

# SCCS

## STATE COMMITTEE ON COMPUTER SCIENCE

IN PARTNERSHIP WITH THE OHIO DEPARTMENT OF EDUCATION AND OHIO DEPARTMENT OF HIGHER EDUCATION

Making  Ohio a National Leader in Computer Science Education

### Organizational Meeting

Committee Facilitator Kelly Gaier Evans - Battelle

Chair: Mike Duffey, Ohio Department of Higher Education

Vice Chair: John Wiseman, Ohio Department of Education

***May 11, 2022 from 9:30a.m.-12:30 p.m.***

# Approval of Minutes

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Chair, Mike Duffey

- April 20, 2022

Need:

- Motion to approve minutes
- Second

# Our work today

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- 9:30 -10:10    Welcome and recap
- Approval of minutes (April 20)
  - Overview of the agenda
  - Update on CS in Educator Preparation Programs (ODHE's Krista Maxon & Miami)
- 10:10-10:25    Moving towards the final report
- 10:25-12:15    Creating solutions to the barriers in the student to career pipeline  
(embedded coffee and stretch break)
- 12:15-12:30    Wrap up
- Homework
  - What's next?

# Norms

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- We all have different filters, share yours
- Always assume positive intent
- Be curious and ask questions
- Be here now
- Communicate respectfully
- Safe space to contribute ideas (disagree w/content not the person)
- Treat everyone with courtesy and respect
- Embrace data, where it is and isn't available
- Come to meetings fully prepared which includes any homework or review of materials sent prior.

# CS in Educator Preparation Programs



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# CS in Educator Preparation Programs

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- Krista Maxon, Ohio Department of Higher Education, [KMaxson@highered.ohio.gov](mailto:KMaxson@highered.ohio.gov)
- Faculty from Miami University of Ohio

# Recap and moving towards the final report



STATE COMMITTEE ON COMPUTER SCIENCE

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# February 16 and March 9, 2022

## Challenge 1:

The state has not prioritized Computer Science Education with funding and resources.

## Challenge 2:

The state has not made Computer Science a requirement in K-12 education.



# February 16 and March 9, 2022

Challenge 1: The state has not prioritized Computer Science Education with funding and resources.

Recommendation 1: Creation of an Office of Computer Science Education (OCSE) | *Assigned lead writer: Mike Duffey with support from ODE's Janelle Horton*

Recommendation 2: K-12 funding in CS education | *Assigned lead writer: Mike Duffey*

*\* With white paper input from Lisa Chambers on CS Counsel*

# February 16 and March 9, 2022

Challenge 2: The state has not made Computer Science a requirement in K-12 education.

Recommendation 3: Creation of a “Student’s Right to Access CS” | *Assigned lead writer: Mike Duffey in consultation of recommendation 4*

Recommendation 4: Establishment of CS as Graduation Requirement | *Assigned Lead Writer: Chelsey Cook Kohn*

# March 30 and April 20, 2022

## Challenge 3:

Schools do not have the support they need to implement Computer Science.

## Challenge 4:

Students do not enroll in CS courses.

## Challenge 5:

There is a low supply of CS teachers.

**Part A:** Licensure challenges & Teacher Recruitment

## Challenge 5:

There is a low supply of CS teachers.

**Part B:** Training & Prof. Development around CS

# March 30 and April 20, 2022

Challenge 3: Schools do not have the support they need to implement Computer Science.

Recommendation 5: Ohio should design a CS playbook (including a curriculum in a box) and provide in-person teams from the newly formed Office of Computer Science Education that visit districts and help them to implement CS for the first time/more advanced level. Ohio should provide stipends to school personnel for time spent on these activities. | *Assigned Lead Writer: Mike Duffey*

# March 30 and April 20, 2022

Challenge 4: Students do not enroll in CS courses.

Recommendation 6: Ohio should make Computer Science a requirement and start a state-wide marketing campaign inside and outside the classroom with the focus on community and career impact. | *Assigned Lead Writer: Kristi Clouse - Marketing plan component of recommendation.*

\* Note: the make CS a requirement – embed in recommendation 4.

