

Career Connect Washington: Strategic Plan

STEM Education Innovation Alliance

BAIN & COMPANY 

Significant gap between supply and demand of skilled workers in Washington – and a large opportunity for Career Connect WA to fill it



**MANY EMPLOYERS
SEEKING
SKILLED LABOR**

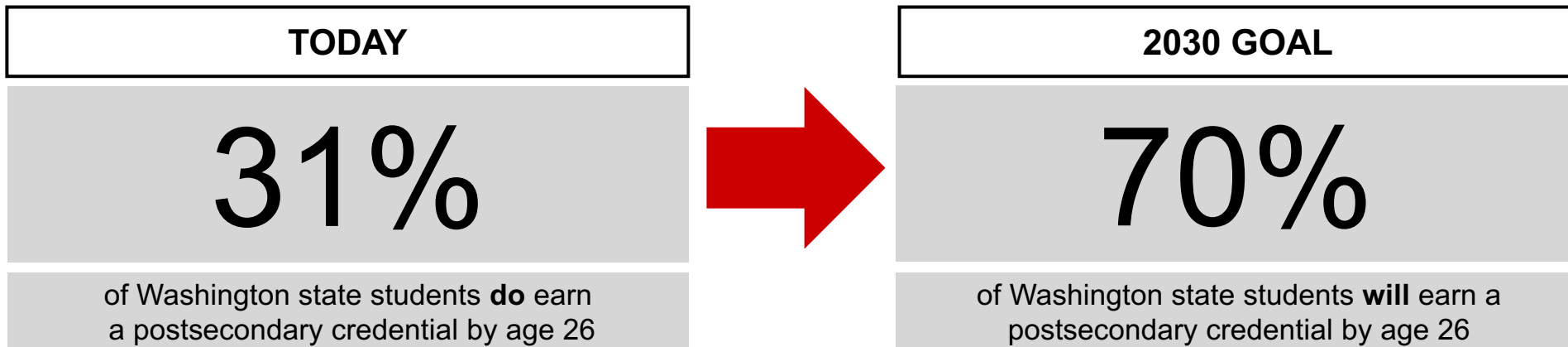
740,000 job openings expected in WA in next five years;
70% will require **postsecondary credentials**



**FEW GRADUATES
WITH RIGHT
SKILL SET**

Only **31%** of WA high school students earn a
postsecondary credential

OPPORTUNITY FOR CAREER CONNECTED LEARNING IN WASHINGTON:



Context for our efforts: Success for this effort depends on a close partnership between business, labor, government, and education stakeholders across the state

Project leadership – Maud Daudon
Project management / coordination – Marc Casale

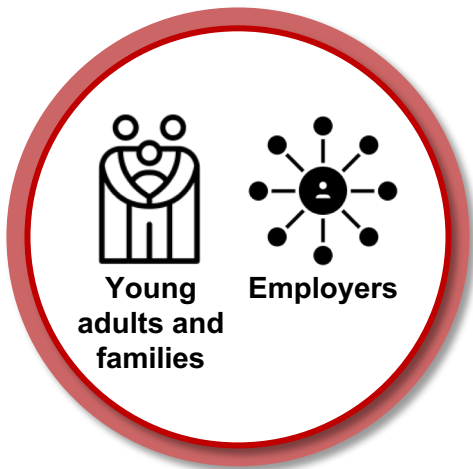
Business and Philanthropy Leadership Committee

Industry Sector Leaders
 Ben Bagherpour, Hans Bishop, Ray Conner, David D'Hondt, Perry England, Tim Engle, Scott Morris, Susan Mullaney, Brad Smith, Brad Tilden, Ardine Williams, John Hurd

Funders
ballmer GROUP
 James and Judy K. Dimon Foundation

BILL & MELINDA GATES foundation
Microsoft
Bloomberg Philanthropies

Industry Association Leaders

Legislative Leadership Group



Labor Leadership Group



WASHINGTON BUILDING TRADES
 + others not listed

Intermediaries and Experts
 (e.g., Road Map Project, Suzi and Eric LeVine)

- Industry Sector Groups (incl. employers, labor, etc)**
- Healthcare
 - IT
 - Manufacturing
 - Agriculture
 - Maritime
 - Life Sciences
 - Utility
 - Aerospace
 - Construction

Education and Government Leadership Group—led by John Aultman, Kate Davis, and WA Legislature



Strategic Planning



National / Regional Expertise



Communications



Regional Working Groups (e.g., WA STEM networks, regional workforce development)



+ others not listed

To address this opportunity, there are many career-connected learning efforts already underway in Washington

/ NOT EXHAUSTIVE



Deep Dive: Registered Apprenticeship

/ PRELIMINARY / EXAMPLE

Registered Apprenticeships are federally and state-approved programs that provide workers with skills required to meet employer needs, yielding a credential, training, and work experience. Upon program completion, workers are competitive candidates for employment and have been working in the field for several years.

