STEM EDUCATION INNOVATION ALLIANCE PROJECT

AUGUST 2024
PHASE 3 REPORT AND FINAL RECOMMENDATIONS

Washington STEM, in partnership with the Washington State Office of the Governor and the STEM Education Innovation Alliance managers at the Washington Student Achievement Council, is providing expertise, leadership, and recommendations regarding the future direction of the STEM Education Innovation Alliance (STEM Alliance), including but not limited to:

- The appropriate process, and governing body, for monitoring, understanding, and acting on STEM-related issues and opportunities and how those are made equitably available to all Washington state students.;
- The frequency and location of STEM Alliance convenings and other related activities;
- Optimal access to and use of evidence and data that efficiently informs the leadership in Washington State on equity-related barriers to STEM education, gaps in the workforce that rely on STEM skills, and examples of where students are being equitably supported to learn and thrive in STEM;
- A revised mission and goals for the STEM Alliance as an advisory group to the Washington State Governor.

Executive Summary

Washington State has long been one of the most STEM-productive states in the nation. As such, we have a high proportion of STEM jobs, a history of cutting-edge STEM innovations, and nationally-recognized programming that is working to increase equity and access to STEM participation. We have been afforded the presence and leadership of forward-looking businesses and generous philanthropy that invest in STEM education and career pathways and opportunities. However, without coordination, evidence, and accountability, we cannot realize our state's collective goal of equitable and competitive STEM readiness. Amid the disruption, transformation, and innovation across STEM education and the future of the workforce, the STEM Alliance can lead the way by taking ownership of convening members and actively responding to their needs, vision, and strategies to effectively guide Washington State's STEM initiatives.

With input from STEM Alliance members and related constituents, Washington STEM drafted recommendations and approaches to refine the STEM Alliance to the Governor and the education committees of the Washington State Legislature on early learning, K-12, and postsecondary STEM education and engagement.

The project rolled out in three phases:

Phase 1: The project launched through a collaborative March meeting facilitated by Washington STEM. This meeting provided an update on the STEM Alliance's progress and solicited input from members on shaping the future direction of the initiative. Washington STEM presented a comprehensive overview of the Alliance's achievements and outlined key questions to guide the next phase of development.

Phase 2: Washington STEM gathered comprehensive feedback from STEM Alliance members through various channels, including a June 5 feedback session, email correspondence, Padlet responses, and individual discussions. This feedback highlighted several key areas for improvement and has informed a set of draft recommendations aimed at enhancing the Alliance's effectiveness and impact.

Phase 3: Washington STEM reviewed the input and feedback provided by STEM Alliance members from the June 26 virtual convening and through a survey. Washington STEM compiled a list of final recommendations and a comprehensive **slide deck of STEM Alliance deliverables**. The below culmination of these efforts highlight final feedback, continued partnership with the Office of the Governor and the Washington Student Achievement Council, and recommendations for the future as agreed upon by Alliance members.

Summary of recommendations and findings:
- This project, through data and partnerships, has underscored the innovative and powerful solutions implemented across the state and has reinvigorated leaders to work together to scale.
- There is deep interest and commitment among STEM Alliance members to continue to work together on enacting systems change in STEM education, particularly across various educational stages.
- Action! STEM Alliance members provided consistent and strong feedback that they would like the Alliance to take more action by reviewing data and research to inform and recommend evidence-based policies and to drive trends in education toward increased and equitable STEM outcomes for our state.
- There was renewed and strong interest in utilizing and reviewing updated indicators and metrics that make up the STEM Alliance report card and dashboards to inform the actions and recommendations of the Alliance. To do so, there needs to be clarity about roles and ownership by ERDC and WSAC around the gathering and curation of the proposed and updated indicators.
- The STEM Alliance stands out for its direct advisory role to the Governor. Therefore, the meetings, activities, and actions of the Alliance should all serve to generate evidence-based recommendations to the Governor and legislature about how to improve, increase, and make more equitable the STEM outcomes of Washington State.
- We are excited and optimistic about the future!

The data is clear and consistent:over 70% of jobs in Washington in the next decade will require some form of postsecondary credential, which includes apprenticeships, 1- and 2-year certificates, and 2- and 4-year degrees. When we look at the projections for household-sustaining jobs in Washington, that number is closer to 90%. Of those jobs that will require a credential, we estimate that roughly two-thirds of those opportunities will require at least foundational STEM literacy or a STEM degree. Regardless of job opportunities, we also know that globally and locally, we live in a society that is driven by STEM in a way that makes it impossible to participate as a resident and as a civic contributor without using technology, tackling environmental threats, and understanding basic scientific opportunities for health and wellness. In order to be ready for our future and current reality that is shaped by science, technology, engineering, and math, the STEM Education Innovation Alliance is an extremely important and diverse group of leaders who can look at data and information and make evidence-informed recommendations. The Alliance has the capacity to shape important policy and

programmatic choices across Washington State that will enable our residents to be ready for and take advantage of our thriving STEM ecosystem.

Thank you to the Office of the Governor and the Washington Student Achievement Council for your support of the STEM Alliance to date and for the opportunity provided to Washington STEM to provide expertise, leadership, and recommendations regarding the future direction of the STEM Education Innovation Alliance.

