

Near-Peer Mentoring as a Tool for Increasing Interest in STEM

Ms. Margaret Hart, Johns Hopkins University

Margaret Hart, Ed. M is the STEM Outreach Advisor at the Johns Hopkins Whiting School of Engineering's Center for Educational Outreach. She works closely with student groups and leads our robotics outreach efforts. Margaret has a bachelor's degree in Astronomy from Boston University and a Masters in Teaching and Curriculum from Harvard University. She has worked as a software test engineer, run a high-school outreach program at the MIT Kavli Institute for Astrophysics and Space Research, and taught physics, astronomy and engineering in Cambridge, MA and at Baltimore City Public Schools in Baltimore MD. One of her passions is photography which she has taught to both middle and high school students.

Ms. Christine A Newman, Johns Hopkins University

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Professional Preparation: Virginia Polytechnic and State University B.S. Mechanical Engineering 1989
Marshall University MBA 1995

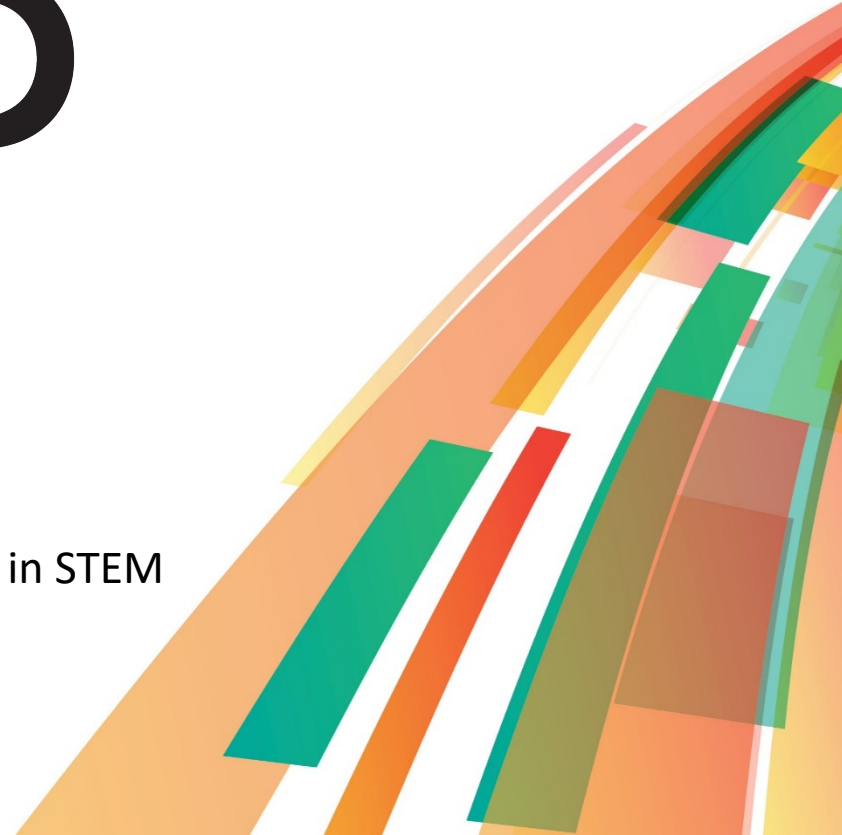
Appointments: 2010-Present Assistant Dean, Center for Educational Outreach, Whiting School of Engineering, Johns Hopkins University, Baltimore, MD 2007-2009 Director, Business Transformation Office, Single Family Mortgage Division, Fannie Mae, Washington DC 2005-2007 Program Pricing Director, Restatement Division, Fannie Mae, Washington, DC 2000-2005 Senior Program Manager, eBusiness Division, Fannie Mae, Washington, DC 1999-2000 Senior Product Manager, Essential Technologies, Inc., Rockville, MD 1998-1999 Product Manager, Essential Technologies, Inc., Rockville, MD 1994-1998 Manager, Air Programs, Apex Environmental Inc., Rockville, MD 1993-1994 Senior Environmental Engineer, Union Carbide Chemicals & Plastics, Inc., Charleston, WV 1989-1992 Advanced Systems Engineer, Union Carbide Chemicals & Plastics, Inc., Charleston, WV

