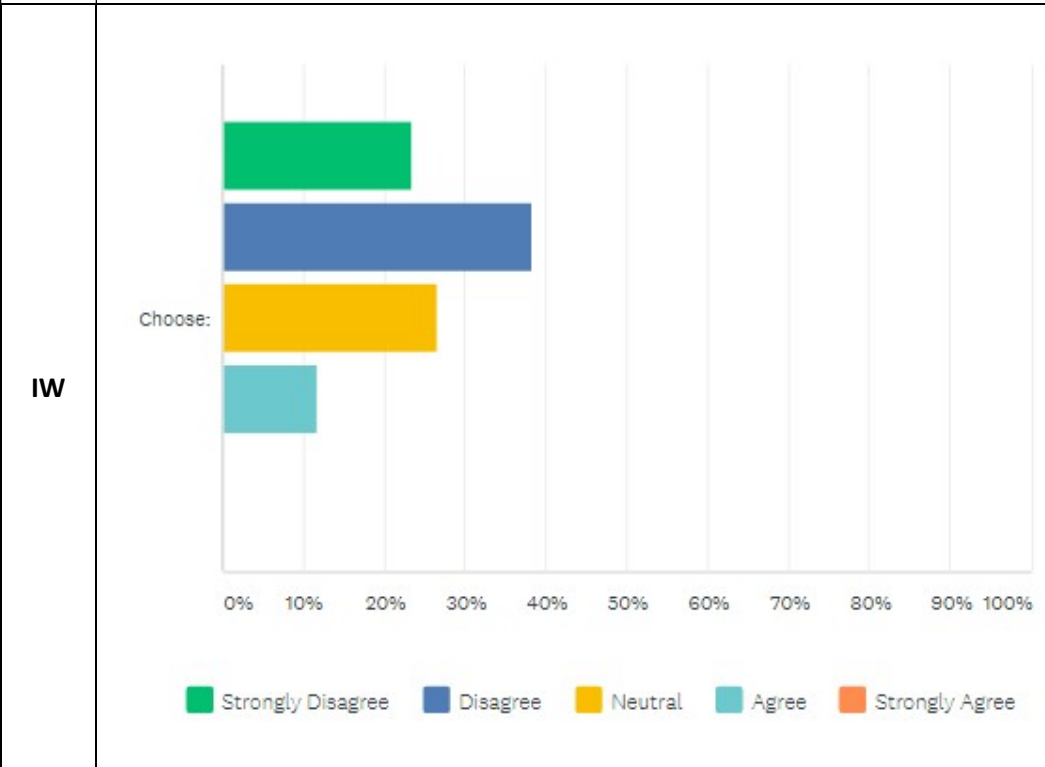
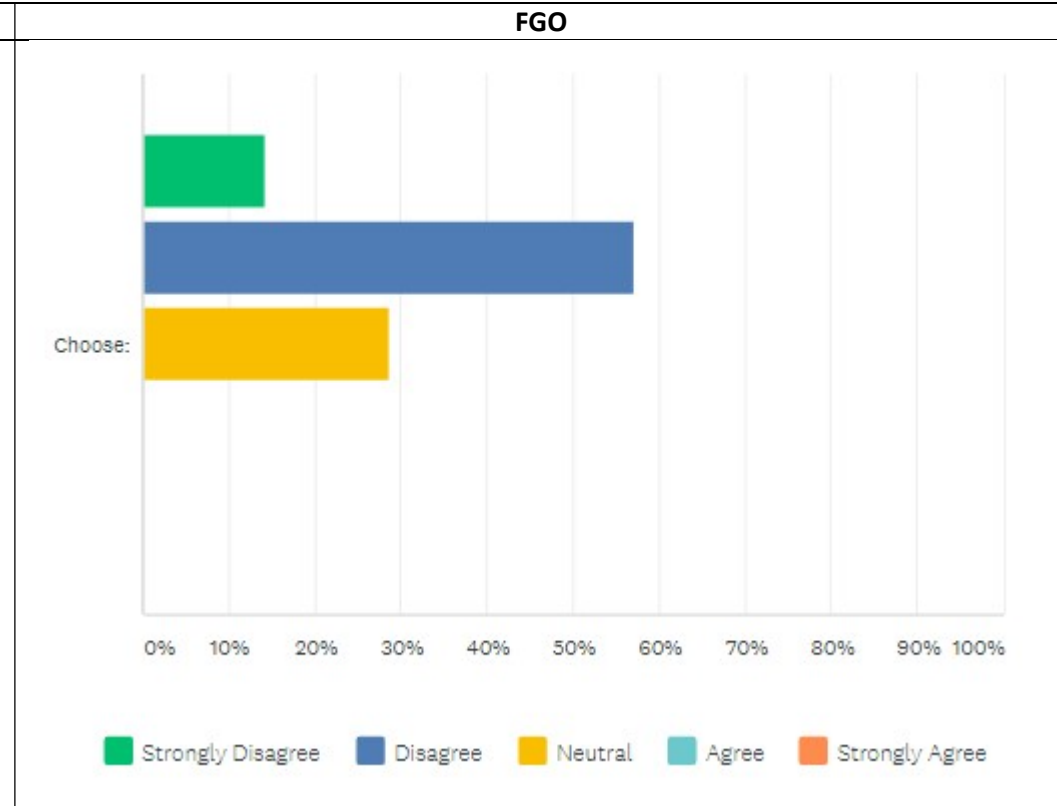
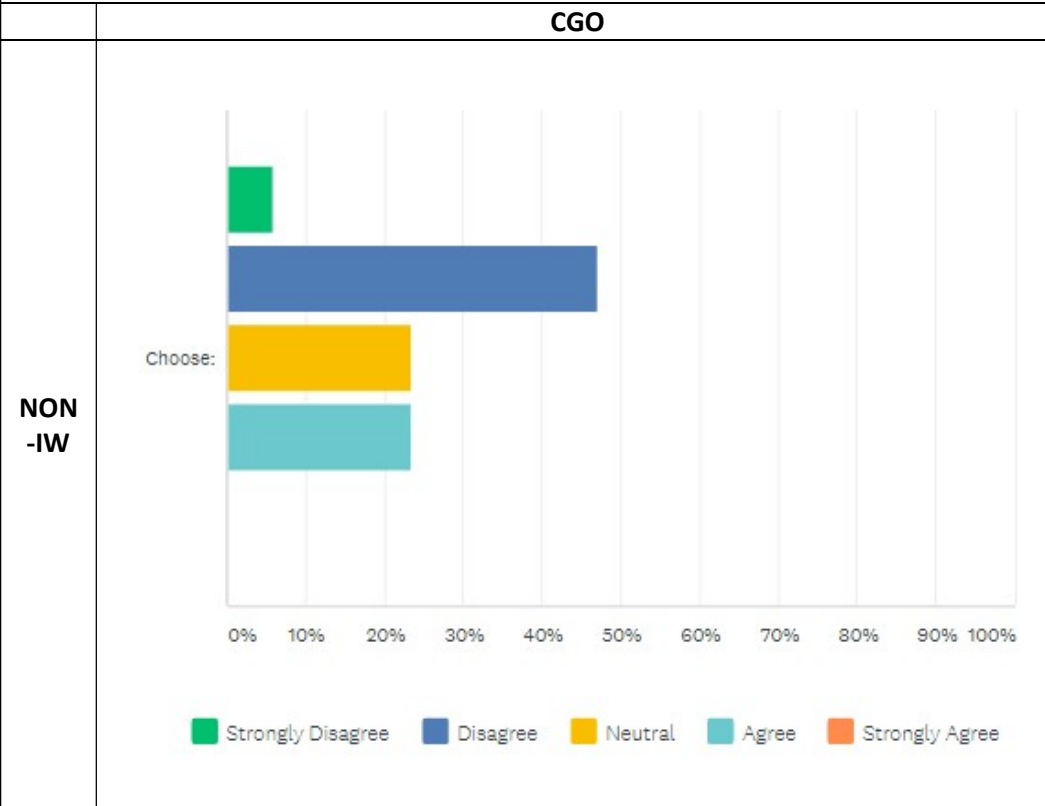
[Next-Gen Manned Aircraft; Next-Gen Remotely Piloted Aircraft; New Offensive Cyber Capabilities; New home-station cyber infrastructure; New Space capability; Additional Public Affairs funding; New MISO/MILDEC capabilities; New hypersonic/long range missile capabilities]



