RPPforCS

THE RPPFORCS RESEARCH QUESTIONS:

What are the RPP-specific activities and partnership characteristics that shape the extent to which/ways in which RPPs meet their goals for quality CS education?

How do different RPPs define and design around different indicators of healthy RPPs and how do they evolve over time?

How do RPPs measure their effectiveness at affecting CS education and broadening participation?

What is the influence of RPPforCS on the grant-funded community and broader CS education community?

CSFORALL: RESEARCH PRACTICE PARTNERSHIPS DESCRIPTIVE REPORT

In 2017 the National Science Foundation began funding a series of CS education research projects through the Computer Science for All: Research Practice Partnership program. The program focuses on researcher-practitioner partnerships as a model to foster the research and development needed to bring Computer Science (CS) and Computational Thinking (CT) to all primary and secondary schools. The hallmark of this program is to "strengthen the capacity of an organization to reliably produce valued CS and CT educational outcomes for diverse groups of students, educated by different teachers from varied contexts" and the studies have "less prescriptive research designs and methods, with research occurring in rapid, iterative and context-expanding cycles."

The CS for All: RPP projects share dual objectives of broadening participation in computing (BPC) and conducting research in CS education. From there, they differ widely in their BPC approach. Some seek to scale teacher professional development widely, some are investing in culturally responsive curriculum and pedagogy while others may be conducting research on a specific learning tool. The findings from the RPP projects have the potential to improve the CS education knowledge base with practical findings about teaching, learning and scaling CS.

Together SageFox Consulting Group, CSforALL and CSEdresearch.org with funding from the NSF convenes all interested awardees into a community to promote cross-project learning and collaborative research.

This project is titled RPPforCS. This report provides an overview of the CSforAll: RPP community drawing from several data sources:

- Public data sources such as Project abstracts published through FastLane or other information available via web searching
- Project-provided information to RPPforCS for research purposes, such as proposals, responses to information requests (i.e. districts in which the project is operating) and project surveys.
- Participant responses to the RPPforCS community surveyInformation about the awardees and the investment made by NSF includes the universe of awardees.

Information about the project impact and approach includes information from RPPforCS member projects who have provided additional details to the RPPforCS research team.

