



Round Table Summaries 2022 Fall Conference

Topic: Security Threats in a Digital World
Host Name: Vic Donald, P.E.

Discussion Points:

- How to prepare?
- How to react
- If there is a risk, we can insure it! Some contracts/agencies now require firms to have cyber insurance. Does your firm have cyber insurance? Have you used it? Is there anything to look out for?
- Can someone describe their most recent experience with a cyber-attack?
- What are firms doing to prevent cyber-attacks? What are firms doing to mitigate a cyber-attack? (Prevention vs reaction)
- Cloud vs in house servers?
- What does your firm do to mitigate cyber-attacks?

Brief abstract of the topic:

If you have something, it's fair to say that someone, somewhere wants it. Just like we lock our car and house, protecting your digital infrastructure and data is just as important. Unfortunately, protecting digital assets is not as easy as locking your car. Hackers and thieves become more creative and emboldened each day. A new "Internet of Things" provides more access points that bad actors can use. Our phones, tablets, computers, and servers all connect. If one is breached, how much of your system is compromised?

There are sophisticated hacks and simple ones. Often, a simple password is compromised. What messaging goes out to your employees to keep them vigilant?

Summarize concerns, advice, solutions, lessons learned, or case histories related to this topic.

- Employee education is your biggest asset. Password protection is a simple way to protect your systems.
- Regardless of company size, almost 100% had some form of training and insurance coverage. Training quality varied significantly from from internal, monthly emails, to video training and outside consultants that send phishing emails and track statistics around improvement. Firms are going through cyber audits. Can help with insurance requirements, creating robust system.
- Many agencies and large companies, contractors, clients require consultants to have cyber security insurance. The coverage limits can cover a large range, up to many millions worth of coverage. Some have used consultants to do an audit of network/resource security.
- Education amongst employees is very important. Insurance may require audits, training, etc.
- How can we raise awareness to avoid security threats? Training, 2 factor authentication (balance against employee disruption/dissatisfaction). GBA conference presentation on "getting hacked." Use a password manager.
- Cloud backup versus on-site services. Even with cloud backup, some have heard of ransomware attacks deleting or encrypting off-site backups.

- Less typical attacks include "stealing" of cellular data, breached by off-site monitoring equipment.

Indicate the 3 most important takeaways from the discussion to share with GBA members.

- Everyone member firm should have cyber-security training in place and care insurance against cyber attack. Insurance coverage may be required by more and more companies and agencies, and training is usually a requirement for coverage. Could GBA develop more resources to help with this? Maybe re-packaging existing content.
- Training, outside consultants, "testing" employees anonymously, outside audit of systems are all being used by member firms to improve resilience against cyber attacks.

Topic: Remote Work Challenges and Opportunities
Host Name: Brad Melocik, P.E., P.H.

Discussion points:

- How will a downturn affect remote work?
- What does the modern office look like? (office/cubes/common space)
- Which positions can be trained/sustained remotely
- What are the positives and negatives of remote work?
- What challenges and opportunities did we find and what opportunities to adapt have we led?
- How have we changed? What will we never go back to? What must always remain?
- What are the effects on retention and why?
- How does an economic downturn affect remote/hybrid work environments?
- What does today's office look like, physically?
- How do you measure employee progress, performance? What are the expectations of employer and employee?
- Equipment (laptops, not desktops, printers), furniture, supplies, internet, and other needs at home to work remote. How much does the employer supply? What about security?
- How does the firm maintain client/vendor interaction? How does your team work together with client and vendors and avoid miscommunication?

Brief abstract of the topic

The pandemic brought us opportunity and challenge with how we 'show up' to work. The geoprofessions ran the gamut of diverse needs as some positions in our firms accommodate remoteness while others require full-time presence.

Remote Work policies are standardizing within each firm, similar to benefits. Each firm offers varying degrees of remote work based on the employee, type of work & the firm's leadership. A few (mostly larger firms) have formalized policies. Most, small, medium and even large firms, allow managers to have flexibility based on the project, employee work and needs. A few were allowing remote work prior to the COVID pandemic.

The ability to work remote and meet these demands has translated into a desire by most employees to not return to the office. This has led to both challenges and opportunities for companies moving forward.

Summarize concerns, advice, solutions, lessons learned, or case histories related to this topic.