# March 30 and April 20, 2022

Challenge 5: There is a low supply of CS teachers.  
Part A: Licensure challenges & Teacher Recruitment

Recommendation 7: Ohio should revise the teaching licenses and endorsements to match the other core content areas (mathematics, science, etc). | *Assigned lead writer: Debbie Jackson*

*\* With white paper input from Katie Hendrickson*

# March 30 and April 20, 2022

Challenge 5: There is a low supply of CS teachers.  
Part B: Training & Prof. Development around CS

Recommendation 8: Ohio should create a network of SST regional managers to focus on teacher and district supports. | *Assigned writer: John Wiseman*

# Today (May 11) and June 1, 2022

## Challenge 6:

It's hard to find clear pathways for a Computer Science career.

## Challenge 7:

Not all students have early access (prior to high school) to CS courses.

## Challenge 8:

Need connection between what skills industries are looking for and what is being taught in the classroom.

**Required component:** What would be the best ways to compile data on CS courses, teachers, and undergraduate students studying computer science in universities?



# Timeline – Recommendations 1-8 (February – April)

May 11,  
2022

- Committee member assigned for further articulating recommendation on report template.

May 20,  
2022

- Draft of recommendations due to the internal computer science planning team for review

May 26,  
2022

- Drafted recommendations sent to full committee for review (with framing for full report)

June 1 PM or  
June 2, 2022

- Workshop recommendations during CS Committee meeting

# Timeline – Recommendations from today's meeting

May 13, 2022

- Committee member assigned for further articulating recommendation on report template.

May 31, 2022

- Draft of recommendation due to the internal computer science planning team for meeting upload

June 1, 2022

- Workshop these recommendations during CS Committee meeting

# Template for Recommendation

**Instructions:** This is how we are looking to structure each recommendation. Please do not exceed three (3) pages.

## CHALLENGE

- **Challenge Statement** (Challenge identified earlier in the committee work)
  - *Example: There is not an easy way to get Girl Scout cookies year-round.*

## RECOMMENDATION

- Clear and Concise **Recommendation** that summarizes at a high level your recommended solution. This should be done in one sentence.
  - *Example: Connect local bakeries to local Girl Scout troops to help sell cookies.*

### Paragraph 1 | (SPECIFIC) ACTUALIZATION

- How will you **actualize this recommendation**, what is the desired end product, process or outcome?
  - *Example: Create a coalition between local Girl Scout troops and community bakeries.*

### Paragraph 2 | (TIME-BOUND) TIMELINE

- What is the timeline for implementation?

### Paragraph 3 | MEASUREMENT

- Outcomes and how will you measure these outcomes
- Benchmarks that would need to be in place to ensure progress is on track?

### Paragraph 4 | (ATTAINABLE) CONNECTIVITY(?)

- Is this recommendation dependent upon another recommendation? If yes, how?
- What are the short term and long-term fiscal impacts/constraints when it comes to staffing and budget?

### Paragraph 5 | (RELEVANT) POTENTIAL IMPACT

- How does this move Ohio towards being a national leader in Computer Science education?

## CHALLENGE STATEMENT

**Challenge 3:** Schools do not have the support they need to implement Computer Science.

## RECOMMENDATION

Ohio should provide a comprehensive package of supports for Ohio schools to implement CS on an opt-in basis that includes curriculum-in-a-box, deploying a hands-on team to help districts launch CS programs. The state should provide teacher and school building stipends to drive adoption.

### Paragraph 1 | (SPECIFIC) ACTUALIZATION

When a district opts in, they receive the following resources:

- A team from the Office of Computer Science Education (OCSE), some of which may be ODE staff, visit the school in-person to brief the school board, superintendent and present at school board meetings, PTA meetings, assemblies, etc. on why CS is important and how to get started
- The team remains “in residence” for a period of time, likely six months, with a district to help with every step of implementation such as developing a curriculum, helping put together lesson plans, even co-teaching classes if needed – until the district is self-sufficient. The team should be knowledgeable, charismatic, persuasive, outgoing and friendly to drive CS adoption.
- The team should provide all districts with a CS playbook (i.e. a how-to guide, examples) for steps to implement a CS program that are designed around a core series of pathways for students that the state suggests (but does not require) known as the “curriculum in a box” concept. For example, sequentially rigorous courses in coding that flow upward in challenge factor and split into disciplines like programming, AI/machine learning, IT and cybersecurity for example.
- The team should partner with local CTEs, ESCs and non-profits for these partnerships.
- The state will provide the teams with authority to award \$2,000 per teacher/administrator involved stipends and \$10,000 per building stipends to incentivize opt-in. Funding will be resourced from the 1% for CS funding pool of state funds.