The CSforAll: RPP Awardees

AWARDS

representing
76
UNIQUE
PROJECTS

14
COLLABORATIVE
PROPOSALS

77%
four-year institutions
21%
non-profit institutions
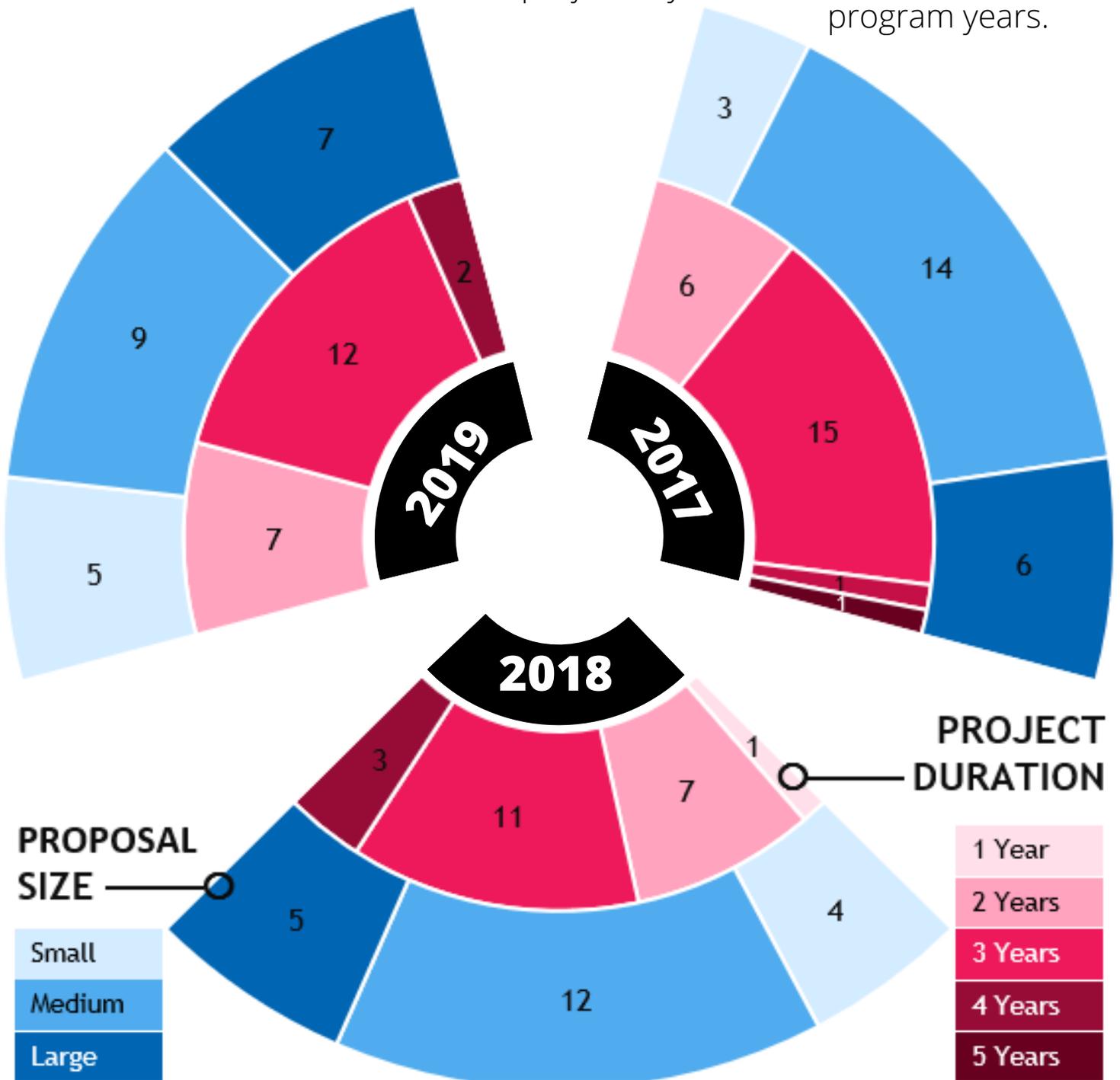**1**%
2-year institutions
1%
school districts

INSTITUTIONS

Investment in RPP

A total of $62,826,952.00 in small, medium, and large awards have been invested in RPPforCS projects by the NSF in the first three program years.

2019

7
9
2
12
7
5

2017

3
6
14
15
1
1
6

2018

3
11
7
1
5
4
12

PROJECT DURATION

1 Year
2 Years
3 Years
4 Years
5 Years

PROPOSAL SIZE

Small
Medium
Large

Small proposals (maximum of $300,000 for up to 2 years) are designed to support the initial steps in establishing a strong and well-integrated RPP team that could successfully compete for a Medium or Large proposal in the near future

Medium proposals (maximum of $1,000,000 for up to 3 years) are designed to support the modest scaling of a promising approach by a well-defined RPP team

Large proposals (maximum of $2,000,000 for up to 4 years) are designed to support the widespread scaling of an evidence-based approach by a RPP team that builds on prior collaborations.