- It is nice to be able to work from home sometimes in order to focus and to help manage family needs.
- If there is a concern about monitoring people working from home, we can set goals for them and just ensure that they get those done instead of trying to closely monitor whether they are working or not.
- People are happy in general in the culture shift (i.e. better work/play/family balance) that has happened because of the ability to work from home. It is ok to leave early to take care of family or personal needs, and then work later in the day because many people are now outfitted to work effectively from home.
- Remember to recognize and praise people who work from home 100% of the time.
- Sometimes the technology necessary to work from home is not effective either because people live in an area that doesn't have reliable internet connectivity or people who have a hard time learning new technology.
- The younger generation appreciates being able to work from home if needed, but they like being in the office!
- Firms struggle to keep their past identities while retaining the (expected) flexibility of remote work options. The sentiment was that remote options must be embraced while seeking new options for connection and engagement.
- Ideas to make opportunity of this included: investing in IT infrastructure to make sure all remote workers have the same 'playing field' of resources; form robust mentorship programs especially in small firms where these weren't previously needed; town hall meetings from senior leaders to provide open forum for transparent discussion.
- We've gone from uncertainty that remote working, works to certainty that productivity can work, remotely. The question may be, what is that 'productive' metric, how is it measured and who evaluates success?
- "Accidental Interactions" and informal training at opportune or random moments are lost. Must increase effective communication. Face-to-face interactions "humanize" employees to remind supervisors that they are people with needs
- Should schedule in-person time or video meetings to set clear expectations and goals for employees during their time at home.
- Will layoffs happen to remote workers first? Remote workers should take extra care to make sure they stay "relevant" to supervisors and decision makers
- Remote working affects employee engagement with company culture and may decrease loyalty to the company. Employees don't develop strong bonds, loyalty while remote. How do you keep them engaged?
- Positive: Allows project work in remote areas that people typically do not want to live
- Parents with young children benefit from remote options, both genders. This opportunity may be a great retention tool, even keeping more in the profession if we use it as a differentiator.
- With employees not in the office at the same time, this has allowed companies to downsize or re-deploy office space.
- A remote workforce has forced companies and management teams to rethink how they communicate. It has also led to an increase in communication as teams regularly schedule times for meetings (virtual or physical) as impromptu Being remote has forced companies to rapidly invest in, and adopt, new technology. office meetings are not an option.
- Some of the challenges we discussed with remote work: fewer opportunities for mentoring; less engagement (particularly newer staff because it's so hard to build relationships remotely); newer staff

don't get the organic training of what it means to be a professional that they would get by being in an office surrounded by seasoned professionals.

- Critical for remote employees to be pro-active on their own behalf to reach out when they feel that they need more mentoring on a topic. Might not be on the top of everyone's mind if someone is new and they aren't being seen in an office setting.
- Based on his own experience, one of the panelists noted that remote work works well if an individual has already established relationships (typically in-person). To help with this, at one panelist's company it is strongly encouraged for people to be in the office on the same two days of the week to help build relationships. Another panelist's company has implemented a young professionals affinity group to help build relationships.
- One of the panelists tries to increase one-on-one opportunities (remote or in-person) for the people in their group by setting up meetings with their peers and technical leaders.
- Having flexible work policies (schedule and work location) is a great way to differentiate yourself in this tough labor market and a good retention tool. Also on recruiting, it's helpful to have remote work options to provide flexibility in looking for talent outside of the local area. This last one may require some changes to the typical responsibilities of a position (e.g., assigning someone local to make site visits if the PM is not local) and doesn't work for all positions. But panelists overall have had positive experiences with this option.
- We discussed whether companies would begin to change their flexible/remote work policies during a recession when the labor market turns around. One panelist thought that fully remote employees may be the first to be laid off due to lack of work given the lack of relationships and visibility.
- We've picked Thursday to be the default day in the office. Haven't changed the office space yet bcs of leases but expect smaller changes and shared offices.
- We set PMs on a rotation to work in the office on specific days so that there's always someone in the office for the field staff.
- Biggest challenge is transfer of knowledge. We've tried additional after hours events to help build community and the folks that have chosen full-remote are starting to come in for these extra events.
- There was some resentment by the field staff that the PMs were not there and were working at home. We're 100% in the office now and I'm thankful for it.
- Assigned one person to be the liaison to the technicians and field staff. They plan a monthly event and invite a few office staff, PMs, leaders to the events so that the folks in the field can get some exposure and connection to office staff they don't regularly interact with.
- Some firms have adopted a "work from work" policy, and require employees to work from the office. Others allow employees to work remotely with no requirement to work from the office, although they encourage the employee to work from office from time-to-time. Still others use a hybrid model that allows working remotely several days a week and from the office the remainder of the week. Hybrid models seem most common. Questions and issues remain regarding policies, practices, legal, and HR issues for "exempt" vs "non-exempt" employees.
- For longer-term employees, company culture wasn't identified as an issue in the short term; however, for new hires and more junior employees, there were some concerns. Similarly, professional development, mentoring, and career-path identification can be a challenge. Regularly scheduled social events, team building activities, and increased communications can help address these issues. Client and third-party interactions can be more difficult for all involved. Monitoring, regular communication, and periodic in-person contact are helpful.
- Many participants said remote work during COVID had a positive effect on productivity and company profitability, and a few said it helped with employee retention. The longer-term influences are less well defined. For example, during COVID there wasn't too much else to do but stay home and work. With a return to a more open environment, will the productivity gains and profitability levels continue? Will firms need to provide or upgrade equipment, software, etc., to accommodate remote workers.