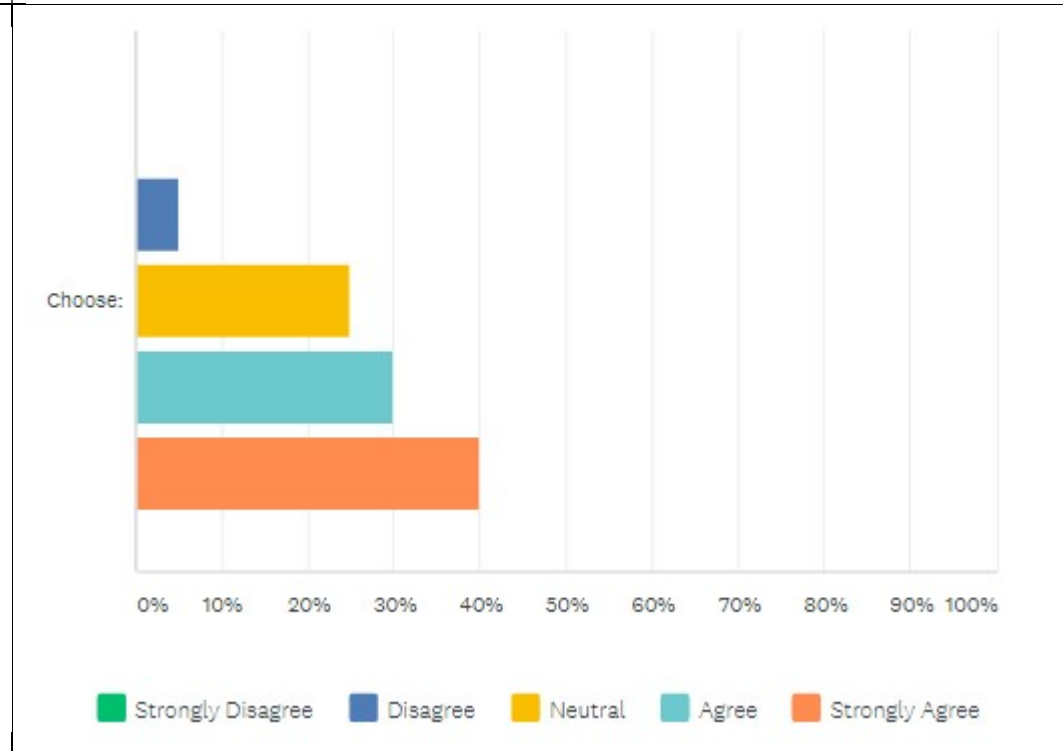
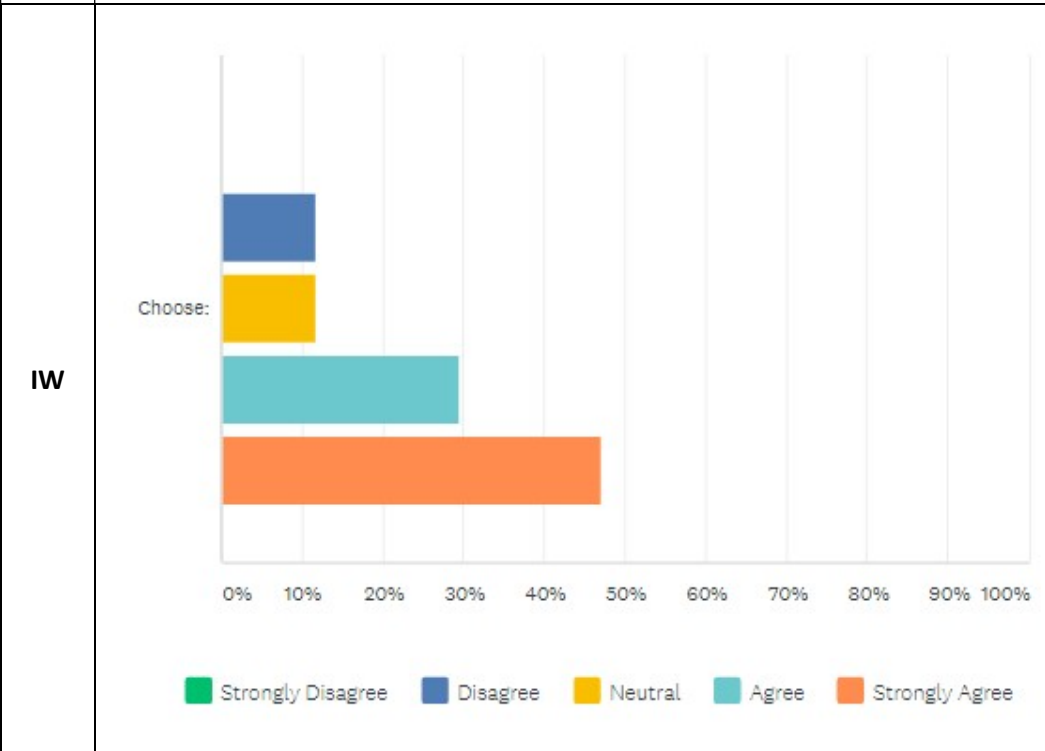
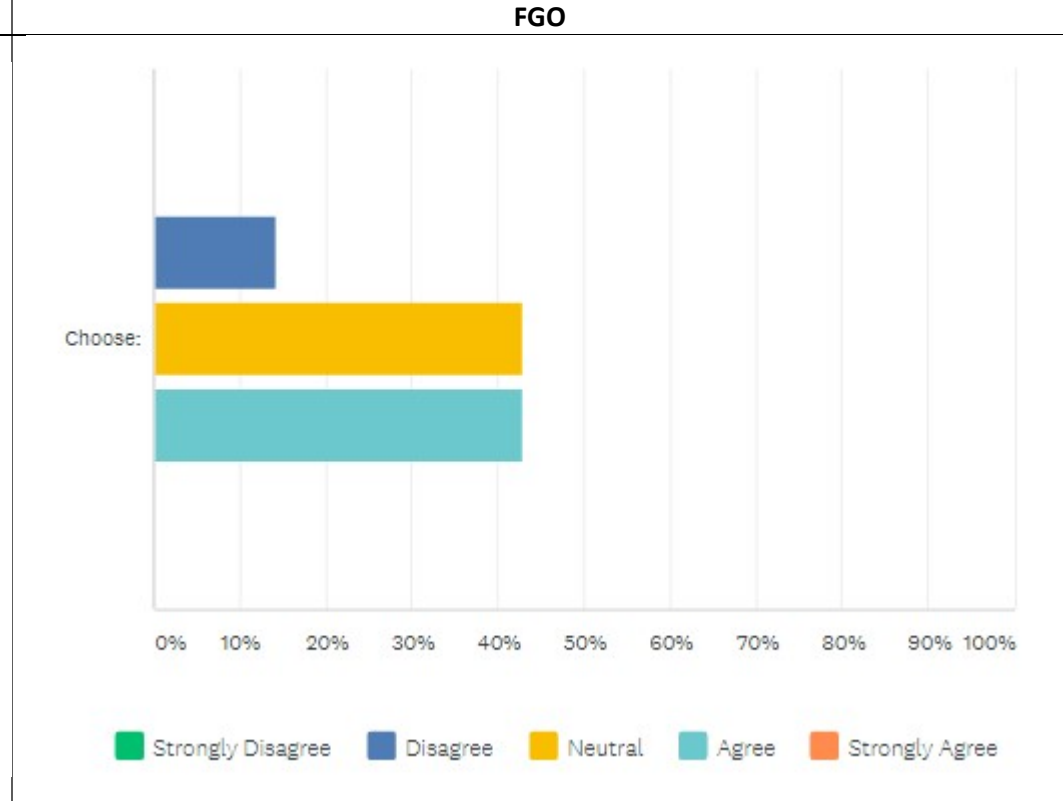
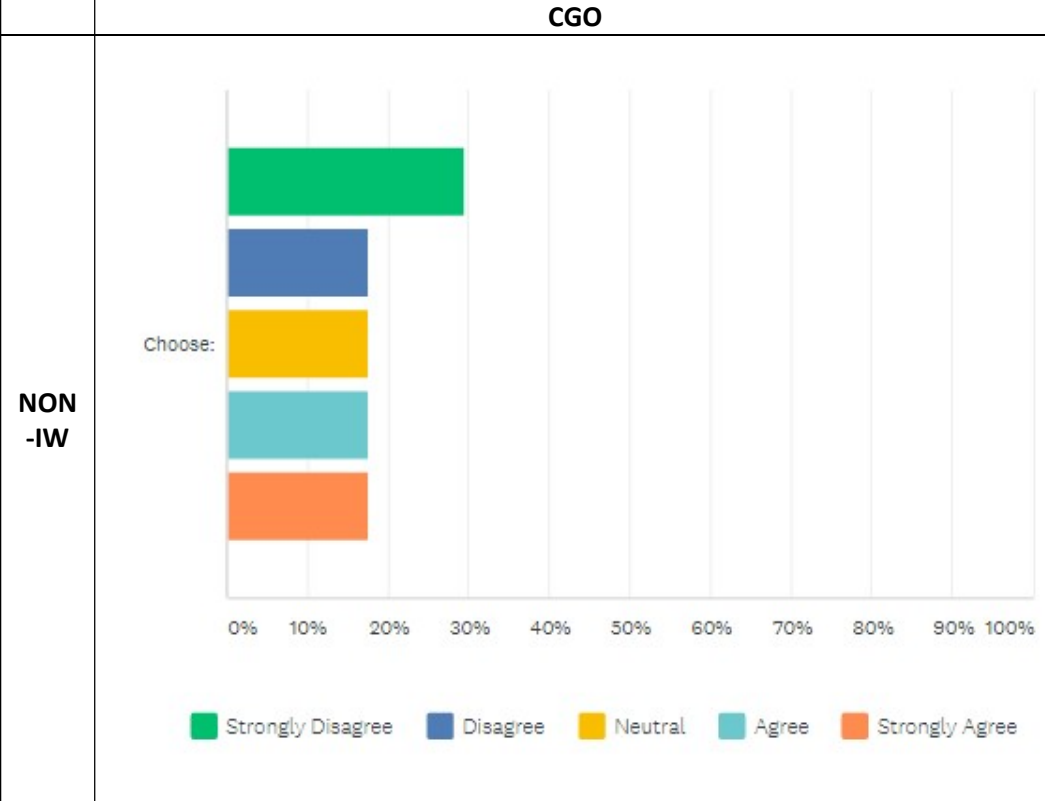
Q10: I believe non-kinetic operations are executed to support our kinetic operations.



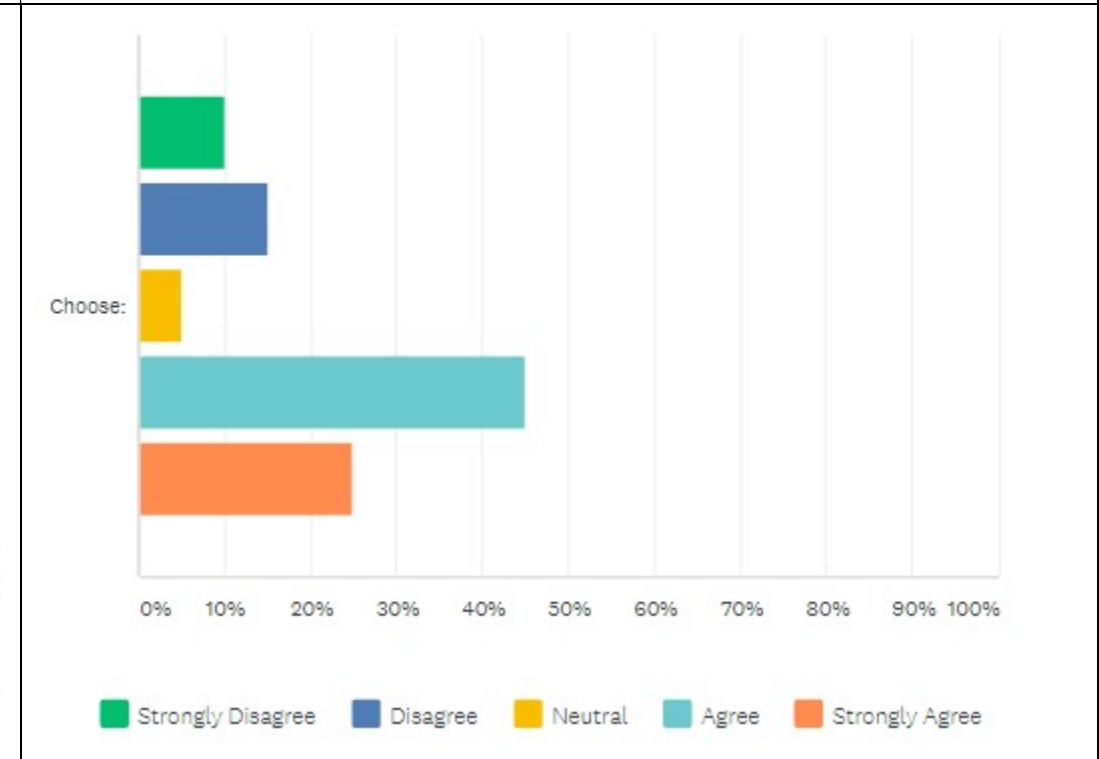
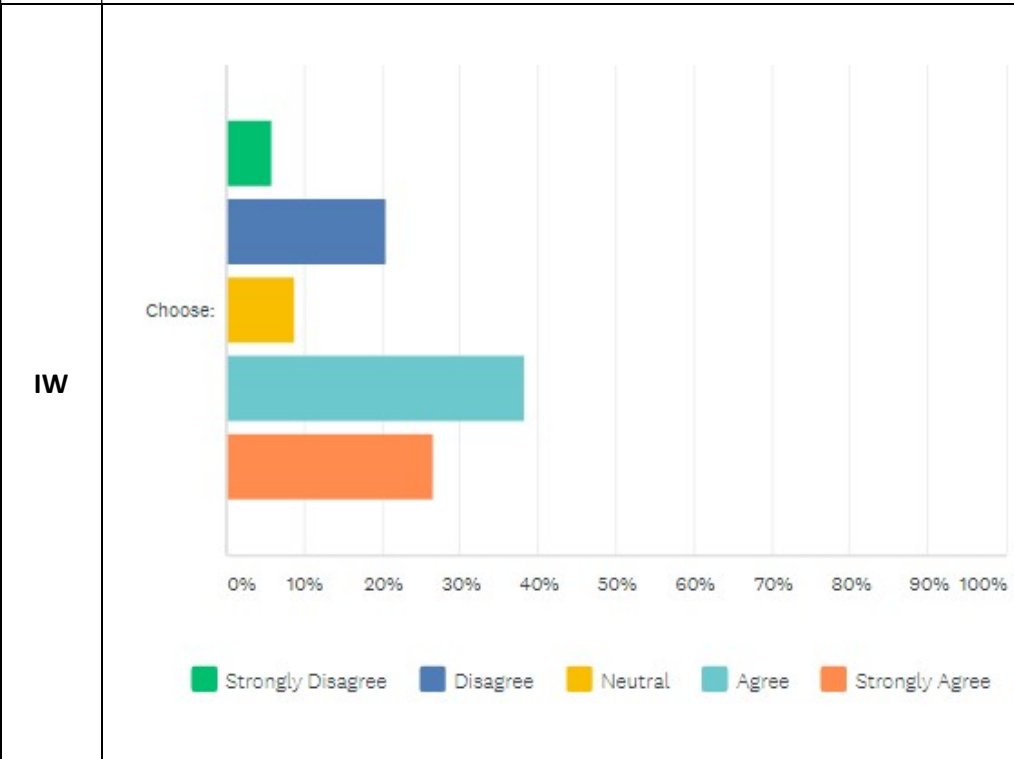
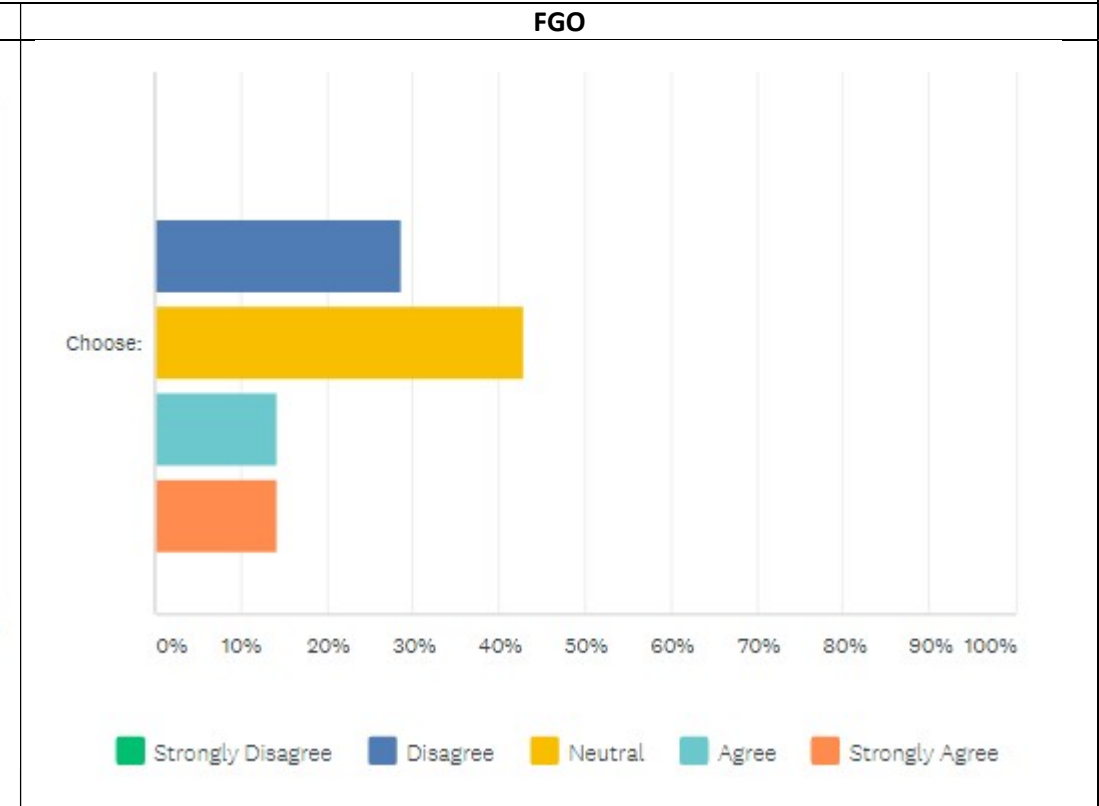