The Future of the STEM Education Innovation Alliance:

The STEM Education Innovation Alliance (STEM Alliance), legislatively created in 2013, brings together leaders from a broad range of business, labor, education, government, and nonprofit organizations, with the role of advising Washington's governor and legislature on policy and strategic planning in support of STEM education initiatives. This happened as part of a suite of Revised Codes of Washington (**RCW 28A.188.030**) that named STEM as a priority for the State, named the STEM Education Innovation Alliance, and supported the actions of the work, which were to advise the public, the legislature, and in particular the Governor's office, using an established framework, on how we were doing as a state on "increasing learning opportunities and aligning strategic plans and activities in order to prepare students for STEM-related jobs and careers, with the longer-term goal of improving educational, workforce, and economic outcomes in STEM."

The STEM Alliance members represent leaders and decision makers across government, industry, education, and community aligning in the mission that " All stakeholders will work in collaboration committed to ensuring that Washington has a world-class STEM education system that improves career and college readiness, improves affordability and equitable access to postsecondary STEM degrees, increases college completion, and meets workforce demands." No small feat. And over the last 10+ years, the STEM Alliance has created a regular, dedicated space to learn together to ensure all Washingtonians have the STEM skills necessary to live a life of opportunity and success in the state's thriving innovation economy and democratic society by leading the nation in STEM literacy for all and a diverse, world-class workforce.

Aligning the strategic vision, the STEM Alliance put forth goals to guide the work:

- Inspire youth through career connected and real-world STEM learning opportunities.
- Provide every K-12 student equitable access to computer science education.
- Prepare Washington's future workforce by increasing attainment of technical credentials, two- and four-year degrees, and contributing to Washington's 70 percent attainment goal.
- Improve equity by implementing interventions to close educational opportunity gaps from cradle to career, providing world-class preparation and support for STEM teachers, and improving workforce diversity.
- Raise public awareness and support for STEM

In Washington's unique education system and among advocates and education intermediaries, the STEM Alliance stands out. A dedicated group of agency leaders such as WSAC, OSPI and SBE working together with business leaders, community, nonprofit, educators, and philanthropy to advise the Governor. This is rare- very few states have similar structures nor have a direct partnership with the leadership of the state,

This report of recommendations is not the first nor last iteration of the STEM Alliance. The STEM Alliance has gone through a shift in its' theory of action over the past few years. As a result, STEM Alliance members are recruited to the superpowers to contribute to this work: focusing on and centering racial justice; supporting regional efforts by ensuring sharing across partners for efficiencies and best practices; the power of using data and making sure the data is relevant; and to take action as a body to result in change. The STEM

Alliance is a critical friend and partners with state agencies to provide feedback on what indicators really matter to prepare students for opportunities aligned with their aspirations.

To date, the STEM Alliance strived to hold meetings in person when possible, and each meeting has focused on a topic of both interest and importance to the current and future state of STEM in Washington. Topics have been driven by both the Governor and Alliance members, in response to the ever changing education and STEM environments. An example includes a recent focus on Artificial Intelligence where Alliance members heard from experts across the AI field in Washington, including leaders from the University of Washington and Microsoft about how AI has the possibility to transform various job sectors and the education system. Other examples include spotlights on the work and outcomes of the Washington State Opportunity Scholarship, innovative programming implemented by regional STEM Networks and Career Connect Washington Networks, and both quantitative and qualitative information gathered from students participating in scaled and new services provided by MESA and Life Sciences Washington. These meetings helped to both showcase best practices and innovations while also informing the members of the Alliance about emerging needs, issues, and trends in STEM in Washington.

Early in the formation, the STEM Alliance recognized the need to measure our state's progress toward shared STEM goals, and to work to change our state's systems to dismantle the barriers to STEM education. The creation of the **STEM Education Report Card and STEM Dashboard** provides data across P-20 to not only track progress but to improve equitable implementation of evidence -informed solutions to drive regional and collective action for systems change.

The last public poll conducted had over 92% of the public stating that they understand STEM and its importance. The STEM Alliance realized the initial mission–to get folks to know what STEM was and that it was important–had been mission accomplished. But the data continues to show that we are not seeing huge shifts in who is accessing STEM jobs and who is benefiting from our strong STEM economy.

The STEM Alliance members agreed that the current structure of the STEM Alliance as laid out within the RCWs continues to be a match for the goals and work moving forward and made clear the desire to see more action, shared leadership, and defined internal structure within the Alliance itself Through subcommittees including shared leadership structure (Steering Committee); a process and leadership to determine policy recommendations to the Governor (Policy Committee) and space for inclusionary data analysis and practices (Metric Committee).

Feedback on the goals, cadence, and areas of focus (foci below) from the current STEM Alliance membership was filled with energy and engagement for consideration. These foci may end up being the issues around which the STEM Alliance seeks evidence and data and represent the kinds of upstream indicators or enabling conditions about which the Alliance might provide policy recommendations for the next few years. The emerging foci are:

- Leveraging of AI and ensuring equity of access and use of AI
- Math & Science teaching and learning
- Preparation for and support for access to higher education
- Educator workforce generally and STEM teachers in particular
- Understanding the need for preparation for STEM Jobs vs overall need for STEM Literacy

These foci also represent issues across the state that educators, agencies, and business are grappling with in how to best prepare students to succeed. The STEM Alliance members want to ensure the Governor of Washington considers themselves a leader in this space.