### Paragraph 2 | (TIME-BOUND) TIMELINE

This would be launched six to twelve months after Office of Computer Science education is formed, as the state will need to hire staff to lead the Office of Computer Science and allied ODE/ODHE staff. Once fully staffed, districts would respond to a state RFA (request for assistance) process, essentially an opt-in that invites the state to come to the district with the full package of supports/stipends.

### Paragraph 3 | MEASUREMENT

Success will be measured by using at a minimum, the following metrics. Goals set by OCSE leadership.

- A list and count of the districts that opt-in to have this “in residence” team come to the district
- The number of districts that launched a CS education program following state assistance
- The number of students participating in CS and a comparison with non-participating districts
- Credentials and qualifications to teach CS achieved in the participating districts
- Longitudinal post-secondary outcomes of district students – did they enroll in college in programs that are considered related at a higher level, etc?
- District surveys – are administrators, teachers, parents pleased with the state assistance?

## CHALLENGE STATEMENT

**Challenge 3:** Schools do not have the support they need to implement Computer Science

## RECOMMENDATION

Ohio should provide a comprehensive package of supports for Ohio schools to implement a model in basis that includes curriculum-in-a-box, deploying a hands-on team to help district implement programs. The state should provide teacher and school building stipends to drive adoption.

### Paragraph 1 | (SPECIFIC) ACTUALIZATION

When a district opts in, they receive the following resources:

- A team from the Office of Computer Science Education (OCSE), some of whom will visit the school in-person to brief the school board, superintendent and present at PTA meetings, PTA meetings, assemblies, etc. on why CS is important and how to implement it.
- The team remains “in residence” for a period of time, likely six months, with every step of implementation such as developing a curriculum, helping with plans, even co-teaching classes if needed – until the district is self-sufficient.
- The team should provide all districts with a CS playbook (i.e. a how-to guide to implement a CS program that are designed around a core series of pathways that the state suggests (but does not require) known as the “curriculum in a box” example, sequentially rigorous courses in coding that flow upward in challenge into disciplines like programming, AI/machine learning, IT and cybersecurity.
- The team should partner with local CTEs, ESCs and non-profits for these partnerships.
- The state will provide the teams with authority to award \$2,000 per teacher involved stipends and \$10,000 per building stipends to incentivize opt-in. Funded by resources from the 1% for CS funding pool of state funds.

### Paragraph 2 | (TIME-BOUND) TIMELINE

This would be launched six to twelve months after the Office of Computer Science Education is fully staffed, districts would respond to a state RFA (request for assistance) process, that invites the state to come to the district with the full package of supports/stipends.

### Paragraph 3 | MEASUREMENT

Success will be measured by using at a minimum, the following metrics. Goals set by

- A list and count of the districts that opt-in to have this “in residence” team
- The number of districts that launched a CS education program following state
- The number of students participating in CS and a comparison with non-participating
- Credentials and qualifications to teach CS achieved in the participating districts
- Longitudinal post-secondary outcomes of district students – did they enroll in post-secondary programs that are considered related at a higher level, etc?
- District surveys – are administrators, teachers, parents pleased with the state

## Paragraph 4 | ATTAINABLE/CONNECTIVITY

This recommendation is fully dependent upon the creation of an Office of CS Education and upon a 1% for CS dedicated funding stream. One of the more challenging tasks will be quickly staffing the Office of CS Education with highly qualified leadership and field teams. The top leadership position (Chief CS Evangelist?) within the Office of CS Education will be the most important hire.

## Paragraph 5 | (RELEVANT) POTENTIAL IMPACT

For the State of Ohio to be successful in launching a computer science adoption campaign among 600+ school districts, the state will need to do more than implement a graduation requirement, right to access CS, offer grants, etc. The state needs to provide hands-on guidance and support that teaches districts how to properly stand up a CS program (a new concept for most districts) and make the adoption process easier and positively recommended to fellow districts. This recommendation will function as a huge accelerant to the adoption curve in Ohio.

###

# Committee Meeting Timeline

June 1 AM

- Student to Career Pipeline recommendations finalized

June 1 PM –  
June 2

- All recommendations are workshopped and finalized for submission for public comment.