- Some firm representatives discussed space utilization while continuing to grow employment. They recognized that remote workers could ease space demands and allow a workspace to accommodate more people through scheduling of on-site and remote workers. Among the participants, downsizing office space was not a widespread consideration at this time.

Indicate the 3 most important takeaways from the discussion to share with GBA members.

- The younger generation appreciates being able to work from home if needed, but they like being in the office!
- People are happy in general in the culture shift (i.e. better work/play/family balance) that has happened because of the ability to work from home.
- Sometimes the technology necessary to work from home is not effective either because people live in an area that doesn't have reliable internet connectivity or people who have a hard time learning new technology.
- Most firms are continuing to allow a flexible work policy, even embracing it. To compete in today's job market, firms are finding that most employees are requiring a flexible work policy.
- Communicate, communicate, communicate. Schedule times for regular communication with your team.
- Should have awareness of communication needs, as all employees have different needs and preference
- Remote worker has responsibility to keep themselves "relevant" and follow-up for additional work or tasks if they are light on work. Must have trust and integrity for remote work to succeed.
- Remote work can be beneficial in areas where people do not want to work
- Employees really value flexible schedules and remote work options, which provides a huge opportunity for staff retention and recruiting.
- It's very beneficial for newer staff to be in the office at least some of the time to build relationships and for more mentoring opportunities. Ideas to help with this include urging people to be in the office on a particular day of the week to get to know others, facilitate one-on-one meetings with peers and tech leaders, form affinity groups, pro-active requests for mentoring on remote employee's part.
- One of the panelists asked if anyone has witnessed the privilege of working remotely being abused, and no one had. He indicated that this is the case in other places he asked the question. The takeaway is that people are very capable of doing this well, further reinforcing the need to find ways to make it work.
- Technical work has been successful, using technology more successfully (most meetings are still on zoom with folks on their individual laptops even when in the same space), sometimes even broadening the network. Videos on!
- Extra focus/energy/time to maintain connections outside of the technical work. More frequent check-ins, more after hours events with the focus on building community
- Staff are really focusing on quality of life and are being clear about what they want/need. Communication and clear expectations are vital.
- Flexibility regarding "work from work" and remote working options is a win-win when it comes to employee recruitment and retention. Some employees prefer one over the other although the hybrid model will probably prevail long term for most firms and employees. Culture development and maintenance requires involvement and commitment at all levels; there probably needs to be structured activities such as social events, training, and mentoring programs, as well as the encouragement of spontaneous activities within and between peer groups.

- Technical and leadership development can become more challenging with remote workers since some talents or deficiencies can be hard to identify in a remote work environment. This can affect career path development, employee satisfaction, and retention. Recognition of this increases the importance of in-person work and social activities. It also underscores the need for effective and timely conversations. Support for active employee involvement in professional, technical, business, and civil groups can help with assessment and development efforts.
- Other takeaways include (a) the need to pay attention to relationships with clients and third-parties such as vendors and suppliers. Both can benefit from targeted communications and in-person contact, (b) consideration of potential HR and legal issues (e.g., taxes for out-of-state remote workers, insurance, regulatory compliance, etc.), and (c) ways to grow businesses and geographic reach without necessarily adding more physical space.

Topic: Leveraging Current Demands to Improve Business Practices
Host Name: Matt Moler, P.E.

Discussion points:

- How do we hold firm on risk management best practices?
What can we do to improve our Go/No-Go process for client and project selection? Is there a concern regarding turning down work? Is it because we are too busy or may not well suited? Should we be more selective and have higher criteria for bidding work or accepting new clients?
- In a world of more work than people to do the work, how do we grow and strengthen our companies?
- How do we have tough conversations with clients about raising rates? Should we be realistically raising rates to keep up with employee salaries and inflation?
- Are we seeing that inflation is "real" in our industry or just an excuse?.
- Does it depend on the client? Repeat clients can offer higher returns with less proposal and marketing time.
- Where can we grow our business in a high demand business climate?
Facing high demand for our services , do we hold firm or even improve on risk management practices such as contract terms?

Brief abstract of the topic:

Over the last few years we have all experienced high work loads, staff shortages, and covid. We need to optimize business performance and limit risk, especially during these times. We need to hold firm to risk management best practices, raise rates as needed, and have a thorough Go/No-Go process.