STEM Alliance members strongly agreed on the need for more internal structure to ensure the effectiveness of the Alliance. Through subcommittees including shared leadership structure (Steering Committee); a process and leadership to determine policy recommendations to the Governor (Policy Committee) and space for inclusionary data analysis and practices (Metric Committee). These subcommittees will shepard in a new era of the STEM Alliance focused on learning and action.

Phase 3 encapsulates the essential feedback and recommendations from the STEM Education Innovation Alliance, setting the stage for enhanced strategic planning and impactful policy development in the coming years.

PHASE 3: SURVEY AND FINAL RECOMMENDATIONS

Washington STEM reviewed the input and feedback provided by STEM Alliance members (and reflected below) from the June 26 virtual convening. These recommendations were presented via the living **slide deck of STEM Alliance deliverables** to 18 Alliance members who provided initial feedback to be included in the final recommendations.

Not all STEM Alliance members were in attendance. It is important to provide an opportunity for STEM Alliance members to individually digest the recommendations and confirm understanding to drive towards agreement. The further refined recommendations were compiled in a survey and sent to STEM Alliance members for feedback and to ensure that all members were able to weigh in regardless of attendance at meetings.

Survey Analysis:

The survey was sent to STEM Alliance members on July 31 and remained open until August 16. Alliance members received individual emails inviting them to complete the survey. The survey contained 12 total questions with the first nine focused on the recommendations themselves. Example provided below:
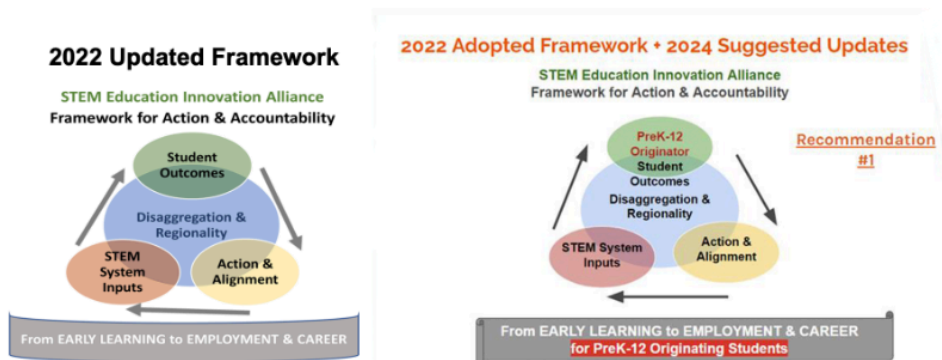
During the June 26 session, the alliance gave the following feedback:

- Revising K-12 to P-12 in the framework
- Changing focus on "Student Outcomes" to "PK-12 Originator Student Outcomes" so that it is clear that the Alliance's focus is on ensuring that students from Washington State are being supported to access Washington jobs and lifelong learning in Washington State

Alliance members were asked two questions for each recommendation:

1. Did we capture your feedback on this recommendation?
2. Is there additional information that would be helpful to understand the recommendation?

Ten responses were recorded on the survey. Seven respondents chose not to identify themselves, and three provided their contact information. Two respondents skipped questions with one respondent only answering recommendation #2. The three members who provided their contact information had not yet provided feedback or were unable to attend the STEM Alliance meeting.

Overwhelmingly, the survey responses are positive, with most agreeing the recommendations captured feedback.

RECOMMENDATION #1 modifies the STEM Framework the Alliance uses to include further definition of outcomes. The addition of " PK-12 Originator Student Outcomes" makes it clear that the Alliance's focus is on ensuring that students from Washington State are being supported to access Washington jobs and lifelong learning in Washington State.

> **Survey Result:** Eight responses were recorded and 2 respondents skipped this question. 100% of the recorded responses agreed the feedback was reflected in the refined recommendation. Further feedback highlighted the need to clarify that the "PK Originator" is inclusive of students who may have moved to Washington throughout their K-12 education and a request to seek a term or language that also demonstrates the outputs are leading to the desired outcomes.

> **Action**: The modified recommendation is below.

> - Modify PK-12 Originators to "Participants in Washington's Pre-K-12 Education System" to make clear that the Alliance is focused on the experiences and outcomes of students who have or will enter the state's PK-12 system at any point.

RECOMMENDATION #2 centers membership of the Alliance and accountability of the members and to the students of Washington. This recommendation is key to addressing the desire for action from Alliance members;an overwhelming theme that challenged the known format, schedule, membership, and to some degree, the purpose of the STEM Education Innovation Alliance. This recommendation addresses these themes through minor changes in the current RCWs, a suggested change to the backbone/vehicle of the Alliance itself, and recommendations that address the internal agreement of the work. The recommendation was split into two parts and thus two sections of the survey.

> *Recommendation 2.a:*

> **Survey Result for Recommendation 2.a**: Eight responses were recorded and 2 respondents skipped this question. 100% of the recorded responses agreed the feedback was reflected in the refined recommendation. Respondents inquired if there were two respondents offered competing groups that the STEM Education Innovation Alliance should be folded into.

> *Recommendation 2.b:*

Survey Result for Recommendation 2.b: Eight responses were recorded and this recommendation had the moist mixed result. 5 respondents selected that yes, the feedback was captured, and 3 respondents responded that no, the feedback was not captured. Comments on this question included that respondents believed that was already happening and that a cabinet level state agency is better positioned to administer the Alliance. In response to the request for additional information, respondents shared that there should be more diversity in the voices amplified at the STEM Alliance, a desire to have business or organizations have more leadership in the planning, and to include Tribal Governments.