Criteria

On-the-job experience

- 2K-10K hours
- At employer site
- Paid for work hours
- Dedicated mentor

Classroom learning

- 144 hours+ each year (per every 2K hours OJT)
- In-class instruction up-to-date with industry needs

High-opportunity jobs

- Jobs are recognized and valued throughout an industry
- Highly skilled occupations

Credentials

- Trade certification (may be stackable)

Funding sources

- Apprentices, Employers, State operating funds (via CTCs)

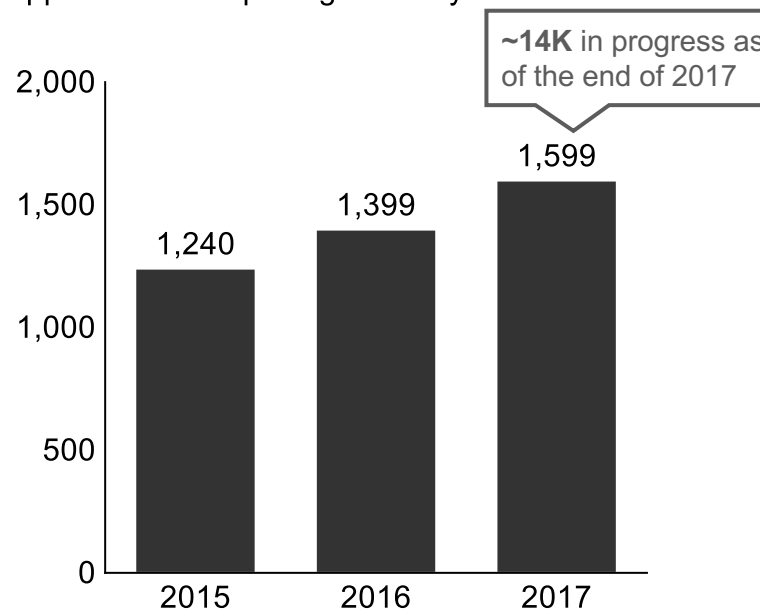
Governing Bodies



Current WA programs

- **Top occupations (~60% of registrations)** are Fire Fighters, Carpenters, Laborers, Electricians, Ironworkers, Drywall installers, Sprinkler fitters, Roofers, Tree trimmers

Apprentices completing annually



What we've heard

"[Being an apprentice] is life-changing for me. This is something that I have a strong passion for and I can easily do this for the rest of my life if need be. I'm having a blast with this."

Student, IT Apprentice

*"Apprenticeships provide important skills but it's a complicated system and can be difficult for employers, educators, and young adults to opt in. The holy grail is to set up something for apprenticeships that is **simple and widespread**."*

Leader, Education

*"There are **preconceived notions about apprenticeships and labor unions** – not all apprenticeship programs are connected to a union, but many are."*

Leader, Industry Associations

Source: <https://www.lni.wa.gov/TradesLicensing/Apprenticeship/>; Apprenti website; WSATC quarterly reports; Business and Philanthropy Leadership interviews

Although Washington is a leader in career-connected learning, there are opportunities to improve outcomes overall

There is much to be excited about in Washington...

Variety of programs

- Robust apprenticeship system; dozens of individual programs serving a wide range of needs

Many young adults served

- Thousands of individuals served by programs today

Engaged, motivated stakeholders

- Multiple organizations and individuals excited to contribute

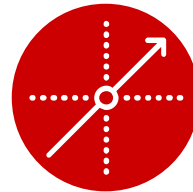
Funding progress

- Legislation, RFP processes already in place

...but we have opportunities to improve



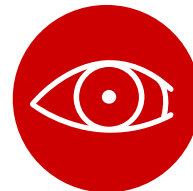
- **Vision:** Our stakeholders are not aligned on (or collectively working toward) a shared, well-understood, long-term vision



- **Scale:** There are aspects of the current career-connected learning ecosystem preventing us from reaching more young adults / families / employers