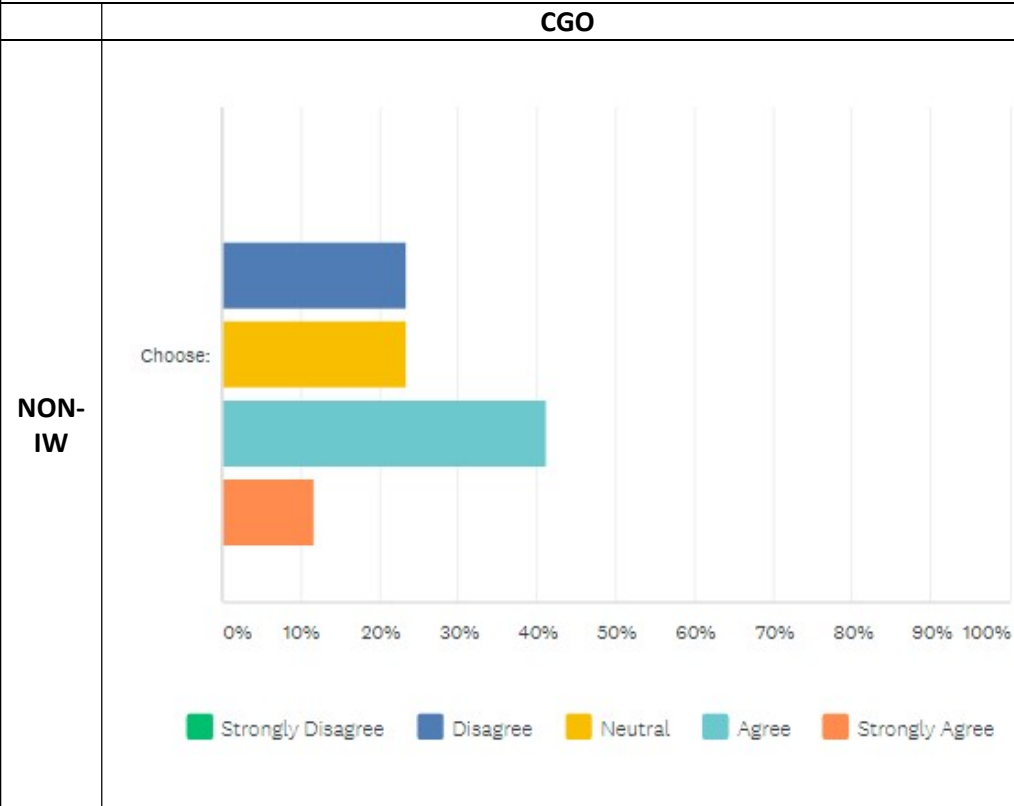
Q11: Our largest adversaries' kinetic capabilities are superior to our own.



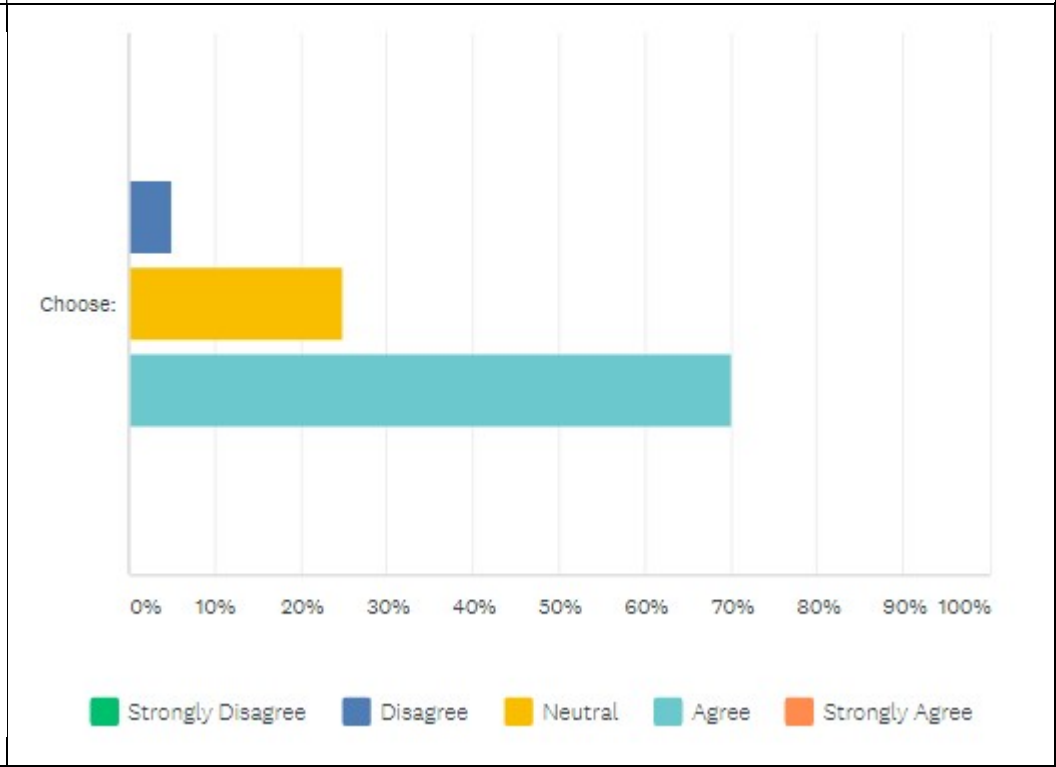
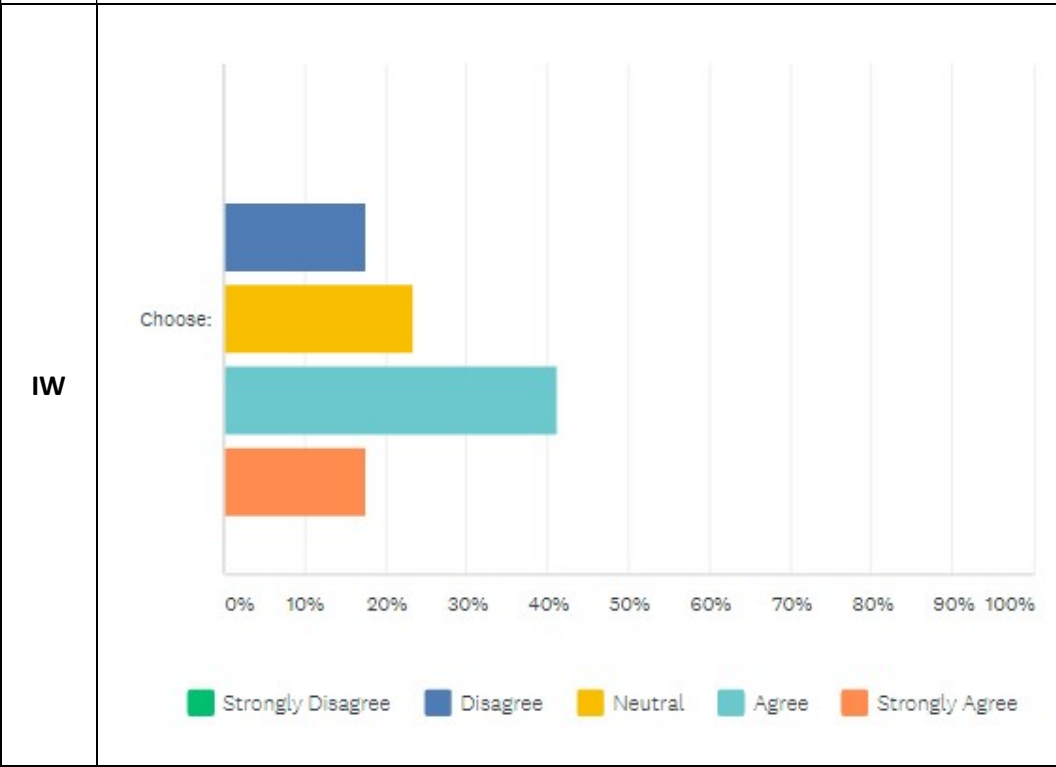
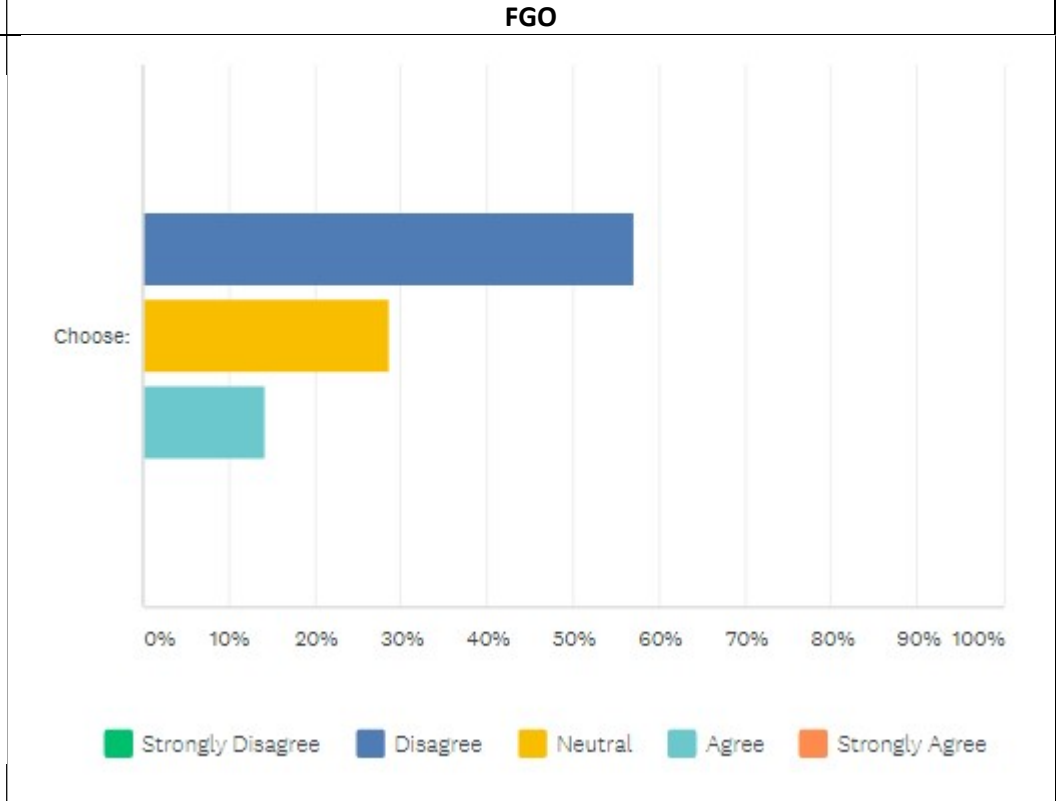
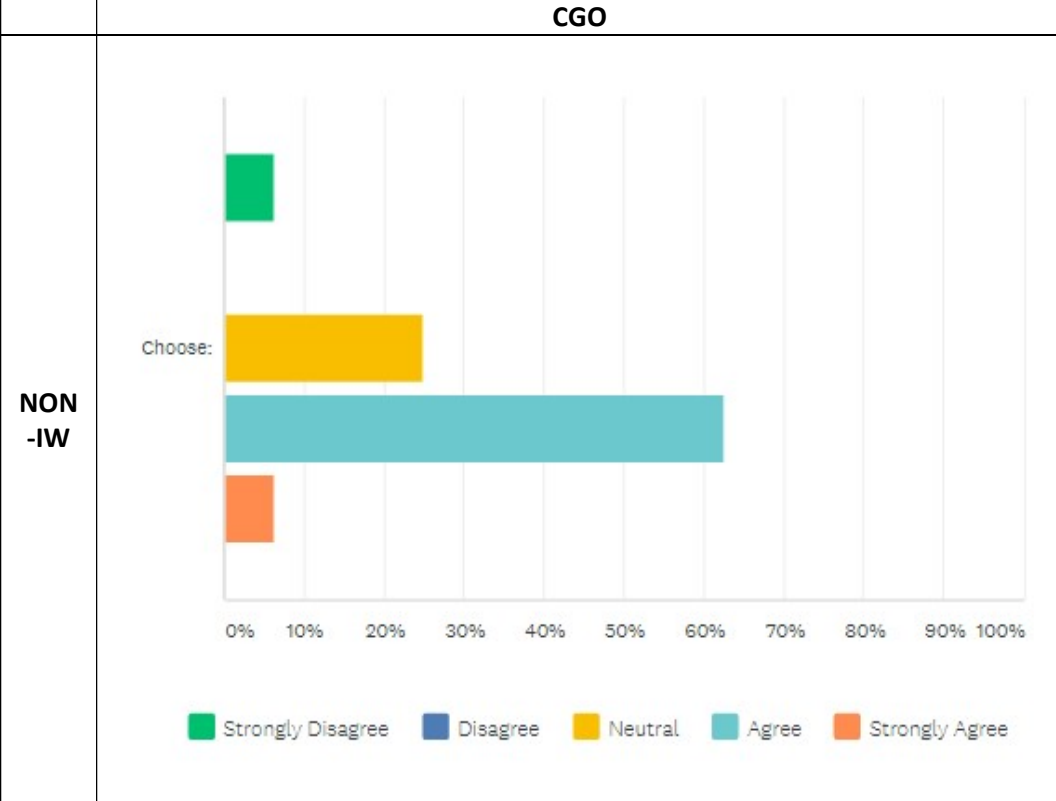
Q12: My job's success hinges directly on our ability to create information effects