Action: We propose the following modification of the Recommendation #2.

- No modifications to current RCWs at this time.
- Modify the recommendation to make it clear a landscape of partnership should be included in the internal process and membership of the STEM Alliance
- Include/modify a set leadership structure in the form of a Steering Committee be include in Recommendation #3.
- Encourage the incoming Governor to re-prioritize the STEM Alliance as an advisory body.

RECOMMENDATION #3: provides a mechanism to ensure membership and accountability. Part of the secret sauce of the STEM Education Innovation Alliance is to have a direct relationship with the Office of the Governor to provide recommendations for consideration. We recommend setting the expectation that ALL members will inform policy inputs, provide feedback and come to a vote on the policy recommendations, and to amplify within their unique positions, the policy recommendations to key decision makers.

Survey Result for Recommendation #3: Seven responses were recorded and three skipped this question. Of the seven that responded, 100% agreed their feedback was reflected in the recommendation. Additional feedback included an important reminder that agencies submit decision packages and the Alliance can play a role in encouraging STEM priorities and endorsing requests but the STEM Alliance does not submit budget requests.

Action: We propose the following modifications to Recommendation #3

- Designate subcommittees within the Alliance members:
  - Steering/Leadership committee: will lead the STEM Alliance and be the primary decision point for the STEM Alliance. Example decisions include meeting schedules, agendas, and ensuring the effectiveness of fellow committees.
  - Policy Subcommittee: composed of Alliance members this subcommittee will lead the policy recommendations of the Alliance including timeline, feedback from Alliance members, and producing yearly policy recommendations with legislative opportunities.
  - Metrics Subcommittee: composed of Alliance members with specific space for the ERDC, this subcommittee will analyze, visualize, and determine the publicly available data the STEM Alliance may produce. This includes working with Alliance members on the desired data points, seeking that data,and producing in a publicly available format.

RECOMMENDATION #4: strengthens data collection and reporting to better understand the case for STEM jobs and the importance of STEM capabilities in non-STEM roles; emphasizing the necessity of aligning degree and credential production with labor market needs at a regional level, improving students' educational experiences and access to programs, and conducting research on students' perceptions toward STEM.

Survey Result for Recommendation #4: Eight responses were recorded and 2 respondents skipped this question. 100% of the recorded responses agreed the feedback was reflected in the refined recommendation.

Action: We propose the following modifications to Recommendation #4

- We propose using stronger language to clarify the role of the Education Research and Data Center (ERDC) as the owner of the data product from early learning to postsecondary.
- We propose clearly stating the roles of the ERDC and WSAC in facilitating the annual data and metrics review for STEM alliance members.

As a response to the framework update in 2022, ERDC and WSAC reviewed and compiled a documentation of the overall status and availability of STEM measures and metrics suggested by the STEM alliance members. 5 recommendations were compiled and 29 measures were considered during this review process. 11 out of 29 measures are currently in annual report/dashboard, 12 measures were at the exploration stage (whether to be included in the upcoming report/feasibility of sourcing the data set), and 5 were removed from list or report/dashboard (see below for detailed information). While there is a wealth of data available, we recommend that the alliance (in partnership with ERDC and WSAC) take ownership and provide a recommendation to the Governor's office on the most critical measures to be included in a centralized form of deliverable.

Overview of STEM Metrics Availability (provided by ERDC & WSAC)

Status of Measure (g..	Measure Recommendation (if not currently in dashboard) OR Measure Definition (if in current dashboard)	Availability of updated data for the measure	Regionality (smallest ..	ERDC	WSAC	Null & NA
Currently in Dashboard	Percent of preschool age children who have access to childcare..	March	Regions		1	
	Percent of high school students who enrolled ina computer scie..	December for previous school year	School		1	
	Percent of High Schools in each educational service district that..	December for previous school year	School		1	
	Percent of students who were taught math or science by inexpe..	January for last school year	School		1	
	Percent of WA High School grduates who met the requirements..	December for previous year high s..	School		1	
	What % of K12 students demonstrate grade-level skills in Math ..	January for previous school year	School		1	
	What % of students in each graduating class complete an adva..	January for Class of 2021	School	1		
	Connecting Credentials to Careers in Washington's Projected L..	TBD	Statewide		1	
	How many students earned a STEM degree?	December - January for last school..	Statewide		1	
	Percent of students in 4th and 8th grade who were proficient in ..	October - every other year	Statewide		1	
	What % of WA SAT test takers indicated an intended college m..	November for previous school year	Statewide		1	
Explore feasibility and/or inclusion	Dual Credit Coursetaking, completion by type and content	January - February for previous ac..	Institution ..	1		
	Postsecondary Course Enrollment	October - November for current year	Institution ..	1		
	Postsecondary STEM Course Completions	October - November for previous a..	Institution ..	1		
	Postsecondary STEM Course GPA	October - November for previous a..	Institution ..	1		
	Postsecondary STEM Course Attempts	NA	NA	1		
	% of students who are CTE concentrators in STEM areas	December - january for most recen..	School	1		
	Dual Credit Course Availability by subject area	July - August for previous school y..	School	1		
	K12 STEM course available by subject area	July - August for previous school y..	School	1		
	Secondary STEM Course Completions	January - February for previous ac..	School	1		
	Secondary STEM Coursetaking	January - February for previous ac..	School	1		
	Higher education and apprenticeship program capacity in STE..	TBD	TBD	1		
	WA Originiators who have gotten jobs in STEM sectors/industri..	TBD	TBD			1
Removed from Dashb..	What % of studnets pass AP exams in STEM subjects?	NA	NA			1
	What % of WA residents have heard of the STEM acronym?	NA	NA			1
Remove from list	Secondary STEM Course GPA	January - February for previous ac..	Institution ..	1		
	Secondary STEM Course Attempts	NA	NA			1
	Student Experiences - explore with WSAC for incusion in the re..	NA	NA	1		
Grand Total				14	10	4

