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Jointly with

COMMITTEE ON EDUCATION

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HELD AT: Council Chambers - City Hall

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Chairperson

Rita C. Joseph
Chairperson

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A P P E A R A N C E S (CONTINUED)

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SERGEANT AT ARMS: Good afternoon and welcome to today's New York City Council joint hearing for the Committees on Education and Technology. At this time, we ask you to silence all cellphones and electronic devices to minimize disruptions throughout the hearing. If you have testimony you wish to submit for the record, you may do so via email at testimony@council.nyc.gov. Once again that is testiony@council.nyc.gov. At any time throughout the hearing, please do not approach the dais. We thank you for your cooperation. Chairs, we are ready to begin.

CHAIRPERSON GUTIÉRREZ: Alright, good afternoon. Buenos tardes. Welcome to our hearing. I'm Council Member Gutiérrez and I'm Chair of the Committee on Technology. I'm pleased to be joined by my colleague, Chair Council Member Rita Joseph, for this important hearing on the role of artificial intelligence, emerging technology, and computer instruction in New York City public schools. we will also be hearing the following legislation: Resolution 742 sponsored by Council Member Abreu calling on New York City Public Schools to develop curriculum on machine learning and adapt their

current curriculum and policy to account for the safe use of generative AI; Resolution number 766 sponsored by Council Member Joseph calling on the New York City public schools to update its Computer Science for All Initiative to increase access to CS for All Professional Development for educators and administrators, particularly for those in under-served schools and to increase training for all teachers; and Resolution Number 767 also sponsored by Council Member Joseph calling on New York City public schools to mandate training on generative artificial intelligence tools including for potential classroom implementation for all educators. Much like how the internet has become inseparable from our modern way of life, artificial intelligence is also growingly ubiquitous in our mainstream consciousness and has long been a core technology supporting several facets of our society. We are witnessing the beginning of a new era enabled by the breakthroughs of AI technologies like generative AI and education is one of the foremost frontiers impacted by this technology. As with any technological breakthrough, the use of artificial intelligence tools and education holds tremendous potential for benefit, but

that potential also comes with a significant level of risk and danger, especially if proper safeguards are not in place. This committee has discussed these changes before, such as when training data for an AI tool reflects or even exacerbates real world biases and in our concerns about proper data management and privacy, especially given the amount of sensitive information that schools collect from their students, teachers, and parents. Because of AI's tremendous potential to benefit those in education, it is essential to ensure its ethical use and that it enhances rather than detracts from the educational experiences of our city's students and teachers. In addition to discussing how technology can further students' learning, we are also here to discuss the very real threat of data breaches, which increased during the pandemic with remote learning. The most recent data breach affected tens of thousands of families and teachers including members sitting around me today. We outsource immense amounts of data to contracts with companies that conduct automatic decision-making about everything from students' school placements to teacher efficiency. This is not even to mention the millions of data

points collected by remote learning tools which requires that we question how this data is being stored, how it is being used, and what the City is doing to keep our information safe. As our school year has begun, I'd like to congratulate every student and teacher on beginning a new semester, a new school year. I truly hope that we can meet this moment and prepare the next generation of students and educators to thrive in this era driven by technology and AI. We look forward to hearing from New York City Public Schools on questions regarding the use of AI in classrooms as well as hearing valuable perspectives from members of the public to gain insight and clarity on the impact of AI in our education system. I am disappointed that the Office of Technology and Innovation, an agency tasked with oversight on all tech and cyber security in New York City as well as the safety of our data, declined to attend today. Now, I'd like to thank the Technology Committee and Education Committee staff for putting this hearing together, as well as my staff. I'd also like to recognize the Technology Committee Members that are here with us today, Council Member Shaun Abreu, Council Member Bob Holden. And now I'd like

to turn it over to Chair Joseph for her opening statement.

CHAIRPERSON JOSEPH: Thank you, Chair Gutiérrez, and thank you for holding this hearing on this very important topic of the role of artificial intelligence, emerging technology, and computer instruction in New York City Public Schools. I'm Rita Joseph, Chair of the Education Committee. As Chair Gutiérrez mentioned, we'll also hear testimony on three Resolutions today. We will hear about the Resolutions shortly. First, I want to thank everyone who is planning to testify today. We're looking forward to hearing from you on this important subject. Chair Gutiérrez covered a lot in her opening remarks, so I'll be brief. Just like the rest of society, schools have historically had to adapt to new technologies as they change and evolved. I have experienced this firsthand as a public school teacher and administrator for 20 years before joining the New York City Council. In fact, at the start of the COVID pandemic when schools closed and transitioned to remote online instruction, one of my responsibilities was to assist students with technology issues, including obtaining laptops or

other devices and internet access as well as troubleshooting problems they might be having. Even after ensuring that students had the needed devices and internet access, I saw students struggle with the new unfamiliar form of instruction, and many of them fell far behind in their learning. The lesson this taught me is that we must do a much better job in preparing students for the future, especially in a world with rapidly changing technology. When ChatGPT was released in the fall of 2022, New York City Public Schools and most other school districts across the country initially banned its use in schools due to concerns about plagiarism and cheating. However, since then, New York City and other school districts have been working with tech industry leaders, educators on ways to safely use artificial intelligence in schools in order to prepare them for the 21st century world where artificial intelligence will no doubt play a major role in every workplace and every aspect of life. Some of my concerns are about the use of artificial intelligence and other emerging technology in classrooms stems from the inadequate computer science instruction and lack of certified computer teachers in our schools. In 2015,

the DOE launched a Computer Science for All Initiative to improve computer instruction for students. However, according to the DOE website, CS for All has only reached 800 schools so far, less than half of all schools. I also have concerns about DOE's use of technology beyond the classrooms including major data breach which data of hundreds of thousands of students and staff was jeopardized. I was actually affected by the data breach, and as a result I received identification protection service from DOE. We definitely, we will be asking how this data breach has affected DOE operations to date and any plan changed moving forward. At today's hearing I'm looking forward to learning more about the implementation of CS for All and how the City can strengthen and expand this moving forward. I'm also interested in learning more about how DOE plans to train educators, prepare students to use artificial intelligence tools effectively and in a safe, equitable manner. As I stated earlier, we'll hear testimony on three Resolutions including two that I sponsored including Resolution 766 which calls on the DOE to update its CS for All Initiative to increase training for teachers, particularly those in under-

served schools. I also sponsored Resolution 767 calling on DOE to mandate training for all educators on generative artificial intelligence tools. I want to thank the Education Committee staff as well as my own staff for all the work they put in for today's hearing. I'd like to remind everyone who wish to testify in-person today that you must fill out a witness slip which is located at the desk of Sergeant at Arms near the entrance of this room. Please indicate on the slip whether you're here to testify in favor or in opposition to resolution or multiple resolutions. I also want to point out that we will be voting-- we will not be voting on any legislation today. To allow as many people as possible to testify, testimony will be limited to three minutes per person whether you're testifying on Zoom or in person. I would like to also acknowledge my colleagues that are present today, Council Member Dinowitz, Council Member Louis, Council Member Lee, Council Member Menin, Council Member Schulman, Council Member Hanks, Council Member Gennaro, Council Member De La Rosa, Council Member Stevens, and Brewer. I'd also like to-- now I'd like to turn the

floor over to my colleague, Council Member Abreu, for his remarks on Resolution 742.

COUNCIL MEMBER ABREU: Good afternoon and thank you Chairs Joseph and Gutiérrez. I want to speak very briefly about my resolution in collaboration with Manhattan Borough President Mark Levine being heard today, Resolution 742, which calls on the New York City Department of Education to develop a curriculum on machine learning and adapt their current curriculum and policies to account for the safe use and development of generative AI. Generative AI is a type of AI that can go beyond existing datasets and create completely novel content, whether that be brand new words and images, videos, music, computer applications, and more. There's enormous potential here, but there's also an inherent risk. We've all seen the deep fakes on the internet and part of the curriculum being taught to students must include how to recognize artificially generated content, target disinformation, and demonstrate ethical approaches to this emerging technology. While the Federal Government figures out what regulatory structure these new AI and generative AI models must have, we've seen very clearly that the

cat is already out of the bag when it comes to our youth engaging with these systems. Students need solid instruction on how to best utilize these technologies so they can grow up and compete in a global marketplace, but we also need them to understand the limitations and safety considerations as well. I thank my co-prime sponsors Chair Joseph and Chair Gutiérrez for their support and for having this resolution included on the agenda for today. Thank you, and I look forward to hearing from the Administration.

COMMITTEE COUNSEL: Good afternoon everyone and thank you Council Members for your excellent statements. I'm Irene Byhovsky, the Counsel to the Committee on Technology and I will be moderating this hearing today. Today, we'll hear testimonies from the Department of Education followed by testimonies from the public. And now I want to welcome Melanie Mac, Senior Executive Director of Office of Student Pathways, Tara Carrozza, Director of Digital Learning and Innovation, and Anuraag Sharma, Chief Information Officer to testify, and I also would like to welcome Scott Strickland, Mr. Walter, Dennis Doyle, and Tunisia Pattenelli, who

will be here to answer any questions. And before we begin, I would like everyone from the Administration raise their right hands. Thank you. Do you affirm to tell the truth before this committee and to respond honestly to Council Member questions? Thank you. You may proceed with your testimony.

SENIOR EXECUTIVE DIRECTOR MAC: Good afternoon. I've submitted full testimony for the record; however, I'm going to read excerpts. May I begin? Good afternoon Chair Joseph and Chair Gutiérrez and members of the New York City Council Education Committee and Technology Committee. My name is Melanie Mac, Senior Executive Director for the Office of Student Pathways in New York City Public Schools, representing our Chief of Student Pathways, Jade Grieve. On behalf of Chancellor Banks, thank you for the opportunity to testify today on the roles of artificial intelligence, emerging technology, and computer science education in New York City Public Schools. I'm joined by Tara Carrozza, Director of Digital Learning and Innovation, representing our Deputy Chancellor of Teaching and Learning Carolyne Quintana, and Anuraag Sharma, Chief Information Officer NYC Public Schools.

Before I begin, I'd like to thank Speaker Adams, Chair Joseph, Chair Gutiérrez, and the entire Council for your advocacy on behalf of all New York City school students and meeting their needs in the digital age. The team members we brought today represent collaboration that's under way across New York City Public Schools to directly address the global acceleration of emergent technology development and its impact on K-12 education. Generative AI is already transforming the way we teach, the way we learn and engage in modern work. Our mission is to ensure that each student graduates on a pathway to a rewarding career, long-term economic security equipped to be a positive force for change. To pursue this mission, New York City Public Schools is aspiring to be a global leader in embracing AI and expanding existing programs that build computer science and digital fluency skills as essential concepts layered across our core curricula and subject areas. To advance digital equity for all learners, we're embracing AI as an important lever for us to continue dismantling inequitable systems, cultures, policies, mindsets, and behaviors that impeded communities from civic and cultural

participation, employment, and lifelong learning. Through our work, we'll activate a sustainable model for all learners of all backgrounds and identities to participate in society, education and the workforce. We're grateful for the opportunity today to share our personal and professional experiences and our passion over many years in driving this transformational work. On a personal note, having previously served New York City public school students and families as a teacher and an assistant principal, and prior to my current role, I helped found the Academy for Software Engineering, which is a small high school with a mission of providing equitable access to computer science education and real work experience in tech. That school was part of the impetus for the Computer Science for All Initiative citywide, and this testimony today is deeply personal for those reasons. In this morning address on the state of our schools, the Chancellor laid our vision for the 23-24 school year and discussed his Bright Starts and Bold Futures Agenda. Our bright start to this year has already begun. We've begun aligning our divisional and program objectives with respect to artificial intelligence to enhance its positive impact on

students. Today, we would like to highlight some key elements of our forward-thinking AI approach that starts as early as pre-k and extends to preparing our future workforce, students, and NYC community members in a rapidly-evolving job market in technological landscape. Our cross-divisional collaboration-- and I say our for all the people you see here today-- has been underway for many years, but started in earnest around AI in February 2022 and will expand through a proposed K-12 Artificial Intelligence Policy Lab, culminating in an open-resource K-12 policy toolkit to be shared publicly. In alignment with existing efforts to build digital, informational, and computation of literacy, we're designing and delivering a comprehensive AI literacy capacity plan that provides equitable access point for all our New York City public school stakeholders. And finally, we're developing and providing ongoing AI resources and training to the field including divisional specific supports. Through an equity lens and a spirit of AI for good, our collective AI capacity building efforts will engage both our internal and our external partners alike, including our district and school leaders, our educators, our school staff,

students, families, and community members. I'm going to move on to the bold futures part of Chancellor Banks agenda that he shared this morning. As you may know, part of our agenda is reimagining the school experience so that students can future-ready. As of this school year, 100 high schools are launching Future Ready NYC, college and career pathways. Forty-five of those programs are building pathways in tech focused on specific careers like software development, data science and cybersecurity analysts. In programs like our Data Analytics, Visualization, and Machine Learning Pathway, students are learning about AI as we speak. Preparing for future careers, as we know, begins long before high school and is reflected in our system-wide shift to 21st century student-centered flexible learning environments. Over the last year, we've built citywide capacity to build high-quality blended instruction, engaging more self-led learning for students and competency-based learning across our content areas. This year, our intentional focus is activating critical thinking and problem solving in real world context and is exemplified by Teaching and Learning's partnership with the Brooklyn South HEAT program which is a

place-based experiential learning model that will expand to multiple sites, thematically focused on AI with respect to policy, safety, game-based learning, accessibility, and sustainability. The future of education is now. Generative AI is the catalyst for New York City public schools to be the national leader in setting a new vision and uniting to transform K-12 education by integrating AI, emerging technology, computational literacy, and AI literacy as part of the newly universal digital literacy across core curricula and instruction to deliver quality education for all. Next, I'll speak to infrastructure. We recognize that embracing emerging technology, implementing computer science programs, and digital learning programs depends heavily on our schools' tech infrastructure and capacity. I'd like to thank the City Council for its generous technology grant funding for our schools. Since 2020, New York City public schools has purchased approximately 550,000 iPads, 200,000 Chromebooks, and distributed them to students in schools for student use. We've taken proactive steps to ensure that every school has sufficient bandwidth, including identifying about 250 schools in the last school year, 22-23, that were in

need of bandwidth upgrades. Half of those have already been upgraded, and the remaining half will be upgraded by December 2023. Ongoing monitoring will continue to assess upgrading bandwidth at schools that exceed 50 to 60 percent of their current capacity. If you're following the submitted testimony, I'm going to skip a section now. I'm going to speak about our existing computer science education work. As was mentioned at the outset of this hearing, Computer Science for All, or CS for All, was launched in 2015 to address the lack of access to computer science education in New York City public schools. It aimed to develop high-quality coursework and programming for all New York City K-12 public school students to build foundational skills and computational thinking and computer science. Just to give you a sense, in 2015 over half of all AP Computer Science course-takers across New York City public schools attended three schools, Bronx Science, Stuyvesant, and Brooklyn Tech, and were disproportionately white and male. Students' access to computer science education was extremely limited to say the least, and there were few teacher education and training programs. Since 2015, the CS

for All Initiative has trained over 2,900 teachers and supported over 1,000 elementary, middle, and high schools providing more than 170,000 students with access to K-12 computer science education each year. When one of our schools participates in CS for All, teachers and administrators receive extensive professional learning on computer science curriculum, resources for building a CS culture, and support from our computer science education team. Teachers who participate in CS for All Initiative attend ongoign typically year-long professional development sessions, and dedicated support from the Office of Student Pathways Computer Science Education Team. This means school visits, office hours, and troubleshooting help. participating teaches are subsequently invited to participate in our CS Leads and Equity Leads programs, to support building capacity across other schools. The CS for All Initiative influenced the design of the New York State K-12 CS and Digital Fluency Learning Standards, and informed the expansion of teacher certification pathways in computer science with the Statement of Continued Eligibility, or SOCE, both of which the standards and the teacher certification will formally

go into effect next school year, the 2024-25 school year. While CS for All has helped the City make tremendous gains in access to computer science education since 2015, we still have a long way to go to achieve our goal of making it available to all students. Only 48 percent of students leave elementary school with a computer science education experience from kindergarten through fifth grade, and then for middle school, 34 percent of students leave with a computer science experience, and 31 percent of students' graduate high school with a computer science experience. We also see persistent gaps in black and Hispanic students' access to computer science education. Those disparities have long-term implications, with 18 percent of tech jobs being filled by New York City public school graduates. This is a critical moment and we are actively exploring how to take this strong foundation with CS for All and take it to the next level to ensure all students are ready for the future. This includes shifting our focus from training teachers or solely training teaches to thinking about student attainment of skills, student readiness with computational thinking and computer science skills. Next, I'll

speak to Teaching and Learning's digital learning and innovation. Under this Administration, the goal for our Digital Learning Initiative, or DLI, is to set a vision for anytime, anywhere learning enabled through technology. DLI has built a system-wide capacity to design and deliver flexible learning environments empowered by blended and remote experiential competency-based learning experiences that are student-centered, career connected, rigorous, and culturally responsive. Digital rescaling and upscaling of leaders and educators is a continuous requirement, offering digital skills pathways and certification pathways with Microsoft, ISTE [sic], Adobe and more. Last school year, 2022-23, our newly launched Digital Learning and Innovation Team provided over 17,000 hours of professional learning in digital learning areas, over 2,000 hours of district, so district leader in team and school-based coaching, and blended learning, supported over 200 schools to create digital learning professional learning plans for their staff, created a DLI professional learning fall and spring catalog with over 75 offerings, and the first-ever digital financial literacy institute with our Office of