against the adversary and defend from information effects by the adversary.



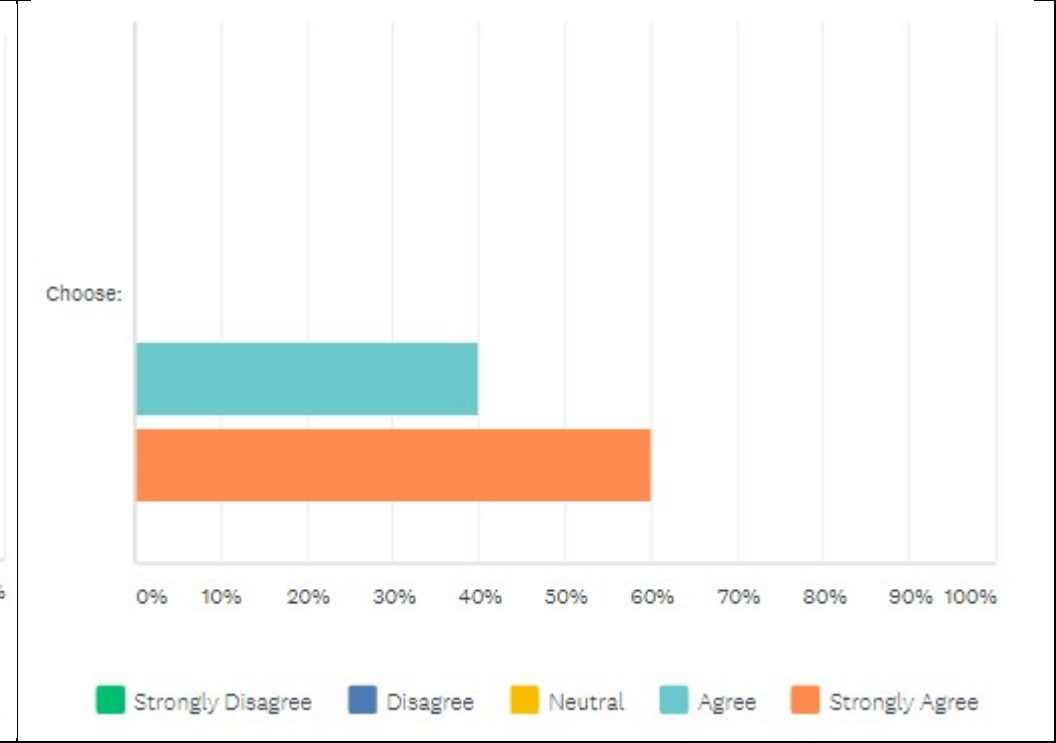
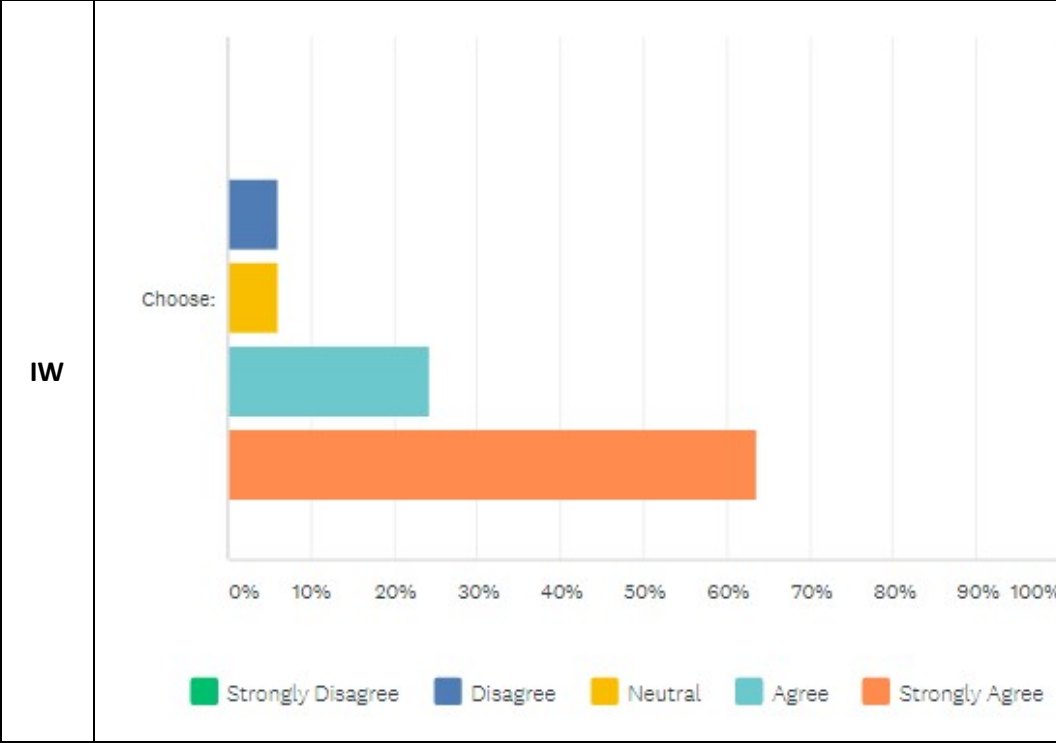
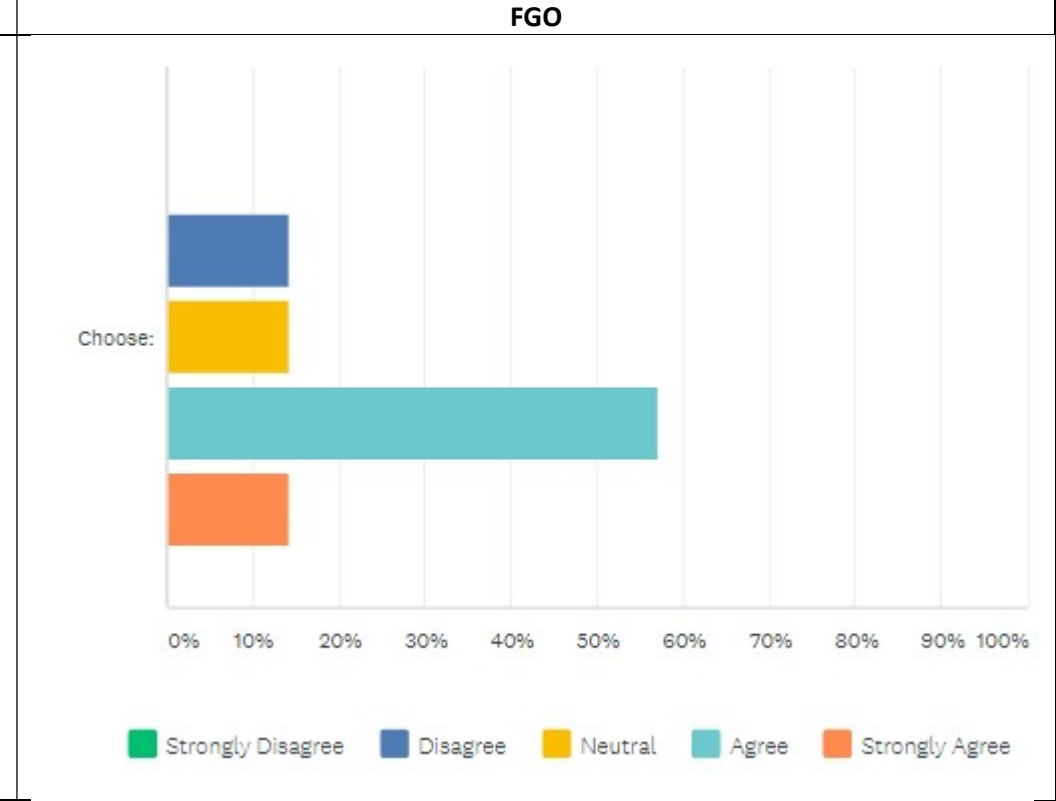
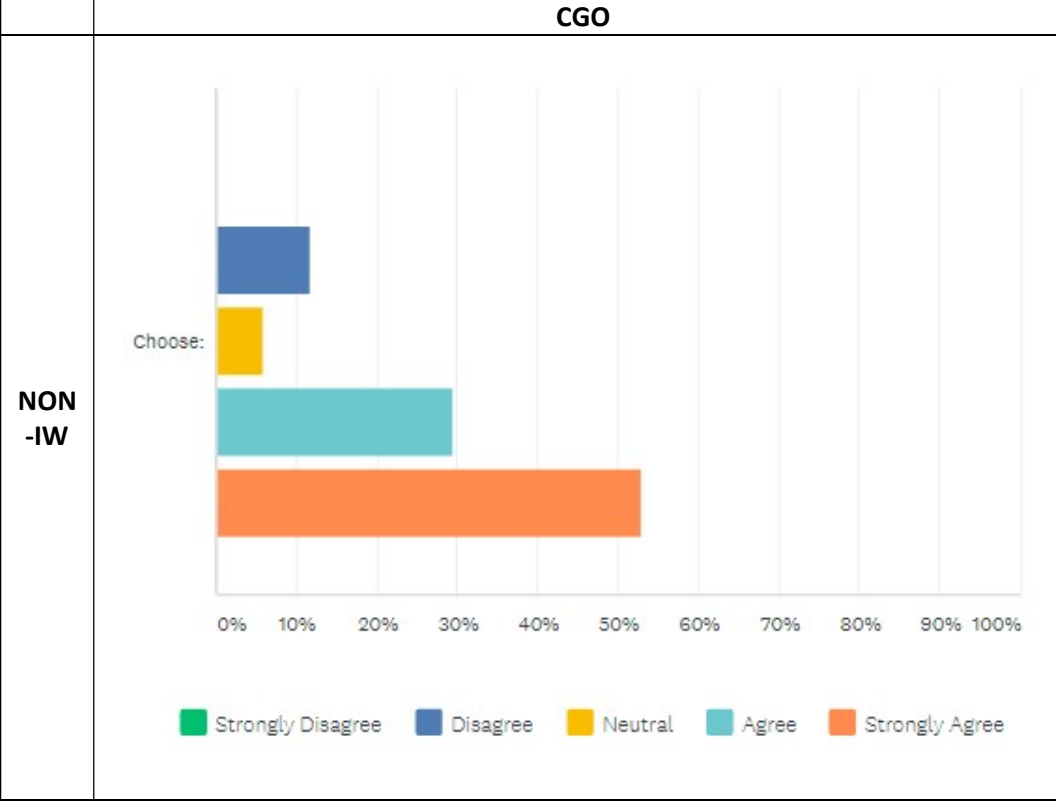
Q13: I believe an adversary can be held at risk via non-kinetic capabilities exclusively, even without any risk of loss of life or kinetic threat.



