CS / Cybersecurity Bill_____ Rep. Mike Lefor Testimony

During the 2021 special session, HB 1507 passed, in which a new duty was added to NDCC 15.1-02-04 Superintendent of public instruction – Duties. The new requirement stated that the Superintendent "Shall **collaborate with workforce development stakeholders and the kindergarten through grade twelve education coordination council to determine how best to integrate computer science and cybersecurity into elementary, middle, and high school curriculum under sections 15.1 - 21 - 01 and 15.1 - 21 - 02.**"

The Superintendent convened a taskforce to determine the best way forward to integrate Computer Science and Cybersecurity instruction into all ND Schools. The task force consisted of representatives from workforce, ND legislators, school superintendents, principals from large and small districts (high school, middle and elementary schools), school board members, family members and students.

Unanimous consensus was reached among the group that Computer Science and Cybersecurity has become foundational knowledge for all K12 students regardless of the occupation they pursue. The ultimate result of this work is HB 1398.

I will describe the provisions of HB 1398, which are based on the recommendations of the task force I described a moment ago and individual one-on-one work done by the Superintendent with various school leaders across the state to fulfill the duty that was added to 15.1-02-04.

Section 1 of the bill requires Elementary and Middle Schools to provide instruction in computer science and cybersecurity. This means any school, in order for it to be approved to operate in ND, must make available computer science and cyber security instruction. This is the same section that requires that schools provide instruction in math, reading, social studies, health, phy ed, etc. If a school cannot find a teacher to offer any of these classes, they typically turn to the ND Center for Distance Education (CDE) to provide the instruction so the school can continue to operate. The North Dakota Center for Distance Education has confirmed that they will provide the staffing to offer these courses for schools that need them. I believe the Director of CDE will be testifying today.

Section one of the bill also requires elementary and middle schools to develop a computer science and cybersecurity integration plan to ensure introduction to foundational computer science and cybersecurity knowledge. These integration plans are approved by each local school board to ensure that each district has the flexibility to develop a plan that fits into their unique situations. Plans would have to be developed and approved by local school boards no later than July 1, 2024.

Section 2 of the bill requires high schools to make available one unit (credit) of either computer science or cybersecurity. Again, in order for a school to be approved to operate in ND, it must make available a computer science and cyber security course. This is the same section that requires that high schools provide courses in algebra, biology, and electives such as music, foreign language, etc. The North Dakota Center for Distance Education has confirmed that they will provide the staffing to offer these courses for schools that need

them. This section also requires high schools to develop a computer science and cybersecurity integration plan to ensure introduction to foundational computer science and cybersecurity knowledge. These integration plans are approved by each local school board to ensure that each district has the flexibility to develop a plan that fits into their unique situations. Plans would have to be developed and approved by local school boards no later than July 1, 2024.

Section 3 of the bill relates to high school graduation requirements and competencies. This section allows local school districts to determine if a stand-alone computer science or cyber security course can be counted as one of the three science units currently required for graduation. The 2019 legislative assembly already approved the opportunity to allow local school districts to decide if a computer science or cyber security course could be counted as on of the three units of math required for graduation. This section now adds science for local school district decisions.

Section 3 also requires students graduating from high school in 2026 or later to complete one unit of computer science or cybersecurity or have their school principal certify that they have graduated from a high school that has implemented the school board approved computer science and cybersecurity integration plan.

If the student chose to take a stand-alone course for one-unit it could be used to meet either the math or science requirement – if the district allows Including this language ensures the State is not increasing the requirements needed to graduate from high school, or taking away the opportunity to take other elective courses the student is interested in, but it also ensures that students will have the competency needed in the areas of computer science and cybersecurity when they graduate from high school.

In addition, I would like to propose an amendment on page 7, after line 4, to create a new subsection 2. This amendment includes language for intent originally approved by the task force but inadvertently omitted during the drafting of this bill. This amended subsection would state that students are exempt from the requirement of taking a stand-alone computer science or cybersecurity course if the student participates in the computer science or cybersecurity integration plan approved by their school board. What this means is that computer science and cybersecurity standards are embedded in instruction in other classes.