Student Pathways. Now onto learning and innovation with AI generative AI, as both of Chairs have addressed at the top. According to MIT, artificial intelligence is the ability for computers to imitate human cognitive functions such as learning and problem-solving. Through AI a computer system uses math and logic to simulate the reasoning that people use to learn from new information and make new decisions. Now generative AI refers to a category of AI that generates new outputs based on the data they have been trained on. Unlike traditional AI systems that are designed to recognize patterns and made predictions, generative AI creates new content in the form of text, audio, images, and more. I'm going to be skipping a section if you're following along. To be clear, we have been using AI and machine learning solutions before generative AI. For example, a student with a mandated assistive technology device-- when we're using an assistive technology device, we're designing instructional models that increase the knowledge, skills, and use of inclusive learning tools. These includes text-to-speech, and speech-to-text tools for both our students and our staff. The intended impact is to ensure fidelity to assistive

technology while providing access to other tools that may support students with disabilities in reading, writing, and social communication. For English language learners, AI-powered language-learning tools can help students language skills develop faster. Now, when Open AI introduced ChatGPT to the public in November, a new technology that much of the world had not seen before, many questions and unknowns arose with respect with impact on teaching and learning. We placed ChatGPT on our list of restricted web-filtered sites, similar to YouTube, Netflix, or Facebook, and at the same time, schools were able to and are able to request to unfilter these sites, including ChatGPT, at the discretion of the school leader. Simultaneously, we began discussions with tech industry leaders about their platform's potential and future possibilities for schools, educators, and students. We consulted with educators citywide, many of whom had already started teaching about the future and ethics of AI while using generative AI to enhance their teaching. To meet the need for immediate leader and educator support at that time, we took the following steps this past year. We created and published a citywide course

called from AI to Generative AI in Education that can be completed in 30 minutes. It's been accessed by nearly 1,700-- 1,800 educators to-date. We published a field-facing AI resource guide and library services, AI Resource Collection, on the Soro [sic] Digital Library. We launched an Equity in AI summer intensive for educators with 20 hours of professional learning based on MIT's daily curriculum. All participating educators will lead Day of AI events in their schools in spring 2024. We hosted Ready for Revolution, a CS for All Virtual event with Mutale Nkonde, founder of AI For the People, who shared her work to advance racial literacy and help educators understand and teach ethical considerations of AI. During this event, educators shared lesson plans on topics such as Ethno Computing, the Ethics of ChapGPT, and Abolition in Computer Science. We established a professional learning community. they were called our Digital Learning in Innovation Ambassadors who provided real-time feedback on classroom AI experiences, and we created AI resources in turn-key ready-to-use lesson plans appropriate for the needs of students with disabilities and English language learners. Now what's next? During NYC Ed

Tech Week which is coming up October 2nd to 5th, we will kick off our New York City Public Schools K-12 AI Policy Lab with the goal of finalizing our K-12 Ai policy by June 2024 and sharing that information on a global scale in the form of a digitized K-12 AI toolkit. We also will provide comprehensive AI Literacy Professional Learning and Skills Training citywide across NYCPS stakeholders. So combining the AI Policy Lab and the AI Literacy Professional Learning and Training, New York City Public Schools will pursue a comprehensive equity-focused approach to implementing skillful and responsible AI use in our schools. Together we're foster educational equity, building skills that increase access to career and college options to achieve economic mobility and optimal quality of life for all students. I'm going to skip the next section as we've touched on some of these points. NYC Public Schools is the ideal K-12 environment to explore and build AI policy, AI literacy training, and pilot innovative learning models that critically examine and problem solve around one of the most important technologies of our time generative AI. Our unified efforts, continuous feedback loops from diverse

perspectives, and public sharing of learning will position New York City Public Schools as a global leader in K-12 AI policy, AI literacy training at-scale, and AI in education. In conclusion, the rapid assimilation of AI in the education sector has reached critical challenges related to data privacy, ethical implementation, systemic biases, and digital equity. While AI has the potential to revolutionize teaching and learning, our approach is measured. We intend to follow the nationally recognized Ed Safe Alliance, AI framework and benchmarks to align specific needs and equitable outcomes for all learners. With responsible AI use as an equity lever, we can integrate digital literacy, AI literacy and computational literacy as essential parts of our 21 century curriculum. We look forward to continuing to engage the Council on our plans to advance computer science education and digital learning and leverage the best of AI and generative AI to improve student learning. To advance digital equity for all learners, AI can act as a lever to continue dismantling inequitable systems, cultures policies, mindsets, and behaviors that impede our communities from civic and cultural participation, employment and

life-long learning. We thank the Council for their commitment to preparing students of New York City for their bold futures.

CHAIRPERSON GUTIÉRREZ: Thank you so much for that comprehensive testimony. I want to-- before we get into questions, I just want to acknowledge Council Member-- we've been joined by Council Member Restler, Council Member Hanif, Council Member Krishnan, Council Member Kagan, and Council Member Sanchez, and Council Member Avilés, and Council Member Feliz is online. Watching me, wonderful. Well, thank you so much. I want to start off with a couple of questions, and you touched on it in your testimony. I'm really encouraged to hear about the Policy Lab. Can you just repeat that just so that we have it for the record? When are you looking to have that policy released?

SENIOR EXECUTIVE DIRECTOR MAC: Thank you, Chair, for your questions. We are launching that October 2nd to 5th. The group that will be developing this AI Policy Lab, and then we intend to complete it by June 2024. I'd like to pass it to Tara Carrozza who's leading this work if she'd like to add more, though.

DIRECTOR CARROZZA: Thank you and thank you for having us here today. It's a pleasure to meet you all. So we will be just kicking off the concept of AI Policy Lab in collaboration with a core group cross-divisionally of our folks who you're seeing here, but it'll be a much bigger and expansive project in terms of including all of our stakeholders internally and externally, and really co-creating this policy together. A few weeks ago I was invited to an invite-only roundtable by Secretary Cardona on AI, and it will be in alignment with also what the Federal Government is looking to do specifically the Office of Ed Tech and the recommendations that the Office of Ed Tech has made with the recent report on teaching and learning and artificial intelligence. So it will definitely be in alignment and it will be an iterative process, like I said, phased throughout the year, and then hopefully resulting in consensus at the end of June next year. And while it's happening and while it's taking place, we will leverage our existing policies and regulations at the local, state, and federal level, and then we'll build accordingly to ensure we have the right guardrails

and safe policies in implementing this very new technology.

CHAIRPERSON GUTIÉRREZ: Thank you. You don't have to go into the current-- like, extensive response on the current policies, but what are some of the things that you are looking to-- that will look different after this Policy Lab? And we do, obviously, want you to expand a little bit on the current policies, but what are some of the goals that you're looking to meet, and you know, how will this be disseminated? Oh, and I'd also like to recognize Council Member Ung who's joined us online and Council Member Paladino who's joined us.

DIRECTOR CARROZZA: so, I think artificial intelligence generative AI specifically has really brought us to a unique moment in New York City post-pandemic in that we are-- we're critically collaborating in a way that and a pace that we haven't before, and pushing really our world and our students forward in a different way, to really transform education. And so the areas with the lab are not just on AI, they're going to be sub-labs that really connect and reflect to the White House Bill of Rights five core areas. So the ones we've identified

so far in terms of like-- in terms of the proposal of what we're planning to do are teaching and learning, AI and equity, AI and responsible use which includes safety, trust, and ethical use, AI in productivity-- so like operational efficiency for teachers, leaders, and even students as they move forward in the K-12 careers and beyond-- and then AI in community engagement. Digital skilling is not solely for students. We really take it as a collective to push our city forward and all community members in having the knowledge, skills, and abilities to really participate as global citizens in the most effective way that they can, and really pursue the lives that they want equitably. So, that's our focus. Beyond that, I think in collaboration with Computer Science for All, we're really looking at how we can shift to having computational literacy be more present and integrated from pre-k onwards in our core curriculum, and really embedding those digital skilling opportunities within what we're already doing with core curriculum, and preparing our students really from the earliest age to thrive in our modern society.

CHAIRPERSON GUTIÉRREZ: Thank you. I want to get into what are some of the AI systems, if any, that the Department employs now.

SENIOR EXECUTIVE DIRECTOR MAC: Thanks so much. I'm going to pass it to Anuraag Sharma to speak to that.

CHIEF INFORMATION OFFICER SHARMA: Thank you for the question, Chair. So, even before ChatGPT became so mainstream news in fall of 2022, our team was already working on some AI-based tools. One example that I can give you that we've already put in production and we're seeing some results and benefits of that is a chat bot called Eureka. It's our support assistant. So, we have a site called Support Hub that supports our families and students and teachers for any tech-related matter, and you can open it to get-- and we can follow up and help there. And our service desk takes calls, as you know. So the chat bot is deployed to handle certain basic things that users ask us for, and instead of passing the call to an agent, we can have them turn the chat bot on. How do I reset my password? What's the status of my ticket? Or have them create a ticket. So we've been doing work and even in the school year

when we started, we saw some good results. Twenty-five percent of called that were coming in were actually devoted to the chat bot, and the bot was able to handle and use the queries. So we're seeing that benefit, and our goal is to continue to develop this chat bot to do more things, specifically looking at integrating this with Microsoft Teams which we already have done, because we support 70,000 teachers where they are. and so we've done the integration of Microsoft Teams and now we are looking at other use cases [sic] that we can add onto this chat bot and make it even more beneficial and better.

CHAIRPERSON GUTIÉRREZ: Is it just the one chat bot tool that you're using, or are there other?

CHIEF INFORMATION OFFICER SHARMA: This is the one chat bot we're using right now.

CHAIRPERSON GUTIÉRREZ: Oh, okay, and any other AI systems that you want to expand on?

CHIEF INFORMATION OFFICER SHARMA: We're piloting and experimenting like we mentioned, so on GPT specifically and generative AI, we discussed this with Microsoft being the sort of biggest entity in Open AI. So we work with Microsoft on understanding

the GPT, too, and we have a tool that we're calling it New York City Public Schools Generative AI Teaching Assistant Tool, but it's purely right now in a very sort of experimental and piloting phase. We're looking at how and what our educators really need from this tool, and so it's using the same GPT layer that ChatGPT uses, but we have our protections and security on it, and like I said, we're working with educators and students to see what other features would they like us to add on to tool.

CHAIRPERSON GUTIÉRREZ: Is there any software dedicated to student activity monitoring that are being used by schools?

CHIEF INFORMATION OFFICER SHARMA: To the best of my knowledge, no, but schools do tend to buy and purchase third-party software, and so in that safe our role is to make sure that from a security lens and a compliance process perspective we have the right [inaudible] done for the software.

CHAIRPERSON GUTIÉRREZ: Got it. So schools are allowed to purchase their own and engage in their own AI tools? Do they need any-- what is the approval process in those scenarios?

CHIEF INFORMATION OFFICER SHARMA: So the approval process is based on the two other technology that they would buy. So they would go through our compliance process and we will definitely take them to the review cycle of making sure that the NDA is in place and then the cybersecurity, and we work with our colleagues in OTI to make sure they're cloud reviewed as well.

CHAIRPERSON GUTIÉRREZ: Got it. Thank you for bringing that up. So, when you are reviewing or approving these contracts or these tools for example, are you working with the privacy-- with the NYC Privacy Office or OTI?

CHIEF FINANCIAL OFFICER SHARMA: Yes, we work very closely. Our cybersecurity group works very closely with OTI cybersecurity group. We meet very regularly, and on the cloud review process, specifically, as part of our privacy and compliance process, OTI plays a very critical role in ensuring that where applicable cloud review is done, and without that approval we do not authorize software.

CHAIRPERSON GUTIÉRREZ: And are you made aware of their approval process. How are you all--

how are you engaged once it's brought to OTI on their approval process? They--

CHIEF FINANCIAL OFFICER SHARMA: [interposing] So, our team-- yes. So, our team we typically give them information on what we have on a particular software, and we're typically engaged to get on a phone call with them and meet with them, and sometimes they'll bring the vendor in if we need to, and then we go through that process. So we're very familiar and intimate about what the process is. We've been working on this for multiple years.

CHAIRPERSON GUTIÉRREZ: Got it. And do students or parents need to agree to utilize any of these tools, like any of the ones that you mentioned, like eureka, for example? What is the notification process for parents to know that now if school is using the tool?

CHIEF FINANCIAL OFFICER SHARMA: On Eureka itself, we don't have any consent requirement at this point. It's purely a tech assistant tool. So, we have trained it for very specific things that we know what the responses are, and we've trained the chat bot to give certain responses so that's very much our information and data.

CHAIRPERSON GUTIÉRREZ: But are there instances-- I'm sure that the Department has used other AI tools. Are there other instances where they are seeking consent, or is that not a policy?

CHIEF FINANCIAL OFFICER SHARMA: Not to the best of my knowledge, but Melanie and Tara, if you want to chime in.

DIRECTOR CARROZZA: Yeah, I think-- I would just add that at the school level-- I was a District 75 teacher at PS811X, largest alternate assessment high school in New York City. So--

COUNCIL MEMBER BREWER: Mickey Mantle, it's called. Mickey Mantle.

DIRECTOR CARROZZA: 811X? Oh, okay. Thank you. Thank you, Council Member. So, I got slightly distracted. So, you know, as a teacher, we do create and send home-- we actually don't create it, it's digitized now through DIT's excellent work, the Media Release Form where, you know, families or guardians can sign off on student participation and terms in a number of ways. I think that's the only comparable thing that we have right now in terms of requesting parent approval for something related to media or technology. But I also want to just

decipher between AI-empowered tools and generative AI-empowered tools and the risks associated with both are definitely different. With generative AI there's an unknown for all of us. Like, we all, you know, are learning together. We've had just standard AI-empowered tools for a number of years built into Microsoft, Google, Adobe that, you know, don't pose the same risks as generative AI does now.

CHAIRPERSON GUTIÉRREZ: Thank you. That kind of changes my questions. But I guess what I want to get into a little bit is some specific-- some of the stems that schools use. Do you have a sense of how many schools are using systems like Go Guardian, Gaggle, or Securely [sic], if I'm saying that right?

CHIEF FINANCIAL OFFICER SHARMA: We can definitely get you that information. From our perspective we do enterprise licenses for certain tools that schools use, for example Google Workspace or Zoom, Adobe, Microsoft Office. So these are tools that we centrally procure and provide for our students in schools at no cost to them, because we're paying for them centrally. But for certain tools that you mentioned, schools do it and it's their

choice. But we can-- we have information in our systems to look at how many schools and we can definitely get back to you on that.

CHAIRPERSON GUTIÉRREZ: Wonderful. Do you-- can you share a little bit about what the system Securely does?

CHIEF FINANCIAL OFFICER SHARMA: Sorry, can you repeat?

CHAIRPERSON GUTIÉRREZ: [interposing] Are you familiar with the program, the system Securely?

CHIEF FINANCIAL OFFICER SHARMA: No, I'm not.

CHAIRPERSON GUTIÉRREZ: No? Okay. Well, what I have from them, I do-- I'm aware that some schools do utilize this system, is that they monitor student internet usage even when they're not at the school. Are you familiar with it, Securely?

DIRECTOR CARROZZA: I am not, but I'm going to look it up and see--.

CHAIRPERSON GUTIÉRREZ: [interposing] Oh, wow, okay.

DIRECTOR CARROZZA: If there's--

CHAIRPERSON GUTIÉRREZ: Okay. I mean, I think it's an important discussion to have.

Obviously, different schools are-- that's their discretion to have. Obviously, different schools are-- it's at their discretion. They're using different systems, but it's my understanding, particularly with Securely, that they're right now they're under investigation for selling data, and so I would just love to hear from you all what is policy on selling data? How are families communicated bout this information, and what is the level of accountability that you all implement when these vendors maybe are selling data?

SENIOR EXECUTIVE DIRECTOR MAC: this is an incredibly important question, and we'd like to bring up our colleague to speak to this.

CHAIRPERSON GUTIÉRREZ: Thank you.

SENIOR EXECUTIVE DIRECTOR MAC: This is Dennis Doyle. He'll introduce himself and his role.

CHIEF PRIVACY OFFICER DOYLE: Good afternoon. Thank you. Good afternoon, Dennis Doyle, Chief Privacy Officer for New York City Public Schools. To answer that question, selling student data is illegal. It's prevented by FERPA [sic], New York State Education Law 2D, so we would not engage with any third-party vendor who's going to be

involved in that practice, and that's-- be part of our standard review that we would conduct for our compliance process. We conduct the security review. OTI conducts a cloud review as Anuraag was mentioning before, and then legal also has their part in the compliance process and making sure we have a data processing agreement with third party vendor and it's very explicit in those agreements that the use of personal identifiable information for commercial and marketing purposes is prohibited. So under no circumstances would we engage with a vendor or permit a vendor who's going to be receiving our students' personal information to be using it for commercial and marketing purposes.

CHAIRPERSON GUTIÉRREZ: I hear that. Thank you. However, what happens if they do? Like, I mentioned Securely is under investigation. I don't know what the conclusion is, but what is the accountability measure in that instance?

CHIEF PRIVACY OFFICER DOYLE: I'm not familiar with that particular vendor, but I think if we were to learn that a vendor were engaging in that, we have a right to terminate the agreement. In our data process agreement we have a right to terminate

their access to our data. So if we were to discover something like that going on with a third-party vendor, we would immediately terminate their access to our student information.

CHAIRPERSON GUTIÉRREZ: Got it, thank you. Some other issues regarding some systems that were raised to me about just-- about student surveillance was a system called Gaggle [sic] that schools are using. Are you familiar with that system?

CHIEF PRIVACY OFFICER DOYLE: I am not, no.

CHAIRPERSON GUTIÉRREZ: Lots of head nods. Okay. Wonderful. Let me skip that then. Can you share if there is an agreement from students and/or parents regarding data collection or what is the agency's policy on data collection?

CHIEF PRIVACY OFFICER DOYLE: Yeah, sure. So whenever we have a third-party who's going to be receiving student data, we are required by law to have a data sharing agreement with them. If they're going to be conducting services on New York City Public School's behalf, if they're going to be acting as school officials, we have to have an agreement

with them by law. So we ensure that we have agreements with all such third-parties, and as I mentioned before we have them go into-- go through our compliance process which requires having that data processing agreement, security review internally, and also an OTI review to the extent necessary.

CHAIRPERSON GUTIÉRREZ: And do students and parents, do they have the opportunity to opt out of that? They don't want their child's data shared?

CHIEF PRIVACY OFFICER DOYLE: When it comes to sharing data with third-parties who are acting as school officials and are performing services that the DOE would-- or New York City Public Schools would otherwise be performing on its own behalf that has legitimate educational purposes, there's no opt-out or opt-in process. That's not something that's required by FERPA which is the federal governing student privacy law, or New York State Education Law 2D. So we do not have a process in place for opting in or opting out with third-party vendors.

CHAIRPERSON GUTIÉRREZ: Thank you. For some of these systems that I've mentioned that you're

not aware of in those instances is the-- our Chief Privacy Officer, like is there an OTI process for them to review even in some of these smaller systems?

CHIEF FINANCIAL OFFICER SHARMA: Yes, if-- we have a system called ARMA [sic]. So when schools decide to purchase and we have put this policy to all principals, that if they're deciding to buy a certain software, they should definitely go through this compliance process. So, we would go back and check if this is the case with the two that you mentioned, but that is our standard process. Principals need to submit this before they're procuring the site to use those software, and we take them to the same process that I and Dennis are describing between our cyber security privacy and OTI.

CHAIRPERSON GUTIÉRREZ: Thank you. It's my understanding that some vendor approval processes have been delayed. Can you all share if there is any update to some of those? I know specifically like Class Dojo [sic] is one that I wouldn't always report it as being delayed. Can you speak a little bit to the reasoning for the delay, and what are some of the timelines that you all are working on?