Q14: I believe kinetic operations should be executed to support non-kinetic operations.



Q15: Information Warfare is a critical component of the USAF mission and we cannot fly, fight, or win without it.

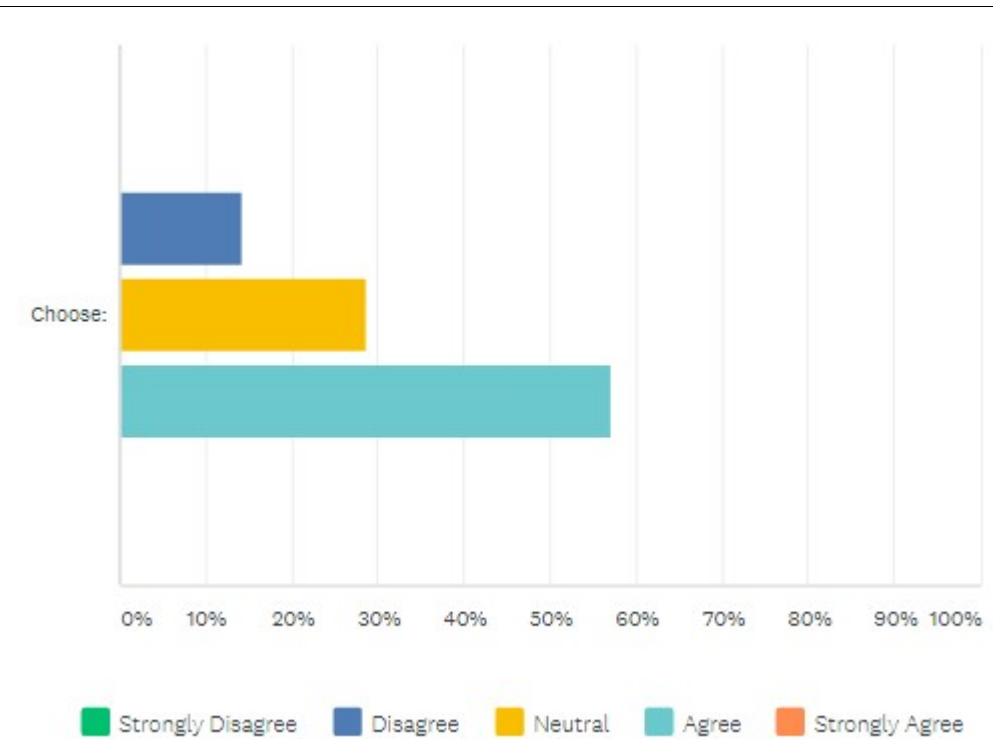
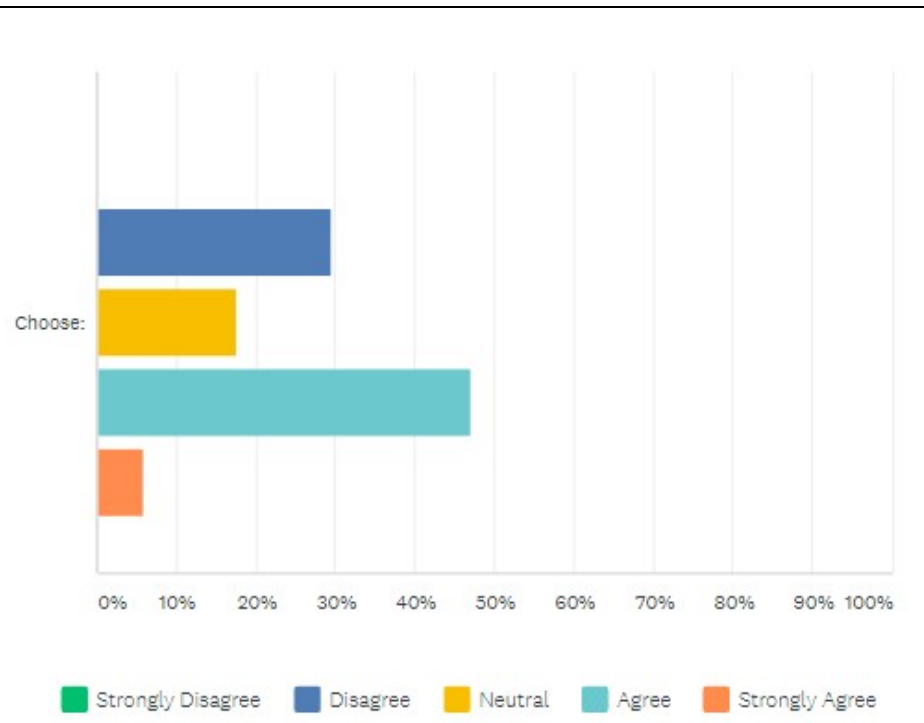


Q16: Our largest adversaries' non-kinetic capabilities are superior to our own.