How do we use the current demand for our services to improve the way we are conducting business. Are we thinking "42" steps ahead or are we just surviving the demand and hoping for the best? Current demand can provide opportunities to invest in our business in creative and innovative ways that maybe haven't been on our radars until now.

Most of the business owners need to gain their leverage by marketing, improving their strengths as well as improving the people management, design process and admin.

Summarize concerns, advice, solutions, lessons learned, or case histories related to this topic.

- Several members provided examples of clients asking to pay more in order to get projects moved to the front of the line.
- Concerns were expressed regarding the increase in a firm's risk since work is being asked to be performed fast by fewer individuals.
- Most firms are having trouble keeping all staff, let alone grow in this time adding to existing pressures.
- GBA Go/No-Go document is great to use - especially important for contractors/design teams you haven't worked with before. But some firms are not really using Go-No Go checklists as there doesn't seem to be time for this step.
- Several people indicated that they have increased rates multiple times and that clients are more concerned about time than cost. Don't be afraid to go back to the client on multi year projects to ask for rate increases
- Current times have allowed our firms to be very selective on projects and clients that we want to work on. We are able to charge the fees we want, negotiate appropriate terms, and provide schedule commitments that are realistic.
- We are asking good questions about our business practices, such as "Why do we do things that way?" We are able to debunk old habits, such as how we write traditional reports (which saves time, effort, energy, etc.) without sacrificing quality.
- We used to see very onerous terms and conditions, but now we are able to push back and get much better terms. We don't need those bad projects and bad terms to keep the business running well.
- How do we avoid reverting to our old ways once this business climate changes? One suggestion was to update our go/no go process to instill these best practices on client and project selection, so they are institutionalized within the organization.
- This has taught us to focus on the positive client relationships. Stick to the client that give us 80% of our work and that pay us in a timely manner.
- Several firms indicated high turnover relative to recruitment. Higher AR numbers are starting to show up in some areas.
- Quest for talent and best book of business -- time to drop clients that are shopping around for best price and slow payers.
- Small firms -- hired to do engineering but they become testers because that is what is heavily needed. Harder on staff and not what they envisioned doing. Some firms create an expectation when they hire them that they will put their time in the field when they are hired.
- Try to do quality work with our regular clients and not let them choose someone else. New clients are scrutinized. Time to completion seems to be more important than the fees. Raise your fees -- probably will be little pushback.
- Availability of drill rigs is another challenge. Staffing for drillers. Permits for drilling takes more time because municipalities are understaffed. Use library of information. Find different ways to collect data to keep things moving.
- Be more selective in the types of projects -- recession proof type of projects, trending to fewer projects but larger projects that can span longer time periods, easier to manage
- During Covid -- many things like electronic invoicing made a lot of progress in getting faster payment.
- Salaries have gone up, starting wages comparing to many other opportunities. Sometimes it is tough to get younger staff to view their careers in long term -- particularly inspectors.
- Improving our retention and hiring processes to build and retain staffing that positions us to capitalize on new opportunities. Internal training programs came up quite a bit.
- Improving internal quality control processes
- Refining project selection and either focusing on certain types of projects or expanding into new areas of opportunity.
- Purchasing new equipment or software ; embrace technology..

- Challenges as many of our clients are investing in new technology and we are trying to keep up with all of the different systems that are in play. Procore, AASHTO WARE, Proforma, etc. How do we maintain control and quality of our deliverables.
- Investing in IT security.
- Take appropriate compensation for the risk we are taking on.
- Match skill set of your employee with the job at hand.
- Shorten time limit that proposals are valid for - prices are changing too rapidly
- Do your due diligence ahead of the project - make sure there are no issues on the front end.
- Younger engineers have important role to play in leveraging business.
- Internal communication about the same client, working in different state will help in keeping a good relationship.
- Better relationship with the team, introduce the younger engineers to your clients to bridge the gap.

Indicate the 3 most important takeaways from the discussion to share with GBA members.