CHIEF FINANCIAL OFFICER SHARMA: Thank you for that question. I'll start and then I'll ask our Chief Information Security Officer Demond Walter to come up as well. The compliance process is a three-step process. One is getting the NDA done with the vendor. The second step is fill out a comprehensive security questionnaire that our cybersecurity team has drafted, and we take the vendors through that. And then the third step like we said, is the OTI process. So depending on the turnaround time sometimes and the comprehensive completion of those steps including the NDA and the questionnaire, it can take sometimes a couple of months or more to finish that process. But on your specific question, I'd like Demond to come up and just describe it.

DEMOND WALTER: Good afternoon, Chair Joseph, Chair Gutiérrez, and Council Members. First off, Class Dojo, that was actually finally approved I believe today, according to Dennis--

CHAIRPERSON GUTIÉRREZ: [interposing] Look at that timing. Continue.

DEMOND WALTER: Part of that hold-up is a three-step process. One of it is data processing

that Dennis mentioned. It's the DOE security assessment process which we provide the vendor with a questionnaire to understand their security controls, the administrative, technical, and operational controls. We then have an interview with them, go through their architecture, as well as validate the information that they provided us, their policies, etcetera. The third part of that is OTI's cloud review process, which is a two-step process. It goes to OTI cloud review where they talk about the architecture, data, and citywide policies, and that's where some of their hold-up was at with Class Dojo. They couldn't meet some of those citywide policies, so they're coming up with some mitigation plans. As well, there was some little back and forth on the NDA, but we finally got all that stuff resolved.

CHIEF PRIVACY OFFICER DOYLE: And just to add, like, we submit a standard data processing agreement to our third-party vendors when they're going through their compliance process, and that agreement incorporates all the requirements under FERPA [sic], and New York State Education Law 2D, but our data processing agreements also include additional provisions that go beyond what's required

by law, and so in some instances we will send the data processing agreement to the vendor and the vendor will come back to us with some proposed changes and revisions, and so there is a certain amount of negotiation that can take place between New York City Public Schools and the vendors before we can reach an agreement. Obviously, we can't compromise on the things that are required by law, but there are certain parts of agreements that do get negotiated, so that's part of the reason why it can take sometimes a month or a few months to get that resolved.

CHAIRPERSON GUTIÉRREZ: Thank you. And are those standards that you mentioned at the tops of your remarks, are those made public?

CHIEF PRIVACY OFFICER DOYLE: What do you mean by standards?

CHAIRPERSON GUTIÉRREZ: You mentioned it. The-- I guess just part of your review process. So we're just looking to see if those-- if, like, those protocols are made public for us to review?

CHIEF PRIVACY OFFICER DOYLE: Yeah, I mean, we publish on our website the-- our data privacy and security policies are available on our

website. That's all public information. We share with third parties vendors' information about the compliance process and how to engage and if they have any questions and they can reach out to me and our Privacy Office. So, that's all public information, as well as parts of the data process and agreement has something called a Parent's Bill of Rights Questionnaire which the vendors fill out certain questions about the use of the data that they'll be receiving, and that information is public-- also posted on the New York City Public Schools website.

CHAIRPERSON GUTIÉRREZ: Thank you. I'm going to pass it to Chair Joseph for her questions.

CHAIRPERSON JOSEPH: Thank you. I'm going to yield my time to Council Member Stevens.

COUNCIL MEMBER STEVENS: You're so kind. Thank you, Chair Joseph. Really appreciate you. I just have-- I have a couple of questions, but I'll start with these two here. Regarding the professional development of educators, can you provide insight into what the DOE's measurement of success with respect to AI tools? Like, what are you looking for?

SENIOR EXECUTIVE DIRECTOR MAC: Thank you, Council Member. We, across our teams that are represented here today, are providing training to thousands of teachers, and as I shared in my testimony, we understand that this ongoing work because the technology continues to evolve, and we need to ensure that our teachers have access to the most up-to-date training and understanding of the technology. And so, I'd like to pass it to Tara to speak specifically to AI and maybe you'll add in terms of CS.

DIRECTOR CARROZZA: Sure. Thank you for the great question, and one very important question, too. In terms of training teachers when it comes to digital tools and AI, it's not enough [inaudible] knowledge is critical. So, for example [inaudible]

COUNCIL MEMBER STEVENS: [inaudible] it's evolving and changing as things are happening. What are you looking for?

[audio cuts out]

DIRECTOR CARROZZA: And we also have parent coordinators from [inaudible] and then collectively across the DOE is about 1,200 parent coordinators where different folks can go and share

the resources that they have to then share with families around a number of areas, but mostly focused on technology support. so those would be the resources right now that exist, and I think we're really looking to collectively provide not only more resources, but also open up training for families to engage in building their own digital skills.

SENIOR EXECUTIVE DIRECTOR MAC: and I'll just add that since 2015, CS for All, one of the hallmarks has been offering citywide family engagement events to come out and to hear about careers in CS to understand concepts, to tinker, and play, and practice computational thinking. In addition, we've built resources that schools can easily flip, and so if they want to hold family and community engagement events at their own school or on their own campus, that they have some of the easy ready-to-use resources to engage families in various levels of, you know, introducing concepts of computational thinking and careers across tech.

COUNCIL MEMBER STEVENS: Yeah, I think it's going to be really important as this process and things are being rolled out and the same way we're thinking about training teachers who should be doing

that alongside, as well as thinking about how the parents are. And even when we're thinking about measure of success, it should look different and be a little bit more simplified, especially for parents, right? What does it look like for us to say that these parents are fully engaged? What do we want them to know and how to do those things? Because if they're not having a clear understanding, then how do we expect the young people to. And the last plug before is stop chatting, we also to make sure-- and I know we talked about workforce development. We need to make sure that we are preparing people for these jobs and these roles, because I feel like a lot of times we kind of skip that pieces, especially with DOE. Like it does not-- like workforce is not engrained into it, and so thinking about how are we engraining this to make sure that when our young-- as these jobs are developing, our young people are able to step into those roles. So, making sure that's part of the measures of success are going to be really important. Thank so much.

SENIOR EXECUTIVE DIRECTOR MAC: And I would just say that our future ready program in

addition to our existing CTE programs which have been around for a number of years--

COUNCIL MEMBER STEVENS: [interposing] [inaudible] CTE, I have a lot of issues with them.

SENIOR EXECUTIVE DIRECTOR MAC: I would welcome the opportunity to talk about them another time. the Future Ready NYC program, though, is opening 45 new tech programs this year that's looking at labor market data, looking at labor market data in New York, and looking at from the credentials and the skills that are required for entry-level good jobs in these fields, cybersecurity, analysts, early machine learning. How are we back-mapping those so that our students get real skills and a head start on those specific pathways and graduate with credentials?

COUNCIL MEMBER STEVENS: Absolutely. We talk about it, but it is not happening, because even currently our drop [sic] market is not preparing our kids for it, and they come out of a lot of our public schools. So we can say that we have these tools, but they're not happening, so we have to make sure that that's part of the measure.

SENIOR EXECUTIVE DIRECTOR MAC: Absolutely, and I would invite you to join us and

come visit one of our Future Ready programs to see what our schools are--

COUNCIL MEMBER STEVENS: [interposing] I'm always welcomed.

SENIOR EXECUTIVE DIRECTOR MAC: That would be wonderful.

COUNCIL MEMBER STEVENS: I've been in education for over 20 years, so these are not things I'm just talking about.

SENIOR EXECUTIVE DIRECTOR MAC: Absolutely, absolutely. I appreciate the comment.

DIRECTOR CARROZZA: If it's alright, may I share one more piece of information from-- just from the teaching and learning perspective. I completely agree with the sentiment and the truth around what you're saying. We are in a skill-- global skills-based economy, and one of the things we are looking at from teaching and learning is to build a comprehensive learner record structure. It would definitely be in collaboration with DIT and folks citywide, but really looking at that structure and how that then shifts into a learner employment record. And so staring that much younger and starting it in Gen Ed, not solely-- not just Gen Ed,

too, D79, D75. Making those pathways available to all equitably and at a much younger age is really-- it's what's required right now, and that's the direction we're going.

CHAIRPERSON JOSEPH: Well, thank you. Earlier you suggested that parent coordinators are also trained to do part of that family engagement. When was the last time they were trained? How many were trained? And is language access part of that training as well?

DIRECTOR CARROZZA: I can get back to you just on numbers from our folks who do run that. It's in collaboration with FACE [sic]. I don't have specific numbers on trainings, but I'm on the Microsoft Team site here, and the last specific training was on the DOE grades and attendance application. So I can see that, and I can definitely get back to you with those specific numbers. Unless one of my colleagues here have any additional information you'd like to add?

SENIOR EXECUTIVE DIRECTOR MAC: We'll have to follow up on that one, Chair Joseph.

CHAIRPERSON JOSEPH: I use to be part of that group when I was an educator as well. I just

wanted to clarify one thing you said earlier about the forms. There's media form, which allows you to take pictures for students to participate in activities in schools, and there were the citizenship, the digital citizenship forms. So those were two separate forms. I want to make sure that's on the record so we know the difference. The media was just for students taking pictures and any activities in the school versus the digital one. Great, so now--

SENIOR EXECUTIVE DIRECTOR MAC: [interposing] Thank you, Chair Joseph.

CHAIRPERSON JOSEPH: Last Friday there was a news report of a collaboration between New York City Public Schools and Microsoft on a new AI teaching assistant, Azure Open AI Service, which has been piloted in three New York City Public School's high school computer science, which launched an additional pilot around this fall, which focused on high school math and approximately 15 schools. Can you tell me which three schools were included in this initial pilot program? If so, please share key results of this evaluation, and include student/teacher/administration feedback as well.

CHIEF FINANCIAL OFFICER SHARMA: So I can talk a little bit about what the tool does and what we have done. We can get you the three specifics schools and the students that are participating in the pilot. But from the feedback that we got, and when we did this pilot, several things came up that I think are important.

CHAIRPERSON JOSEPH: Okay.

CHIEF FINANCIAL OFFICER SHARMA: One of them is making sure that students and teachers are logging into this tool using DOE credentials. They're essentially used [sic] for account management is protected and multifactor authentication is in place which helps cyber security. We also had in other features in this tool where we got specific feedback from educators that did like to upload their own contact. So, in addition to what generative AI services, it needs to be in the context of what the educators want the content that they have created to be also available. And so we have that ability which was again, a specific feedback we got as part of the pilot in these three schools. And then the ability to make sure there are permissions available. So, at what grade level should this tool be accessed, and

for what different courses and content. That flexibility is also built into that. Any teacher has that control of who and who cannot use that tool. So those are specific feedback we received as part of the initial pilot in the spring. All of those have been incorporated in the tool as it stands today, and we're ready now to go in fall with probably the largest set of schools and get similar feedback, and add more feature that are very specifically asked by educators.

CHAIRPERSON JOSEPH: The devices that New York City public school provide, or these-- or this software automatically pre-loaded to the device, or they have to use it on separate devices?

CHIEF FINANCIAL OFFICER SHARMA: So, this is a-- it's a mobile responsive site. So, you can use it on any device as long as you again authenticate to the DOE's central accounts.

CHAIRPERSON JOSEPH: Give the recent data breaches at the New York City Public School, how with the Administration ensure that students' information is protected on this new platform?

CHIEF FINANCIAL OFFICER SHARMA: Thank you for that question, again. Data privacy as you

know is very critical and we are very focused on it. In this specific tool itself, a few things we have already done that we've been working on many years, and really build on that in the students there. So one of the things, like I said, is you need to have a DOE account. Multifactor authentication is definitely in place. The specific tool is on our specific Microsoft tenant [sic], so it's protected from that perspective. This is not a third-party vendor environment [inaudible] tool. This is our tool. We control the code and the-- and features on this. And then we are able to put permissions just like I was describing on who cannot use it. And there's robust reporting available on this which we can then be able to see if there was any activity that did not round regular usage. We will be able to track that as well. And the specific questions and the content that's going in does not necessarily leave the DOE environment. It's within our [inaudible]

CHAIRPERSON JOSEPH: Thank you for that. Did OTI conduct a review during Microsoft's vetting process in accordance with your new protocol set in

place that you began enforcing last spring? If so, what are the key results of the OTI review?

CHIEF FINANCIAL OFFICER SHARMA: On the specific-- just to be clear on the--

CHAIRPERSON JOSEPH: [interposing] Yes.

CHIEF FINANCIAL OFFICER SHARMA: system [sic]? [inaudible] [audio out]

CHAIRPERSON JOSEPH: And the fact that it is a small school will give you data on how you'll drive future usage of this software.

UNIDENTIFIED: 100 percent, yes.

CHAIRPERSON JOSEPH: Okay. GO ahead, sir.

CHIEF PRODUCT OFFICER ANWAR: Yeah, thank you so much. My name is Zeeshan. I'm the Chief Product Office. So, this product [inaudible] we have only worked with OTI. They have SSAP [sic] review that we have conducted with them to ensure that we-- like, fulfill all the compliance and everything is good to go. So we have done that process, and I think as Anuraag mentioned, that this is a tool that is being piloted on very, like, small limited number of schools right now. And we are gathering a lot of, like, feedback back from the schools just to

understand how we need to expand it a little [sic] bit much better. A couple of things that I think I should highlight [inaudible] working with the educators, working with students, they gave us a very good feedback off about how this tool is being designed, how this tool is being protected behind the SSO [sic] and the [inaudible], and the data as Anuraag mentioned, does not leave the DOE environment. That is one thing that differs between us and the Open AI and the ChatGPT, or for that matter, any other tool because ChatGPT being only one tool, but [inaudible] is all there, Bedrock [sic] is all there. There's just so many other tech giants who started doing that.

CHAIRPERSON JOSEPH: Thank you. In a Q&A with Microsoft, Zeeshan Anwar, the District Chief Product Officer, shared that his goal for this new learning assistant is to enable in each and every school, each and every classroom. What is the-- is New York City Public Schools committed to achieving this goal?

CHIEF PRODUCT OFFICER ANWAR: Yes, I made that statement. This is something differently we would like to do. We are in the early stages as the

generative AI is something very new to all of us. We are also learning as compared to how those [inaudible] with that, how the responses will come back from the generative AI. So, we are working on that, and hopefully after the pilot, we'll definitely get more information on that, and then we can see how we need to scale it and provide that tool across the board in every classroom in every school.

CHAIRPERSON JOSEPH: Thank you. How will students in historically low-representation in computer science courses, girls, black and Latino students be prioritized in this digital revolution right now with AI?

SENIOR EXECUTIVE DIRECTOR MAC: I can take that question, Chair Joseph. That has been the forefront of the CS for All goal since it launched in 2014 to increase the number of black, Latinx and students who identify as girls participation in computer science, and we've seen progress in the numbers of APSC takers, the percent of girls who are taking computer science courses across K-12 year over year. Those numbers are-- took a slight dip in 2019-2020 with the pandemic, and then they rebound in the following year and have continued to uptick which is

very heartening. We still have more work to do, as I shared at the outset, because we still see disproportionality between the number of our white and Asian students who are participating in computer science and our black, Latinx and students identifying as girls. There's a few things that we learned in the early of years of CS for All. We recognize that we needed to-- we needed to provide data to both school leaders and district leaders in a way that supported equity. And so we work with Doctor Eddie Fergis [sp?] who's at Rutgers University and who's done a lot of work on solving disproportionality. He helped us develop an equity rating for each school and each district that helps them see both the saturation of CS. So, you know, what percent of your overall student body at your elementary school or your middle school is participating in computer science education? But also, when you break that down, when you disaggregate that across student groups, where is there disproportionality? And we've created differentiated training for district leaders and school leaders based on where their school is because a school that is at the very beginning of implementing computer

science may be different from a school that's five years in, but is still needing to think about expanding to more students and also addressing disproportionality. So we've become more sophisticated in how we make that data really visible in a way that's it's like a conversation and an opportunity for strategic planning and have developed tools and templates so that the, you know, the district leader, the school leader from strategy and planning lens can think about how they're scheduled and for classroom strategies. In recent years, we've made our equity in computer science the first course right out the gate that a teacher participating in our initiative or a school leader participating in our initiative participates in because there's a primer to understanding how we're going to disrupt a lot of the disproportionality that we see play out throughout life, throughout the labor market, and certainly throughout K-12. We need to think about the curriculum choices, how they center the voices, experiences of people of color and of students who identify as girls, and so that's become the framer for the curriculum and pedagogy work that we do as well, and how we structure the training. So there's

a couple level both from how we share data to how we strategically plan with leaders to how we structure the choices we make in training around curriculum and instruction.

CHAIRPERSON JOSEPH: so, how's that data looking from 2015 to now? I know it took a dip during 2020, because we saw the digital divide, and that was really where the City saw the lack of access to the basic internet, the basic technology. So where are we now in terms of data 2015 and 2023. How are we looking? And I'd like to acknowledge Council Member Narcisse?

SENIOR EXECUTIVE DIRECTOR MAC: Would you like me to answer before, or-- Yeah, well, we report out on the data to you all every year as per Local Law and we've been doing that for some years, and so you'll see that last year the average looking at one year, one school year, is at 19 percent of our K-12 students participated in computer science education. Now, as I shared in the testimony, if you look at that over a students' elementary-- whole elementary experience or whole middle school, or whole high school experience, that number is much greater. It's close to 50 percent of students having a CS

experience at some point in each of those grade bands. So we are seeing that our students identifying as girls are participating in computer science as the same-- at the same level of access as our like citywide average of 19 percent. we're not satisfied with 19 percent, and so there's work that we're doing right now in strategic planning and thinking about-- this is a 10-year initiative, we're in year eight-- and what the next chapter of CS is, and how that needs to think about other levers beyond teacher training to get to true equity and access to computer science education.

CHAIRPERSON JOSEPH: And what about black and Latino students?

SENIOR EXECUTIVE DIRECTOR MAC: So, I'm going to pull from what we've reported out to-- we've reported out to you all. Just give me one moment so I get my numbers straight. So compared to the citywide average in the last full school year that we reported out which was 19 percent of students, 18 percent of Hispanic or Latinx students participated in computer science, and 14 percent of black students participated in computer science. So we see disproportionality in those numbers. That's driving

our continued work with district leaders, but also work that we need to do to think about other levers for equity across the school system.

CHAIRPERSON JOSEPH: Thank you. Yeah, we do. We have a lot of work to do. For next set of questions I'll go to Council Member Brewer.