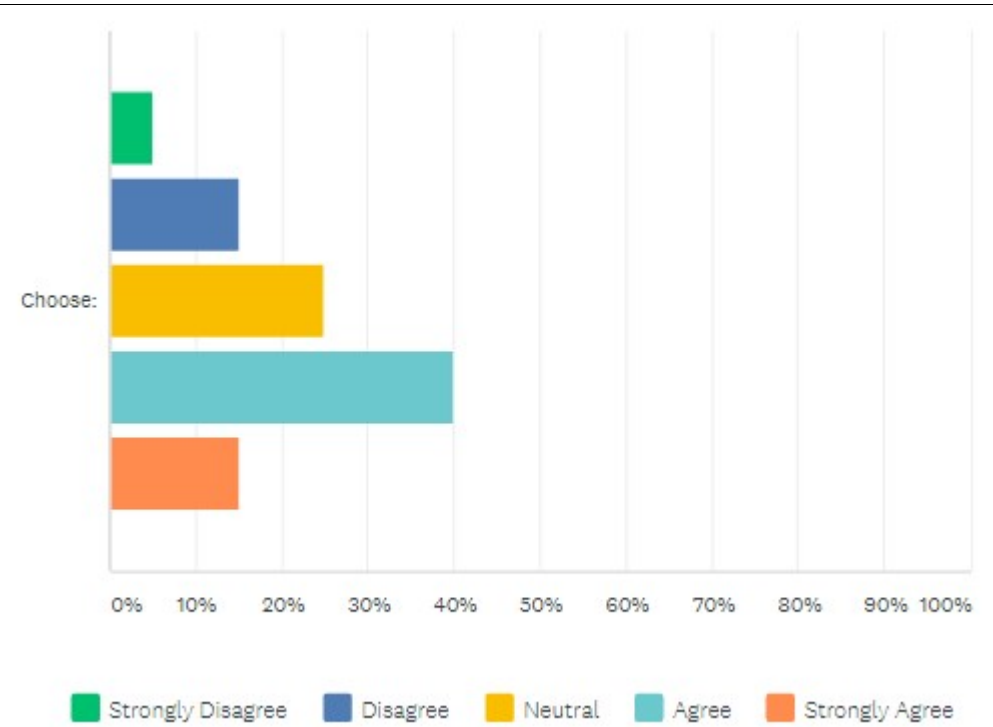
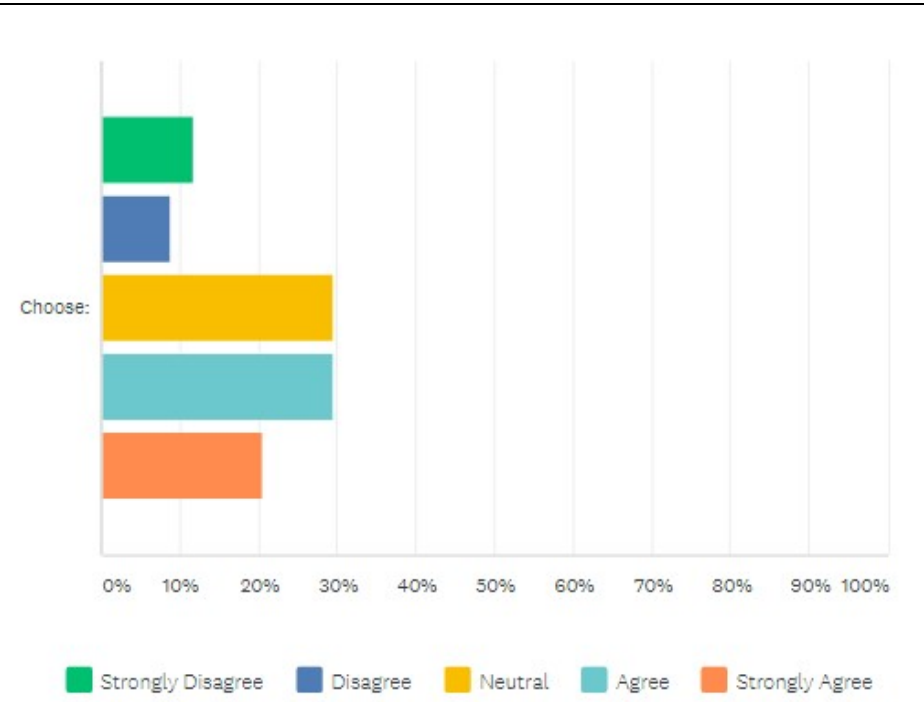
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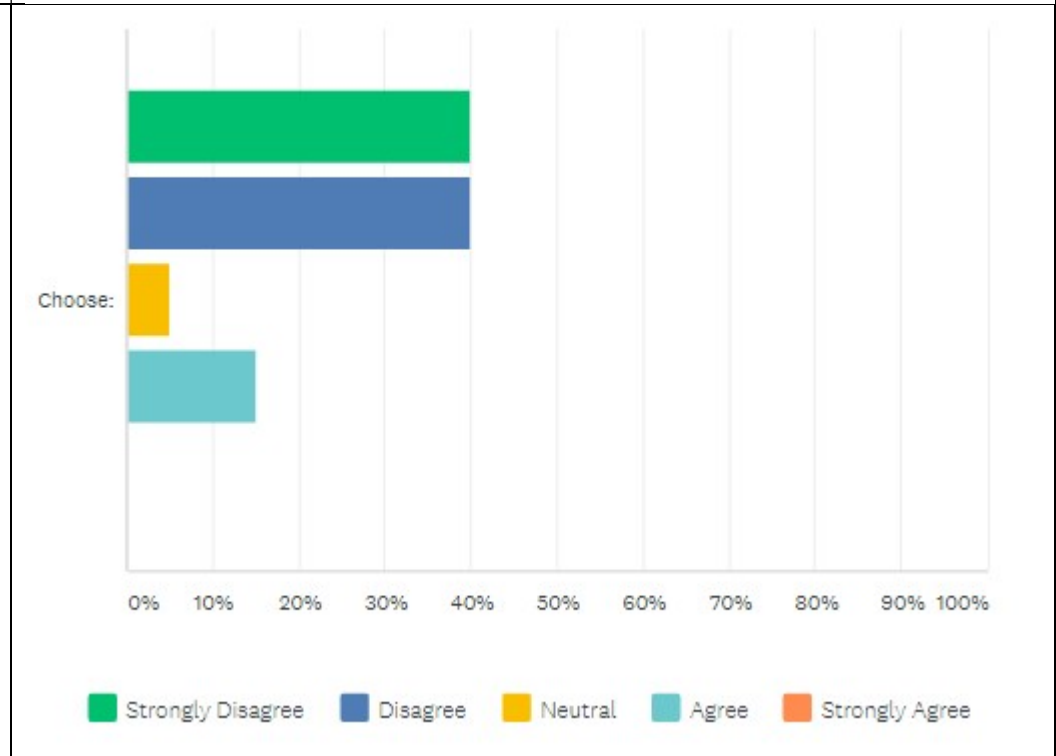
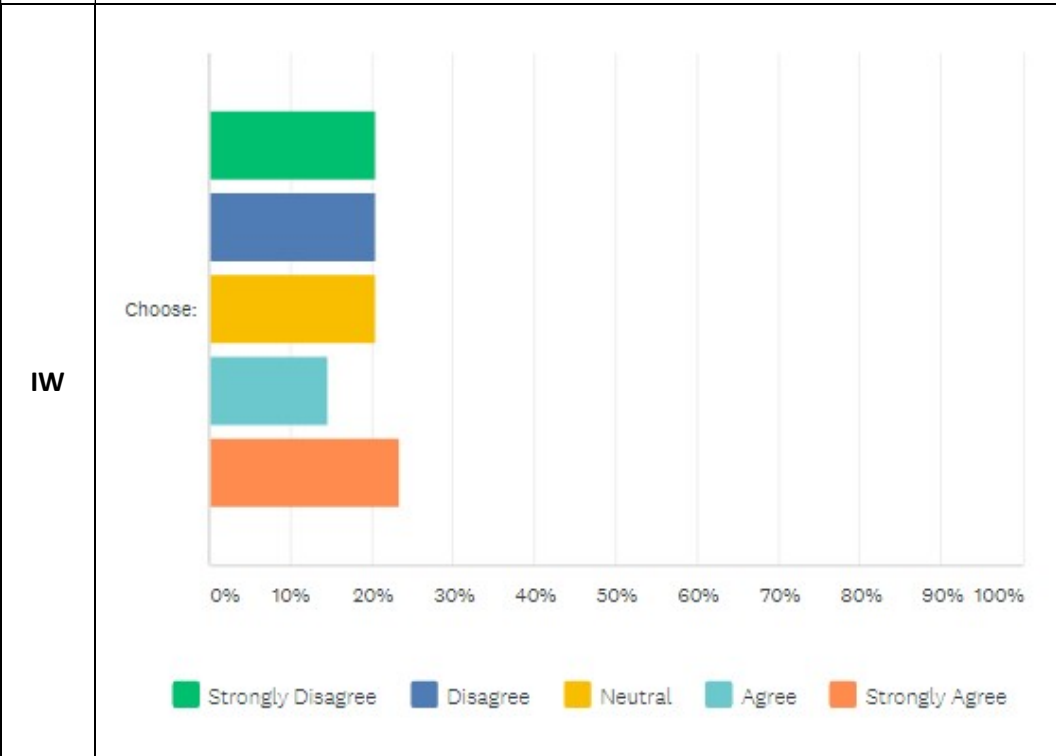
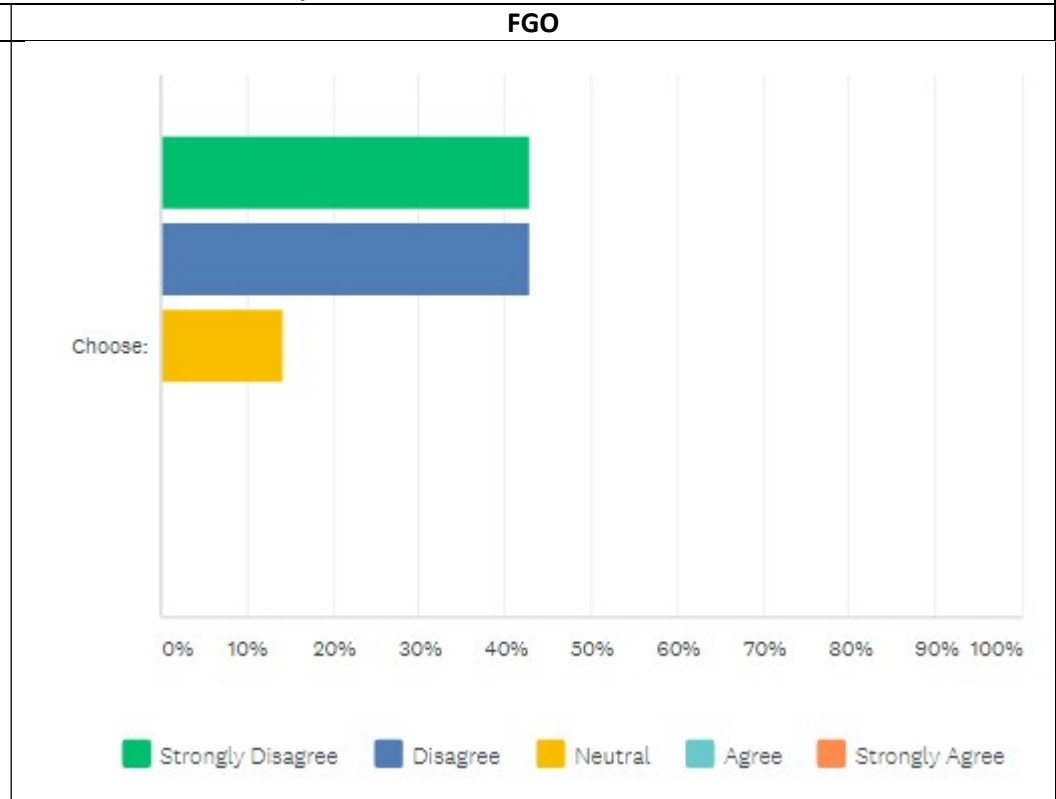
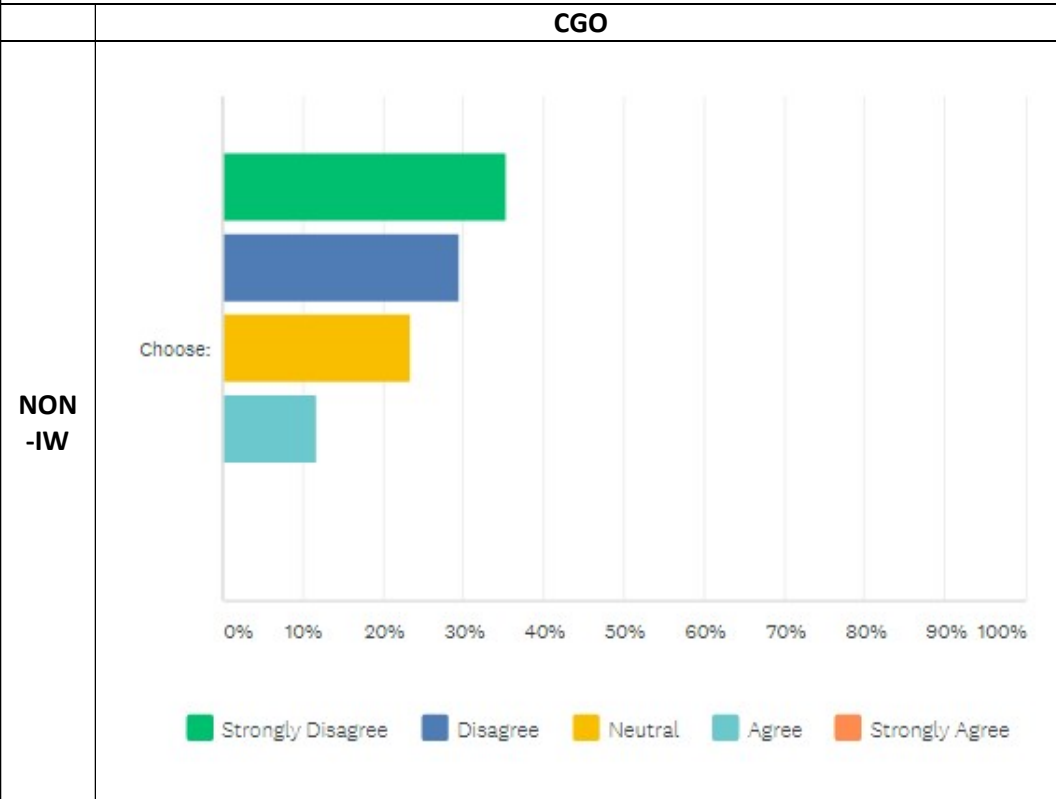
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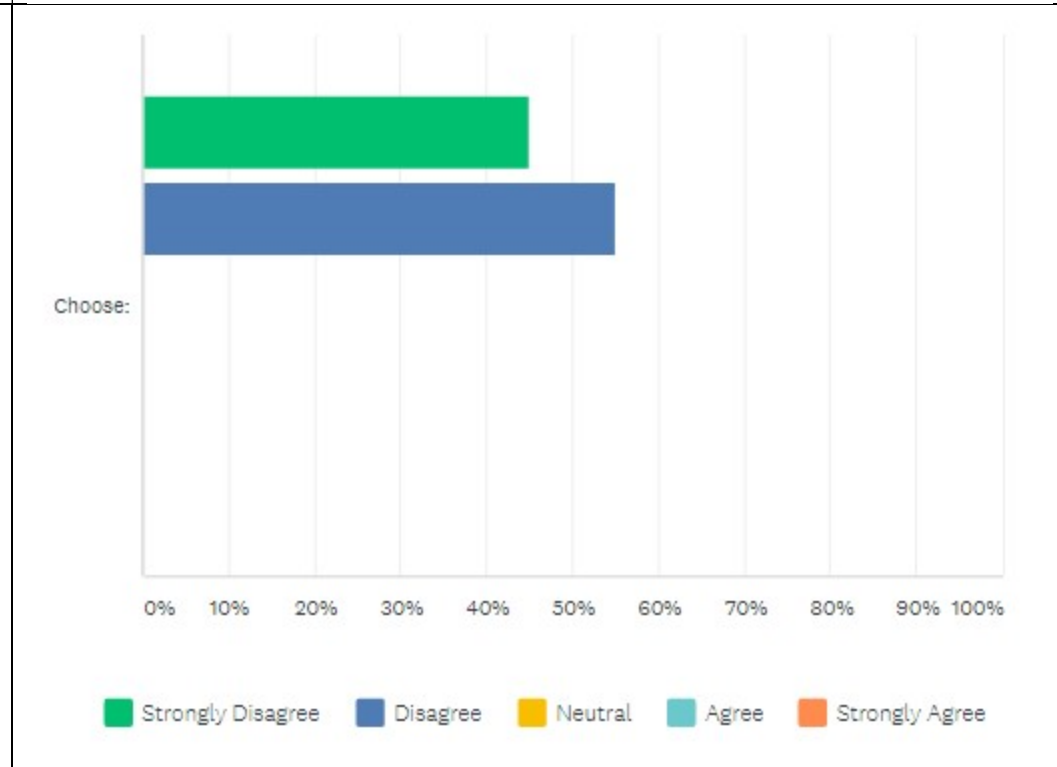