Final Recommendations from Washington STEM:

1. Updating the STEM Framework to ensure students from Washington state are being supported to access Washington jobs and lifelong learning in Washington state. We recommend adding " Participants in Washington's Pre-K-12 Education System" to the STEM Framework.

2. In addressing the membership in statute and in response to the STEM Alliance Members feedback we recommend no modifications to the current RCW strucure but rather, create the internal accountability within subcommittees. We also recommend deeper engagement from the Office of the Governor and other state agencies.

3. Internal Membership and Accountability addresses the internal structure of the STEM Education Innovation Alliance, setting a direction for future meetings, members, to inform policy inputs, and amplify this work to key decision makers. This recommendation requires agreement among Alliance members and the final recommendation reflects the feedback. We recommend:
   a. Subcommittees: Steering/Leadership, Policy, and Metrics
   b. Create and agree to a 2-year (biennium) work plan for the STEM Alliance with foci inputs from members.
      i. Including by not limited to: STEM Alliance retreat, in-person and hybrid meeting cadence.
      ii. Agreed upon a calendar of activities and events.
   c. Opportunities to participate in "action" activities such as co-leading a meeting or lawmaker engagements.

   d. Create membership opportunities for new STEM Alliance members.

4. Strengthen the data collection and reporting to better understand the case for STEM jobs and the importance of STEM capabilities in non-STEM roles. We recommend , under the leadership of the Metrics Subcommittee, a review of the current available metrics, future metrics, and facilitating stronger partnership between WSAC and ERDC to produce the annual report

Next steps:

- The Washington Student Achievement Council and the Office of the Governor will convene the STEM Education Innovation Alliance in September.
- The Office of the Governor will include recommendations of the STEM Education Innovation Alliance in the transition book to the Governor-elect.

PHASE 1: HISTORY AND KICK OFF
May 2024

To kick this work off, Washington STEM co-facilitated the March STEM Alliance meeting. During this meeting, Washington STEM presented the attached slides to share with Alliance members the inception of and the progress to date of the STEM Innovation Alliance together as a collective. Washington STEM also used this opportunity to invite STEM Alliance members along on the journey in informing the next phase of the work.

Washington STEM invited STEM Alliance members to think about this key question: **How should we go about envisioning the next iteration, future needs, and future work of a group like ours to ensure equity & success in STEM for our students & our state?**

Alliance Members provided initial feedback in the meeting and in subsequent follow up emails.

STEM Innovation Alliance Feedback Themes Thus Far:

- *You are what you measure, the evolution of the report card to increasingly measure what matters is critical.*
- *Defining the specific outcome, work backwards from there to identify the necessary actions and resources. Then determine how the people and organizations represented here should organize in support of those actions.*
- *Structured opportunities for collaboration among members*
- *Survey members - what we do, why we do it and how and what it means for the State*
- *We have one of the lowest higher ed availability in the nation. We must improve this or we'll continue to be a net importer of talent. That means people raised here don't have the opportunity to enjoy the prosperity our state enjoys*.

Approach to Gathering Insights (Preparation for Phase 2):

Washington STEM will lead engagement with STEM Innovation Alliance Members and other identified key partners throughout May and June. We will be engaging with interested parties in a number of ways to gather input, insight, feedback, and ideas over this two-month period:

- We will offer two group listening sessions for Alliance Members with semi-structured questions to understand experiences, needs, and insights (see dates below). Questions will include:

  - What kinds of data, information, or shared learning is necessary to understand the state of STEM jobs, STEM pathways, and STEM equity in Washington?
  - What kind of role should a government-appointed or government-supported body play in the future of STEM in Washington?
  - What kinds of engagement or actions do you wish you/your organization were a part of or could contribute to in order to advance STEM equity or STEM outcomes in Washington?
  - How should we go about envisioning the next iteration, future needs, and future work of a group like ours to ensure equity & success in STEM for our students & our state?

- We will continue to welcome 1:1 feedback through emails, coffee chats, and a survey that we are developing.

- We will be utilizing an open Padlet link for attendees. This will also serve as a reference point for feedback collection.

- We will also hold more general listening sessions, which have already begun, to understand the state of STEM in Washington and to elicit more baseline approaches to the changing landscape in our state.

  - What do you think are big emergent trends happening in our education system in the next three years that could influence our work? What should we be paying attention to that's on the horizon?
    - *How do you think these emergent trends will impact your organization's work and our alignment?*
  - When we say STEM education, we mean… [what is your definition of STEM and what differentiates STEM education]?
  - What does it mean to effect systems change in STEM education in Washington, cradle-to-career?
  - What is your/our stance and/or role in AI in education?
  - What are the system-levers for supporting a strong transition between elementary and middle school, middle to high school, and into postsecondary, vis a vis STEM learning?