COUNCIL MEMBER BREWER: Thank you very much. On-- I know that some of the IBM schools and certainly CUNY are trying hard to have people graduate with some kind of certificate. So that's one question. What are you doing either with your CTE schools or in general? Because it does help with both college and getting jobs. Number one. Number two, contracts. I've been down this road already, and the issue is I would like to know-- because what happens is teachers, principals, you get salesmen, saleswomen coming around and saying this is a great project. And I know absolutely you want the schools to have discretion, but on the other hand, the schools don't know sometimes who the hell is the legitimate and who is not. I've been there. I've heard it and seen it. So, I worry about contracts, because these companies want to make money. I'm talking about not common sense, I'm talking about the

for-profits. So do you-- how do you keep track of what's good, what's bad? I worry about that you're spending money on for-profit contracts that are no good. And so I see some names here, they're obviously well-known, but I also see a report from the State Comptroller that says that some of this information has been excluded, some of these companies, from reporting. I am really concerned about the contracts. So do you have a list of them? How long do they last? How much do they cost? Who's paying attention to the for-profit people because they call me too? They call everybody they can to get a contract with schools. So how are you monitoring that and keeping the cost down, and can you provide a list of all the for-profit contracts that you're working at DOE on computer science?

SENIOR EXECUTIVE DIRECTOR MAC: Thank you, Council Member Brewer. You asked some of the same questions around credentialing when you visited my school many years ago, so I appreciate the steadfastness--

COUNCIL MEMBER BREWER: [interposing] I remember that.

SENIOR EXECUTIVE DIRECTOR MAC: to this mission. I'll speak first to the credentialing side and then I'll pass it to Anuraag and to my colleagues to speak to the contracts. In terms of credentialing, we're thinking about that in two ways, right? As we've said throughout this testimony, we have first and foremost work to do with our students to be truly future ready, and we need our teachers coming along the way and having the appropriate upscaling and professional learning opportunities. And so we're thinking about credit nailing in these two ways. We're working with CUNY on the computing integrated technology education, advance certificate, and micro-credential. So that's offering our teachers across the system an opportunity to get more advanced credentials beyond their CS for All training, beyond their--

COUNCIL MEMBER BREWER: [interposing] Are they getting them?

SENIOR EXECUTIVE DIRECTOR MAC: We launched this last year, and so we have a promising start, but this is work that we've newly cultivated with CUNY. And then I will say that, you know, Chancellor Banks spoke this morning about us doing a

better job with college and career-readiness at his State of Our Schools, and the underpinning of our Future Ready Program and the 45 tech programs, and that there needs to be a substantive labor market-driven evidence rationale for the skills that are part of a scope and sequence for a students. For the credentials we select-- we cannot select credentials that do not have value in the labor market for our young people, as well as early college credits that can articulate into Associates, Bachelors that are credentials of value into post-secondary. And so there's a very rigorous approach to these new Future Ready programs that are opening that is certainly lessons learned from years of doing this work across the system and thinking about the disparity between the opportunity that's available in tech and the number or students who are ready and raising their hands to take those. So, again, an invitation to share more beyond today and show you some of our future ready programs.

COUNCIL MEMBER BREWER: Okay, I think the IBM schools are doing that already.

SENIOR EXECUTIVE DIRECTOR MAC: Our P-Tech schools, and we are-- so we have nine P-Tech programs across--

COUNCIL MEMBER BREWER: [interposing] I'm aware.

SENIOR EXECUTIVE DIRECTOR MAC: which you know, and we have three more that are in a planning year this year and that will launch.

COUNCIL MEMBER BREWER: But they get a credential when they finish.

SENIOR EXECUTIVE DIRECTOR MAC: They have the opportunity. Some students choose-- they are teenagers. Some choose that they're going to transition to another college or another pathway, but they all have the opportunity to pursue the credential. But I will say that the State has taken an even more rigorous approach with the new P-Techs that will be opening, with the Harbor School, our High School for Innovation, Advertising, and Media, and our High School for Emergency Management in terms of the level of industry connectedness.

COUNCIL MEMBER BREWER: Okay.

SENIOR EXECUTIVE DIRECTOR MAC: And I'm going to pass it to my colleague to speak to the contracts question.

COUNCIL MEMBER BREWER: Contracts, a lot of money, some of it goes down the drain.

CHIEF FINANCIAL OFFICER SHARMA: Thank you for that question. So on contracts, specifically, I think that this is also a concern that we have. So there are a few things that we've already done and I'd like to call them out and then I think there's more work to be done here. One is where we see a lot of schools using certain types of systems. For example, at the start of the pandemic schools were using Google as an LMS, 1,100 schools at that time which was not only just a contract, but issue a cybersecurity problem. So we brought in enterprise license for Google Workspace, and we give those to schools. So now we have a central contract. It's just schools going in doing one-off's. We have enough licenses for our entire school system and our students. Same thing goes with Microsoft 365, Adobe, Zoom. Those are a couple of things that we've seen massive amount of schools using it. Let's do a central contract. Let's do a much better agreement

and negotiate this better for the City and the public schools system. So that's one example. With the breach and the third-party compliance process you're taking about, we actually sent out a survey for our school systems to ask them what they were using. And our target was any software that was more than 10 schools, we took them through this [inaudible] process and compliance process to make sure that we-- whatever is prevalent in our schools, this was mostly secure. And then, we have built, as you know, our own grade, attendance, and messaging platform. So, around 1,000 schools are using any one of the three modules today. that also helps us not only just bring these contracts and costs down, but at the same time it's giving us a lot more cybersecurity, partial because they're using central accounts, they're multifactor authenticated. These are our systems. We control the data. It doesn't leave the DOE. So all of that is happening, but also additionally through our school partnership teams and our field offices, we've started to get requests from principals because we have this relationship with them, that they would like us to be at the seat when vendors come in and have those conversations. So

we've started to see some of those requests come in, and this is an area where we do have a goal to improve more not only just to see what the vendor is pitching to the schools, but also is it safe, is it in the functionality that is already not offered centrally? Like, if you already have a solution for it, why do we need the principal to go into another third-party just because--

COUNCIL MEMBER BREWER: [interposing] Okay. Alright, I'm going to-- we can have this conversation all day. But in terms of AI--

CHAIRPERSON GUTIÉRREZ: [interposing] Gale, I'm sorry, is this your last question? We have--

COUNCIL MEMBER BREWER: [interposing] Okay. Just AI in general, if they can do a one-off or something, are you also making sure that that makes sense? Because the sales people come around and make some suggestions. So, again, for the contact on this issue of contracts, I'll let that go. Also, the websites are awful. Can you fix them? Thank you.

CHIEF FINANCIAL OFFICER SHARMA: Working.

CHAIRPERSON GUTIÉRREZ: Thank you. Next, I want to ask Council Member Hanif followed by Council Member-- Narcisse left? Avilés, then. I'm sorry.

COUNCIL MEMBER HANIF: Great. Thank you so much Chair Gutiérrez. Thank you for being here. This is such an important urgent topic of our time, and I really appreciated Chair Joseph's questions to expand CS for girls and black, Latinx students. I want to delve a little deeper into the surveillance technologies and privacy, student privacy in particular. In 2021, DOE signed a contract with the Go Guardian parent company Liminex, and I understand that Go Guardian is designed to allow teachers remote access to students' computers in order to monitor the attention during class and progress on assignments. And then in October of 2020, it was reported that teachers in Chicago were able to use the technology to see inside students' homes and access cameras without student consent. Can you share what the DOE's policy is around teacher's remote access to students' computers and cameras?

SENIOR EXECUTIVE DIRECTOR MAC: Thank you for raising this question. This is incredibly

important in terms of our student privacy. Perhaps Anuraag will start with what's the existing policy, and--

COUNCIL MEMBER HANIF: [interposing] That would be helpful.

SENIOR EXECUTIVE DIRECTOR MAC: how that's protecting our students.

COUNCIL MEMBER HANIF: And anything specifically about Liminex would also be helpful, particularly about learning what had occurred in Chicago and how that might have informed DOE's decision to continue working with them or not.

CHIEF FINANCIAL OFFICER SHARMA: So, specifically what happened in that incident, we did not necessarily react from that, but we don't have a central enterprise contract with Go Guardian like I explained like we have in Google and Microsoft. That is not the case at this point. And so schools make that choice to use Go Guardian. And we have taken Go Guardian through the same compliance process that we discussed which is the NDA and cybersecurity review, and they will go through the OTI cloud review as well. So we're following the same exact process on making sure that from a student's data privacy

perspective and the NDA that they are following within the regulations that we have.

COUNCIL MEMBER HANIF: Sure. So, are you able to provide us with which schools are contracting with Go Guardian? And then, whether-- based on what you just shared, does that mean that teachers can potentially look into students' homes when there's remote learning happening?

CHIEF FINANCIAL OFFICER SHARMA: So, we'll definitely follow up on that because we'll go back and look into our systems and see which schools have actually purchases Go Guardian and how many of them are there and which specific module they use, because they have a few modes and so we want to make sure what specific mode is used, also in the schools that are using it, and what does it allow and does not allow, and we'll follow up with all those.

COUNCIL MEMBER HANIF: I really appreciate that, and I just want to stress as we continue to immerse in this conversation about AI and tech, student privacy needs to be prioritized, and of course, their family's privacy. And I just want to wrap up with one final question. On the student use of AI, could you share any data that the DOE's

collecting on cheating, and whether there's been a notable increase in cases since ChatGPT in particular became publicly available?

SENIOR EXECUTIVE DIRECTOR MAC: We do collect cheating and plagiarism data in alignment with our protocols. We don't have that data right here, but we can-- we can ask for it for the team and follow up to see, but that's certainly something that some of our colleagues across NYCPS are closely monitor, and they look at the infraction types, they look at the schools in which some of these infractions occur and where there are spikes, and that's clearly not just for cheating, but all other kind of infraction types. That's one that we can follow up on with more specificity, though.

COUNCIL MEMBER HANIF: Yeah, I'd be interested in that, particularly because I know that schools outside of the US, and I think maybe in some cities have utilized ChatGPT in their classrooms to build curriculum and particularly to help students with limited English proficiency when they're reading Shakespeare or other texts. So I want to know how ChatGPT is being incorporated and if the ban on it is simply because plagiarism and cheating, but how can

we turn it around and shift to ensuring that this is being utilized for efficacy?

SENIOR EXECUTIVE DIRECTOR MAC: Absolutely, and just to clarify, it isn't banned. It is on one of our, it's unrestricted in the ways that YouTube and Netflix are unrestricted sites, but schools can request access, and so some of our schools and school leaders who are thinking about these tools as an instructional tool-- newer, but an instructional tool, none the less, and have a strong plan that aligns with their instructional vision. They're-- they can request to receive access to it.

COUNCIL MEMBER HANIF: That's great to know, and just one final thought. I would love to know which schools have requested and are currently using it, and if there have been innovations on utility of ChatGPT. I'm super interested in that, and as a South Asian kid who didn't have a lot of access to the computer growing up with a family of three daughters, this is vitally important for me to follow.

SENIOR EXECUTIVE DIRECTOR MAC: I will share, a middle school in Queens, Principal Burns, we have a video overview of how they're implementing

ChatGPT, critically examining it, examining the bias, examining whether it should be implemented, should not be implemented, and so we'll share that with you, and I think you-- it's really-- we're really taking the innovation first mindset with consideration, obviously, of student privacy and all of the guardrails that need to be in place. But we also have an equity lens on this, and really, like digital equity it goes beyond just infrastructure and bandwidth. It's skilling and exposure to skills and exposure to tools that all students need to have equitably, and I think not offering the opportunity to students to at least critically think as a first step about these technologies, we're doing a disservice to our students. So, we definitely have some innovations to share.

CHIEF FINANCIAL OFFICER SHARMA: And just really quickly, because I think you brought up a good point. When we did open the policy of saying principals can request to unfilter ChatGPT, we also did in that announcement send a link to a feedback form for exactly the reason that you described, which is we also a very curious to know in what shape and form are they using it, and what are the lessons

learned, because it will impact our own product development and give us some insights on what the educators are working with on AI.

COUNCIL MEMBER HANIF: Thank you. I'd like to follow alone. Really, this is really important.

CHAIRPERSON GUTIÉRREZ: Thank you.

SENIOR EXECUTIVE DIRECTOR MAC: Council Member, I'm wondering if my colleague Tunisia can actually speak to your question about the-- some of the-- in addition to what Tara shared, some of the innovation in leveraging AI and curriculum. We have some really creative educators who've been doing incredible work, and we've been bringing them together intentionally. Tunisia can share a few examples of what that looks like.

TUNISIA MITCHELL PATTENELLI: Thank you. Can we hear?

CHAIRPERSON GUTIÉRREZ: Yes.

TUNISIA MITCHELL PATTENELLI: Okay, perfect. I always have to ask. I'm an educator first, and so that's how I start. Hello everyone. I'm Tunisia Mitchell Pattenelli. I am the Interim Acting Executive Director of Computer Science Education, and

we support the CS for All initiative within the Office of Student Pathways. Thank you, Melanie, for passing that question over to me. I think over the past sort of eight years have we been doing this work, AI is not exactly too new to some of our schools and there have been a lot of innovation across our educators of how to harness it. I think you said it really helpfully, one of the biggest pieces is helping our educators understand what AI is, but once we do that and empower them with those skills and understanding those concepts, they start to turn-key it. One of the pieces I want to share as an example, a D28 school, of one of our former teachers, Ross Berhman [sp?] who now is actually working on the central side because of some of the innovative approaches that he took into this work. What they did with AI is one, helped students understand what is AI, but how to debate and discuss these issues within the community so students could understand how they could harness this technology, what are the ethical issues that they see a reason for them and how they can utilize it with fidelity, really helping them think about how to harness these tools from an equitable lens, but from the lens of

their communities which is think is huge. As educators, we did not receive formal training in computer science. I remember. I was there. It did not exist. These pieces are coming into play, and a lot of our teachers now, they're helping their students understanding how to grapple with this work. So they're having debates on this. They're having an understanding of how to look at some of our social media platforms. One of our integrated units that we do with ELA is utilizing how to think about facial recognition technology and what does that mean, and how we're seeing technology, and how we're seeing images. Students are talking about that, thinking about the algorithms that are in place with the new social media technologies and how does that fall into AI. These are live conversations that are happening across, more conversations that we're hoping to come. Thank you.

CHAIRPERSON GUTIÉRREZ: Thank you. Thank you so much. Next, I want to call-- yeah.

CHAIRPERSON JOSEPH: When you talked about algorithm, I thought about that. How do we also-- New York City Public Schools work with software developers to make sure that algorithm and

biases are not included in a lot of these AI? I was recently at a conference and one of my colleagues said we will-- we were talking about Mid-Journey [sic]. So, I like Mid-Journey, and we were talking and he said, he put in two images of children on a book cover, one from the Bronx and one from Manhattan. The children from the Bronx that the-- when the AI generated the picture, the children in the Bronx have no shoes on versus the one in Manhattan. So there are biases also in these software's. So how is New York City Public Schools going to work with these developers, these software developers to make sure algorithm is one and biases are not included in these AI tools?

TUNISIA MITCHELL PATTENELLI: I would love to start with that question, and then I'll pass it off to my colleagues as well. I think that's huge, right? And one of the pieces that Melanie Mac had talked about is there's a lot of learnings that we've done under CS for All and a lot of learnings that we're doing as collective within NYCPS, but I think one of the pieces that we want to take and move forward with is how are we centering ourselves within this ecosystem for computer science education, but

how are we thoughtfully working with other industry partners to learn about the expertise and bring them into the fold, right? So you talk about software engineers. There's data scientists, right? There's a lot of different ways and modalities in computer science that we're bringing in to really test our thinking of what is happening and how do we inform our educators. Joy Andulani [sic] who is an incredible expert when it comes to AI who has been with part of our events and gives speeches with educators. In the forefront, help us see some of these-- this parity that are happening with technology, but I think the stuff we want to take forward is what does that mean in education, right? And how do we support our educators in understanding how to take that critical lens, but also to be the forerunners of how to counteract that and to build towards that. We have student projects that speak about these pieces. You may be familiar with Scratch [sic]. Scratch is a platform that utilizes [inaudible] programming, even as early as elementary school students. They are talking about these issues and they're developing projects on these issues. I think the piece that we're working on now is how do

we think about the players that are in this space, how do we mobilize as NYCPS to work with them thoughtfully and empower our educators, and how to activate some of the disparities that we're noticing, but to be forerunners in the change that we want to see. I'm going to pass it over to my colleague to my right.

DIRECTOR CARROZZA: Thank you Tunisia. I'd also like to share the concept of data democratization and interoperability. Last year the DLI team became members of 1EdTech, formerly IMS Global, and really have learned that-- from Chicago's public schools actually with their curriculum efforts right now-- how important building your digital ecosystem is and having those technical and curriculum standards of interoperability, and I think it really-- it really also highlights from what you said Chair Joseph on we can also bring that into algorithms and into bias and into working with software developers as well. So that's-- that's a takeaway for me for sure of how we can-- how we can activate that, especially through the AI Policy Lab work.

CHAIRPERSON GUTIÉRREZ: I'll pass it on to Council Member Avilés.

COUNCIL MEMBER AVILÉS: Thank you so much, Chairs, and thank you all for the work that you're doing. I have a couple of distinct questions. Mr. Sharma, based on-- actually, building off of Council Member Brewer's questions, can you provide to the Council-- she may have asked this and I missed it so, so apologies if it's duplicative. But can you provide to the Council a comprehensive list of the software purchased by schools, given that there is so much discretion? Also, the findings of your office's reviews which were authorized, which were denied? And I'm particularly curious about the frequency of the evaluation of those third-party vendors. How often does the-- does your office evaluate those vendors and check in. And I am a public schools parent, former PTA President, and very much digital literacy, computer science was very much left to the devices of some scrappy parents who maybe used common sense but often was not the tool often used in our community. And God love the parent coordinators all across the City who are given 8,000 jobs and having them be responsible for thousands of parents at

varying levels of digital literacy is not a sustainable or appropriate approach. So I guess the first thing is I'd like to understand better about the list, how we monitor and assess those companies that we are authorizing to work with our students, and then the last part of that is-- as a parent, I've also received countless letters about breaches of my child's data, and the responsibility for me now to respond and monitor my child's data based on a company that I never made the agreement with to begin with, multiple times. What is the cumulative impact of these consistent breaches? How are you informing parents of how many breaches are actually happening? And what protections are we putting into place? And I think that's it.