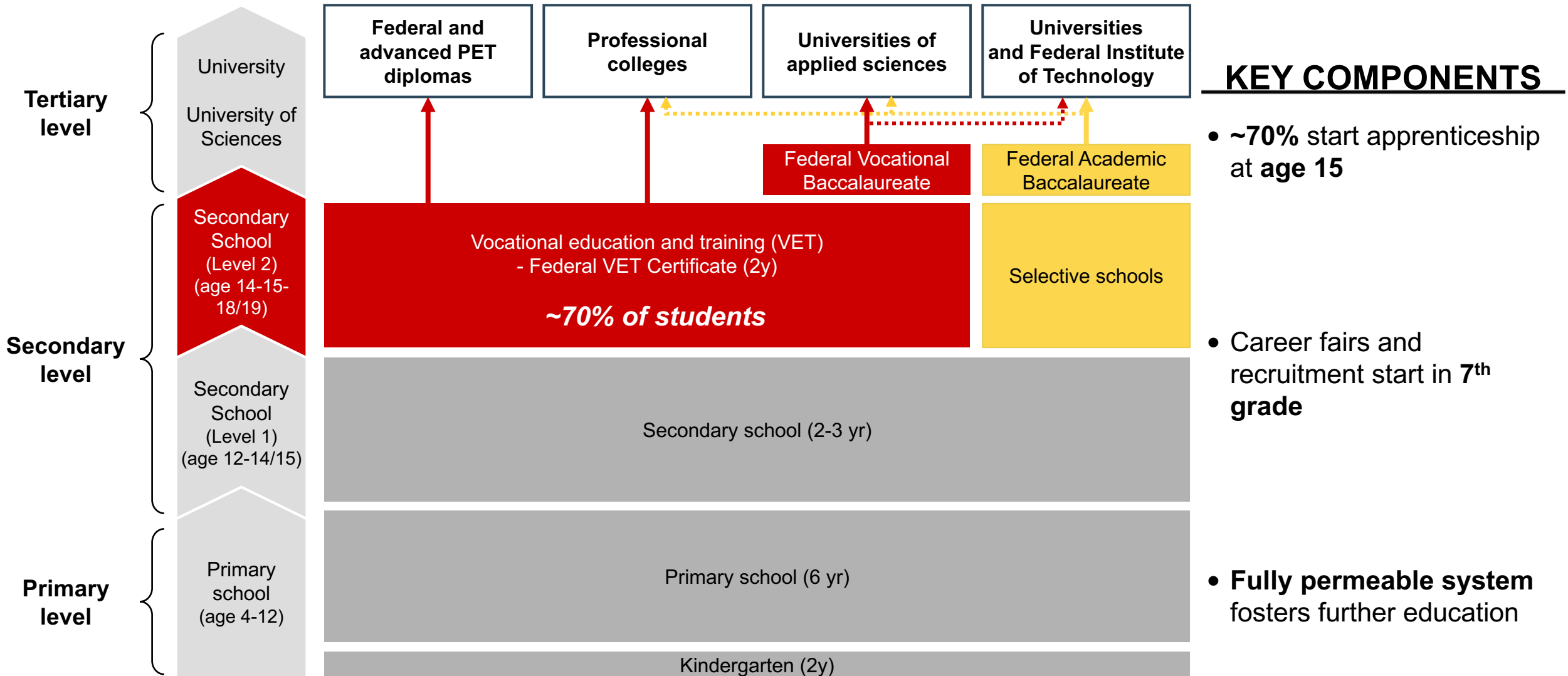


- **Coordination:** We lack coordination across programs, at regional and state level, to make career-connected learning more effective in WA



- **Perception:** There are cultural barriers preventing further adoption of career-connected learning

A full-potential example: Swiss apprenticeship model has equalized unemployment rates for youth and general population (~3.1%)



Source: Graphic: SFS Group; Data: Die Lage auf dem Arbeitsmarkt – Swiss government September 2017 report

We will create 6 key deliverables that will enable implementation of a system of career-connected education across Washington



10-year program vision

Student offering, career/ed pathways, % WA young adults enrolled, prioritized schools/districts, employer offering, prioritized industries



Detailed system design

Identifying key tensions / tradeoffs, ways of integrating with existing programs, and target populations for both pilot and end-state phases



10-year growth plan

Initiatives, owners, phasing, costs, milestones, and tracking metrics



Funding model

Including both philanthropy and self-funding



Governance model

to be accountable for the rollout and realization of 10-year vision



Engagement and communications plan

Including key actors who need to commit and support the system

Our timeless vision for career-connected learning in Washington

/ DRAFT



Timeless articulation of principles, values, and core capabilities

Every young adult in Washington will have **multiple pathways toward economic self-sufficiency**, strengthened by a **comprehensive state-wide system for career-connected learning**.

- **Better outcomes for young adults:** Every young adult will have agency and support to choose from a suite of pathways to post-secondary credentials and high-potential careers, including but not limited to 4-year college, and with equity of opportunity for all demographics

Young adults will...