- Use this moment in time to improve our risk position by only accepting contracts with fair conditions, clients that do not have significant AR issues, raise rates of staff and to improve the overall perception of the geoprofession.
- In terms of hourly staff (i.e., entry level engineers and/or technicians), we need to make the positions more attractive by not only matching hourly rates provided by other industries (i.e. Amazon), but even go beyond. This coupled with providing these staff members a vision of what their career path could be would help the positions become less transient. Additionally, it is important to create a culture where the positions are not looked at solely as a 'job' but a place where people want to come to work.
- Current times have allowed our firms to be very selective on projects and clients that we want to work on. We are able to charge the fees we want, negotiate appropriate terms, and provide schedule commitments that are realistic.
- How do we avoid reverting to our old ways once this business climate changes? One suggestion was to update our go/no go process to instill these best practices on client and project selection, so they are institutionalized within the organization.
- Competition for talent is the major issue -- retention of staff and retention of best clients. Expectations from new staff -- better manage, acknowledge that we need them in the field, give flexibility where we can -- work week, vesting in savings/esop programs,
- Most of us are trending in the direction of fewer but bigger projects. Client and project selection that will help to reduce impacts of future recession. Much more scrutiny on bringing on new clients
- Look at bill rates more often and don't be afraid to raise rates. Be proactive about it and have up front conversations with clients - especially established clients. Raise rates -- if we are not getting pushback from clients, we probably are not pushing hard enough.
- Use this opportunity to invest in IT security and systems.; embrace technology.
- Rate increases have generally been well received. Many clients have asked if they can pay more to get services sooner. Participant response has generally been "No, we are booked and we don't want to set ourselves up for failure. Everyone gets their time and it would be poor business practice to let clients jump the schedule more than we already do."
- Firms have generally been focused either on hiring new employees or training current employees and it seems most don't really have time for both. This either presents a risk of additional exposure due to unqualified staff, or limiting ourselves to the well-trained employees we already have.
- Research your clients and make sure you are working with good clients.
- Proceed with go/no-go process to get the views of others not as intimately involved to make sure it is a worthwhile project and not taking on undue risk that you may not see.
- Younger engineers have important role to play in leveraging business.

Topic: Emerging Technologies to Improve Future Efficiencies
Host Name: Steve Wendland, P.E., P.G., D.GE

Discussion Points:

- Future of subsurface information (online, free, shared for fee?)
- What new technologies is your firm embracing? (Technical or business admin)
- What is the future of public databases for subsurface information?
- How can drones, remote sensors, and other technology improve efficiency?
- What platforms are available to integrate field, lab, and office activities?
- Can you describe an instance where taking a risk on emerging tech paid off?
- Are there any stories where adoption was a flop?
- What new technologies are your firms embracing from a technical standpoint?
- What is the future of subsurface information? (free, paid, online?)
- How do we know that the data in the cloud is good? should we rely on others data?
- Is the standard of care affected by what you are relying on from the data?

Brief abstract of the topic:

COVID-19 pandemic accelerated the development and deployment of technologies to increase efficiency. Technologies to increase productivity, especially due to a labor shortage, is now necessary to remain competitive. Business technology advancements are not just technical advancements. BUT, firms know that sometimes it doesn't work. There is a risk to adopting new tech. The software/hardware may not work as advertised. The adoption costs may be more than the efficiency gains. "Someone will come out with something better soon." Firms, especially smaller ones, are hesitant to leverage new technology for these reasons. As the saying goes, "If it ain't broke, why fix it?"

Business technologies and technical technologies can be levered to improve efficiency and help our businesses grow. What is your firm embracing? Using drones for new ways – to send to risky excavations, digital photos for 3d images. Enhanced business technologies, such as reporting and accounting software, can improve efficiencies and move us forward.

Summarize concerns, advice, solutions, lessons learned, or case histories related to this topic.

- Many of the State DOT's already have a lot of this data that is publicly available. This will provide good background info and will not replace the need for good engineering
- Remote data collections with tables that merge with GINT, Agile and other technologies to simplify documentation. Smart and cellular data collection. Real time data collection, faster reactions to when new information
- Monitoring systems, rather than collecting/testing samples. Rather than collecting samples, such as concrete, and breaking cylinders, should we (or AI) be monitoring the process that goes into creating concrete that meets the specs.