CHIEF FINANCIAL OFFICER SHARMA: Thank you for all your questions, very, very critical. So, like I was saying before, from our perspective too, students' data privacy has definitely become a focal area for us, especially after the pandemic. We have seen these attacks being very prevalent. So we've done a few things that I'd like to call out, and then go into the specific things. One that I mentioned, when we started on March-- in March 2020 when

pandemic hit, we were basically in a situation where schools had their own LMS domains, 1,100 of them which was-- every school had a free version or a little fee version of [inaudible] that they were using for learning management platforms with local accounts that they had to manage, which itself is a burden, but a major security risk. Today I'm happy to report that number over those years has come to 1,400. So, that's a very good example of what we're already doing to bring in those disparate systems into an enterprise platform where there's enhanced security, enhanced accounts and multi-factor authentication in place. As far as the list is concerned, we definitely can provide a list of A, what the schools are buying in terms of software and which ones have gone through the IRMA [sic] process, and how many of them are authorized, how many of them are not. This is a system that we have and we capture this data. We're happy to share all of this information with you. And I think on your very important question, it's not a one-time thing, right? Cybersecurity is an ongoing concern and we have to do this every single day. So once we authorize a software, that's not just enough for us. We need to

continuously monitor it, [inaudible] our Cybersecurity Division and Unit are looking at which vendors should we bring in on a quarterly or yearly basis to ask for specific reports, and do another evaluation. We just don't want to do it-- you know, we review it once. We authorize you, and then you're good to go for two years. That's not a practice we want to follow. So we're going to continue to do this work, but at the same time, I think it's my belief that specifically on student-centric data. when we're talking about special educational grades, attendance, or messaging to parents, student information systems type modules, this system has to be on platforms that we manage and control, and that's why we've built our own grades, attendance, and messaging tool like I was reporting 1,000+ schools are already on it, and it's an ongoing adoption process where more and more principals are working with them to encourage them to come on our platform. It normally just reduces paper, for example on attendance. It also improves student data security and privacy. So these are all of the things they are going to continue to do to make sure bring in critical systems' in-house where we can and

monitor the data, but we recognize principals also want third-party software, but when that is the case, they must go through our compliance process. They must be routinely checked and evaluated again and again to make sure that that compliance process is being met in the future as well.

COUNCIL MEMBER AVILÉS: And what is routinely checking in? What is the protocol for that?

CHIEF FINANCIAL OFFICER SHARMA: So, well this is-- we're evolving and making sure our program gets better, but we would like to get to a place where depending on the type of vendor and depending on the type of data they are going to host, we're going to put them through either quarterly or six months or a yearly process. We need to make that judgment call and say, put them on a matrix and say we need to see this information from them very routinely, versus this vendor has a very good security posture and we can see them once a year. But we're going to evaluate that process and make sure this is standard practice in our cybersecurity.

COUNCIL MEMBER AVILÉS: And I guess, lastly, I mean, as a parent, right, thinking of it

form that perspective, a privileged one with college education, when I received the breach letters they're often very difficult to navigate. They're in language that is not understandable. I am often in a place where I'm translating documents for families in multiple languages. And I don't know what the school-- what other platforms the schools are using, right? We do know that we give consent for photos. We don't know that our child has been given-- well, actually, I don't give consent for the 15 platforms that potentially might be used. Not that they're being used for nefarious purposes, but the point here is that parents are not informed in any clear way what is being used in educational settings, and when there are breaches occurring, those standard form letters of going into setting up accounts in another third-party security, it is not an accessible way, and I never know with the several breaches of my children's data over the years what's happening with their data. what has the school-- what has Department of Education done to make sure that my child that has three data breaches is actually not owning property in Arizona. So, I guess there is this-- what I'm asking for is more accessible

information, technology. I don't envy y'all having to translate tech language into more pedestrian English and multiple languages for that matter. But it is a necessity, and it is an incredible-- we have an incredible gap of process information and resources, and most of the-- we cannot depend on parent coordinators to do this work. This needs-- given the importance of tech, how much it's being utilized. This needs to be in a concerted, comprehensive effort given the size of our school system. And I know I'm probably preaching to the choir, but the resource that we are putting forward for the consumers and the users whose data is being utilized is wholly inadequate. I thank you. I know we're trying to get there, but I just wanted to make those remarks.

CHIEF FINANCIAL OFFICER SHARMA: Thank you.

CHAIRPERSON GUTIÉRREZ: Thank you. I'm going to pass it to Council Member Paladino and then Council Member Holden.

COUNCIL MEMBER PALADINO: Good afternoon. Thank you very much for being here. I have absolutely no idea what the hell AI is. I do know

it's artificial intelligence, and right there that kind of bothers me because it's artificial, and I do know that if you put a few key words into a computer, you will then create a great story, or whatever it is that you need. I want to know how do our kids benefit by this? But I want to piggyback on my colleague who just spoke so eloquently before. I agree with just about everything that she has said, and this brings up grave concerns for how do the parents get a load of what is going on here, how it's being taught, exactly what is AI? This is something that is going to cause such a ripple effect through every district in this city, in addition to everything else that we're dealing our kids. So, now describe for me please, how are the students currently being taught about the pros and cons of AI? And how-- like I said, to piggyback off of my colleague. How are the families being provided with resources on how to advise their children around using AI? I also have a lot of ethical concerns about AI. I also have a lot of concerns that this is being introduced as young as two and three years old when their minds are just forming, and they shouldn't be using artificial intelligence in order to figure

out where they're going. So there are a lot of concerns here. Please, by all means, take it away.

SENIOR EXECUTIVE DIRECTOR MAC: Thank you, Council Member. We understand that the teaching task here is large, right, in terms of all of us fully understanding the scope of artificial intelligence and the best uses in K-12 education. Some of the work that Tara spoke to in terms of our policy lab which will be K-12 and will have a toolkit and a citywide training, that includes thinking about families and the type of family training, communications, resources, that need to be available at every grade level because there's a lot that's developmentally appropriate, to your point, at a younger age or that's development appropriate at the high school level that is not sooner, and so we understand. I think we understand the magnitude of the task and are working-- this is a group of very humble and committed educators here who are working to bring this-- to bring the right urgency and scope to this, and I think that Tara can share a couple of examples of-- to your other points in terms of speaking to students about the pros and cons.

DIRECTOR CARROZZA: Before going into kind of speaking to the students specifically about the pros and cons, I think there's a larger call to action for us as a city and for schools and districts to really have a cohesive vision on educational technology and digital learning, and align on it and set it forth in a public way. We do have a citywide district Ed Tech plan that New York State requires. However, I think that we can do better with that. I think that we've-- I used to work at DIT [sic]. I was the Director of Citywide Ed Tech, and there through the Ed Tech program we started citywide Ed Tech planning. It went from a pilot a few years ago with 100 schools creating Ed Tech plans to now this year, we've renamed-- we branded it into digital learning plans, but we're going to expand to 300 schools and do deep work with both Brooklyn North and Brooklyn South, and Manhattan to create these plans. Two Administration components to the plans that we're adding are considerations for artificial intelligence and cybersecurity. So we're expanding the upskilling and the training and really the mindset shift of all leaders in our system to say we have to have shard accountability on this. It-- like we can't go on

saying hey, GIT [sic] owns this or CS for All owns this. we all own it, and I think moving forward we have to collectively plan from a leadership level on how we're supporting that cohesively, meaningfully across every level, across every stakeholder.

COUNCIL MEMBER PALADINO: Do you feel that we're moving too quickly in this, that we're not taking this just a little bit slower so that people could actually ingest and then digest exactly what the process is? And that the creativity of their children's minds actually working on their own, not artificially. Because when we hear the word artificial, right there that's a problem. And we all know that artificial intelligence has been all over the news, and we all know that jobs have been taken away. I mean, look at the writers' strike that we have going on right now. The reason for the writers' strike, the main reason for that strike, is because they will be put out of business, because they will have scripts written. They could super impose actor and actresses that don't-- that aren't even there. There is so many things that are tied into artificial intelligence, and people no longer, you know, being needed to this or needed to do that. So explain to

me, please, how our kids and what is the actual benefit? Because I know it's the wave of the future, but I want to know how are our kids going to benefit by artificial intelligence.

SENIOR EXECUTIVE DIRECTOR MAC: Thank you, Council Member Paladino. I think first of all, I just double-downing-- doubling down on where we started, which is this is an equity issue. I think that the reality is if we aren't teaching our students and our educators about AI and generative AI, they're going to learn it and be exposed to it elsewhere or they'll be locked out of opportunities because they've not have-- built the digital fluency and not built some of the computational things, skills they haven't learned, the ethical considerations that Tunisia names about AI. So there is an urgency and there is a pace that you're naming that is true. I don't know that the answer is to slow down, because slowing down means that our students aren't having access to this information and this reality in their life. And so I think that our process, though, is really, really important. Like when we talk about policy, when we talk about training, who all is at the table for those

conversations? Are we being very deliberate to ensure voices of all of our stakeholders, wrap around our school communities, are part of those conversations. So, we have a task that demands I think quite a level of urgency because of the equity issues inherent here. However, we are trying to be as thoughtful and deliberate about what those processes are, because this is-- I think one of our colleagues shared that for some of us the internet was coming into-- for many of those, growing up, the internet was coming [sic], and that was a very new and disruptive emergent, you know, part of our life.

COUNCIL MEMBER PALADINO: And that brings me to one-- I'm sorry to interrupt. That brings me to one of the points. We are-- kids are so inundated right now with technology, and we're finding so much of their lives being right now not real, because they do-- everything they do, they do on the internet, online. Everybody's given one of these which is fine to an extent. However, when we talk about what you're talking about, I have to jump in there and say we were so concerned about how our kids are being all consumed with technology, and we begged them to go out to play. We're going to do this now, which I get

what you're saying-- thank you for that-- and I do understand it as far as getting ahead of the ball. If we don't get ahead of it, the kids are going to learn it on the outside. So I am very grateful for that, because I know it's coming. I just feel at this point in time, they're so inundated as it is, I just want to make sure that however it's going to be spewed out to them and taught to them, that it's taught to them right, and I'd like to know a whole lot more about it so that I'm able to speak intelligently about it, not artificially intelligent about it. I want to speak intelligently about it.

SENIOR EXECUTIVE DIRECTOR MAC: We completely appreciate this opportunity with the Council to talk about these issues, because we don't-- we come humbly knowing that we do not have all the answers to these questions, but some of the opportunities that this year will present to come back to you all, right, and share here's where we landed with policy and the toolkit and the training. I think that this is the really important conversation for us to continue having, and I'll pass it to Tara.

DIRECTOR CARROZZA: Yeah. I'll just add one more thing, because I think you bring up excellent points. I have a three and six-year-old, and I'm like, you know, I don't want them on a-- I want them to talk to me. I want them to look at me, and technology cannot replace humans. It can't replace connection, and I think where we-- where we really need to focus is how are we supporting teachers in the pedagogies that allow them to know what blended instruction, what self-led learning looks like, what project-based learning looks like, and give them, not the digital fluency, but the pedagogical fluency to actually implement that, because it's a lot. Like, you know, I haven't been in the classroom since before the pandemic, and I can't even imagine what teachers have gone through over the past few years, and you know, I just think as a system, we really need to refocus on that. I think that's why the Chancellor, Deputy Chancellor, and all of our Deputy Chancellors and leadership have really, you know, invested in the types of learning that we're offering students and making sure we scale that, we scale those practices, because it's not about going into a classroom and seeing kids on a

computer. It's about how they're communicating and connecting with each other.

CHAIRPERSON JOSEPH: I have a real quick question. Is there going to be an FAQ-- what I'm hearing here is a FAQ toolkit for parents, and I've always said this and I've spoken to the Chancellor about this. We tend to educate students but leave out the partners which are parents and households. We have to bring this also to the parents in various languages because we know in our-- in New York City, English may not be the first language in that home. So how do we engage parents into this journey? It's an educational journey. My parents went to parent/teacher conference up until 12th grade. It was annoying, but they went. But we want the same thing for our New York City parents, so we have to create the tools in the toolkit to make sure they're also part of that conversation. We have to tell them AI. I've been using a computer since I was eight years old, so I had to teach my parents that, and they were immigrants. I had to teach them about computers. I don't have the domain-specific language to teach them the tech side, but I taught them how turn them off, how to turn it on, and all of that

stuff, and those things came in handy, especially during the pandemic, because the students were actually leading the homes because parents were not involved. And one of the things New York City Public Schools did, they created a Parent University, and I keep saying we have to keep it. We have to remember what worked during the pandemic and keep them. Don't through them away. Keep those tools, and matter of fact, prefect them. So we have parents at the table in this educational journey. Council Member Holden?

COUNCIL MEMBER HOLDEN: Thank you, Chairs. And this is a very, very important hearing for a number of reasons. But just to give you my experience, I taught college for 44 years, and when through a period in the 80s when-- I taught in communication design. We went through a period where computers were introduced and the entire industry changed. We went digital. Nobody was trained on it. The faculty was not trained. So we had to do professional development on our own, meaning CUNY didn't do it. And that's the concern I have with DOE. I don't know where you fit that in. The software changes. The Chancellor spoke this morning

on this where our students, our public schools students are not represented well in the technologies, in computer science. He talked about industry support which was important, and we had that at CUNY. We kind of got to that at some point, because its industries reasonability to help in the schooling, but we were always told, and the industry would tell us this, you need to be five years-- education needs to be five years ahead of the industry, because you have to anticipate where you're going to be, because you're training the future. And we were always behind at CUNY in technology, because of the money, the software, the upgrades, it was a constant battle trying to get the correct software and the latest, because it's always changing, and AI's obviously going to change. But logistically, how do you do-- how do you train faculty? Professional development, how do we keep them ahead of the curve rather than behind, because if they're being the students are behind?

SENIOR EXECUTIVE DIRECTOR MAC: Thank you so much, Council Member Holden. My own teaching career and thinking about the technology I was using pedagogically, you know, 20 years ago versus now is

strikingly different, right? There's a couple of ways that we think about this. There is a citywide across our entire teaching staff and school leadership, staff level of digital fluency, right, and ability to leverage technology pedagogically, that is very much at the heart of why the digital TLI, the team that Tara's leading, has been developed. And our Deputy Chancellor, is you know, coming into the role almost two years ago, said we need to bridge pedagogy and technology for all the reasons that you've named. And so I-- there's more that Tara can speak to there. And then I think that there's also levels of when you look at some of the more advanced pathways, middle school, and high school, we are very rigorous with the new programs we're opening such as Future Ready to think about who we're talking to across industry. So if it's-- whether it's healthcare, tech-- and you can argue that technology is everywhere and part of every industry now. To evaluate the skills, to evaluate the credentialing and think about that five years ahead. Where do we need to ensure these pathways that without regular, you know, partnership support and ensuing the most up-to-date in terms of like

labor market value, having those conversations so that our programs aren't preparing students for skills and credentials that are no longer as relevant. So, just want to tease out those two tiers that there's a call to action for all of our educators across the systems to become-- to have a level of comfort with bringing digital tools into their pedagogy, and we also have a call to action around the advanced pathways we're creating for our students, and ensuring that--

COUNCIL MEMBER HOLDEN: [interposing] But just, where do-- how does the faculty fit it into their schedule? They're teaching all day.

DIRECTOR CARROZZA: Absolutely.

COUNCIL MEMBER HOLDEN: Does it-- do we do workshops, you know, on weekends? Do we give some faculty released time to get, you know, to join a workshop? I mean, tell me how it works, because CUNY couldn't figure it out. I hope you guys can.

DIRECTOR CARROZZA: It's-- thank you for the question. It's very hard to figure out. I think it's an ongoing continuous improvement process. It's dynamic. I think where-- I think where we need to work and are looking now with the acceleration of AI,

it's really brought all this to like a moment of we have to change-- is how are we being consistent with information to educators? So instead of all our divisions really, you know-- the math team sending their information, and the ELA team, and then DI-- like, how are we making that more cohesive, and that starts with leadership and people, and us collaborating as a collective, and then also aligning on what's the pedagogical approach that we want to take. Like, where are those-- where are those places that we can mitigate time spent by teachers where it doesn't have to be, because their most precious resource is time. so, I think getting clear on the type of pedagogy and instruction we want, focusing in on that cross-divisionally, and then training to that, and then also making our digital ecosystem and our selection of curriculum, our tools, really making that more intentional at a central level and supporting leaders and teachers to create a plan at the school level in order to that. And that has to scale. Like, we have to do it citywide with schools. In other school districts around the country, most districts have their own plan, so-- some of our-- some of our schools are bigger than districts in New

York City, and I think that's really like the direction we need to go in order to provide the time and space for teachers.

COUNCIL MEMBER HOLDEN: Thank you so much.

DIRECTOR CARROZZA: Tunisia, yeah.

TUNISIA MITCHELL PATTENELLI: Thank you, Tara, and I appreciate your raising this question. I think, something I want to add for all the Council Members, we're else embarking on new territory. We recently had the State pass a New York Computer Science and Digital Fluency Standards. These standards do not exist for computer science and digital fluency in the past, right. And helping to train our teachers, our educators on what that means and how to implement it I think is huge, and we offer a variety of different trainings whether it be online, whether it be in-person. Thinking about some of the modalities of what we learned during the pandemic, we have to provide a variety of different ways to provide this information to our educators, right? And so we do that internally within NYCPS, but we also did an MOU with CUNY as well to help bridge some of the gaps of some of the higher

education as we said before. CS did not exist in higher education. We are building these pieces now, right? And so we created an MOU with CUNY to help our educators that are in this system receive micro-credentials and advanced certification on computer science. I will say, Council Member Holden, these things are continued to iterate just as some of these emerging technologies are new. We're starting to learn more and more what we can do to advance this work and how to make sure that our educators have more opportunities to receive that access and how to activate it for their students.

COUNCIL MEMBER HOLDEN: But again, you do have to make that the top priority of training faculty. Otherwise, everything else will fail. Learn a lesson from what I went through in the 80s when it switched over and they didn't give us one minute of training. We were all-- we were left on our own, and that can't happen, especially in DOE. It's very, very important. But thank you so much. Thank you, Chairs, for the extra time.

CHAIRPERSON GUTIÉRREZ: Thank you. I have a couple more questions, but first, I just want to make sure I ask these on behalf of Council Member

Narcisse who had to leave before we called on her. Also, just-- I love all the answers, but just, you know, if we can just a little-- but I appreciate-- but we appreciate it obviously. One of the questions on behalf of Council Member Narcisse who's also the Chair of the Council's Hospitals Committee is related to just mental health concerns for students. So the questions reads: With the increased emphasis on AI and computer instruction what measures are being taken to address potential mental health concerns related to increased screen time amongst students?

SENIOR EXECUTIVE DIRECTOR MAC: I think that this is an imperative in terms of the teacher training and the school leader training. It's certainly something that in terms of the ethical considerations that shows up in our New York State standards and it's being codified in a way that we will have to hold ourselves accountable and our schools accountable, too. I think that specifically to mental health, I'm going to pass to Tara to speak a little bit-- to Tara to speak to that.

DIRECTOR CARROZZA: Thank you. I think that having technology in the classroom, there's access to it, and if we don't train teachers in how

to effectively and critically implement it, whether that means using it or not using it based on the actual activity, that we can't support students' mental health actively, because we're not really-- we're not really supporting them in how to think about their use of technology. So it's the metacognition of learning, the metacognition of like students making their choices and the impact to the self after that. you know, I can't speak directly to our holistic mental health support of students, but we can definitely get back to you on that and any additional efforts we're making to support students in that area.