Synergistic Activities: Project Leadership Team for STEM Achievement in Baltimore Elementary Schools (SABES), an NSF Funded Math Science Partnership with Baltimore City Public Schools Grant No. DUE-1237992, 2012 – 2018. Advancing Excellence in P-12 Engineering Education contributor 2017 and 2018 100K in 10 project team, 2019 Professional Engineer, Commonwealth of Virginia, License No. 021864, 1996-2010 Board of Directors, Maryland Science Olympiad, 2010-present; Chair, 2017 - present Co-Lead, STEM workgroup, Consortium for Urban Education, Baltimore, MD 2014-2015 Maryland State Department of Education STEM Equity workgroup 2014-2015 Champions Board, Mid Atlantic Girls Collaborative Network



**Collaborative Network for Engineering and
Computing Diversity**

Near-Peer Mentoring as a Tool for Increasing Interest in STEM





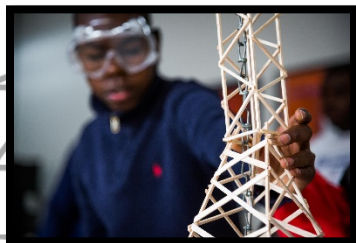
Overview

- Context
- How it Started
- What *IT* is
- Why Do We Do it?
- Money Talks
- Growing & Changing
- Reflection