- In addition to the key questions above, we will review with Alliance Members and key partners the research, data, and policy achievements they view the STEM Alliance led; and what challenges remain.that the STEM Alliance is uniquely positioned to influence.

As an example for the final bullet above, in the first report in 2015, the STEM Alliance identified the primary challenge and task of the Alliance was to "aligning the education system with employers' needs for STEM-educated workers." In 2017, the goals were more specific in solution, adopting the 70% attainment goal, focusing on connecting careers to education, and raising STEM Awareness. Establishing the Workforce Investment Act and account in 2019 was a large win in ensuring sustainable investments from our state to support high demand credentials and careers. The Alliance's ability to be nimble in response to the COVID-19 pandemic was evident in 2020 with the Alliance focusing on early childhood learning and the creation of the "State of Innovation" challenge. And growing in 2021 to create a process for determining STEM Alliance specific legislative recommendations including strengthening STEM educator requirements, developing early math and improving workforce readiness.

We want to ask Alliance Members and key partners what impacts have been made? What has been successful? What challenges remain?

- **Listening Session:**
  - **June 5 from 12pm-1pm**
- **Alliance Meeting/Work Session:**
  - **June 26 from 10am-12pm**

Alliance members are invited to reach out directly as well. Invitees will primarily be Alliance Members, and key partners which include members of industry, school districts, funders, agencies, and community partners.

Next steps:
- Washington STEM will communicate with Alliance Members and key partners the opportunities to engage.
- Washington STEM will synthesize the feedback into the living slide deck.
- Washington STEM, WSAC, and the Governor's office will meet in late June to review.

PHASE 2: INPUT FOR DRAFTING RECOMMENDATIONS
JUNE 2024

Washington STEM has conducted feedback sessions with STEM Education Innovation Alliance members. These include an open feedback session on June 5, in which 14 Alliance members attended and participated; email feedback from Alliance members directly; feedback provided from the Padlet; and individual conversations. The robust feedback coalesced around some key themes for Washington STEM to ensure are addressed within the recommendations:

- Members want to see more **action and outcomes** taken as a result of Alliance efforts, meetings, and review of evidence and data; this included feedback about the format of Alliance meetings, the vehicle or platform for enabling this work, and a discussion about how to ensure accountability to agreed-upon goals and outcomes;
- Members wanted to have clearer identification of and understanding of the **audience(s)** to which any Alliance policy or action recommendations would be delivered–including, but not limited to state legislators, Alliance member organizations, state agencies, and other relevant groups;
- The group agreed that, given the origination of the work, how it is funded, and the unique cross-sector and cross-agency work that needs to be done for an equitably STEM ecosystem in the state, this Alliance should focus its efforts on increasing and making more equitable the opportunities and supports for **Washington's P-12 student originators** (to be defined more specifically at a later date) in being prepared for **Washington state jobs** and careers;
- The group wanted to have more representation from and focus on access to **higher education** and postsecondary credential in the state, including understanding statewide and regional STEM pathway supply and demand, understanding the needs of higher education institutions as they work to meet demand with supply of pathways, and other related higher education issues;
- The group also identified the **educator workforce** broadly and the STEM educator workforce in particular as another key enabling condition of a strong and equitable STEM ecosystem and urged the Alliance to focus on that and other upstream indicators/enabling conditions for setting priorities and reviewing evidence;
- Another key enabling condition identifies was our state's **P20 education to workforce data infrastructure**; the group wanted more focus on educating legislators and other leaders about both the availability of data as well as the need for better data in some cases, so that we can know whether and how we are addressing barriers to a strong STEM ecosystem in our state;
- Finally, the group agreed that we need to have a stronger and more clearly outlined approach to generating and providing **legislative and agency policy recommendations** and discussed the need for thinking through mechanisms of accountability.

Related to, but more specific than the general themes, we also captured the emerging interests and foci Alliance members identified through their feedback. These foci may end up being the issues around which the Alliance seeks evidence and data and represent the kinds of upstream indicators or enabling conditions about which the Alliance might provide policy recommendations for the next few years. The emerging foci are:

- Leveraging of AI and ensuring equity of access and use of AI
- Math & Science teaching and learning
- Preparation for and support for access to higher education
- Educator workforce generally and STEM teachers in particular
- Understanding the need for preparation for STEM Jobs vs overall need for STEM Literacy

DRAFTED RECOMMENDATIONS AND FURTHER FEEDBACK

With the input from Alliance members and related constituents, Washington STEM drafted recommendations and approaches to refine the STEM Education Innovation Alliance to effectively inform the Governor and the education committees of the Washington State Legislature on early learning, K-12, and postsecondary STEM education and engagement.

These recommendations were presented via the living slide deck of STEM Alliance deliverables to 18 Alliance members at a June 26 Work Session. Alliance members provided initial feedback to be included in the final recommendations.