This doesn't add any requirements by the state, but it allows the school district the flexibility of local control to set higher requirements for math and science courses, if they want to. For example, some districts require swimming as a physical education class for their local graduation requirements, even though it is not required by the state.

Section 4 of the bill offers opportunities for adult learning courses in computer operations and cybersecurity. The superintendent of public instruction is given the authority to provide grants to school districts, nonpublic schools, area career and technology centers, Job Service North Dakota workforce centers, public libraries, and adult education centers. These grants come from money already available through the North Dakota Department of Public Instruction, so no appropriation is necessary. These grants would be available for the 2023-2025 biennium. You'll

see on page 7, lines 19-20, that the superintendent of public instruction would be required to write rules to implement the program.

I would like to introduce an amendment that would strikethrough the words "adopt rules" and replace that with "create guidance". Creating guidance instead of rules would allow the grant program to begin immediately on July 1 and not have to wait for the rules process to be completed and allow the use of the federal funds I mentioned.

Section 5 of the bill simply states that the adult learning grants would no longer be available beyond the 2023-2025 biennium.

I'll talk next about the training opportunities and credentials that are already available.

In 2019 North Dakota adopted Computer Science & Cybersecurity Content Standards for each grade level kindergarten through 12th grade. During the 2019 Legislative Session, NDDPI was given the authority to write rules and create computer science and cybersecurity credentials. These credentials allow teachers to participate in training opportunities and then be qualified to teach courses or implement content related to computer science and cybersecurity. So far, approximately 400 teachers in the state have completed the training required to qualify for as computer science and cybersecurity credential.

Finally, I will talk a little bit about where North Dakota students are regarding computer science and cybersecurity.

North Dakota is already falling behind other states and other countries who have taken seriously the need to have students cyber educated. 27 States require all high schools offer CS classes, but North Dakota does not. 12 states require access for all k-12 students, but ND does not. 33 states have dedicated funding for computer science and cybersecurity instruction in schools, but North Dakota does not. In early 2022, the European Commission's Joint Research Centre (JRC) released *Reviewing Computational Thinking In Compulsory Education*. Of the 29 European countries included in the study, 25 countries have basic computer science concepts in their mandatory curriculum, with 17 countries making it mandatory in both primary and lower secondary schools.

Even though DPI has been providing no-cost training, resources and support to incentivize our schools for several years only 76 high schools in North Dakota (about 44%) offer a foundational computer science course. This is well below the national average. The schools offering computer science are the larger school districts, putting our rural students at a significant disadvantage. (Ref - Computer Science Access Report Data | Code.org).

In ND, 32.9% of unemployed individuals lack foundational digital skills, meaning that they can't compete for 72.7% of the open jobs in the state. Although all our most in-demand jobs require at least a basic digital skillset, there are currently 1,389 open computing jobs in the state of North Dakota. (Ref - Promote Computer Science | Code.org and Digital Equity Scorecard (digitalinclusion.org).

The 21st Century workforce needs 21st century skills. To ensure North Dakota remains competitive in national and international markets, we need every adult worker, jobseeker, and student graduating with at least basic knowledge of computers and how modern systems communicate, even if they are not going to specialize in a cyber career. We can't expect students to start at the high school level; we need computer science and cybersecurity courses at elementary and middle school levels as well. For example, math skills are important, so we don't start teaching math at high school levels, we begin education in math concepts in elementary and middle school.

In addition to the 27 states that require high school courses, and the 12 states that require it in all grades, currently five states require computer science for graduation, and that number is growing. State legislatures across the U.S. are enacting laws to make this a requirement.

For those who wonder how this aligns to the established mission of the PK12 Strategic Vision of North Dakota Education, the answer is simple: We cannot ensure that "All students will graduate Choice Ready, with the knowledge, skills, and disposition to be successful" without it.

North Dakota cannot afford to let another year pass without ensuring our student remain competitive.