- Most companies have created a database for subsurface conditions. This ranges from gis, local staff knowledge, and Google Earth pins. Is the future public data (Diggs) where we all contribute and have access. What about competitive advantage based on experience in the area (that ship has sailed?).
- Satellite technology is becoming more affordable. As a result, people and systems have internet access in remote areas. Also Drones and AI may not eliminate work. But they can reduce labor by identifying a smaller set of data/problems to be field checked by humans.
- Non-nuclear density gauges. Are they accepted practice? They are expensive. Maintenance and use is also expensive for nuclear source gauges over their life. Is this becoming a realistic alternative?
- Some folks are monitoring the driving habits of their staff. Tracking devices on vehicles and even the drill rigs can be used to combat theft. Several are tracking and monitoring speeding -- notifications if anyone goes over 20 mph over the speed limit and we can also know where the technicians are. Tree Sap -- whenever people are driving, they cannot call or text at the same time.
- A lot of the tools have been around for a while, but we are trying to use them more effectively -- using horizontal and vertical data collection to communicate the locations of specific testing.
- Technology changes, but much of the time it is finding better ways to use tools that have been around for a while.
- Simplifying, making technologies worth the investment. Mobile apps are often not as simple as using tablets and laptops. What is the durability of them -- keep them in otter boxes.
- Field Operations: Boring Log Technology. Includes Tablets (vs hand logs) for boring logs. This is coming and might assist firms to upload data to DIGGS and/or sell the data. USACE is close to requiring this. One firm is selling a preliminary form of the subsurface data (without findings, conclusions and recommendations) and it is working - clients are paying for it.
- Field to lab/office software: Label printing for cylinders - stays attached in cure room, qr code brings up sample in computer; GPS tracking where job was, GIS mapping for project locations.
- Good for submittals and rfis, interface with clients. all in one place
- Laboratory Operations: Testing. Firms using databases to log, track and report samples/results through the testing process. Improves consistency, reduces mistakes, improves accessibility of data, decreases administrative headaches through billing. Place bar or QR codes on samples and tares (heat resistant) to minimize mix-ups.
- Administrative: Use vendor to send phishing training emails to staff to cut down cyber attack success. Use Power BI software to consolidate and display data on collections, utilization, vehicle tracking, etc. Cloud based storage minimizes the affect of cyber attacks and facilitates information availability.
- Operations. Drones and AI to survey pavements and take out human evaluations of pavement conditions. Using drones for geologic mapping in inaccessible areas. Surveys on really large tracts of land. 3D imaging -- quantity calculations, inspections, time lapse imaging.
- GIS based model to offer clients a "Stage 1" that allows them access to preliminary subsurface data to make preliminary planning decisions. One firm sells this "stage 1" information.
- Cost of technology continues to decrease but supply shortages are making it difficult and expensive to acquire necessary computing power.
- Use of technology is no longer a means for differentiation. To remain competitive, firms will need to invest in technology. Tools like drones and remote sensing are becoming commonplace.
- Management has to champion the change, but sometimes management is not good on selecting the software solution.
- Important to get total buy-off from group, management, principals, employees to get input.
- Software off the shelf is hard to use. In-house software is expensive to build, but fits needs better.
- There may be legal ramifications to shared data.
- QR codes to track cylinders
- Clients want to keep data private - not wanting environmental concerns to get out
- Public database of subsurface info will benefit general contracting community - know what type of equipment to use,. Will owners get a geotechnical investigation if there is public data available?

- Use of equipment for vibration monitoring for old buildings. Ability to set up instrumentation and monitor data from afar, use sensors to monitor cracks with electronic data acquisition with weather and humidity sensors to assess cracks and vibrations.

Indicate the 3 most important takeaways from the discussion to share with GBA members.

- Remote data collections with tables that merge with GINT, Agile and other technologies to simplify documentation. Smart and cellular data collection. Real time data collection, faster reactions to when new information arises
- Tracking devices on vehicles and even the drill rigs can be used to combat theft. Several are tracking and monitoring speeding -- notifications if anyone goes over 20 mph over the speed limit and we can also know where the technicians are. Tree Sap -- whenever people are driving, they cannot call or text at the same time
- A lot of the tools have been around for a while but we are trying to use them more effectively -- using horizontal and vertical data collection to communicate the locations of specific testing.
- Commercially available software is available now to modernize lab, office and field services. Invest in technology or risk falling behind.
- our peers are using the emerging technology now, don't get left behind! It makes your firm more valuable and attractive to younger staff.
- Most firms are looking to invest in technology and upgrade skillsets. The cost of technology for many applications is still prohibitive for small firms.
- Opportunities exist to develop firm-owned applications but can be costly. Investing in technology to deploy software-as-a-service is growing as many large firms have the the capital to make necessary acquisitions.
- Important to get total buy-off from group, management, principals, employees to get input.
- There may be legal ramifications to shared data
- Software off the shelf is hard to use. doesn't work well for everything. In-house software is expensive to build, but fits needs better.
- How do you charge for AI monitoring? Hourly use? Value?
- The future may move to monitoring systems rather than collecting samples (e.g. concrete cylinders). Compactors/rollers may include sensors to evaluate density/stiffness and create a heat map without the need for nuclear density testing.
- Everyone would love a non-nuclear density gauge. They are currently expensive. But maybe the upfront cost outweighs the on-going expense of maintaining, testing, and paper work.
- Embrace new technology and don't be afraid of it.
- Public data isn't controversial, private sector data is controversial to share on public databases.
- Quality of data from public databases is a concern. Is it coming from a reputable firm and will clients expect us to rely on this data?