Draft Recommendation #1: Updating the STEM Framework
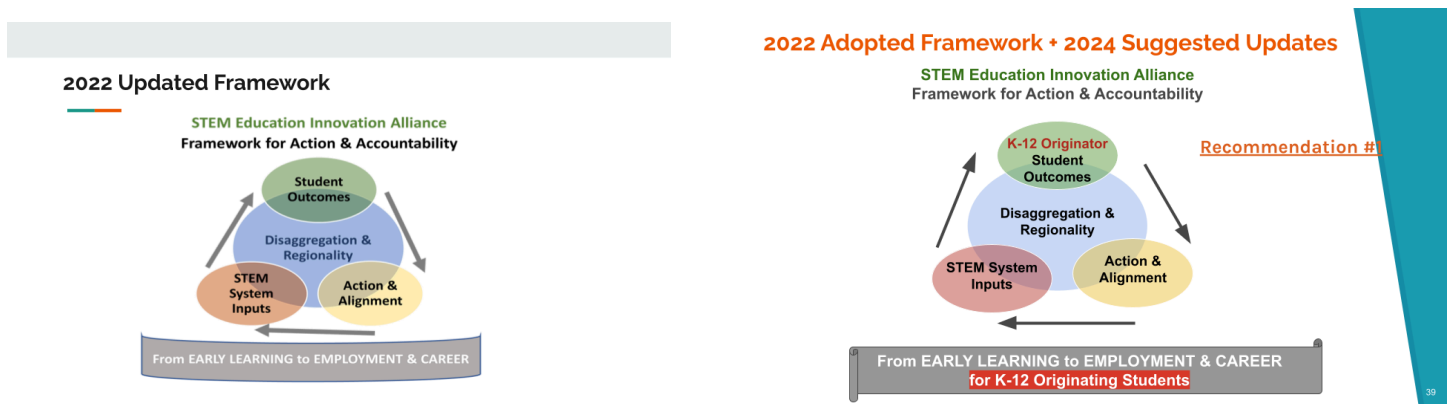
- Based on the feedback from the listening sessions and in consideration of the future of the Alliance, Washington STEM's recommendation is to update the current framework to specifically focus on P-12 originating students.
- During the June 26 session, the alliance gave the following feedback:
  - Revising K-12 to P-12 in the framework
  - Possibly changing focus on "Student Outcomes" to "PK-12 Originator Student Outcomes" so that it is clear that the Alliance's focus is on ensuring that students from Washington State are being supported to access Washington jobs and lifelong learning in Washington State.
  - Ensuring that the reason for focusing on PK-12 originator students was clearly outlined in Alliance documentation.

Draft Recommendation #2: Membership and Accountability

Recommendation #2, Summary

FORMAL/RCW CHANGES:
- Defined agencies and legislator participation to current RCW
- Recommendation that STEM Innovation Alliance stays within the Office of the Governor (TBD)
- Facilitated/administered by nonprofit entity
  - Staff support from agency (TBD)

INTERNAL AGREEMENTS:
- *2-year (or yearly) Alliance Work Plan*
- *Formal Policy Subcommittee*
- *Action activities*

Recommendation #2 centers membership of the Alliance and accountability of the members and to the students of Washington. This recommendation is key to addressing the desire for action from Alliance members;an overwhelming theme that challenged the known format, schedule, membership, and to some degree, the purpose of the STEM Education Innovation Alliance. This recommendation addresses these themes through minor changes in the current RCWs, a suggested change to the backbone/vehicle of the Alliance itself, and recommendations that address the internal agreement of the work.

Proposed Changes to RCW 28A.188.030 - STEM education innovation alliance

Proposed Change 1: Strengthen to whom the STEM Education Innovation Alliance advises to increase visibility, priority, and sustainability of the Alliance's work. This would require a modification to the RCW to ensure the Washington State Legislative Education Committees, including but not limited to the House Education Committee, Senate Early Learning and K12 Education Committee, House Postsecondary Education and Workforce Development Committee, and the Senate Higher Education and Workforce Development Committee. Additions/changes in orange.

- (1) The STEM education innovation alliance is established to advise the governor and relevant education committees and to provide vision, guidance, assistance, and advice to support the initiatives under this chapter, as well as other current or proposed programs and initiatives across the spectrum of early learning through postsecondary education, that are intended to increase learning opportunities and improve educational outcomes in STEM.

Proposed Change 2: Names a backbone organization to support the administration of the STEM Education Innovation Alliance and give prominence to the agencies that have direct impact on the goals of the Alliance by naming them in statute.

- 2) The governor's office, in consultation with a statewide nonprofit, and the superintendent of public instruction, and relevant education committees, shall invite representatives of STEM businesses, business and labor organizations with expertise in STEM fields, one or more nonprofit organizations with a mission to enhance STEM education from early learning through postsecondary education, school districts and institutions of higher education that have demonstrated leadership and innovation in STEM education, and STEM educators to participate in the alliance. Representatives from the governor's office, the office of the superintendent of public instruction, the washington student achievement council, department of children, youth, and families, the education research and data center, and other state education agencies shall also participate as members of the alliance.

During the June 26 session, the STEM Alliance gave the following feedback:

- Concern around the number of those who are identified to participate as members of the alliance and that it starts to mirror other groups already in existence.
- What is the gap that the STEM Alliance is filling that is not being filled by others?
- Likes that we named a broader group and feels that it will increase that collective effectiveness by having members report back to their sectors/organization.
- Conversation around the tradeoff of moving the alliance leadership from the WSAC to a nonprofit backbone organization.
  - WSAC's position on the governor's cabinet was important to inform policy priorities in the context of other Governor priorities and gives a direct line of communication into the policy agenda.
  - Nonprofits have stability through administrations and also have liberties with advocacy that agencies don't. Though they do have to do additional work to maintain their status through fundraising and other activities.