Background/Context



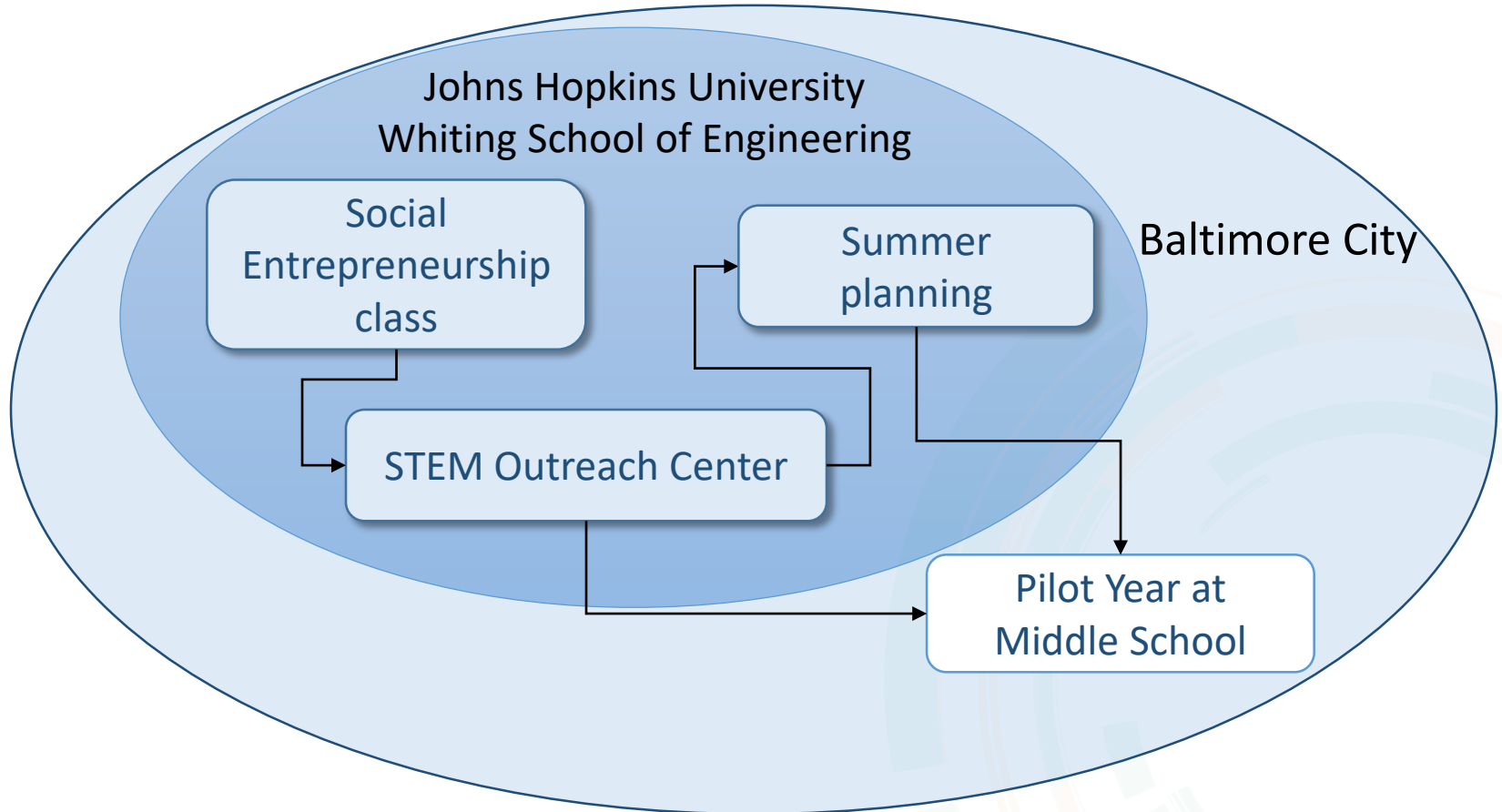
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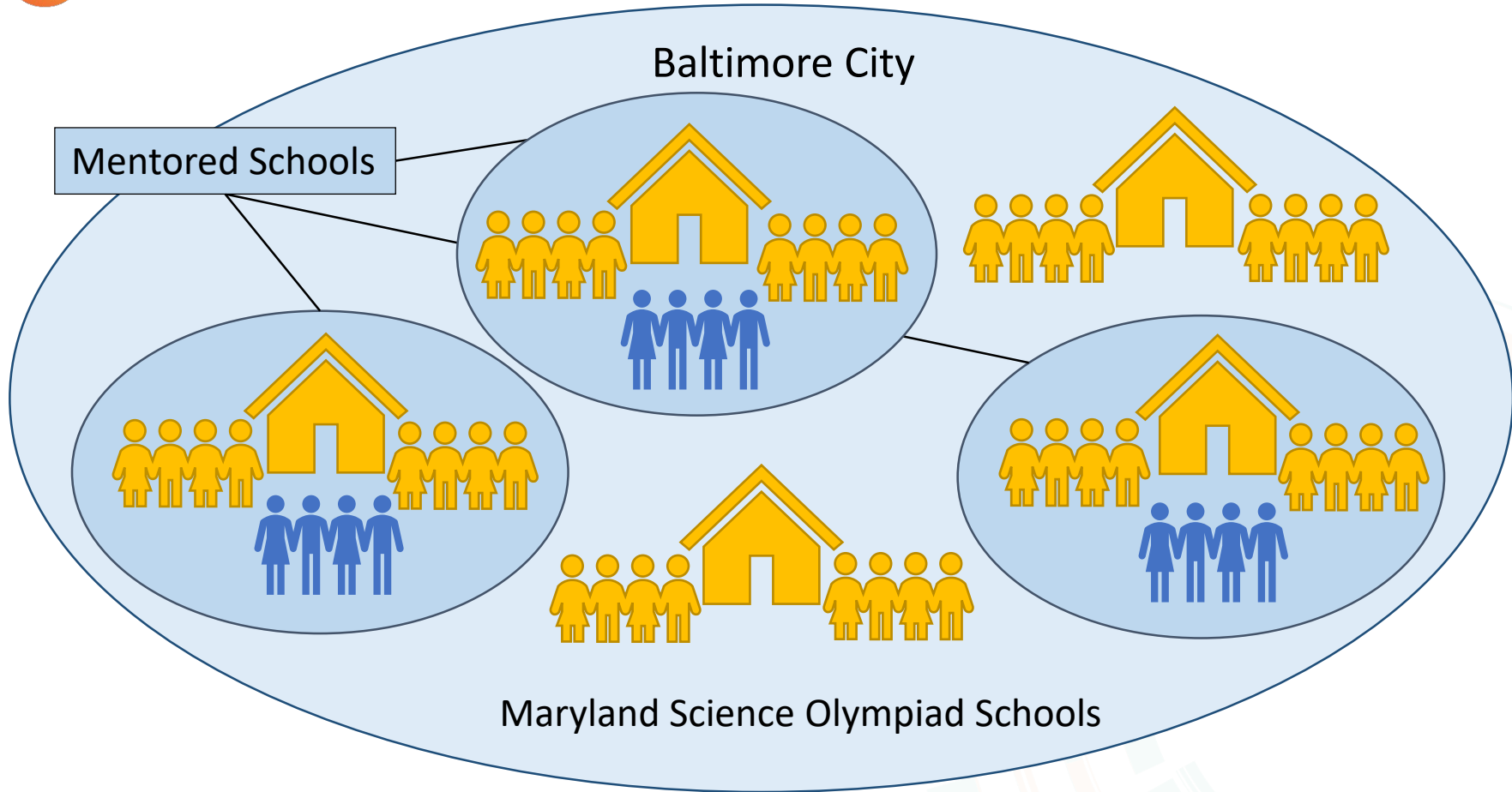