CHAIRPERSON GUTIÉRREZ: Sorry. Thank you. The next question I think is doubling down on what Council Member Holden mentioned which is about ensuring that professional development is consistent. The next question is what measures are in place to ensure that schools in underserved areas are not left behind. And I think you've touched on this already, but yeah.

DIRECTOR CARROZZA: So I think there's different ways that this in place, but our number one way is awareness and us actually measuring if the

information is getting to schools and the opportunities are getting to schools. So when I was at DIT in 2021 we launched the ED Tech Teams pilot. The biggest area of growth from the pre-assessment to the final assessment was almost a 40 percent increase in awareness of turnkeyable [sic] professional learning available in the City. So, the Chancellor, and I think collectively again leadership has seen this, we have a new vertical under Deputy Chancellor Weisberg for knowledge management, and I think that should help the efforts to really make our awareness and our information cohesive to the field and to educators so that it's not coming from so many different places.

CHAIRPERSON GUTIÉRREZ: Thank you. I've got just a couple of more questions, and I know Chair Joseph I think is also going to ask some of these questions related to the couple of the-- the data breaches, but before I get into that, I just wanted to ask about-- and you mentioned this in your testimony just about bandwidth and like the very-- the realities of what some of our schools are facing and how often. What I've been hearing from parents have been-- in the last two days there's been--

there's just been internet outages for some of our schools and it might have to do with all having to log on for MAP testing. What-- you know-- yes? Okay. I look to you. If you give me a no, I'm like alright, I don't know if they know. But so I guess we want to prevent this, right? It's 2023, and if this is like-- you know, this is the one way to administer these exams. What can we tell our constituents about what the Department is doing or what can the City do to prevent this from happening. There's a massive delay, obviously.

CHIEF FINANCIAL OFFICER SHARMA: Yes, thank you for that question. So, there's no doubt over the last couple of days we've had some network disruptions, mostly on some of our infrastructure that is hosted in our data centers. Typically during peak traffic we've had some servers that have had performance issues or just an outage. Our team has done a lot of work over the last couple of days to ensure that we have put some fixes in place, and then we're continuously monitoring the situation to make sure that we have a non-disruptive day tomorrow and in the future just to make sure schools don't feel that when they aren't able to log in.

CHAIRPERSON GUTIÉRREZ: I'm sorry about that. Can you just repeat that? We were just comparing questions. Can you just repeat that last part?

CHIEF FINANCIAL OFFICER SHARMA: Yeah, so it's a network issue on our side, and so we--

CHAIRPERSON GUTIÉRREZ: [interposing] For the-- for the Department?

CHIEF FINANCIAL OFFICER SHARMA: For the agency, yes.

CHAIRPERSON GUTIÉRREZ: Okay.

CHIEF FINANCIAL OFFICER SHARMA: So, from our data center we have found from our infrastructure that a couple of components have had performance related issues. Our team has been working around the clock to make sure that we're monitoring this and fixing where we've found problems. It can impact from all applications are simply impact the ability to log on, which can be usually deceptive, as you know. And so we're working diligently to make sure that tonight, tomorrow, we're monitoring this, and there's a response if we see something. We've already put some fixes in place, and we want to make

sure that, you know, there is not disruption to school activity when they log onto these systems.

CHAIRPERSON GUTIÉRREZ: Does-- is the service interruption due to like the connectivity for those schools, for example? Is there hardware-- or there's like individual cases where--

CHIEF FINANCIAL OFFICER SHARMA: [interposing] It's not a bandwidth issue at the school.

CHAIRPERSON GUTIÉRREZ: Okay.

CHIEF FINANCIAL OFFICER SHARMA: Our internet connectivity capacity at the school, that's not the reason. It's more on the data center.

CHAIRPERSON GUTIÉRREZ: You have to get it together.

CHIEF FINANCIAL OFFICER SHARMA: Yeah, yeah.

CHAIRPERSON GUTIÉRREZ: Okay, wonderful. Well, thank you. So my last couple of questions, when is-- just-- and this is like a while back, so hopefully you remember. But just related to the individual programs that, you know, that we're aware of that our schools utilize-- like I had mentioned Securely [sic] earlier. I know Council Member Hanif

had mentioned Liminex. Can you shed a little bit of light on what in those instances, right, where it's up to the school's discretion, is there any reason for us to believe that there's like less sense of a vetting process or is the rigor of the vetting the same across all even for some of these programs that are not, you know, through enterprise contracts? I just want to feel assured that it's all the same and that we're all, you know, that you are all taking it equally seriously.

CHIEF FINANCIAL OFFICER SHARMA: Thank you for that question. I really appreciate it, because I think this is-- it still sounds like work in progress, because it really is, but I think that it's moving the right direction. From the time we have put in this new compliance process that you've talked about, we have seen increasing number of schools participate in this, and I only see this improving consistently over time. I think from our perspective, communicating what our policy is and communicating what our process is one big thing where we have seen principals reach out and say hey, before I jump in, I need to know. That's been a good sign from my perspective from what I saw two years ago to

now. So it's definitely on the right trend. And also the adoptions of schools on our central grade, attendance, messaging, and other tools that I'm seeing is also I think highlighting that there's a shift in terms of relying more on the software that we produce and that we present how secure it is, and it's only accessible through DOE account. I think that is also trending in the right direction for us. We're seeing increasing number of schools participated on our Google grades, attendance, messaging platform than last year or even from June. So we're seeing that trend move definitely in the right direction. We have more work to do. But I feel very positive going ahead that schools will-- once our service is approved and we don't have disruptions like you described, there's a lot of principals that are-- that I think will definitely follow along with our strategy of using internal tools on some of these critical student-centric operations.

CHAIRPERSON GUTIÉRREZ: Sure, but right now, is there any difference in vetting for--

CHIEF FINANCIAL OFFICER SHARMA: [interposing] Not difference at all. Like, we've been

very clear, any software that they intend to use most go through this process.

CHAIRPERSON GUTIÉRREZ: Gotcha [sic]. Gotcha. Okay, and my last question before passing it to Chair Joseph is specifically on what we've all referenced today which is the data-- the more recent data breach where I believe 45,000 or so families were impacted. So, you know, the debriefing that we had, the folks at the Department said that it was, you know, something that was not preventable, a zero day attack, and I'm not the expert, but I find that really hard to accept about the level of security that we can ensure our parents and families that their students will have pertaining to their important information. How since that breach has the Department or you and OTI worked to really prevent this from happening again? Any innovative software? Anything that we could have done differently? But I'm just-- I really think it's unacceptable to say it's not something that we could-- we could not have prevented it, it would have happened anyway. I don't think that that does anything to build trust. I think it makes people feel even more vulnerable. So, what

are some of the steps that you are taking or that you are planning to take?

CHIEF FINANCIAL OFFICER SHARMA: Yep. Thank you for that question. So, from the perspective of working with OTI just cybersecurity practices, we've been talking with them and are completely in sync with what we need to do. As an example, we do vulnerability scans on our infrastructure along with them. so we have a complete picture of where we find vulnerabilities in our infrastructure and what steps we need to take to reduce that vulnerability because high percentages of vulnerability is not a good thing in our ecosystem. And so there are scans made. We look at those reports, and where applicable our teams will go in and patch systems in appropriate time where available. In the case of the breach, we knew that the patch that we had was not available, and when we got the patch we immediately patched it in conjunction with OTI. But in addition to just scanning and responding to the results that we find in the vulnerability scans, we're also making sure that account management of central accounts which is one of the biggest areas where cybersecurity threats

can happen, because accounts get compromised. So whether it's shared accounts or making sure that we have multifactor authentication, those instruments are getting a lot more stronger and prevalent in our system, and then I think it's the question of how do we then make sure that the third-party applications are secure, and the enterprise systems where we bring on more and more schools so that we have a much more contained environment where we can monitor security and we can actually provide the guardrails necessary. and like I was saying I think in the previous question, it's trending much more in the direction that I would love to see where the reliance on third-party software, because if we have a whole list of them and in higher magnitude, it's going to be difficult for us to just review them and get-- and feel secure about it. So we're trying to make sure we contain that to what's necessary for third party software to be used and where necessary or applicable we should use our central systems. As an example, I sent out an email to the principals saying we want all Google domains gone. We just-- we think it's a major security risk. Even if it's minimal, we don't want to take that risk anymore. Every school should

move to central LMS [sic]. We made that process very clear to the principals, and we're seeing good responses. We're not seeing the push-backs we saw two years ago. It's a process. It's an ongoing activity. But we're doing everything we can on the monitoring side.

CHAIRPERSON GUTIÉRREZ: Is it monitoring 24/7?

CHIEF FINANCIAL OFFICER SHARMA: Monitoring is 24/7, and the scans happen periodically.

CHAIRPERSON GUTIÉRREZ: Okay, thank you.

CHAIRPERSON JOSEPH: My question is according to a report there's been global outages impacting DOE staff and students attempting to log on to the single sign-on services application, especially for MAP. And I knew as an educator once, it was time to do report card, I was in the Star [sic] system because we all thought let's all wake up at seven o'clock and try to do our report cards, and the system would crash. So we're seeing that whenever we do MAP and over the past couple of days the outages has last three hours yesterday morning.

So what is the Administration take on this report, and what is causing these outages?

CHIEF FINANCIAL OFFICER SHARMA: So, I'll start and then I'll ask my colleagues to come up and talk about it a little bit more. So in specifically-- not sure about the global outage. We'll confirm that report if that is the root cause, possibly for intermittent point in time. but what I have seen in my experience is New York City is so large, and in terms of number of users in our public school system and teachers, that we have in the past having system be actually brought down, these global company systems. And so we work with them diligently to make sure we increase capacity and they understand our peak traffic times. But just like us, they're also not perfect, and so we definitely hold them accountable and [inaudible] in place with them. But in this specific instance, like I described especially in the last couple of days, we found some critical issues in terms of performance in our own infrastructure and we've done some things to make sure, you know, we apply that fix, but we will continue to monitor this very actively starting tomorrow morning, very early, because our peak

traffic starts to develop around 7:30 in the morning. We want to make sure that our system and services are on. JP, do you want to add--

CHAIRPERSON JOSEPH: Good afternoon.

JOHEL PLACENCIA: Thank you, and Council Members. So, indeed, we have been experiencing and issue with our infrastructure for the last couple of days that have resulted in an experience that appears to be like a widespread outage. In fact, it is, and that's because some of the systems that were impacted host services for other applications including our single sign-on platform. And so when a system such as this one that is interconnected with some critical systems experiences a performance issue, then that is why users then see a problem singing onto applications, and so what we are doing to mitigate the issue is work with our vendor partners to make sure that we look into every aspect and every layer of the infrastructure, make sure that things are-- everything within the stack is working appropriately, and then by methods of isolating areas of the environment, identifying where the root cause is. Yesterday, we preformed such action in which we separated from the environment a particular server

that was overwhelmed and that provided immediately relief. And so we proceed to continue to perform optimization work, and that-- in that space. What happened today is that the environment became overwhelmed by other situation sin the stack, and immediately we were able to determine what was going on. What was interesting today is that we were able through our monitoring capabilities to determine the problem before our end users can-- our end users were able to see it. And so we proactively communicated the issue with our end users, and the regular supporting teams. We were quickly able to jump on a call and troubleshoot the problem. So that's what happened today.

CHAIRPERSON JOSEPH: So, tomorrow if schools decide to provide MAP for their students, they should be able to get on with no issues?

JOHEL PLACENCIA: That's correct.

CHAIRPERSON JOSEPH: Well, thank you. Well, thank you for that, because I have an eighth grader taking that test tomorrow. Well, that's good to know. We have received a lot new New Yorkers. In terms of digital devices for them, are they being provided Wi-Fi internet? We knew that-- and I

witnesses this firsthand during the pandemic, those devices rarely work inside the shelters. Signals were very weak, and my students got on, got off, got on, got off. That's frustrating for a young person who just wants to learn. So what we-- what does that look like? What is the plan for our new New Yorkers once they receive that device in terms of internet support?

CHIEF FINANCIAL OFFICER SHARMA: I can definitely start, and Johel, please chime in. So, we still have devices in stock, up to about 39,000 if I recollect. There's some iPad, about 1,500 or so and then all our Chromebooks. They're all attainable [sic] and Wi-Fi enabled devices. The process of how schools ask for devices and for us to distribute them when they request is being disseminated schools are already aware of what the process looks like. So, if there is need on devices for the schools, they usually will reach out. They know how to reach out, and we usually get them devices in about a week's time. So the turnaround from request to devices in hand is about a week, and we get those devices off to the schools. For shelters I do remember personally, too, from during the pandemic as well, there was the

whole issue of connectivity and it differed from one carrier to the other, and so we had even back then worked on swapping SIM cards because we found from our own testing that one carrier in a particular location was better than the other. And so we did all of that work, as well, but in conjunction with that we opened specific hotline at that time for support and even now that is carried forward in terms of having an option on the service desk specifically for shelters so that shelter students can actually get help if we encounter any technical issues. So we have that capacity. I don't know Johel, if you want to shed some more light in terms of numbers that we receive from shelter calls?

JOHEL PLACENCIA: On the numbers of calls that we're getting from shelters I can get back to the committee on what we're getting this year, but I do want to comment on the-- or add to what we're doing at the shelters to support the connectivity. So we understand the limitations of LTE connectivity in certain locations, certain buildings, and so we worked with our partners at OTI and DSS to ensure that there is Wi-Fi accessible at these sites, and so today we understand that there's over 95 percent of

the sites covered with Wi-Fi, and that the program is aiming at completing or expanding Wi-Fi coverage to the rest of the sites in the near future.

CHAIRPERSON JOSEPH: Wonderful, thank you. I wanted to thank you for your service. I know you're leaving. Congratulations, and we looking forward to-- congratulations on your next journey, your endeavor wherever it may take you. Thank you for your service to New York City.

JOHEL PLACENCIA: Thank You. Thank you so much.

[applause]

COMMITTEE COUNSEL: I also want to thank the Administration for their testimony, and turn to the testimony from the public. And to accommodate everyone, we kindly ask to limit your testimony to two minutes. We will start with witnesses who are here today in-person and then turn to witnesses who will testify remotely. And now I would like to call our first panel, and want to welcome Manhattan Borough President Mark Levine, Julie Samuels or representatives from Tech NYC, Rachel Neches, and Donalda Chumney. You may begin your testimony when ready.

MARK LEVINE: Well, thank you very much. Thank you for this hearing. I am so grateful for the leadership of you Chair Gutiérrez and you Chair Joseph for what you're doing for education and technology. This has been an incredibly informative hearing so far. I was heartened to hear the DOE really talk passionately about pivoting to adapt to the rapid changes in generative AI. I was very happy to hear about the curriculum they're working on to help bring teachers up to speed, but I have to say that we are way, way behind where we need to be. The DOE just told us that almost 70 percent of the people graduating from New York City public high schools have had zero computer science in their high school career. I don't know what the percent that got any training in machine learning is, but I'm willing to bet it's probably less than one percent. That would have been a big problem a year ago, but today, considering the pace of change and what our students are going to face in the workforce, it really needs to be considered a crisis. To put into context what our students are about to confront, I think you need to imagine that the technological changes that we've had since the 80s were compressed into five years.

That's what we're heading into. This is going to disrupt every career path that our young people are now heading into. There will be jobs eliminated. There will be new jobs created. Every career is going to be transformed, including probably the career of everyone in this room. There is tremendous opportunity here. These tools are going to help cure disease. They could finally solve the language access problem that we've talked about for years. They can provide individualized education to kids with learning challenges. These are really positive inspiring opportunities. But our young people are going to have to compete in a world where they're going to be required to use AI in almost every job. And so in that context, the fact that we just learned that the default in the New York City Public Schools is to block access to ChatGPT is a major problem. It advances inequality because you know wealthy kids have access to these tools on home computers and on their iPhones. We need to teach kids to use these tools to enhance their education in every subject. Yes, we have to teach them to recognize the bias that is baked into these tools. We have to teach them that they are producing false content. It's getting

better, but still they're hallucinating. We have to teach kids how to recognize that. But there are teaches in the schools already in New York City that are doing really inspiring things. There are teachers who are teaching Shakespeare and they are assigning the kids to have ChatGPT role play Hamlet, chat with Hamlet, tell me what you learned. Role play chatting with Shakespeare, what do you want to ask him, or any author, or any public figure in history? There's huge potential here for children with landing challenges. There are tools out there, one by Kahn Academy, Con Migo [sic], that it's an individualized tutor for kids at their level in math, in writing, and many other topics at their level day and night in their language. This is potentially a tool for teachers that can get customized quizzes for every kid in the class. If kids are accelerated or struggling, these tools can create that. This can mean assistance with lesson planning, suggesting reading lists. This can be a tool for administrators. We just learned from a report today that John Jay College used an AI tool to identify students at risk of failing in their college, and that it increased the graduation rate by 32 percent.

The progress was so dramatic that the administrators had to double and triple-check whether there was an error in that data. This can be a tool for administrators in our public schools as well, to identify kids who are struggling and so much more. But we're going to need more radical change, more rapid change. we have to rethink everything about what we're teaching kids, about how we are teaching about the careers that we're preparing them for, and I haven't heard anything yet today from the DOE that gives me confidence that we're engaging in that kind of radical rethinking at the pace that our young people need us to produce for, or they're going to miss out. We have the opportunity to break down barriers, to advance equality, to make New York City a leader in this field, to empower young people, but we're not doing enough to make that possible. So thank you to both of you for bringing this to the attention of New York City, and all of us have to commit now to adapt to what will be a dizzying pace of change. Thank you for allowing me to testify. Thank you.

CHAIRPERSON GUTIÉRREZ: Thank you.

COMMITTEE COUNSEL: Any order.

JULIAN KLEIN: Hi. Good afternoon, Council Members. I'm Julian Klein, Head of Policy at Tech:NYC. Our Executive Director Julie Samuels was here earlier, but had the childcare covered, so she had to go home, but she was hoping to testify. So thank you. This month, the US Department of Labor found that tech roles will make up three of the top 10 fastest-growing occupations over the next 10 years. In addition to New York City's educational priorities for digital skills training, we know now that students face a future where artificial intelligence will be widespread. New York City Public Schools must continue to increase computer science education efforts in order to both prepare our youth for the jobs of the future and build in them an understanding of how and why AI technology works. As a baseline, we recommend that educators are informed on AI and have the opportunity to use real life examples, or even use AI in their teaching like Azure Open AI based chat bot currently used in three high school public computer science classes. Introducing students to this technology early and constructively should help them and should help identify the students who have interest in aptitude

to continue studying it, preparing them for technology careers, and it will have the additional benefit of preparing their peers to live in a world where they must understand mis- and dis-information and how to use AI tools productively and effectively, all while giving them a framework to understand the risks and rewards that come with new technologies. At its core, it is most important that New York City Public Schools continue to teach the basics of computational thinking to its students. AI is changing how programmers and software developers work, and it is expected in future years that AI will allow for most programming to be done in human languages that AI translates into code. But youth will still need basic computational thinking skills to understand programming methods and to prepare themselves for popular new jobs like prompt engineers. Speaking of the new jobs like prompt engineers, Tech:NYC already works closely with the City to ensure that New York City youth are exposed to tech careers. There are more than 25,000 tech start-ups in New York City. We must ensure that New Yorkers have access to jobs at these companies. We look forward to partnering with all of you and

students in your district to introduce them to the technology sector. Thank you.