Draft Recommendation #3: Policy Recommendation Process

Washington STEM's next draft recommendation is a mechanism to ensure membership and accountability. Part of the secret sauce of the STEM Education Innovation Alliance is to have a direct relationship with the Office of the Governor to provide recommendations for consideration.

Policy Recommendation Process (Subcommittee)

January-March/April: Research, discussion, intel from legislators and other partners (during session)

April/May: Refining potential agenda items, including feasibility analysis

June/July/August: Feedback from Alliance members, refinement of recommendations (vote on final language)

September: Recommendations to OFM/Governor

October: Build legislative and partner support, ensure clear roles/responsibilities/capacity of alliance members

November: Build legislative and partner support, ensure clear roles/responsibilities/ capacity of alliance members

December: Build legislative and partner support, ensure clear roles/responsibilities/ capacity of alliance members

ALL Members of STEM Education Innovation Alliance Agree to:
- Inform policy inputs for recommendations
- Come to/vote on consensus on recommendations
- Amplify recommendations to key decision makers and other audiences

51

The Alliance feedback included the desire for a proactive and transparent process and approach to collecting, researching, synthesizing, and determining policy recommendations. There are examples of the Alliance engaging in a policy process (most recently in 2021) but it has not been consistent nor a defined part of the duties of Alliance members. By outlining a clear, time-bound process, Alliance members will have the opportunity to engage, inform, and provide feedback on recommendations. A consistent process also provides Alliance members the opportunity to plan and engage more deeply. We want to note that in the drafting of this recommendation, Washington STEM understands not all Alliance members will both want and/or be permitted to engage deeply in the policy recommendation process. For example, a state agency may be permitted to inform a recommendation but may not be permitted to take direct action or actively advocate for the recommendation.

The policy recommendation process recommendation outlines the most reasonable expectation for STEM Education Innovation Alliance members as a body. We recommend setting the expectation that ALL members

will inform policy inputs, provide feedback and come to a vote on the policy recommendations, and to amplify within their unique positions, the policy recommendations to key decision makers.

During the June 26 session, the alliance gave the following feedback:

- In June the agencies are making decisions on what they are going to be moving forward on so recommend moving up the timeline to match this process.
- Reflected on the challenges the Alliance has had in the past with workgroups around the details of what needs to be considered and research that needs to be achieved to support legislative recommendations.

Draft Recommendation #4: Data

Data
Recommendation #4

1. Vision and enabling conditions
   a. Have we reached a consensus regarding the proposed updates to the STEM report card metrics?
   b. Does the current RCW enable or prohibit data collection and reporting agencies from meeting the needs of the alliance?
2. Technical challenges in student education report and metrics
   c. Focuses on the student level outcomes
   d. A lack of disaggregation or regionality data available
   e. Additional analysis needed to match the school district level data v. Workforce Development Area (WDA)
   f. Sustainability + impact of programs initiated under the Chapter 28A.188 RCW (i.e. MESA, Lighthouse programs...) and students' experiences in those programs?
3. Data-driven decision making and vitals support
   g. Have we tried to suggest recommendations based on the above vitals? What should we prioritize? i.e. for inter-sectional data analysis/reporting, ERDC would be more suited to do this work v. WSAC/OSPI.

54

The alliance members shared their feedback during the June 6 and June 26 sessions. This feedback includes the need to better understand the case for STEM jobs and the importance of STEM capabilities in non-STEM roles. Additionally, the alliance members emphasized the necessity of aligning degree and credential production with labor market needs at a regional level, improving students' educational experiences and access to programs, and conducting research on students' perceptions toward STEM.

Summary of Added/Proposed for Replacement
STEM Report Card Metrics Proposed (2022)

- STEM coursetaking (including gatekeeping course)
- Dual Credit coursetaking and use
- Student experiences (surveys & qualitative measures)
- WA originators who have gotten jobs in STEM sectors/industries

STUDENT STEM OUTCOMES

- Current & Projected STEM job openings
- K-12 STEM course availability
- Dual Credit course availability

STEM SYSTEM INPUTS

- Disaggregation (K-12 originators, demogs, geography, programs, etc)

DISAGGREGATION & REGIONALITY

16

Based on the feedback and the discussions with the alliance members, we recommend the following to be implemented in the coming years:

- Data deep dive process: We recommend the STEM alliance have a data deep dive/review conversation in March/April each year to review the proposed STEM report card metrics i.e. regional level data including STEM course availability and its uptake, dual credit course availability and its uptake, etc.
- Agency partnerships: Many of the proposed replacements for the STEM Report Card metrics and other measures may require additional support from agency partners responsible for data collection and reporting. We recommend that the alliance leadership invite agency partners to discuss the possibility of centralizing data sources or outputs. This would ensure that complementary reports and resources are accessible in a single location.

NEXT STEPS

- Washington STEM, the Washington Student Achievement Council, and the Office of the Governor will refine and finalize recommendation language.
- STEM Education Innovation Alliance members will receive refined recommendations by July 31 for approval.
  - Alliance members will have from July 31- August 16 for feedback.
- Approved and agreed upon recommendations, final slide deck, and supporting evidence will be submitted to the Washington Student Achievement Council, and the Office of the Governor as the final report by August 31, 2024.