June 13-28

- Open for public comment

July 13

- Discuss public comment, final vote, celebrate

# Identified Barriers in the Student to Career Pipeline



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# Connecting to our Charge



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# Our Charge – HB 110 – the state budget

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We have a unique opportunity to help make Ohio a national leader in computer science education and workforce pipeline.

- (1) Best practices and challenges associated with the implementation of primary and secondary computer science curriculum in this state;
- (2) Demographic data for students who receive instruction in computer science;
- (3) Benchmarks to create a sustainable supply of teachers certified to provide instruction in computer science;
- (4) Best practices to form public and private partnerships for funding, mentoring, and internships for teachers providing instruction in computer science;
- (5) Requiring all students to complete a computer science course prior to high school graduation;
- (6) Establishing a work-based learning pilot program that includes high schools, universities, and local industry and permits the department and the chancellor to develop pathways to align computer science education in the state with the state's workforce needs;
- (7) Any other topic determined appropriate by the committee

HB 110: <https://ohiohouse.gov/legislation/134/hb110> (Pages 703-705)

# Our Charge – HB 110 - continued

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(D) Within the plan, the committee ... shall include all of the following:

(1) An **examination of the challenges that prevent school districts from offering computer science courses**;

(2) A requirement that the department of education **collect any data regarding computer science courses offered by school districts** and school buildings operated by school districts, including the names of the courses and **whether the courses were developed using the standards and model curriculum** ...and post the collected data on its web site.

(3) A requirement that the committee determine **the best ways to compile data on computer science courses, teachers, and undergraduate students studying computer science** in universities.

(4) **Any findings the committee determines appropriate** based on its consideration of the topics described in division (B) of this section.

# Committee Deep Dive into the Challenges in the Student to Career Pipeline



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# Today (May 11) and June 1, 2022

## Challenge 6:

It's hard to find clear pathways for a Computer Science career.

## Challenge 7:

Not all students have early access (prior to high school) to CS courses.

## Challenge 8:

Need connection between what skills industries are looking for and what is being taught in the classroom.

## Required component:

What would be the best ways to compile data on CS courses, teachers, and undergraduate students studying computer science in universities?

# Roles to maximize our group work

Role	Responsibility
<b><u>Facilitator</u></b>	Responsible for getting the group started, keeping it on task, and involving all members.
<b><u>Timekeeper</u></b>	Responsible for keeping group on task and on time
<b><u>Reporter</u></b>	Responsible for summarizing group decisions for the larger group.
<b><u>Recorder</u></b>	Responsible for keeping a record of the group's discussion
<b>Prioritizer</b>	Makes sure group focuses on most important issues and doesn't get caught up in details.
<b>Investigator</b>	Responsible for getting info from other groups when appropriate.
<b>Reality checker</b>	Responsible for noting group decisions and whether they are realistic.
<b>Devil's advocate</b>	Responsible for pointing out alternate viewpoints and asking tough questions.

# Group Assignments

	Clear pathways to CS Career	Not all students have early access (prior to HS)	Connection between industry and classroom	Best ways to compile data
<b><u>Facilitator</u></b>	Rebekah Michael (Post-secondary)	Chelsey Cook Kohn (PK-12)	Tonja Coverdale (Business)	John Wiseman (PK-12) <i>(or Janelle as sub)</i>
<b><u>Timekeeper</u></b>	Paula Naa Quartey (PK-12)	Tasha Penwell (Post-secondary)	Lisa Nolan (Federal)	Paul Sivilotti (Post-secondary)
<b><u>Reporter</u></b>	Tsavo Knott (Post-secondary)	Doug McCullough (Business)	David Landreman (Business)	Mike Eilerman (PK-12)
<b><u>Recorder</u></b>	Pat Murakami (PK-12)	Bryan Stewart (PK-12)	Brent Wise (PK-12)	Debbie Jackson (Post-secondary)
Unassigned Role	Mike Duffey (Post-secondary)	Tom Newman (post-secondary) <i>(Absent 5.11)</i>	Lisa Chambers (nonprofit) <i>(Absent 5.11)</i>	Katie Hendrickson (nonprofit) <i>(Absent 5.11)</i>
Unassigned Role	Autum Barry (nonprofit)	Kelli Shrewsberry (nonprofit)	JK Lee (Post-secondary)	Tim Conley (PK-12)
Unassigned Role	Courtney Falato (Business)		Kristi Clouse (nonprofit)	

# SCCS – Breakout Group Instructions

May 11, 2022 Meeting

## PRE WORK

Please read the three challenge areas included in the following pages. For each challenge areas, consider the following prompts (*note: you do not need to submit this work, but please be prepared to discuss at the meeting*):

- What best practices have you observed in your practice?
- How would you approach solving this challenge?
- How might this solution connect back to our previous recommendations?
  - How might staff from an office of CS carry out this solution?
  - What funding needs are necessary to carry out this solution?
  - Would this recommendation be incorporated into a previous solution or does this require a brand-new recommendation?