Beginnings and Connections





Program Structure





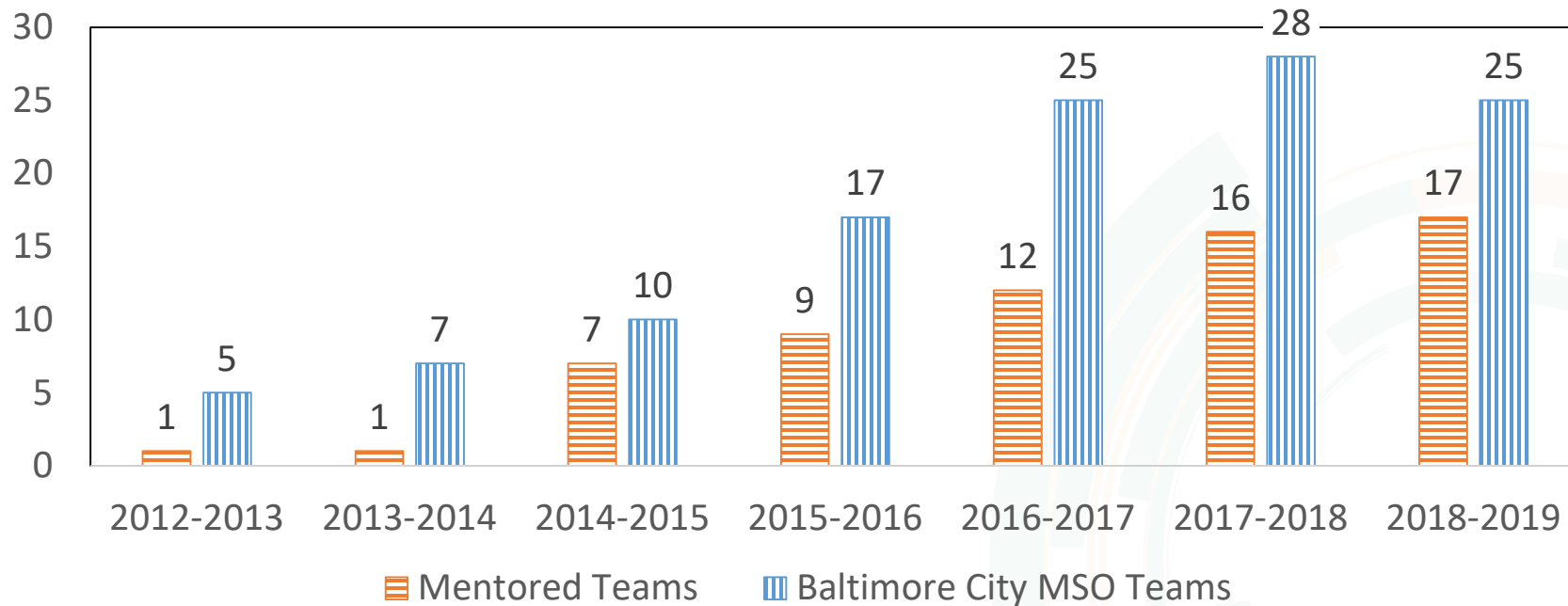
Near Peer Mentoring





Expansion

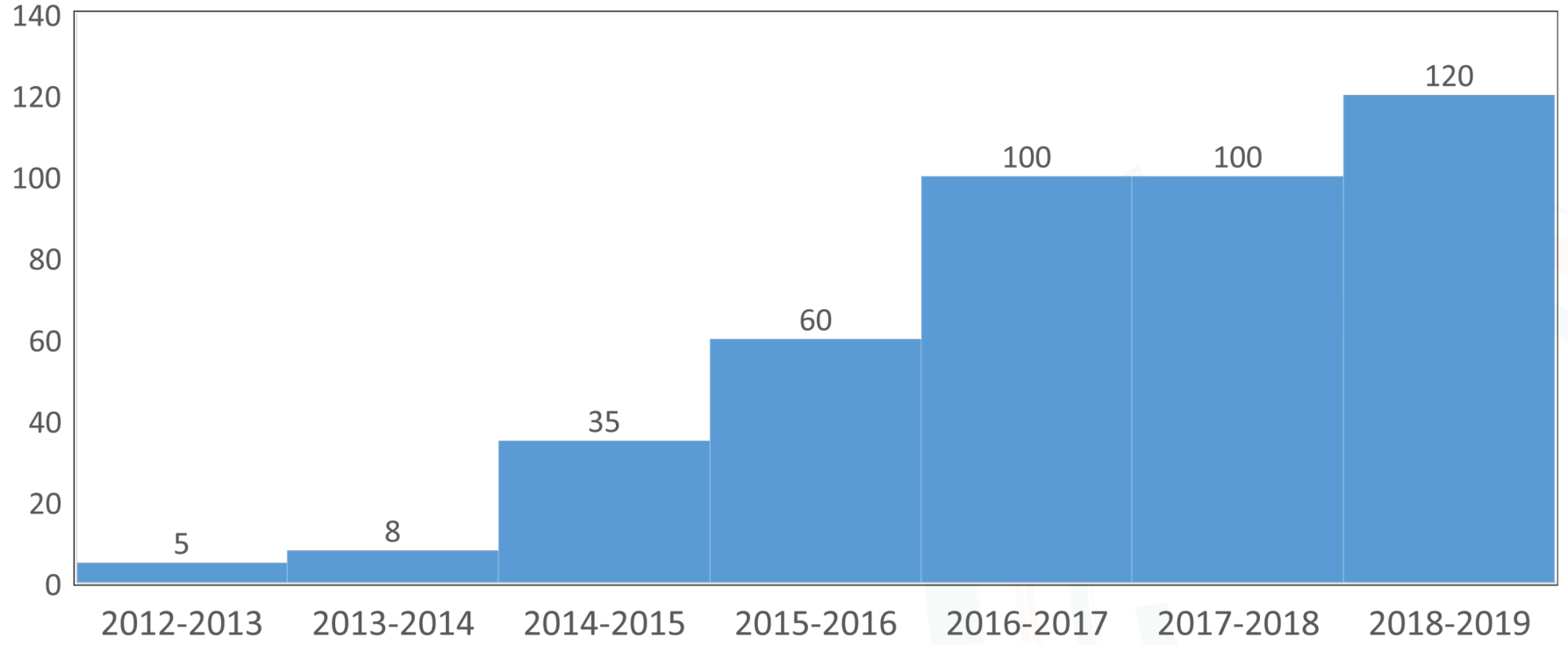
Growth of Science Olympiad Teams