**Topic: Fresh Ideas for Profession Development - How to Attract
Young People to the Geoprofession
Host Name: Teresa Peterson, P.E., C.M.C., LEED AP O&M, ENV SP**

Discussion Points:

- What are the desires of the next generation?
- How can we compete with other sectors for their attention?
- How do we increase inclusion across demographics
- How do we effectively onboard new employees in a digital world?
- What are emerging ideas for mentor/protégé relationships?
- How can we leverage technology for professional development? How does that improve retention?
- How can GBA help?
- How to make the new younger employee fit into company culture, while encouraging individualism?
- How to quickly bring new younger employee up to speed on lingo, acronyms, formats, 'how-to-do' clients, business lines, projects?

Brief abstract of the topic:

Participants shared:

- We shared how to on-board young employees. Training to bring young professional on the team as quickly as possible. Active communication is key to help them be a part of the team, learn culture and avoid problems & pitfalls. Need to continue professional development internally (brown bag lunches, use GBA papers, lessons learned) and externally (conferences, organizations, seminars, webinars)
- To compete with other sectors, we need to recruit earlier: high school and college.
- To increase inclusion, we need to recruit at multiple universities, attend local career fairs,
- how to marry virtual and in person
- some can lead new staff and some need to take senior staff.
- Some are struggling with culture and identity, lot of people retiring...

Summarize concerns, advice, solutions, lessons learned, or case histories related to this topic.

- Training - Many companies don't have an infrastructure in place to train staff virtually. Even if they get started off well, how do we check in and know they aren't doing well and need help. Who is responsible? Team leaders, team members? Check-ins are super important. Each new staff should have a plan for who and how often to check-in, and what success looks like. ... very intentional onboarding plans, including integration with other team members.
- Some are dealing with low performance and presuming it is due onboarding remotely. Might consider requiring in person full-time (or close to it) for x period of time. One firm requires 3-6 months depending on the role.
- As leaders, we need to be more proactive about team member interactions within our groups and across groups. Team dinners are one example. But also just setting aside time to walk around and talk with team members when you are in the office. This might feel weird since it isn't billable, but it should be a priority for growing staff and building relationships.
- Talk openly about things that you are doing to rejuvenate and set the example for others.
- Young generations are used to learning and working in virtual settings.
- Professional development should still be happening with older generations, such as ways they can interact with and be good mentors for young generations, or how to use new IT solutions effectively.
- Manage their expectations. They will not be able to "rise to the top" immediately.

- Consider finding a professional "sponsor." This person would not be a supervisor, but can offer a "safe space" to talk and ask questions they may otherwise not feel comfortable asking a supervisor or coworker.
- Civil Engineering degrees have limited soil class requirements. Offer "upper level" training that may cover Elective Course subjects they did not get the formal training in university.
- Offer 1, 3, and 5 year plans (both professionally and personally), and then tailor PDH goals to the individual's plan for their future.
- Communication, communication, communication!!! Be open, transparent, ask how people are doing and if they're feeling like they have the right balance in their work life.... and then LISTEN and adapt. Need to make new employee feel they can ask any question, that they are a member of the team.
- Show our staff the big picture of what we're doing in the geoprofessional industry. Humanize our work. Connect with their passion. Let them know they have a path forward and that it is an adaptable path.
- Provide professional development and training for the senior folks too to keep them engaged in the final years before retirement.

Indicate the 3 most important takeaways from the discussion to share with GBA members.

- Training - Many companies don't have an infrastructure in place to train staff virtually. Even if they get started off well, how do we check in and know they aren't doing well and need help. Who is responsible? Team leaders, team members?
- Some are dealing with low performance and presuming it is due onboarding remotely. Might consider requiring in person full-time (or close to it) for x period of time. One firm requires 3-6 months depending on the role.
- As leaders, we need to be more proactive about team member interactions within our groups and across groups. Team dinners are one example. But also just setting aside time to walk around and talk with team members when you are in the office. This might feel weird since it isn't billable, but it should be a priority for growing staff and building relationships.
- Older generation is becoming apathetic towards using IT. Remember to also train them so they can learn how these tools can be useful
- Personal growth is very important to the younger generation, and offering alternative training for personal matters (finance, child raising, etc.) could also be beneficial to retaining new employees.
- Manage young employees' expectations about career growth, and how quickly they "should" be promoted.
- The next generation is interested in learning, technology hungry, and they want \$\$ (guaranteed salary vs bonus)
- We can compete with other industries and focus on retention by building relationships, creating a culture of connection, broadening networks... this must be focused and purposeful!
- Ask lots of questions and ask very often. And then.... Make adjustments to keep people doing work that aligns with their passion and make sure they see their path forward and that they have options.

