As a teenager, I watched the film "2001: A Space Odyssey." The series of books by Arthur C. Clarke took me on a journey and helped me put things into perspective. So before I leave this organization, I've been given permission by the president to share with you some ideas that might provide further direction, motivation, and challenge.

I should also make this disclaimer that these are simply my ideas. They do not represent the policy of NCSBN. That is a journey that you have to create together. So what do all these things have in common? Fire, tools, printing press, telephone, aircraft, and binary code.

They were all rather sample to answer. They were disruptors. Moments of disruption are a gift. They provide us with opportunity, and they force us to think differently, to find new ways of doing things, to leave the past behind, but also to use the past as a metric for judging future success.

Today, I have 25 minutes, so I'm going to restrict my thoughts to a single disruptive force, artificial intelligence, a force that will impact every aspect of the regulator's life, the way that care is delivered, and it will touch on all societies across this planet. I will argue that AI is perhaps the single most important force multiplier for change, although I will also share with you another one that falls into the category of "you ain't seen nothing yet."

So just beware. A vision in today's climate must be agile. It should steer and guide our progress, but not be reckless, nor should it constrain our ambitions. We must find that sweet spot where we are tested to our maximum and rewarded for our success. In short, the success of this organization must be judged by the degree to which we are acknowledged for leading regulatory excellence worldwide.

That comes from all our members. That comes from every corner of the world that celebrates what we can do together so that challenges that we face, the ambitions that we have can be pursued, and the impact that we have on society heard. Those of you that enjoy mathematics, and I know there's plenty of you in the audience, will recognize that this is an exponential curve.
I want you to envision that you are located at the intersection of the blue line and the y-axis. This is known as the knee of the curve. From now onward, we are looking at going supersonic, then ballistic, the evolution we have seen with regards AI and all the buzz around ChatGPT, DALL-E 2, Stable Diffusion, and Legal Robot compared to what we will see in the next 12 months, and just imagine what we'll see in the next decades ahead.

But no need to panic. We don't need to be a deer in the headlights, frozen in a moment of time. We should remember what Elon Musk told us. We are all paid in direct proportion to the difficulty of the problems that we can solve. Well, I will argue that we can all solve far more complex problems if we use and harness the power of artificial intelligence.

So let's put AI into context. High-income countries are trending to have fewer children. The population support ratio of the entire world is going to drop by 50% by the time we get to 2050. There will be more people in retirement than there are in employment. This will present a major challenge in terms of how and who delivers services.

But we are not talking about healthcare delivery. We are talking about all services. This will represent economic challenges as well as increased labor market complexities. So an all graduate RN workforce will not be viable. We will need to think about how we differentiate the workforce from support worker throughout the end, to RN and beyond.

As we now change jobs several times throughout our careers, we will need a model of care delivery based on cumulative competence and transverse job mobility rather than titles and hierarchical linear progression. We have already seen examples of this during COVID where EMS technicians populated many emergency rooms, doing work previously undertaken by nurses.

Now, this is just a taste of things to come and something that we need to plan for now. It is nothing new. It is simply an accelerating trend, and it will blow the idea of scopes of practice out of the window, and instead, we need to look at the concept of matrices of competence.

However, we are not starting from scratch. Systems already exist that can guide us. This is a slide from the United Kingdom Health Service. It was codifying that every single job in the health service in the UK can be described by five key core characteristics.

The job consists of those five, and in addition, there are different levels, depending on the job. In addition to those five core competencies, there are additional job-specific competencies. These result in any one job, therefore, having five core competencies, plus a handful of job-related competencies.

So, as illustrated on the right-hand side of the screen, you can see, a typical job will be consisted of both the top and the bottom part of the screens. So let's move forward and look at how this all fits together. This is work that was done quite some time ago where I marked the position of a whole series of jobs that you could see progression.

They are on a single-pay scale. So remember, Elon Musk commented that the more complex a job, the greater the pay. This is indeed the case, and this is the case that's been shown in the United Kingdom already. It's already been operationalized. It's not new. It's something that was in place for two decades. So we got to look back to move forward.
Now, we already have strategic initiatives. They have been co-created with stakeholders and yourselves. They’ve been approved by yourself at delegate assembly. And the initiatives help us maintain momentum toward our ambitious vision of leading regulatory excellence worldwide.

During COVID, it stood us in great stead, a vision that has supported our work, completed in partnership with both yourselves and others from both national and international organizations. The direction of the work is captured in our publication, Regulation 2030. 2030 is on track.