Expansion

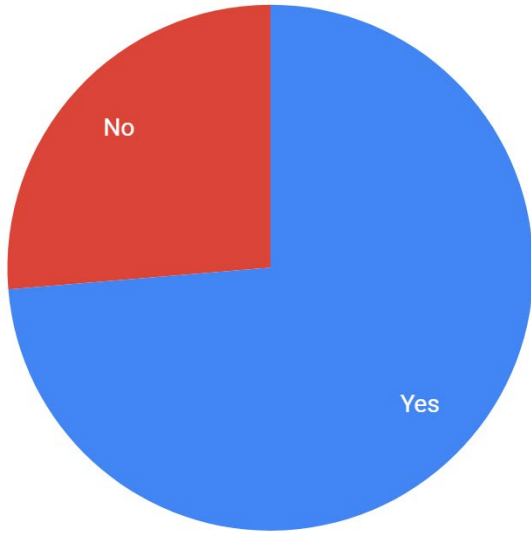
Membership Growth



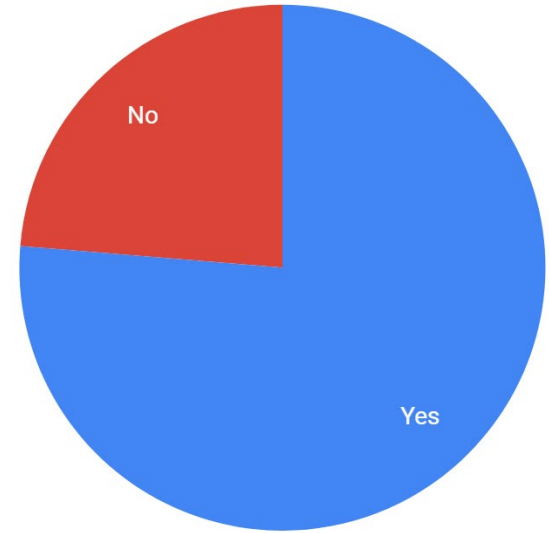


Member motivations

Previous SO Experience