COMMITTEE COUNSEL: Thank you.

DONALDA CHUMNEY: Thanks for your prior comments. I agree with what you said. Hi members of City Council and fellow New Yorkers. My name is Donalda Chumney. I'm a former Superintendent of Community School District Two in Manhattan. I served in various roles in the Department of Education for the past 18 years, including a teacher in the Bronx, a middle school principal, professional developer, a citywide director of implementation of our $53 billion Raise the Dock [sic] grant, and a Deputy Superintendent in District 15 in Brooklyn. Currently, I'm an elected member of the Community Education Council in District 15 and a doctoral candidate at University of Virginia. I'm also a New York City public school parent. Today I'm here to discuss the protection of students' personal information and their right to a future of their own making. My comments are related to the oversight of the DOE and its technology management practices. In an age where technology pervades every aspect of our lives, it's crucial that we safeguard the sensitive

data of children and the adults who serve them. The DOE's track record of safeguarding data and informing parents of their rights fall short of FERPA, the Americans with Disabilities Act, and New York State Education Law 2D. Collectively, the current system fails to protect its children and employees. Due to the DOE's failure to ensure that tech vendors follow state laws around encryption and software specifications, our school system has experienced three significant data breaches in the past 16 months, affecting close to one million students and employees. Students and employee's social security numbers and other forms of sensitive personal information have been openly available to nefarious actors. Timelines for notification to those affected have not been followed. In some cases, lags last months. This is not just a matter of data security, however. As an educator and district leader, I'm concerned about the Pygmalion effect, a phenomenon that speaks to the power of expectations in shaping students' life outcomes. Imperial research demonstrates that the students who believe that they're being closely monitored due to prior learning challenges consistently underperform on new learning

challenges consistently under-perform on new learning tasks. Educators who access student's data form expectations of children that have been shown to dramatically influence students' learning outcomes for better and worse. Parents have no access at this time to opt children out of this daily data gathering on their children. We know that the College Board, a DOE contracted vendor recently sold students' SAT data to tiktok for marketing purposes. The DOE has no safeguards in place with the College Board at this time to stop this practice for New York City's young people, at least none that are publicly posted. In fact, there are scant contractual agreements and parent's bills of rights between the DOE and any ED tech company who seeks to an actively monetizes students learning data for financial gain, gathering market share, or improving their efficacy of their product, and holding students personal data on servers for years without contractual requirements to anonymize or delete children's personal information. In the data age, and under these DOE policies, children of this information generation simply don't ever get a fresh start, ever, thanks to these policies. While technology is an integral part of

modern education, research suggests the learning of academic content through daily screen time and automated learning can lead to reduced engaging and lower educational outcomes, particularly for our most vulnerable kids. Human interaction, mentorship, and the personal touch of a dedicated teacher are irreplaceable components of an education that prepares our kids for the future. Across many of our city schools, screen time on these drill [sic] programs is mandated for 30 minutes per day in literacy and mathematics. This screen time further undermines academic recovery efforts post-COVID. I know that you all as well I am committed to providing an opportunity-rich and equitable system of the students of our city, ensuring the confidentiality of our kids learning data, preventing monetization, and ensuring an annual fresh start for each of them and knowing that their learning time is well-facilitated is essential in this effort. Thank you.

CHAIRPERSON GUTIÉRREZ: Thank you all so much for your testimony. It's good to see you again, Mark and Julian. I have a couple for questions for you all. I wish that we would have some representation from the DOE here. Obviously you

speak from a place of experience in tracking this on-- so I did ask a couple of questions on data collection, data sharing, to which they said they don't do it. But what is your experiencing with that happening? And I guess what is some of the specific language that I should be asking to push on those questions, because they very quickly said they don't do it, but it seems like that has not been your experience?

DONALDA CHUMNEY: We know that under Education Law 2D for New York State that companies are prohibited from doing these types of things. The challenge here is that the DOE always has the right to audit, but never does. There's never a looking into this matter. The monitoring of this is-- it simply doesn't happen. We also know that DOE leaders, in many cases when mayoral administrations change, go to work for these ed tech companies, and so it's an economic incentive personally for them to facilitate these agreements. I think the biggest thing is that the parent Bill of Rights is required by State Law to be posted for each of these contracts. They aren't available online. Parents have no idea what they can allow their children--

whether they have the right to allow their children to opt out of this kind of data collection, whether children's-- you know, it would be entirely possible for every child's data to be completely anonymized through a number that did not link to that child's identity, that wouldn't follow that child around for life on multiple platforms. It's not-- it's a very simple step that simply isn't taken for many reasons that-- the data collected about kids is hugely valuable and it has generational implications in terms of shaping, you know, life outcomes, what kids are exposed to, the strategic marketing, the development-- the further development of AI. And so I think that, I mean, more people will testify after me, of course. But I think the challenge here is that we do need learning data that kids generate to be able to program for their instruction thoughtfully, and we really want to be attuned to their needs on a day-to-day basis. But the collection of this on servers off-site that are owned by private companies, and facilitated by private companies, and in many cases heretofore have not been encrypted as required under State Law by those private companies means that kids special education

data, medical diagnostics, social security number, address, phone number, economic status is all laid bare for the public or anyone who wants to see it. Hopefully that answers your question, but I'm sure there'll be--

CHAIRPERSON GUTIÉRREZ: [interposing] No, no, it does.

DONALDA CHUMNEY: more expert testimony.

CHAIRPERSON GUTIÉRREZ: And that was a ton of really good information that you shared. Obviously, one of the breaches that I first came across, I think it was with Illuminate [sic]--

DONALDA CHUMNEY: [interposing] Yeah, 800,000-

CHAIRPERSON GUTIÉRREZ: where information was not being encrypted, and they-- as per their data privacy policy were supposed to encrypt everything.

DONALDA CHUMNEY: That is right, and furthermore, that breach was discovered in February and schools were counseled to please phase out using Illuminate by June 30th. So it's somewhat shocking that we-- you know, the organization became aware of the data breach and then said, hey everyone, we know you rely on this product, so by the end of the school

year please stop using it. That isn't okay. That isn't-- that does-- that's sort of a negation and neglect of responsibility in public trust that, you know, we all put in these folks to administer these contracts.

CHAIRPERSON GUTIÉRREZ: That's right. Thank you. Thank you so much for your testimony.

COMMITTEE COUNSEL: Thank you again for your testimony, and I'm calling our next panel is Danny Rojas, Doctor Thomas Gilbert, and Nina Loshkajian. And we can start in any order.

: Esteemed Council Members, distinguished colleagues and concerned citizens. My name is Danny Rojas, and I sit before you as a father of a New York City public school students, as a member of the District 30 Community Education Council, and as the Executive Leader of All Star Code, a national computer science education nonprofit with a mission to create economic opportunity by preparing a new generation of boys and young men of color with an entrepreneurial mindset, skills, and tools to succeed in a technological world. The tech sector is considered the fastest growing sector of the US economy with higher pay, better benefits, and

better resilience to economic downturns than other sectors. There is an unacceptable racial divide in tech with a staggering lack of representation of black and Latinx in the tech workforce, about five to eight percent, tech leadership, about five percent, and tech entrepreneurship, less than one percent. All Star Code provides computer science education leadership, career development for our students from high school to the tech workforce. This past summer we had the privilege of teaching artificial intelligence to a group of 300 high school students in our flagship summer intensive program, introducing generative AI models, what AI can and cannot do, and how AI should be used for good, including responsible use to enhance learning in their daily lives. Through this experience we witnessed firsthand the transformative potential of AI in emerging technologies in the hands of our youth. The tools are not just about machines. They're about amplifying dreams, aspirations, and the inherent potential within every student. Integrating AI, emerging tech, and computer instruction in public schools equips our students with the essential skills and knowledge for the digital age. We know as

technology continues to evolve at an unprecedented pace, proficiency in these domains become crucial for future academic and professional success. By providing access to these resource early on, we empower our students to navigate the landscape effectively. We also acknowledge a pressing concern, the lack of diversity and equity and the data that underpins machine learning algorithms. As I was recently quoted, the promise of robots, AI, and advance tech is to bring us, the humans, closer to simplicity, intelligence, and abundance in our daily lives. However, much of that data used to train these algorithms fall short, perpetuating racial bias and inequity. This has a disproportionate impact on our communities of color. In conclusion, promoting the prominent role of AI, emerging technology, and computer instruction in public schools is an investment in a more equitable, innovative, and prosperous future. Let us ensure that every student has the access to these tools and the knowledge they need to succeed in a fast-paced, technological-driven world. Thank you for your consideration and dedication to a brighter tomorrow for all.

CHAIRPERSON GUTIÉRREZ: Thank you. Whoever wants to go next?

DOCTOR THOMAS GILBERT: Good afternoon.

CHAIRPERSON GUTIÉRREZ: Oh, can you turn it on? Thanks.

DOCTOR THOMAS GILBERT: That better? Okay, thank you. My name is Doctor Thomas Gilbert. I have a PHD in Machine Ethics and Epistemology from the University of California Berkley, and I now work as a consultant on AI in Society at the New York Academy of Sciences. Chat bots are already transforming how students learn. Meanwhile, we hear a lot about the biases of AI. We hear about its safety risks, either to civilization or to the most vulnerable and the urgent need to align AI with human values. These are important issues but as Jane Jacobs warned us, credentialing not education has become the primary business of North American schools. Abstract concerns about the biases and risks of AI models ignore the material anxiety schools now face, what is the value of the degrees they confer? What is at stake here is not just generative AI, but generative education. The purpose of education is to facilitate the transition from

adolescence to adulthood, to empower the vulnerable with skills, and preserve human civilization. So we might ask a different question. Are the challenges AI poses to schools, and also to resolution 742, 766, and 767 as proposed by some of these Council Members, also an opportunity to rearticulate the ends [sic] of education itself. Taking up this challenge, the New York Academy of Sciences is launching a new program this fall on the theme of generating new relationships between AI and education, drawing on our deep ties to both leading AI professionals and the academic institutions in New York City. Our goal will be to facilitate discussion on AI as the value of education is transformed. I invite students, parents, teachers, administrators, and citizens to join us on this journey and help generate a new articulation of the aims of AI and education in tandem. Thank you for your attention.

CHAIRPERSON GUTIÉRREZ: Thank you.

NINA LOSHKAJIAN: Thank you. I'll aim to be as timely as he was. Good afternoon. My name is Nina Loshkajian and I am a staff attorney at the Surveillance Technology Oversight Project. Thank you so much for organizing this important hearing. I'm

here to urge the Council to adopt an ethical approach to the pedagogical use of AI and to keep harmful, ineffective, and discriminatory tools of surveillance technology out of New York City classrooms. First, it's crucial that ethics are taught so that we do not raise a generation of tech solutionists who ignore the potential negative consequences of the technology they use and make. Human bias infects AI systems and curricula on AI must educate students about that reality. We need to ensure also that systems used in schools do not discriminate. AI systems also collect vast amounts of sensitive student data. I'm really glad to see that was discussed in depth today. Chat bots, for example, can integrate with AI spyware tools to alert teachers and law enforcement if students discuss mental health with the chat bot, but these chat bots really don't understand context and are very likely to wrongly alert school officials that a student may be at risk, wrongly compromising that student's privacy. Widespread adoption of AI must therefore be accompanied by ethics, privacy, equity; anything else would be a disservice to our students. Second, we must understand how AI tools of surveillance are weaponized against right now.

Facial recognition must be banned in schools. We really grateful to Chair Gutiérrez for working with us on facial recognition in other contexts. We need to make sure it's not used against the most vulnerable in our society. It's biased. It's ineffective, and normalizing this type of biometrical surveillance would bring about a bleak future for New York City school children. Another harmful form of surveillance is remote proctoring which really became very popularized in the pandemic, and this also disadvantages some groups of students. I'll wrap up shortly. For example, this tech flag students with Tourette's who have motor ticks or visually impaired students who have atypical eye movements. And we recommend that educational institutions stop using this proctoring service, or if they must, to use the least invasive form of this proctoring. Earlier today the DOE touted their DIL program which would enable anytime, anywhere learning, and that's great as long as it doesn't mean anytime, anywhere surveillance. So we want to make sure that's not what we enable. Thank you so much again for your time, and we look forward to working with you.

CHAIRPERSON GUTIÉRREZ: Thank you. I do have a couple of questions for you all. And Danny, totally appreciate what you said. You're absolutely right. And part of like my role representing my community is yes, how can we diversify this growing industry so that we could be at the table, but also it's the reality of like breaches that I think are also very dangerous and exposing communities of color, maybe even immigrant communities. So I imagine, like, my parents, if they -- if I was a school-aged child now and utilizing some of these systems, how could I explain the importance of security and safety when honestly the DOE is not doing a tremendous job, right? They mentioned it. there's a lot trust build, but how can we do what you're saying which is like ensuring safety, and then also do what you're working on which is like we want to expose more people to this. And I [inaudible] a lot with that, because I realize the value of it, but we are so behind, like Borough President Levine said. And so how-- where can those things live? Where can they be-- you know, how can we better utilize what we know about the harms of bias algorithms and security with saying like, hey, even though these things are

happening, like, we still really need to invest and ensure that our children are participating.

DANNY ROJAS: Great question. Thank you so much for it. As I think about exposure, it really is approaching it from a-- as a responsible parent and frankly getting as much information to our students to demystify what AI really is, or what these emerging technologies-- or frankly, what these harmful technologies to our communities are. So, the first step that we do with our students at All Star Code is really a basic awareness of the harms, the potential, and really the limitations of technology and what that could mean for communities of color. Just as we're starting to build those skills and acquiring those skills. You know, the concern I mentioned around the lack of equity and diversity in datasets is real, and I think about, you know, a wide implementation rollout across the DOE that does not consider language learning models that have representative data. That's a real risk. So, from exposure to students to, I think, much more system-level implementation and consideration is what is next for the DOE.

CHAIRPERSON GUTIÉRREZ: Thank you.

NINA LOSHKAJIAN: Can I add really briefly? So in my written testimony I've outlined further some questions that can be asked before tech gets adopted and I think those questions should be posed to students as well. I think something that's really important is teaching them to critically assess this technology, you know, showing them the power of it. Like, we're not against the power of technology, but showing them how it can be potentially harmful as well. So empowering them in that way.

CHAIRPERSON GUTIÉRREZ: Thank you.

CHAIRPERSON JOSEPH: thank you.

COMMITTEE COUNSEL: Thank you everyone for your testimony, and I'm calling our next panel. Our next panel will be Doctor Miramey, Gemelli Briceno, and Joshen Ayukawa. And I apologize if I mispronounced any names.

DOCTOR MIRAMEY: Good afternoon. I'm Doctor Miramey. I'm a member of CAC3 Upper Westside. Also Chair of Multilingual Extension [sic] Committee and Communication Committee, and also a professional teacher and parent of two students from elementary and middle schools. I would like to first-- I'll be

speaking on behalf myself, but I'd like to first just write some sentence from the CEC3 Resolution. This resolution passed last week. This resolution in support of bilingual program extension to middle school and citywide remote and digital learning, world [sic] language program access for all. Let me read this first. We the member of Community Education Council in District Three believe that expanding bilingual programs to middle schools and implementing citywide remote and digital learning world [sic] language programs are integral steps towards fostering linguistically diverse and inclusive learning environment that prepares our students for success in the global society. Of course, our resolution will be as-- for your records, for the committee records. Thank you for this topic. Artificial intelligence is very powerful tools even if it just start right now, and but it's very supportive for teachers, and I see that the Borough President, Manhattan Borough President explained many of reasons why. I would like to say just only from side that every response, every items taking from the artificial intelligence need to be signed by a human, and this human need to be responsible for what he say

using artificial intelligence or using pictures or film. And at the end, I would like to see that government of the people, by the people, for the people, and I hope never see an amendment of artificial intelligence or machine in this sentence. Thank you.

COMMITTEE COUNSEL: Thank you.

JOSHEN AYUKAWA: Thank you, Chair. Good afternoon to the Committee on Technology and Education Committee. Thank you Madam Speaker and Madam Chairs for the opportunity to present this evening. This is Gemelli Briceno. My name is Joshen Ayukawa. We are program managers at Mouse, a nonprofit education organization based here in New York City. Thanks to the longstanding and generous support by the New York City Council, Mouse has been a leading provider of computer science curriculum training and programming to NYC's K-12 public school students, teacher and D75 schools. this past school year, Mouse was able to provide computer science programming at 70 schools, serving over 4,500 students in all five boroughs, 95 percent of whom were students of color, and most attending Title One schools, including the High School for Youth and

Community Development at Erasmus in District 40 and MS582 in District 34. Design League, Mouse's core program, delivers advance tech and computational thinking skills, accelerated SEL growth and training in design thinking in [inaudible] and connections to meaningful careers in tech in order to help ensure that the future technology systems are inclusive and representative of our society. This year, Mouse is putting AI at the center of our program by delivering AI, machine learning, and neuro [sic] networks training to NYC public school students and educators. Students and educators deserve to know what AI is, how it works, how to use it safely, and how this knowledge can transform their teaching and their learning. That is exactly what Mouse is doing this year with NYC students and teachers. Mouse is teaching Design League students and educators how AI works, how it connects to career opportunities, and Mouse is partnering with leaders like CUNY to train Design League educators to deliver a three-part module in AI technology for their students. First, learning the frameworks of AI and machine learning. Second, using non-digital tools to make meaning of those concepts, and third, applying higher-level

digital tools to understand how quality data can impact their performance. Additionally, all Design League students are using Adobe, Google, and Figma [sic] products in the course and learning how AI plug-ins facilitate an accelerated pathway for adoption. These AI integrations help students with no coding or computer science experience fully realizes their ideas with AI, and Mouse recommends pursuing AI for meaningful uses other than just generating texts for assignments. Mouse is grateful for our longstanding partnership with CS for All Initiative and the NYC Public Schools for their support to lead computer science training and implement the Design League program. We're grateful to continue to support CS for All initiative's growth into the field of AI and machine learning education, and Mouse fully supports the three resolutions under consideration today. Thank you so much for your time and consideration.