It is evidence-based. It is future-orientated and offers a benchmark for us to use to assess our progress. But this was never meant to be the end. As the subtitle suggests, first steps of a journey. There is further to go. So to take our regulatory practices towards 2050, a time when regulation is valued, our actions understood, and importantly, the public politicians on the profession recognize the essential role that we play in securing access to effective, efficient, quality services, we need to continue to transform.

To achieve this, we need to continue to take measured risks, pursue bold actions, and deliver exponentially better results. Regulation 2030 distilled 25 trends, and with the help of 70 regulators and colleagues from other organizations, we mapped them into the 2030 report. The 25 trends are clustered into 7 themes that are windows of opportunity.

In time I have available to me today, I can only superficially cover the first two. So let's start with education, and I do not mean just nurse education. Nurse education is simply a subset of a far bigger domain that will be impacted by AI. So the second question that I would ask you to consider is whether you wish to be victims of other people's desires or if you want to be co-creators of a future for all of us.

Now, I know my preference, so let me share some thoughts. The European Union launched competency-based education frameworks as part of the Bologna Declaration in 1999. This has resulted in an alignment of higher education systems that has three cycles with standardized nomenclature, defined levels, and quantified benchmarks.

It promotes mobility through mutual recognition and transfer of credit and uses data systems that have point-to-point encryption. Now, our colleagues at AACN recently launched their competency-based essentials, but the current iteration does not consider the concept of time variable achievement. To deal with this will turn current education economic models on their head.

But with the tightening labor market and increased economic pressures due to the demographic shifts, these changes will be inevitable, and those that take first-mover advantage will be the new global superpower players. With the advent of next-generation AI and increased cloud computing, personalized avatar-based faculty will play essential role in the delivery of coming-generation education.

Increasingly, students will have an archive of global experience available to them or internet speed dial where the knowledge of experts will be captured and made available in an interactive manner to meet unique learning needs through the positive use of deepfake technology, coupled with real-time learning diagnostics.

And as we gain competencies, we will be coaxed to consider different ways that those competencies can be used in the near future. So to turn these thoughts into reality, we need to build upon the current generation of Next Generation NCLEX. We need to build NGN Quantum. The basic concept of focusing on judgment and decision-making will be at its core, but it will be capable of application across
all health practitioners and, indeed, any discipline that has a major component of judgment and decision-making.

It will leverage the current reduced margin of error measurement to assist in precisely assessing levels of ability that will interface with the knowledge and skills framework model described earlier. The exam or, in reality, the continuous assessment will take place in the virtual environment, providing real-time formative scoring, targeted feedback, and aligned specific learning.

It will not be a one-and-done experience but part of a parcel of accelerated career progression through recommending ongoing CPD. These suggestions will be mapped and aligned to future career opportunities, as well as enhanced public safety imperatives. So let me dive a little deeper into the potential use of NGN Quantum, its potential contribution in continuing competence space, in particular.

If we track in real time the work that nurses do or, indeed, any health practitioner does, we can move the focus of continuing competence assessment from one of hoping it makes a difference to one of assuring that it does. The NGNQ would be based on the practitioner's digital footprint left by embedding the NCSBN ID and their work activities in practice, education, research, regulation, and even management spaces.

The system could design, administer score, and then remediate for those that are having challenges. This would be a provision of... This would assess the individual's competence profile and better much the work that they have recently been doing with that which needs to be done in the future.

This image is one I did for my licensing revalidation submission in 2017, with the Nursing and Midwifery Council of the UK. With natural language processing, everyone could be reviewed in their job profile and judgment made as to whether the CPD that you're turning in is actually appropriate and aligned with the work that you're doing.

Again, we move from hope or aspiration to evidence and impact. The value proposition for CPD in terms of public safety, career progression, employee retention can be assessed by this approach. So switching gears to governance, let me share a few random thoughts on this topic. Now, there are over 300 nurse regulatory jurisdictions across the world, and we have a great deal to learn from each other.

No regulator in the world has got everything right, at least not all of the time. So as we move forward, we need to be sited on the changing environment, the increased use of technology, the rapidity of mobility, and the increased need for far wider range of experts in our governance arrangements than we currently garner from our membership.

The board of the future should not be compromised wholly of a representative body but a group focused on accountability and teaming with expertise drawn from a range of sectors, steering the ambition of the organization into the future rather than maintaining or iterating the efficiency and effectiveness of the current status quo.