Footnote: Projects may have multiple collaborative awards. This analysis considers the total funding per project.
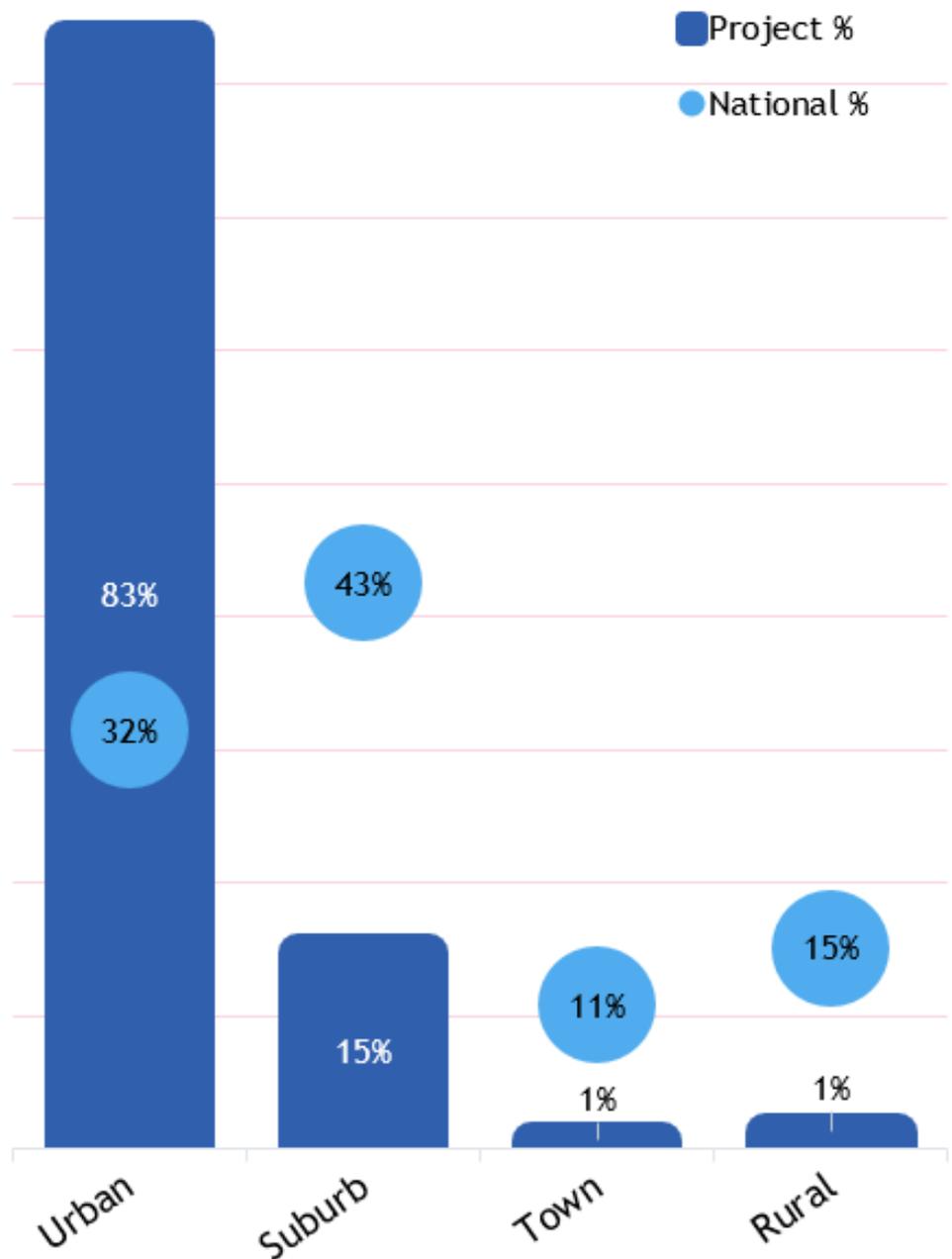
Impact

RPPforCS projects are known to be operating in

OVER 140 SCHOOL DISTRICTS IN 31 STATES

across the US (including Puerto Rico)[1]. The average distribution of student races, ethnicities, and free/reduced lunch status of these districts generally represents the overall national student population (±15%), suggesting projects are successfully following through with equity commitments.