Considered Mentoring When Scheduling Classes



● Yes

● No

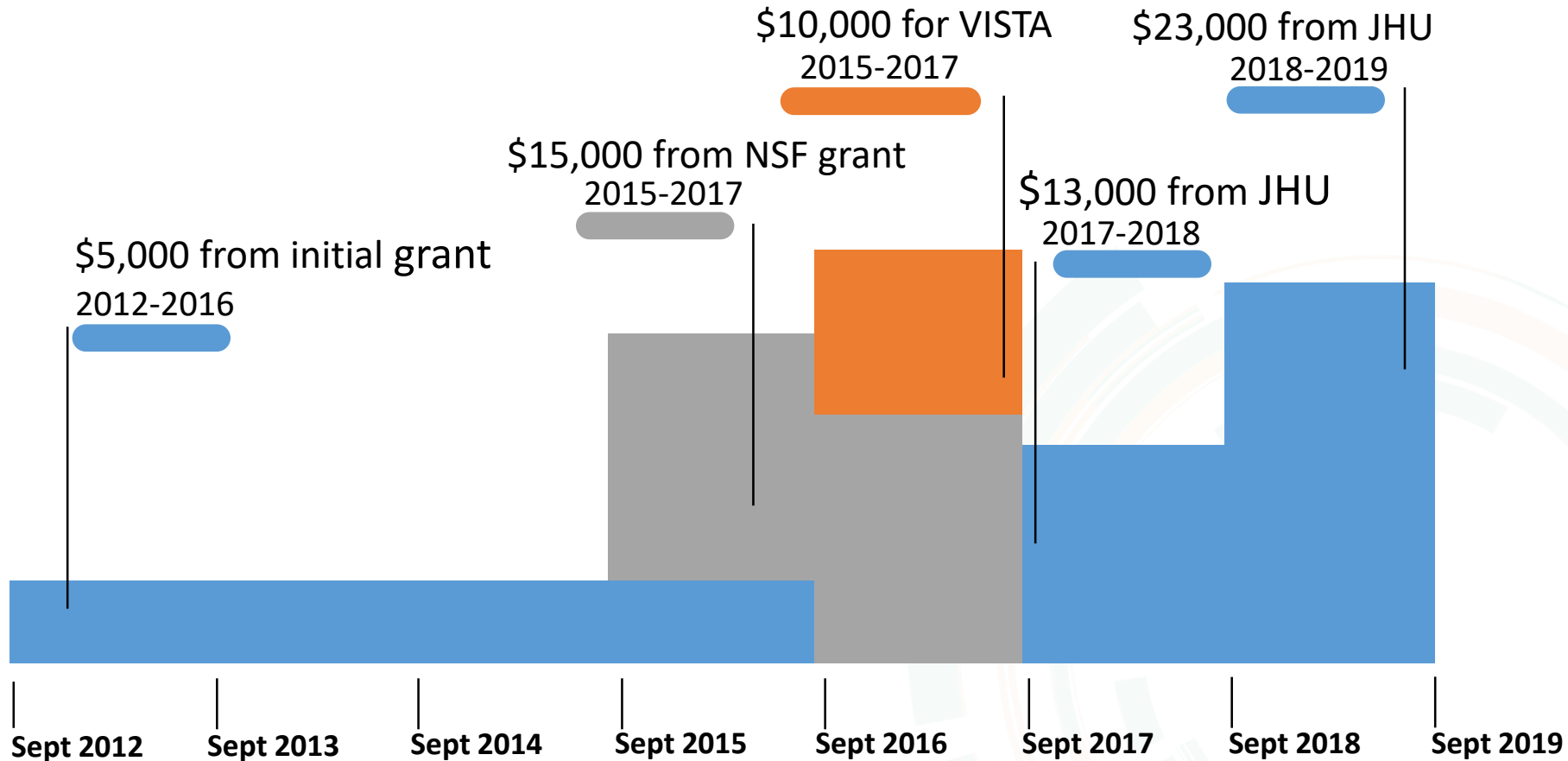


Member motivations



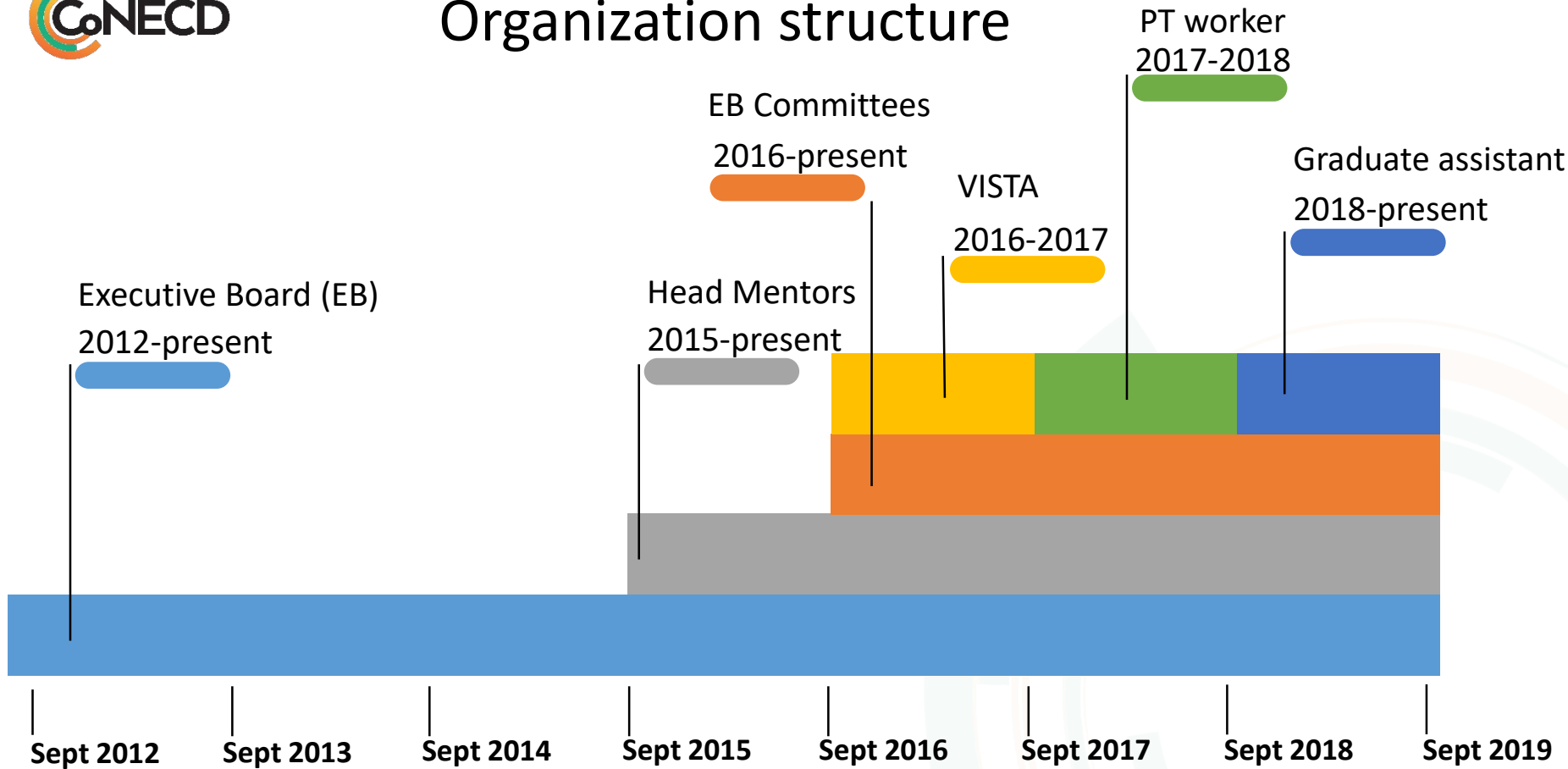


Financial Support