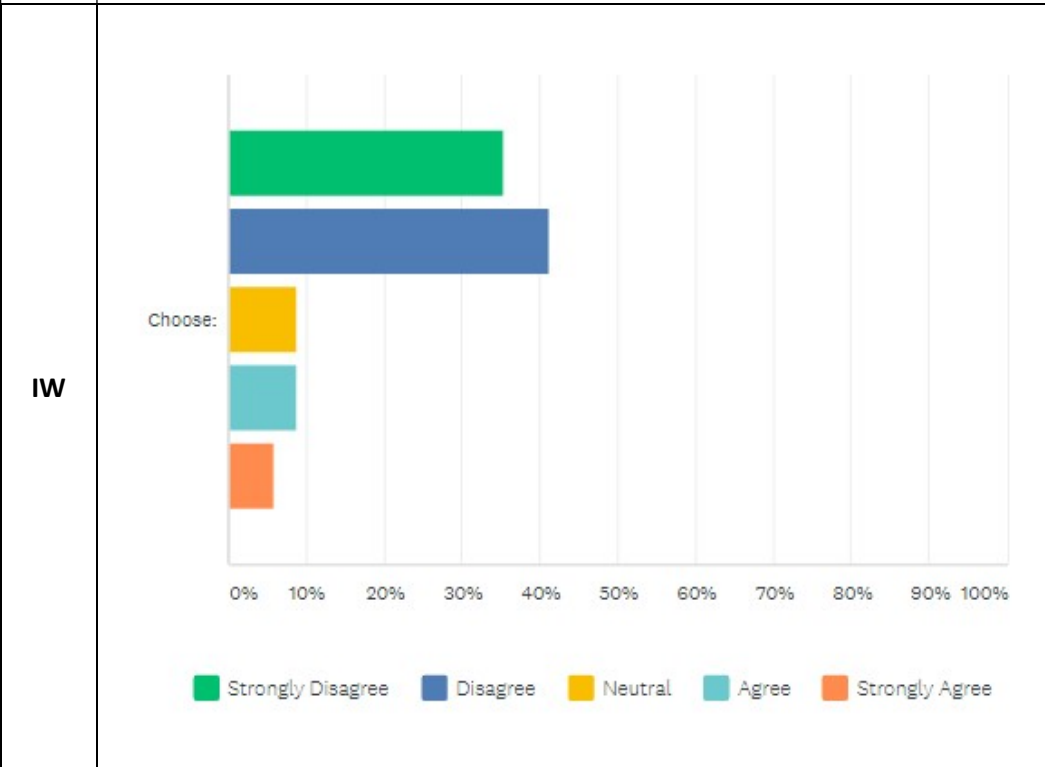
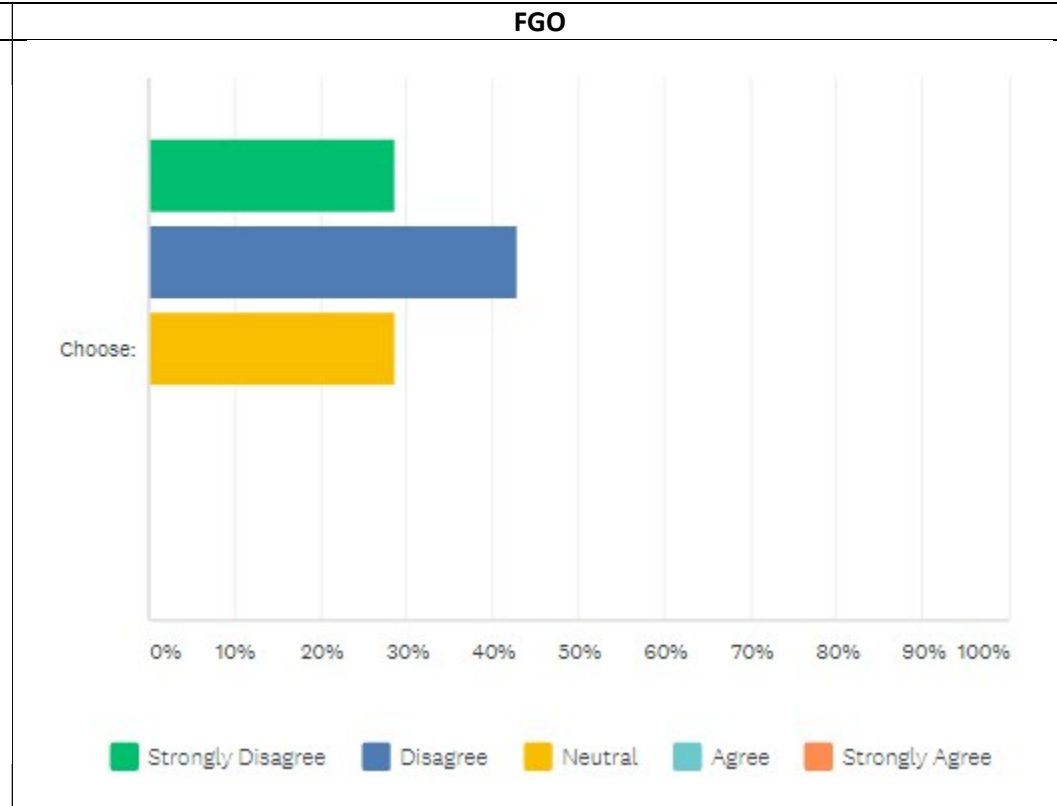
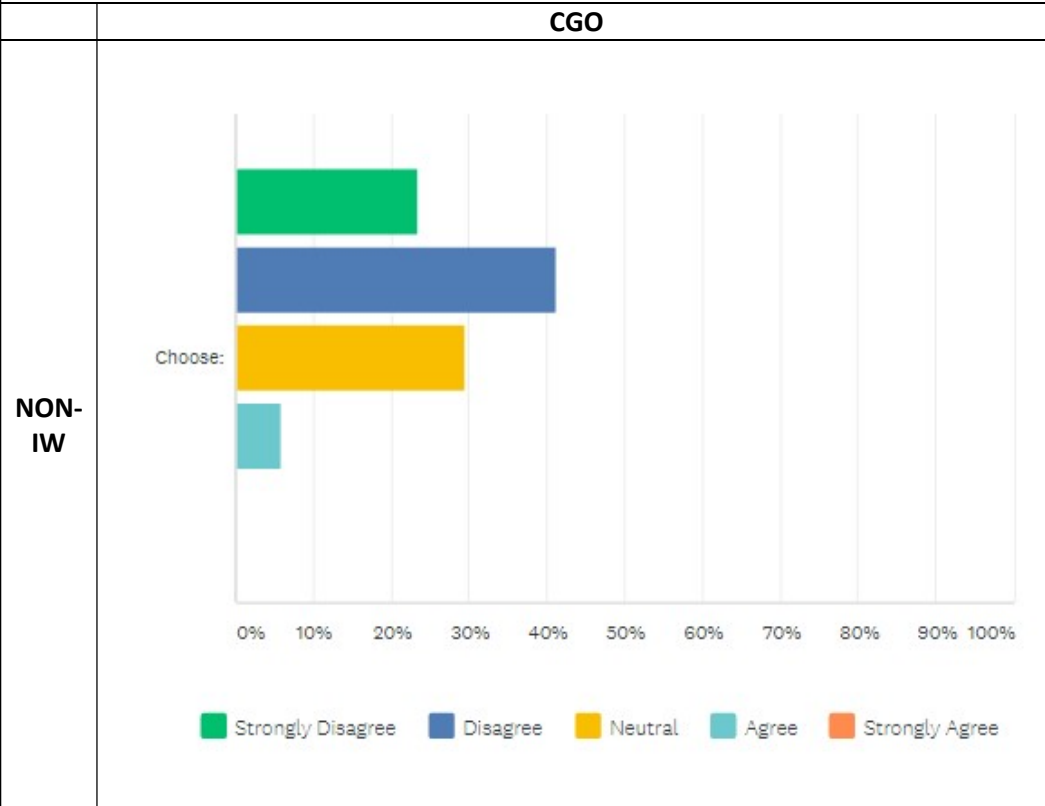
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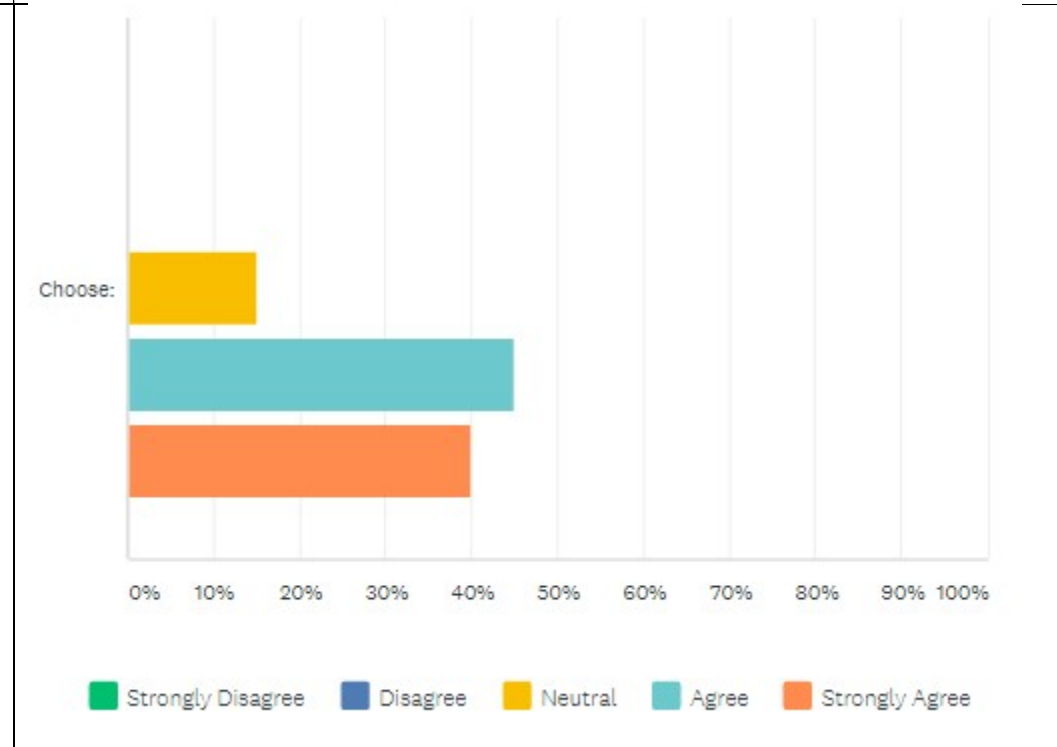
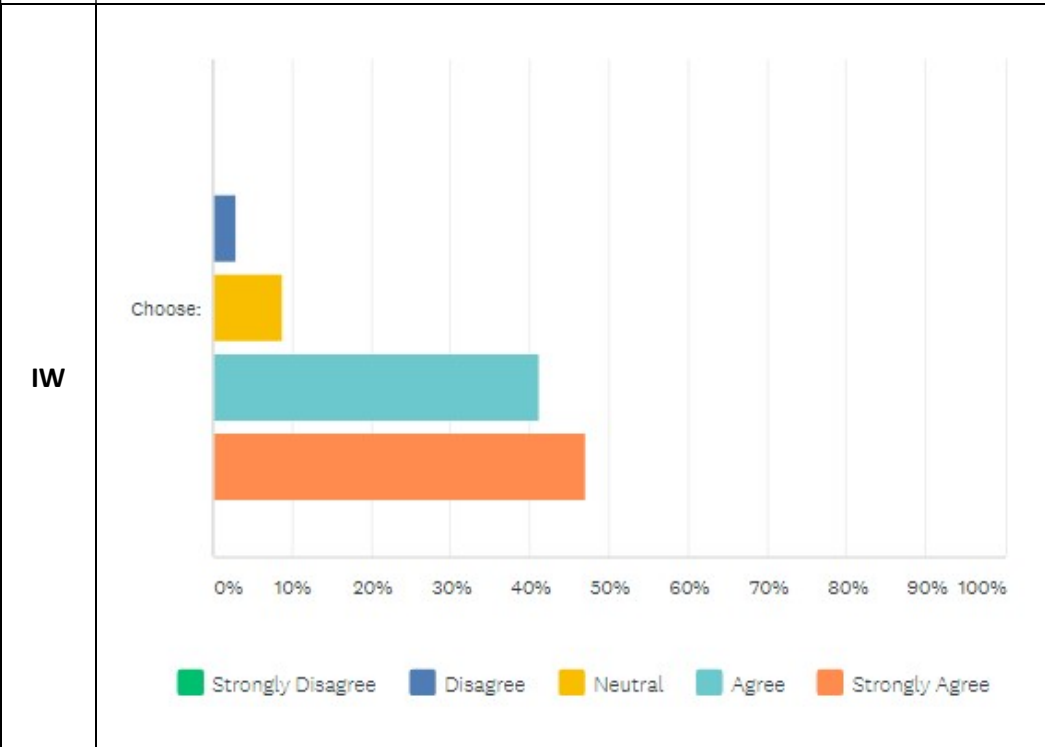
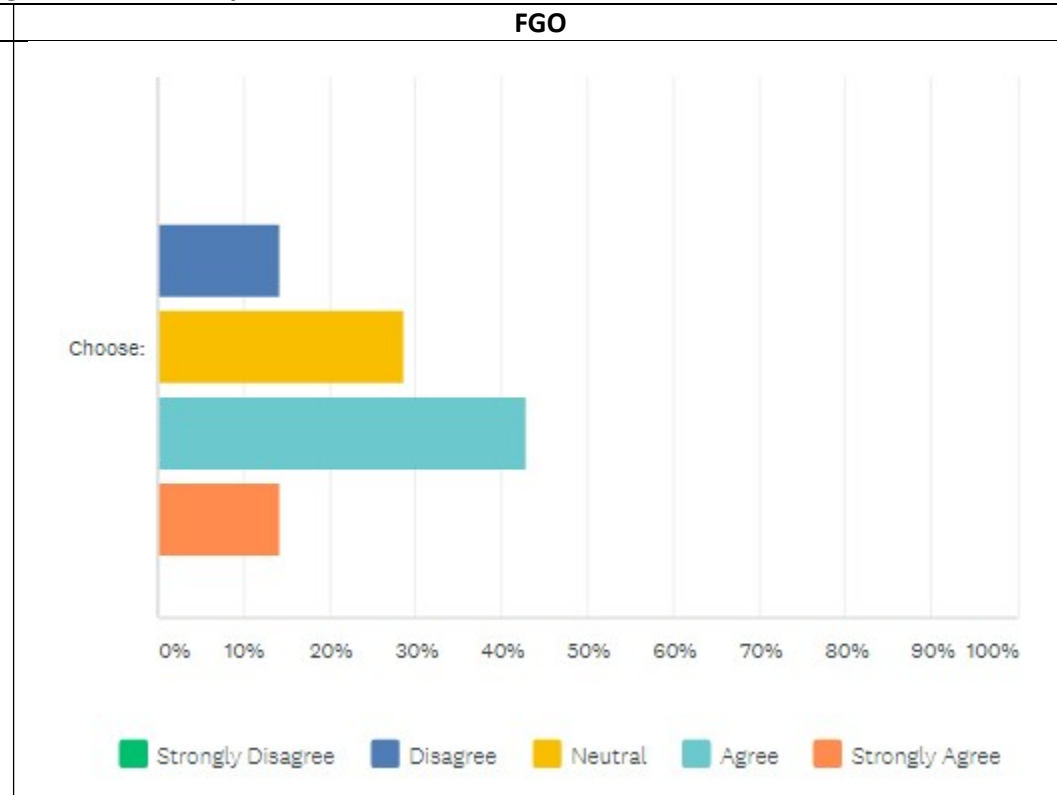
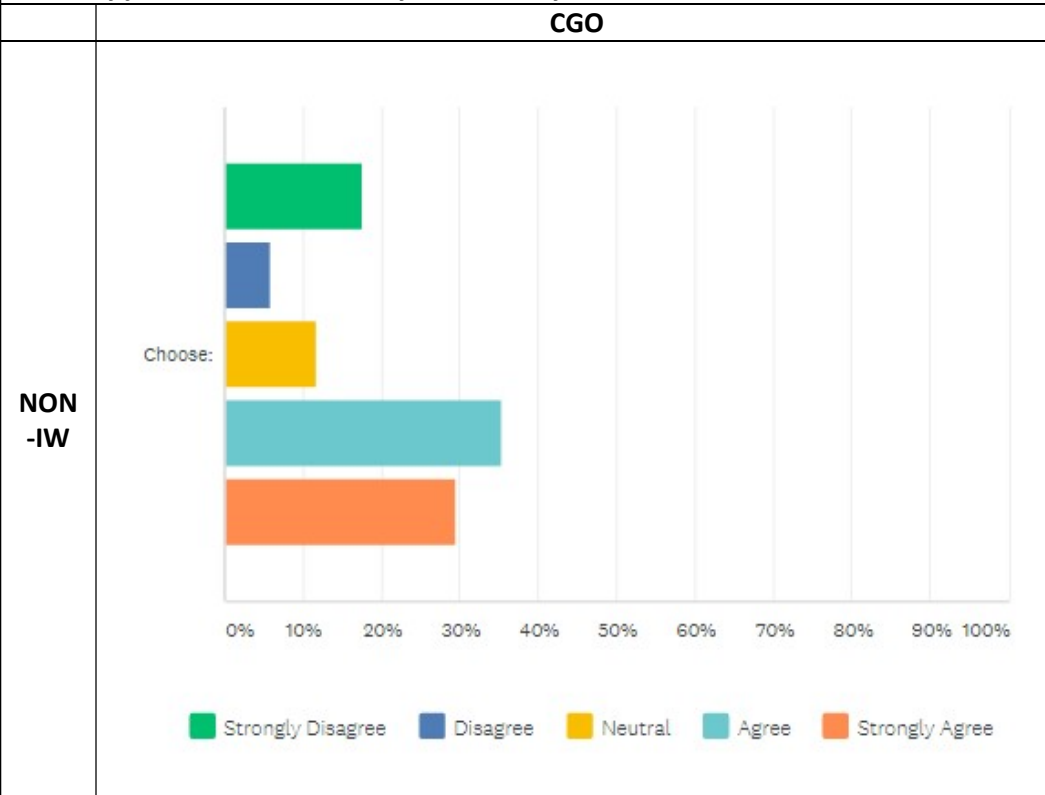
Q17: Information Warfare should be its own branch of service, the USAF and USSF should stick to the air and space domains.



Q18: Unlike contested air space, an air operation is not degraded in capability by a contested information space.



Q19: My job contributes directly or indirectly to our success at information warfare against an adversary.



Q20: There is no such thing as a war without kinetic effects. War by its definition necessitates physicality.