Topic: Recession Proofing - Preparing for a Down-Turn

Host Name: Guy Marcozzi, P. E,C.M.C., LEED AP O&M, ENV SP, F.ASCE

Discussion points:

- Will the Geoprofession experience a down-turn?
- Keep building, or hunker down? If you keep building, is it an attempt to squeeze our maximum profit now knowing drastic changes could be ahead. Short term gain, long term gain.
 - Any planning meetings on readjusting your current services? Creating new services?
 - Any staffing issues? Layoffs/terminations or even increasing staffing?
 - Financial impact?
 - What steps can we take, or have we taken to mitigate negative impact; how have we learned from past downturns and what might be different now?
 - How does the current labor shortage change how we address our economic horizon?
 - Diversity is the spice of life; how does your approach to business diversity (client, projects, services) help or hinder?
 - What are mitigating and exacerbating?
 - Are there opportunities for GeoProfessionals?
 - Are there opportunities in this change environment?
 - If we are understaffed now, would a recession 'cut' as hard into labor or would it provide some breathing room?

Brief abstract of the topic:

Per historical financial metrics, we're in a recession. With the current labor market, does it really feel like a recession? Organizations that remain nimble, are in a position to pivot as necessary during this dynamic time in history, and have the courage to do so, will differentiate themselves from their peers. What actions do we need to take now to achieve this competitive advantage?

Participants shared:

Some of the firms are not concerned with a looming recession or believing/seeing that one is on the horizon. They felt that they have planned for enough work to carry forward with and that they all maintain they retain around 40% additional funds in the bank to keep things moving forward in lean times.

Recessions are common economic events and can last for years. Is our profession really immune or subject to the same changes as our clients? Likely depends on sector (commercial, residential, industrial, government/municipal)

Summarize concerns, advice, solutions, lessons learned, or case histories related to this topic.

- Not able to find staff during these times.
- Retain a flexible cost structure
- Reassure existing clients that our commitment to them and their projects.

- Silver lining to a slow down: we're so busy now that an opportunity to take a breath might give us time to: cross-train staff; onboard properly; focus on recruiting great employees; even focus on getting deliverables on time
- Our advance of remote workers during the pandemic may give us opportunity during a slow down to cross-geographies with our talents, avoiding letting folks go.
- Streamline operations - While this is a last resort, starting now could help retain staff. Potentially outsource some areas such as HR or payroll.
- Cut Spending - Track cash flow, prepare a bare bones budget to see what you might have to do.
- Renegotiate better terms and conditions with clients now while the market is still favorable.
- outsource some areas such as HR or payroll.
- Most agreed that all sectors would likely be impacted by a recession however, some sectors such as municipal, transportation, etc. may stay stable.
- Given the choice of "grow" or "hunker-down," it was the group's opinion that most are in a treading water state and growth in terms of personnel is not really feasible.
- Focus on areas of high current demand and leverage that for all it's worth and be diligent to sustain and/or increase our client relationships for the future
- Lots of questions surrounding the Infrastructure funding. Public clients say funding is on the way, but it's not here yet. Keep our collective ear to the ground on this one.
- Look to history to be our guide. Last recession had a clear source (housing). This recession may be induced by interest rates and inflation and may not come from one clear direction.
- Diversify and look for opportunities in undeserved sectors
- Pay attention to business fundamentals - cash flow, optimizing internal processes, training, strengthening client relationships, diversified client base, focus on good clients.
- Our best people are scarce and even in a downturn need to be cherished. Continued focus on their well-being, preferences and constructive leverage should not be lost.
- Doubling down and hiring key senior talent in a down turn could yield benefits for years to come.
- Really understand your business and where you're making money. Move on from the things not in this category.
- Follow the money. The sectors with ample financing will provide business opportunities for GeoProfessionals.
- Really understand your business and where you're making money. Move on from the things not in this category.
- Key markets for 2023 - Transportation, Energy, Climate Change, Healthcare, Renewable Energy, Energy Storage

Indicate the 3 most important takeaways from the discussion to share with GBA members.

- Stay nimble and be able to move quickly if needed
- Protect your revenue and stay on top of your receivables
- Readjust services and create a lean efficient team.
- The majority of the preparations are really the 'blocking and tackling' that we should already be doing for best business practices. This includes continuing to train staff, take care of staff, be selective with clients and contracts, keep close track of ARs and cash flow, and optimize current processes.
- Increased focus, diligence, and awareness will serve us well in recession or high demand.
- A brief slowdown might be met with a deep breath and an opportunity to clear out underperforming staff which could help morale.
- Be thoughtful on where you're investing in your firm. You can't do everything and need to focus. Particularly in a down economy.
- Make sure your firm is nimble, and implement necessary changes should you experience a down turn.

- Optimize your internal functions now with more efficient process and cross-training. These move now will yield benefits in a potential down turn.
- Be transparent with your employees about the financial status.