COMMITTEE COUNSEL: Thank you. Okay, I understand you are together so you're not delivering separate testimony. Thank you again, and this panel concludes our in-person testimony. If you have registered to testify and haven't been called, please

let us know. In the meantime, we move to our testimony-- I'm sorry, one moment. I understand we have one more witness who has registered but haven't been called. We welcome you to testify. Please say your name for the record. You may begin your testimony.

RACHEL NECHES: Good afternoon. My name is Rachel Neches. I'm the Data Researcher at the Center for an Urban Future, an independent research organization focused on building a storage rand more equitable New York City. I'll be testifying on behalf of the Centers Editorial and Policy Director Eli Dvorkin. Thank you to Chair Gutiérrez, Chair Joseph and members of the committees for the opportunity. I'm here today to share some of our research and recommendations around expanding computing education in New York City public schools to ensure that more New Yorkers of color, women, and low-income students gain access to technology-powered careers. We commend Chair Joseph for introducing Resolution 766 calling on the DOE to expand training for all teachers in computing education through increasing access to CS for All professional development. in addition to training current

teachers, our research at the Center for Urban Future suggests that achieving computational fluency across K-12 schools and systems will only be possible by training thousands more of the City's future teachers to integrate computing education into their classrooms. We detail these findings in a recent report published last week titled Expanding on CS for All, Training New York City's Future Teachers to Integrate Computing Education. We found that the key to increasing CS participation rats in high school is to introduce computational concepts in the earliest grades, helping more young people build confidence in this area, and the best opportunity to achieve this is to train more teachers before they even enter the classroom. CUNY which incredibly supplies around a third of all new public school teachers each year has a promising program that is doing just that, the Computing Integrated Teacher Education or CITE Program. The Council should worked with the Adams Administration to scale up the CITE program to serve all teachers in training. This alone would add more than 8,000 new teachers who are equipped to integrate computing education into their classrooms over the next five years. The Council should also consider

establishing a new computing education fellowship to encourage more aspiring teachers, particularly from low-income communities, to pursue integrating computing education and bring the benefits back to their communities. New York City is well-positioned to capture real share of the growth in AI-powered industries in the years ahead, ensuring that far more New Yorkers have access to these jobs, however, will require a new level of investment in computing education. To start, the Council should invest now in training New York City's future teachers to become champions of computational thinking. Thank you for the opportunity to testify today and for bringing attention to the needs of expanding and computing education in New York City schools.

CHAIRPERSON JOSEPH: Thank you. Would you be able to share that report with us from the Urban Future?

RACHEL NECHES: Yeah, absolutely.

CHAIRPERSON JOSEPH: That would be great. Thank you so much for your testimony.

RACHEL NECHES: Thank you.

COMMITTEE COUNSEL: Thank you very much, and now we are turning to remote testimonies, and our

next panel will be: Jamie Gorosh, Juan Miguel, Leonie Haimson, Michael James Rance, and Rhonda Bondie.

JAMIE GOROSH: Should I get started?

SERGEANT AT ARMS: You may begin.

JAMIE GOROSH: Okay. Thank you. Good afternoon, Council Members. My name is Jamie Gorosh, and I'm the Senior Counsel on the Youth and Education Team at the Future of Privacy Forum. Today, I urge the Council to consider the following recommendations. First, establish a common set of principles and definitions for AI tailored specifically to educational use cases. Identify AI uses that pose major risks, especially tools that make decisions about students and teachers. Create rules that combat harmful uses of AI while preserving the beneficial uses. Build more transparency within the procurement process with regard to how vendors use AI, and take a student-driven approach that enhances the ultimate goal of serving students and improving their educational experience. In the 2022-23 school year, districts used an average of 2,591 different ed tech tools. While there's no standard convention for indicating that a product or service

uses AI, we know that the technology is embedded in many different types of ed tech products and have been for a while now. We encourage districts to be transparent with their school community regarding how AI is utilized within the products that it is using. While generative AI tools such as ChatGPT have gained public attention recently, there are many other tools already used in schools that fall under the umbrella of AI. Uses may be as commonplace as auto-completing a sentence in an email. We can look to the moratorium on adopting biometric identification technology in New York schools as an example of how an overly broad law can have unintended consequences. Although it appeared that law makers were seeking to address legitimate concerns stemming form facial recognition software used for school security, a form of algorithmic decision-making, the moratorium had broader implications. Arguably, it could be viewed to ban the use or purchase of much of the computing devices used by schools. It is likely now that the Commission will reverse or significantly modify the moratorium. Accordingly, it's an important moment to pause and think through the use cases of AI in technology in the classroom more broadly. Identify

the highest risk to students and prioritize developing policies that address those higher risks. When--

SERGEANT AT ARMS: [interposing] Time has expired.

JAMIE GOROSH: Thank you.

COMMITTEE COUNSEL: You can summarize your testimony, please.

JAMIE GOROSH: I'll submit my full written testimony for the record, and I appreciate the opportunity to participate in the hearing today, and just want to stress privacy and equity concerns related with adopting AI technology in systems that might have impact on historically marginalized or otherwise vulnerable communities such as [inaudible] monitoring systems and think through some of those uses when thinking about AI technology in the classroom. Thank you.

COMMITTEE COUNSEL: Thank you. Our next panelist is Juan Miguel.

JUAN MIGUEL: Thank you. Okay. The NYCLU has well-founded concerns about the uses of artificial intelligence and related surveillance tech in schools. These concerns are also consistent with

the White House's recently issued Blueprint for AI Bill of Rights. The benefits of these systems in an educational setting specifically facial recognition tech are outweighed by the harms of technology. In my written testimony I also address a lot of this with our ongoing work with the Lockport School District, the Office of Information Technology Services and with NYSED [sic] about the moratorium, the aforementioned moratorium. And pursuant to said law, the moratorium still in effect as the Commissioner did not release a final determination after the report, but we also address a list of concerns about bias, inaccuracy, unreliability, data maintenance and retention, and the extraordinary cost for the City. [inaudible] don't have any money. For the sake of brevity, I urge you to read our comments [inaudible] on that. But in addition to facial recognition tech, there's a number of other concerning emerging tech being used in schools, including digital and high-tech [sic] surveillance systems. For example, November 2021 Bloomberg News reported the DOE signed a contract with Go Guardian, and there was little information about the capabilities of the specific software that the DOE

procured. So we FOIA'd them in the same month, November 21, to determine what software they were using, what information was being collected, how the DOE was paying for it, what safeguards if any were in place to protect students' privacy. The DOE after stating it didn't-- they couldn't located any records, then produced purchase order reflecting Go Guardians [inaudible] and licenses for over $3 million dollars. Despite this, the DOE doesn't list Go Guardian or its affiliated companies on the list of vendors that receive student information from the DOE. This is especially alarming giving the aforementioned state of recent data breaches at the DOE. It's unclear when Go Guardian--

SERGEANT AT ARMS: [interposing] Time has expired.

JUAN MIGUEL: Alright, I will summarize. City Council must make sure that ubiquitous surveillance, particularly of young people of color, do not become the norm. Accomplishing that will take robust oversight from City Council and the DOE and NYSED to block and regulate technology that violate students' rights. Unscrupulous technology companies can't be the arbiters of right to privacy. Contracts

and vendor information needs to be closely monitored and publicly available. The DOE also needs to know how teaches and faculty are using these tools, work with them to address students social/emotional needs, restorative practices, and not surveillance. It's critical for the DOE to limit the use of AI and emerging tech in schools to prevent the children of New York from being guinea pigs for inaccurate, biased and racist [sic], expensive technology. Thank you.

COMMITTEE COUNSEL: Thank you. And our next panelist is Leonie Haimson.

LEONIE HAIMSON: Yeah, good afternoon. Thank you Chairs Gutiérrez and Rita Joseph for holding these important hearings today. I am the National Co-Chair of a group called The Parent Coalition for Student Privacy. I'm going to focus my remarks on privacy, and my colleagues, Michael Rance, will focus on how the increased use of Ed tech is especially harmful to the most disadvantaged students. We helped pass the Student Privacy Law that was passed by New York State in 2014, and I can tell you that New York City is not complying with that law in many, many ways which is leading to these

increased number of breaches and the abuse and sale of student data. Every vendor that has access to student data is legally required by the law to have a contract as well as a parent bill of rights that is online at the DOE website. And yet, neither Go Guardian which you heard about earlier, a surveillance system used by many schools, nor Move It, the data program that breached, has any contract with DOE. The companies that do have PBOR's online, those agreements do not bar the sale or commercialization of data of extremely weak data minimization and deletious [sic] clauses, and don't even require the most basic encryption technologies, all of which are required for law. For the two College Board contracts, they do not bar the sale of student data even though we know that College Board sells this data including test scores for over 100 million dollars a year nationwide. The encryption clause is very weak. It says they will encrypt, except where data cannot reasonably be encrypted. There's not set date by which the data will ever be deleted. The DOE has just posted a Parent Bill of Rights for 17 privacy invasive programs sold and marketed by the for-profit firm Power School which

will have access to a huge range of extremely sensitive personal student and teacher data, including special education data, behavioral data, etcetera. One of the programs Noviance [sic] a college and career counseling profit program that has been shown to sell ads within the platform disguised as an objective recommendation. Obviously, a commercial use of the data that violates the law. Worse still, Noviance has selled [sic] targeting ads from colleges who only target to white students, for example. The just recently posted PBOR for Noviance and the 16 other power [sic] products, say the following, "The company will review data and security and privacy policy and practices to ensure that they're in conformance with all applicable federal, state, and local laws in the terms of this privacy plan. In the event, processors policy and practices are not in conformance, the processors will implement commercially reasonable efforts to ensure compliance." In other words, they are admitting on the face of it, they will only comply with federal and state privacy laws in their own privacy agreement when they feel it won't unduly affect their bottom lines. This is unacceptable. Other ways in which

the DOE fails to comply with Ed Law 2D and continues to allow vendors to put at serious risk sensitive student data is described in a presentation we delivered last night to the Community Education Council in District 15. The link to that presentation is in the end notes of my written testimony which I will make available to all of you. but I just wanted to make it clear that you-- you know, you really need to follow up with the DOE and make sure that whatever contracts are signed and the parent bill of rights do comply with the state law, that's an absolute minimum requirement in order to be sure that our students' data is not breached and is not sold and is not used for commercial purposes. Thank you for this ability to talk to you today.

CHAIRPERSON GUTIÉRREZ: Thank you. Can I ask two questions? Thank you for your testimony and for all that you do. Regarding the selling of data, which obviously DOE denied multiple times today, are there specific examples or vendors or organizations that you know of that you can share that we could look into ourselves to be able to press both agencies, OTI and DOE?

LEONIE HAIMSON: Well, the two that I mentioned are the ones that most concern me, the ones that are most obvious, has been written about widely in every national paper that I know of about the College Board selling student data. they're trying to get around the prohibitions in New York State law and other states by making students sign waivers when they sign up online to be able to get their scores, that they are essentially waving their privacy rights under federal and state law. Not only is this in itself probably illegal, a lot of these students are minors and cannot waive their legal rights under the law. So I would look at the recently signed contract with the College Board. We-- by the way, we FOIL'd for the College Board contracts years ago. We again FOIL'd at the beginning of August. We have still not received it, but as I said the Parent Bill of Rights that is supposed to set out all the privacy protections in that agreement is posted online. The link to it, again, is also in my testimony that you can look at yourself, and the same with Noviance, as well as these 17 other incredibly privacy-invasive Power School technologies and programs. And we have real reservations about allowing the expansion of Ed

tech in any mode whatsoever when the DOE is not complying with a very basic, fundamental privacy state law that was passed almost 10 years ago in 2014. We're also on the State Education Data Privacy Advisory Council. We have met and talked to the previous data privacy officer many times about this problem. We asked when they had the new data privacy officer, who is new, to have a meeting, he did not respond. We have been trying to reach out on this issue. Any help you think you can give on this as well, both District 15 CEC, District 2 CEC, and other CCHS are considering resolutions on this issue, and we expect more to come. So, it's a real crisis I think, and the other thing which-- the other issue which is also very important is the evidence is very strong and growing that online learning does not benefit kids' achievement levels, their engagement, their progress in schools, and the ones that are disadvantaged most are our most underserved struggling students, and that's even when they have the same access to the internet, the same access to those educational programs as all other students. And I just wanted to make that clear as well.

There's a lot of warning signs ahead of us, and this is not a path that we should be taking lightly.

COMMITTEE COUNSEL: Thank you, Ms. Haimson, for your testimony, and our next panelist is Michael James Rance.

MICHAEL RANCE: Great. Thank you so much. Just piggy-backing off what Leonie was saying, yeah we're very concerned about the decision by the DOE to expand online learning. There's growing evidence that virtual education seriously undermines student engagement and the opportunity to learn. After expanding digital learning, Sweden for example, found that it led to a sharp fall in basic skills and has since reversed course according to Sweden's Perilinksa [sic] Institute, "There's clear scientific evidence that digital tools impair rather than enhance student learning." And a recent [inaudible] report [inaudible] as well, titled "An Ed Tech Tragedy," which examined how during the pandemic, the unprecedented educational dependence on technology often resulted in [inaudible], staggering [sic], inequality, [inaudible] harm in the elevation of learning models that placed [inaudible] and profits before people. That's what [inaudible] said. This

report also found that putting education online undermines engagement and learning outcomes for the most disadvantaged students, even when they had full access to the internet and whatever technologies employed, as Leonie mentioned. Indeed, as we saw the expanded use of ed tech during the pandemic only amplified and worsened the inequities of our educational system here in the City and throughout the country and throughout the world. An as the authors of the UNES [sic] report further explained, "Many of the technology-dependent learning platforms and apps adopted during this crisis made them feel as though they were anonymous, interchangeable units being directed by unprecedented levels of automation." And so all students need close support and personal interaction of human beings, both their teachers their fellow students, as education is an inherently social activity. But those who need this connection the most are those students who are disadvantaged and are struggling. So we're especially concerned about the DOE's plan to increase online learning in nearly all high schools in the next years, which will be used [inaudible] students who failed their courses and they are in need of

additional credit to graduate on time. [inaudible] students need the most in-person and close feedback form their teachers to stay motivated and involved in the challenges that they face. In fact, putting struggling students on remedial ed tech programs may instead reproduce a discredited, low-quality in those credit recovery programs that too often have been used [inaudible] graduation rates in New York City's past. Our misgivings were further amplified when the DOE announced that they would be using "AI-powered teacher assistants to offer real-time feedback and answer questions for students." According to Microsoft, this AI bot has already been used in three high school computer science courses, and instead of making learning bots, our students need and deserve smaller classes and their emotional and academic support [inaudible]. No AI teaching assistant can replace this human contact and feedback, and while delivering education through algorithm is often called personalized, it is anything but, as the authors in [inaudible] report claims, "While some ed tech solutions add appealing user interfaces and carry labels like AI-enabled, smart, adaptive, agile, personalized, much of the

learning experiences [inaudible] solutions [inaudible] will grow, but when you're progression through machine-dispensed learning content is limited to any possibility for interaction with peers and teachers." Again, thank you so much for the time.

COMMITTEE COUNSEL: Thank you, Mr. Rance for your testimony. And our final panelist is Rhonda Bondie.

RHONDA BONDIE: Good afternoon, Chairs and members of the Technology Education Committee. My name is Doctor Rhonda Bondie and I'm Associate Professor in Special Education at Hunter College and the Director of the Hunter College Learning Lab. Thank you for this opportunity to discuss the role of artificial intelligence, emerging technology and computer instruction in New York City Public Schools. Prior to joining Hunter I was a lecturer at Harvard studying teacher learning through new technologies. I'm glad to be back here in New York where I became a special educator and then taught in the K-12 schools for 23 years before transitioning to teacher education. In this testimony, I argue that bodies such as this council could support coordination and prioritizing a system wide approach to CUNY's teacher

education programs through ongoing professional development for practicing teachers. We need to provide all educators with computer-integrated professional learning that nurtures teachers' individual interest and builds a career-long capacity for engaging with new technologies as leaders, critical consumers, and creators. However, professional development is not enough. You might remember that when we were determining how we would use the internet in daily school life, stakeholders didn't agree. Simply solutions weren't available, and we had to create the vehicles that supported school communities' collaboration and imaging education in completely new ways. Today, we're fortunate to already have on such vehicle in place through CUNY's Computer-Integrated Teacher Education program called CITE that you just heard about from the last in-person speaker. CITE currently serves CUNY faculty and the New York City public school teachers. Along with more than 200 faculty, I participated in the summer professional development where we used the opportunity to think about our teacher education program and emerging technologies, especially with our culturally, linguistically

inability to verse learners, given these technologies are not always designed with and for all learners. I applied my learning to continue refining an AI-powered classroom called Teaching with Grace that uses machine learning and large language models to enable novice educators to develop teaching skills in an open-source, data-rich, consequence-free virtual classroom environment with personalized supports. Teaching with Grace is an open-source software developed under my own direction, a real classroom teacher. So, from this experience I would suggest that a priority must be to use emerging technologies to create new forms of professional learning that are led by classroom teachers. I urge you to prioritize contemporary, innovative approaches to building educator curiosity and capacities and digital literacies, and to engage and research on this learning as exemplified through the CITE initiative. Your support will enable New York City to build a system of career-long, computer-integrated teacher education that positions teachers and their students as leaders and innovators of new technologies. I'm deeply grateful for your time, and I look forward to your questions, and of course, if you're interested

in trying an artificial intelligence virtual classroom for teaching practice, please contact me.

CHAIRPERSON JOSEPH: Yes, I am all in. We're both interested in joining your class. Thank you.

COMMITTEE COUNSEL: Thank you.

RHONDA BONDIE: Teachers appreciate not practicing first on real children. So you know there's these uses-- and the other thing I would just mention is that to learn digital literacies, many of the exercises we do with teachers are unplugged. They're not using their computer, and I think that's really important that there's a lot of unplugged activities in our daily life that develop these capacities so children do not need to spend increased time on the screen to increase their digital literacy.

CHAIRPERSON JOSEPH: That's very important. When I used to teach STEM, I used to teach a lot of unplugged projects, and it came out with eh same results. They were able to--

RHONDA BONDIE: [interposing] Exactly.

CHAIRPERSON JOSEPH: problem and solution. I love that. Thank you so much.

COMMITTEE COUNSEL: And thank you everyone for your testimonies, and I'm going to turn to our Chairs for closing remarks and to adjourn the hearing.

CHAIRPERSON GUTIÉRREZ: Thank you all. Thank you Chair Joseph. Let's do this again next year, and that concludes today's hearing. Thank you team.

[gavel]

C E R T I F I C A T E

World Wide Dictation certifies that the foregoing transcript is a true and accurate record of the proceedings. We further certify that there is no relation to any of the parties to this action by blood or marriage, and that there is interest in the outcome of this matter.

Date September 29, 2023