## MEETING INSTRUCTIONS

Read all instructions.

Start by assigning additional roles and reading through responsibilities. See table below for roles and responsibilities as well as named assignments.

Next, each committee member should share how they would approach solving this challenge.

As a group, discuss and capture your best-case scenario for how this recommendation could be implemented being sure to address all five sections of a SMART goal (page 4). Please discuss and capture in any order, but indicate on your planning document where each SMART section is being addressed.

Each sub- group will have 100-110 minutes to work. Your notes from this session will be shared with the entire committee. Committee members are asked to review and provide feedback on each recommendation as homework between the two meetings. One sub-group member will be asked to move your recommendation over from planning stage to capture in the recommendation template between now and the June 1<sup>st</sup> meeting. Your sub-group will then re-convene on June 1st to further flesh out recommendation (in the recommendation template), incorporate committee feedback, and share out recommendation to the full committee.



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# S

## Specific

- Who is involved?
- What will be accomplished?
- Where will this take place?
- What are the requirements and constraints?
- What are the resources needed?
- What are some of the short term and long-term fiscal impacts?
- Why: Provide the specific benefits of accomplishing this goal.

# M

## Measurable

- What would the unique metrics of success be for this solution?
- What additional metrics might be pulled in from other solutions?
- What are benchmarks that would need to be in place to ensure progress is on track?

# A

## Attainable

- Is this recommendation achievable?
- What are potential barriers or unintended consequences?
- Outline any steps that should be taken to mitigate these barriers/consequences.
- Is this recommendation dependent upon another recommendation? How so?
- How might staff from an office of CS carry out this solution?
- What funding needs are necessary to carry out this solution?
- Would this recommendation serve and support CS access or a CS course requirement?

# R

## Relevant

- Does this recommendation solve the challenge identified by the committee?
- Will it support Ohio in becoming a leader in CS education?

# T

## Time-bound

- What is the timeline for implementation?
- If this recommendation is dependent upon another recommendation, how does that impact this timeline?



# CS Solved Note Catcher

## SOLUTION CAPTURE

Challenge	Recommended Solution
Challenge 6: It's hard to find clear pathways for a computer science career.	
<b>Create your best-case implementation of this recommended solution using your SMART plan.</b>	
[insert best case implementation of this recommendation]	
<b>What questions does your group have for ODE/ODHE?</b>	
<b>What questions does your group have for other committee members?</b>	

# You will be successful if...

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At the end of this session you have a clear recommendation to share with the rest of the committee that they can give concrete feedback on between sessions.

Plan for about 100-110 minutes of work time. We will reconvene around 12:15.

In closing...



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# Homework

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Each committee member, read every team's capture document. For each recommendation, consider the following prompts and provide any feedback to move this solution and implementation plan forward:

1. If this recommendation is included in the committee report and later implemented, what positive benefits do you see occurring?
2. Are there any blind spots or unintended consequences we should consider? Please explain.
3. If this recommendation proceeds, what considerations would you want for implementation?
4. Evaluate does this solution and implementation plan effectively solve the challenge?
5. As written, would you recommend:
  - Including this proposal in the Ohio CS State Plan
  - Omitting this proposal from the CS State Plan (If recommendation is to omit, please provide feedback on why).

# What's next?

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- **Today's Homework:** Due Wednesday, June 25, 2022

Each committee member, read every team's capture document. Respond to each recommendation and implementation plan.

- **Pre-read for June 1-2: Send on May 26th**

Feb – April recommendations sent to full committee for review along with framing for full report.

# Committee Meeting Timeline

June 1 AM

- Student to Career Pipeline recommendations finalized

June 1 PM –  
June 2

- All recommendations are workshopped and finalized for submission for public comment.

June 13-28

- Open for public comment

July 13

- Discuss public comment, final vote, celebrate

# Validate your parking

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# Closing



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