RPPforCS projects are operating in rural, suburban and urban contexts with urban contexts being the most common,[2] primarily at the expense of remote rural districts[3]

Legend: Project % (dark blue), National % (light blue)

| Context	Project %	National %
Urban	83%	32%
Suburb	15%	43%
Town	1%	11%
Rural	1%	15%

1. 59 (or 82%) of projects have provided some form of district information.
2. See this US Census resource for definitions of urban and rural classifications.
3. those with a population density of less than 1,000 people per square mile, among other qualifying criteria
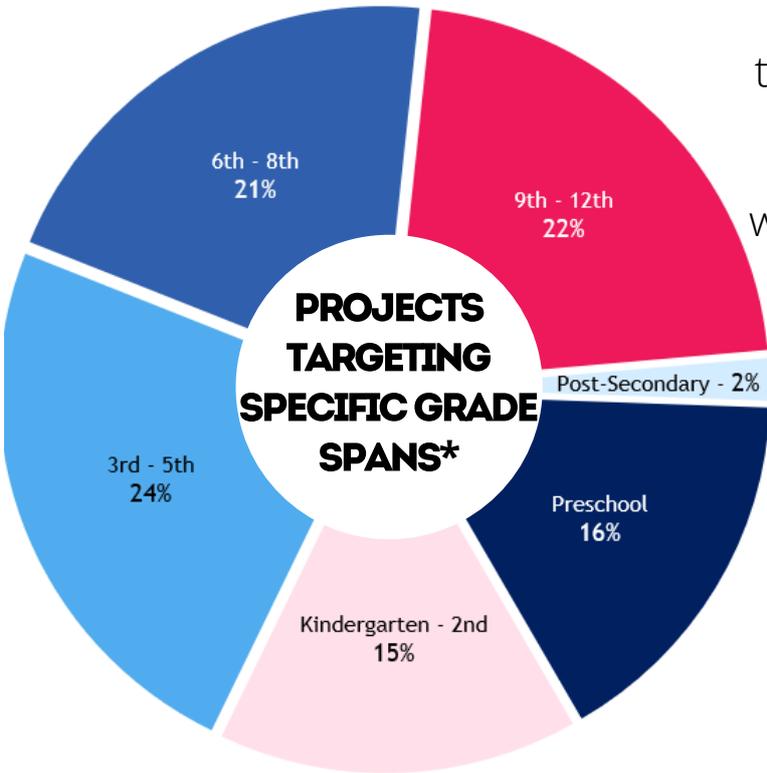
NATIONWIDE RPP DISTRIBUTION