We also need to recognize that good governance does not come from the board of directors on their own. It's how we engage with you, the membership, with our stakeholders, our politicians that have political aspirations in government, and most importantly, the people that we protect. We now need to focus on scalability.
And let me give you a small example of what I mean by that. We're all familiar with the Nursys system that has enabled us to have a nurse license compact that is leading to a compact nation, a nation that supports safe care delivery with ever-increasing complexity, care is delivered in alternate environments, and the commission is there to administer the model.

NCSBN and our total membership are there to envision the potential that that model might give to others. By working with two provinces in Canada, a proof of concept has been created, a tool that adds increased public safety to those two provinces by getting the support and funding. And by getting the support and funding by the federal government of Canada, they will be able to scale that across the nation.

This will enable us to establish a system that then, with advanced technology, we could look up as a member of the public, both the U.S. and the Canadian public-facing models. And as a result of that, we are all better protected because we have information on that individual who may be crossing from the Canadian to the U.S. space.

But this, of course, is simply the start. The technology was built as a proof of concept, and therefore, by 2050, we should be able to rule this out that we have not just a compact nation or even not a compact North America, but we actually have a vision, which is truly trans-jurisdictional and our future governance arrangements need to align with such developments.

This model was designed to be replicated, and hence, the 2050 model will be a compact for the entire world. Now, there are mechanisms of doing that called the World Trade Organization, and that's where we need to step outside our comfort zone. Our existing compact model is not sufficient for that kind of scale, but the lessons that we've learned together are lessons that can be drawn on for the future.

So this is an opportunity that we have to maximize the model for employers, for staff, for education who wish to move forward. Now, this is an analysis of the first meeting of the committees of the Scottish parliament. It opened after a gap of 300 years.

It focused on issues of relevance to nursing, and it took six months to analyze and identify which of the committees were central to the advancement of the nursing profession. This enabled the then National Board for Nursing, the regulator in Scotland, to gain insights into the regulatory issues that we might face, thereby, facilitating solution-focused discussion with government.

We were able to identify who the key players were and identify alliances that could be helped and amenable to education. Now, we are rapidly reaching the point where the ability to analyze that kind of data can be visualized almost instantaneously. We can conceive and construct searching questions that can actually give answers.

[inaudible] produces a weekly synopsis of legislation introduced at state and federal level in the United States, and it is extremely helpful for individual jurisdictions. But by mapping it over time across all global jurisdictions, think of the policy opportunities that this would provide in terms of really modernizing public safety. Jurisdictions could be alerted to issues as they were developing and evolving rather than having to respond to them.

So in an era when demographic shifts are truly global and workforce shortages impact every corner of the planet, local solutions will not cut it as it is. Technology has, in reality, removed state and national
boundaries, and hence, the only way forward is to build solutions for everyone, reduce the costs and risks for all, and cooperate at scale where we've never cooperated before.

Imagine the delivery potential of that. So regulators of the future will need to be master diplomats, technology gurus, and global actors, as well as innovative entrepreneurs who hold public protection and a global vision at their very heart. Now, some people may feel threatened at these thoughts or, at least, the potential consequence of such a future, a future where we give up power to enable us all to do better and meet the needs of the future.

Now, I do not know why this would be such a worrisome issue. After all, we all have had experience of such change to a greater or a lesser extent. As parents, as employers, as leaders, we all give up control at some point so the next generation can go out and excel.

If we have planned well, shared our vision, imbued our skills, and continued to support our successors, they will achieve way beyond our levels of success. They will take us to new heights. They will make us proud. And in the case of the regulatory community, they will ensure we are all safe.

That is what one global community of regulators can deliver. Now, there is no doubt that we are in a period of rapid change. As regulators, we must never be scared to try something different, just as the brave woman in those years at the turn of the century who sought to pass Nursing Act for the first time, made a huge difference to all of us as we move forward.

We are creating a new chapter, a chapter that embraces artificial intelligence, reforms both education and governance, and all that it offers. The aim is still the same. We must act in the public interest, but the means of achieving that aim by necessity will be different.

This is a picture of a quantum computer. Recently, the Google quantum computer solved the problem that would have taken 47 years to solve with the current most powerful computers in the world. The Google computer saved us, solved the problem in less than one second. So what role will technology play in care delivery, research, education, and regulation as these devices become commonplace?