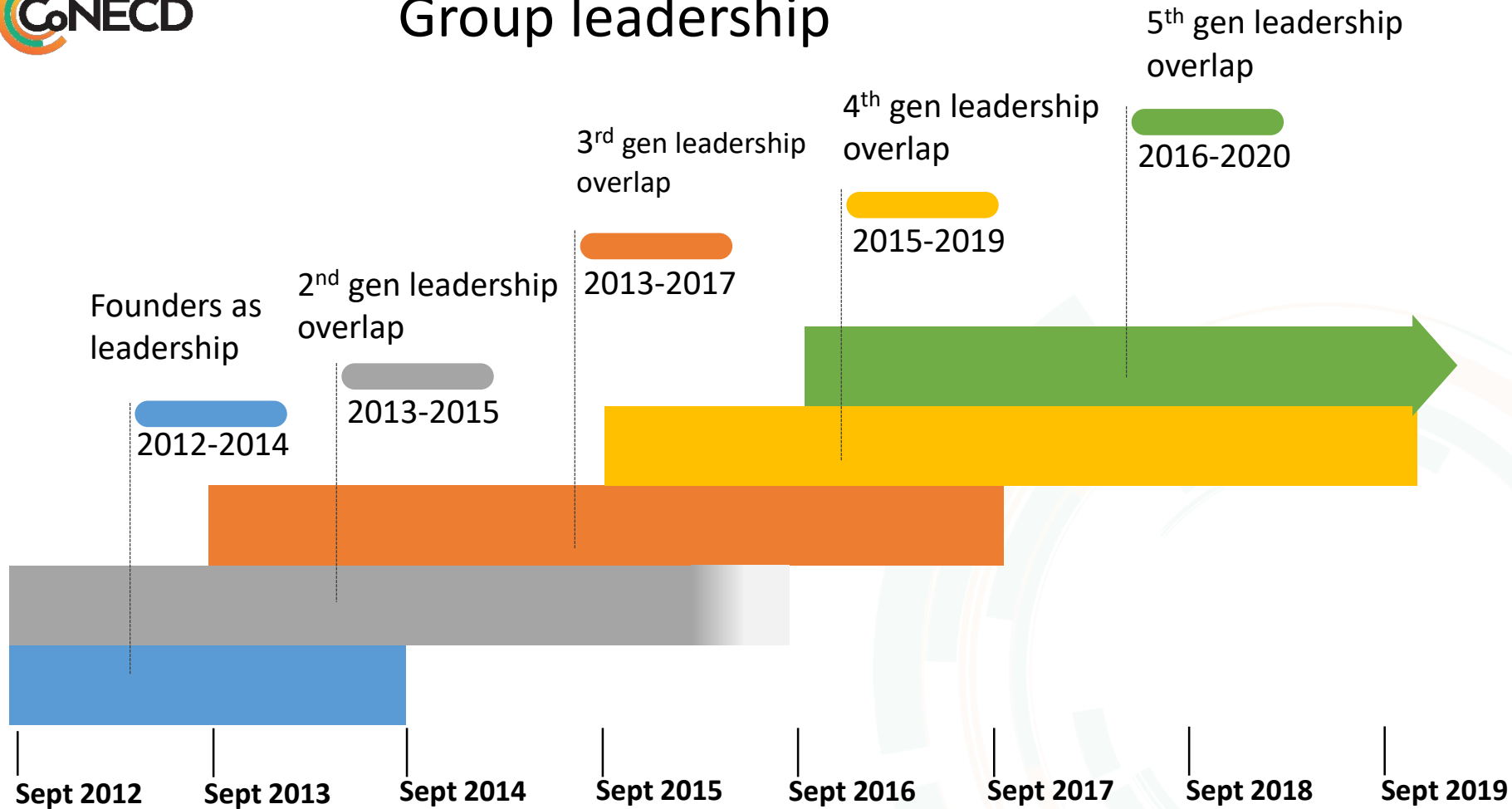


Organization structure





Group leadership





Group leadership





Growing Pains

2nd gen
leadership
2013-2015



VISTA

3rd gen leadership
2013-2017





Lessons learned

Community partnerships are complex and ever-changing and need oversight

College students may not realize their limits until it's too late



Strong student leadership and role modeling