● = one or more projects operating across the entire state.
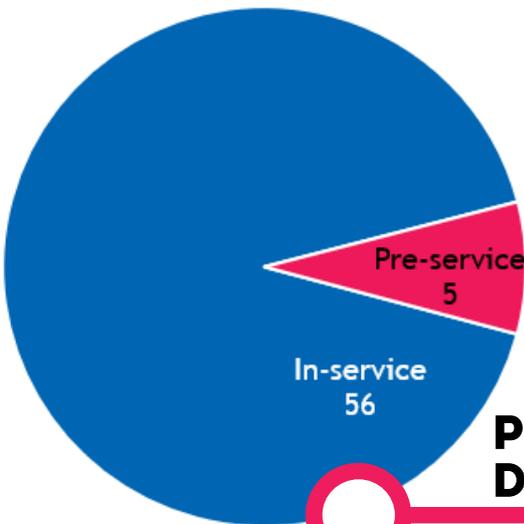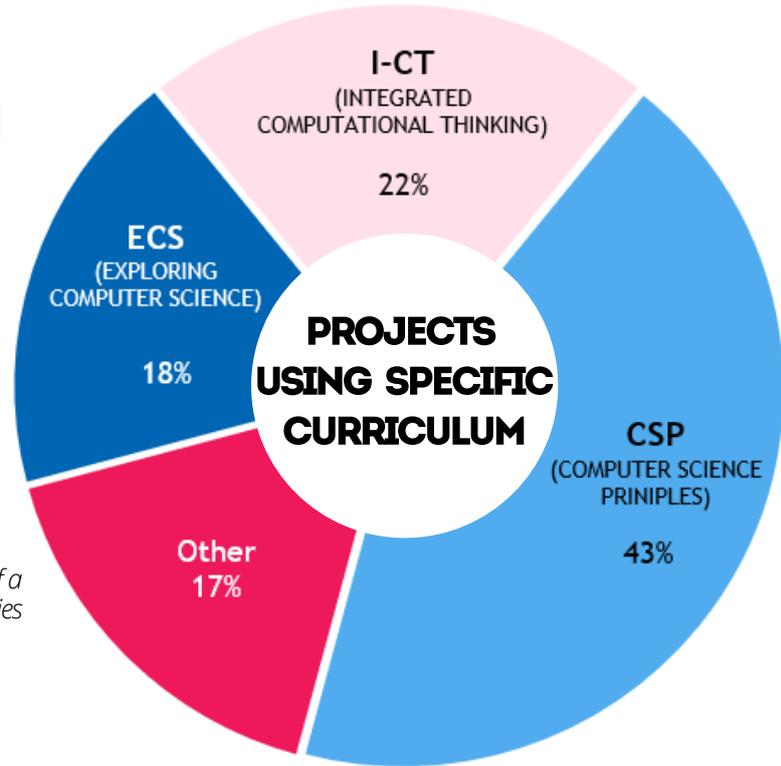
© OSM
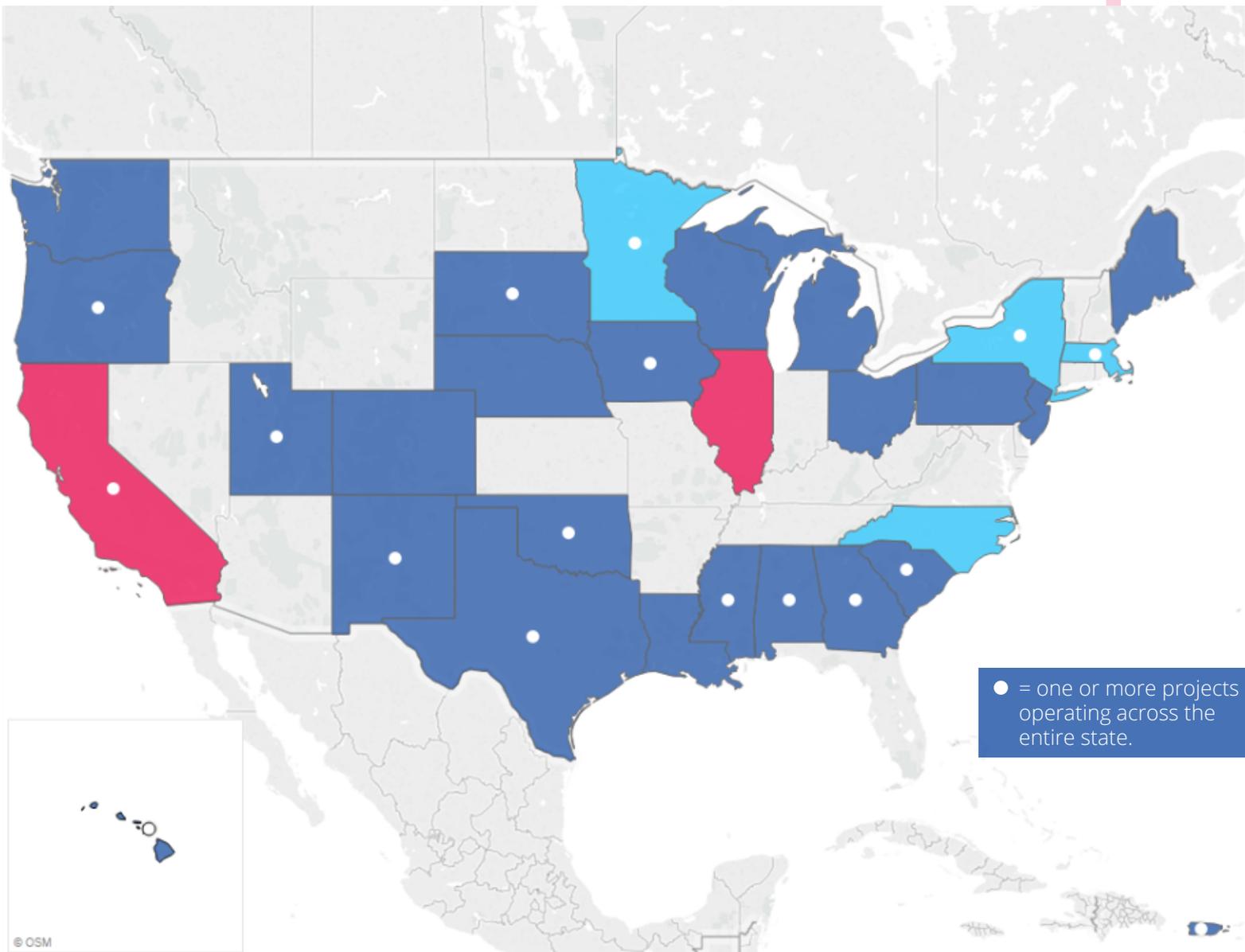
1-4 Projects **5-8 Projects** **9-12 Projects**