So what do we need to know to survive and thrive in this brave new world? So let me remind you that we identified in 2017 a range of new skills that regulators needed to have. And for the purposes of today, let me focus on those relating to data analytics. To be an efficient and effective regulator, as we move towards 2050, we will need to master a set of nontechnical skills that will equip us and thrive for the future where we are codependent on the support from artificial intelligence and newer technologies.

Prompt engineering is the art and science of creating effective questions that will elicit accurate responses. Now, one way to illustrate this and to recall a childhood joke was a situation where three laborers were working on a building site, and their boss said to them, "There's three shovels over there. Please take your pick."

And the laborers turned and say, "There are no picks." Well, just as you ask questions of ChatGPT, dependent on what you ask, dependence in what they give you back. So as regulators, we get a lot of inquiries, and as such, bots can be very helpful in addressing that.

They always listen, they read the question, they are available 24/7, and they can respond almost instantaneously. So knowing how to use bots ensures us a support that will help us into the future. But
don't let them loose on their own. You've got to quality assure them, and you've got to continue to learn and actually adjust them as they learn from the people that they're interacting with.

So I would say a picture is worth 1,000 words. By using the correct format, buckets of data can be turned into eye-catching information where even the most boring of raw data can jump off the page, come to life, and tell a captivating story. This makes our points more accessible, persuasive, and impactful, therefore, a compelling action if we are to look beyond the mundane use of technology.

AI is there to help us as part of a solution set. It can free time to enable us to press the boundaries of what it can do, do faster, do more accurately, and free up our time to think about the next big challenge. But just as Clint Eastwood said in "Dirty Harry," "A person has got to understand their limitations."

Well, to use AI effectively, we also, as regulators, need to understand that AI has limitations. These will change undoubtedly very rapidly, but for now, at least, we must be the ethical guardians of the present to make informed and moral judgments for the future.

By doing this, we can mitigate the risk of bias and champion responsibility for the use of AI in a way that will deliver for all of us. So I’ve taken you on a small part of the journey towards 2050. But before I finish, I want to recognize some of the people that have made the journey possible, enjoyable, and stimulating.

The chief officers and all of their staff are the engine behind the changes we have delivered for you. I want to thank them all for their effort, dedication, brilliant ideas, and their passion for public protection. To the presidents and to the board members that I have served with, I thank you for the opportunity to have given me the time of my life working with you in true partnership.

It has delivered success. We have faced challenges, and we've taken risks. And we need to move the agenda forward, as we have done over the last several years. This is the future. And behind me has always been my wife and my children. They are a support to me pursuing my dreams, and they make me so proud of the life that we have shared and the road that we have traveled.

But before I conclude, let me just share one final personal reflection. So I was a lazy student, and as I transitioned to high school, I met with the then primary school headmaster, Mr. Fife. I remember him very clearly. And he had some words of wisdom to share with me and my mother. And what he turned around and said was, of course, me being in the room, he turns to my mother and says, "You know, David can do it when he likes. Unfortunately, he very seldom likes."

Now, I went off to secondary school, and I took an interest in organic chemistry. And as a result, I started to very much like. And as they say, the rest is history. So, with no further ado, I'd like to thank that, in the history of this distinguished and impactful organization, I made a small contribution.

As I look to the future, know that you have issues to debate, choices to make, and because of your collective actions, a future to be created. But in all of this, remember the words of Reinhold Niebuhr, who offered the following words of wisdom, "God grant me the serenity to accept the things I cannot change, the courage to change the things that I can, and the wisdom to know the difference."

Well, it is my hope that NCSBN continues to innovate through collaboration with regulators and partners from around the world, creating a vision that is at the very forefront of public protection, both for individuals and populations, and through collective efforts, will provide cost-effective and efficient
legislative change that can be leveraged to accelerate contemporary models of proportionate regulation that keep all of us safe.

So let's not look back with desires for the experiences of the past but as a means of informing wiser decisions for the future. Information and evidence are critical in shaping public safety. Technology can help us curate that evidence, but we need to encourage and we need to engage and be the ultimate decision-makers, at least until we have confidence in the soundness of the judgments of the AI systems and their deep learning tools.

Let me just draw this to a conclusion by saying just a few final words. Finally, for me, a legacy is not something that we leave behind but the potential that we have created for the future.

So, ladies and gentlemen, colleagues and friends, I hope that you go on, turn my dreams to reality, and continue to protect all of us as we move towards 2050. Thank you.