Projects are targeting a variety of grade bands from PreK up to and including post-secondary education with a variety of curricula including the Exploring Computer Science Principles (ECS) course, the AP Computer Science Principles (CSP) course or, integrating computational thinking into the curriculum (I-CT).

Almost all RPPforCS projects (85%) include some type of in PD for teachers, administrators, and/or other groups as part of their approach. Most projects are working with in-service teachers.

PROJECTS TARGETING SPECIFIC GRADE SPANS*

- 6th - 8th 21%
- 9th - 12th 22%
- Post-Secondary - 2%
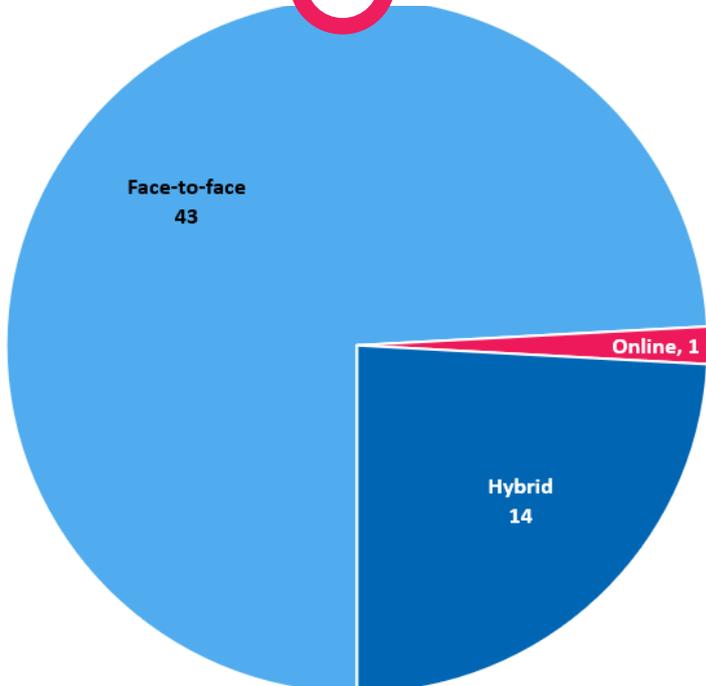- Preschool 16%
- Kindergarten - 2nd 15%
- 3rd - 5th 24%

projects are counted more than once if they span grades. For example, if a project spans grades 4-6, they were placed in both 3-5 and 6-8 categories

PROJECTS USING SPECIFIC CURRICULUM

- I-CT (INTEGRATED COMPUTATIONAL THINKING) 22%
- ECS (EXPLORING COMPUTER SCIENCE) 18%
- CSP (COMPUTER SCIENCE PRINIPLES) 43%
- Other 17%

PROFESSIONAL DEVELOPMENT

- Pre-service 5
- In-service 56
- Face-to-face 43
- Online, 1
- Hybrid 14

RPP APPROACH

- RA - 2 *Research Alliance*
- NIC - 17 *Networked Improvement Community*
- DBIR - 26 *Design-Based Implementation Research*