- be academically prepared and work-ready
- be supported and guided in making choices about their education and careers
- have meaningful and engaging learning experiences
- complete those experiences
- gain valuable credentials for high-opportunity careers
- move forward on their path toward careers and / or further education.

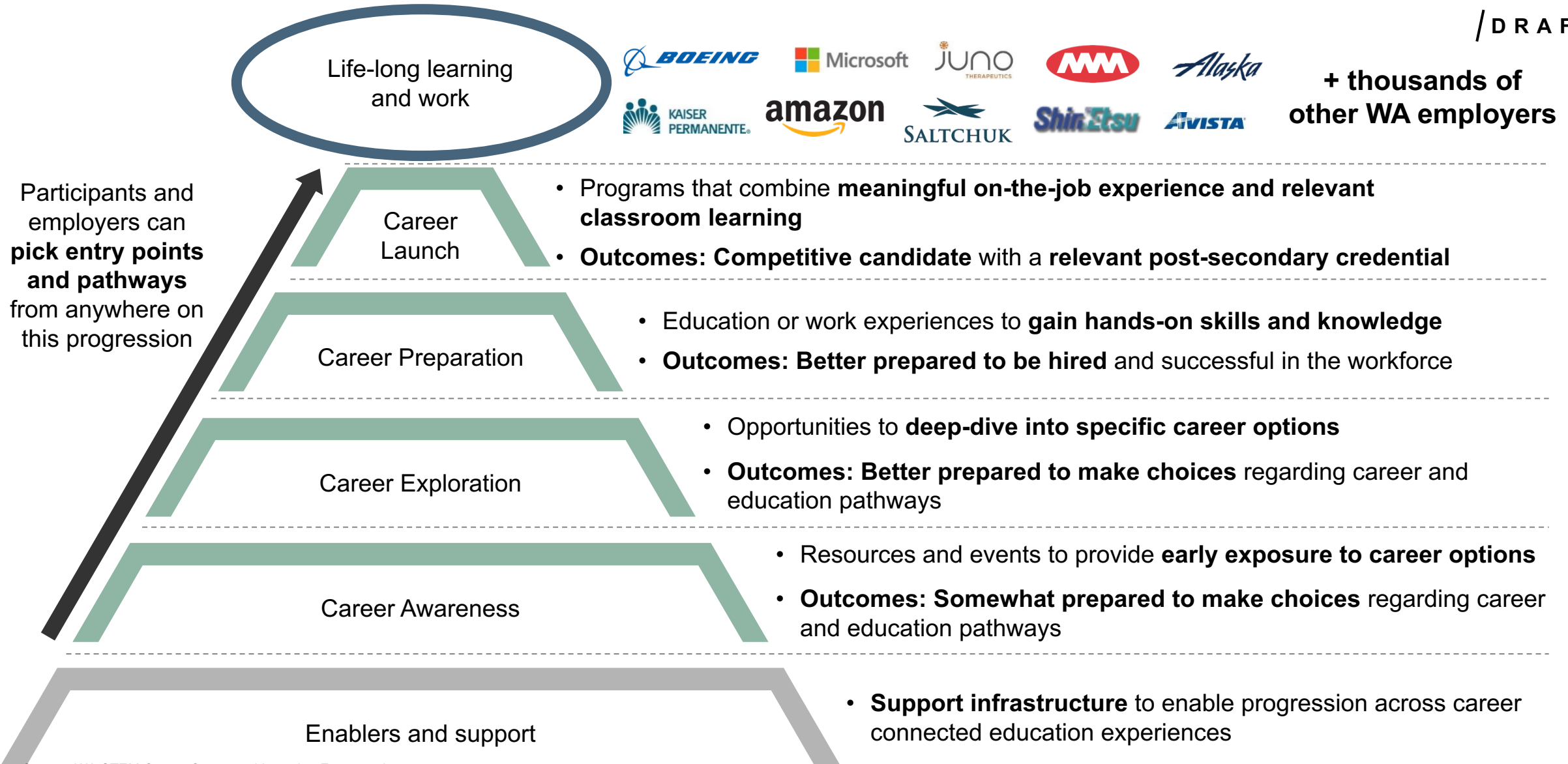
- **Better outcomes for employers:** Improve talent pipeline with a deeper and more diverse pool of local talent, who are work-ready and trained with relevant career skills

Employers will...

- have easy, accessible engagement in career-connected learning efforts
- Increase / expand sponsorship of young adults in career-connected learning
- have access to talented candidates that are prepared and trained to fill workforce gaps
- improve retention of that talent over time
- have a workforce of life-long learners, passionate about their career choices
- be well positioned to upskill workforce to meet changing industry needs

Career-connected learning is a range of different experiences, all moving young adults toward lifelong learning and work

/ DRAFT



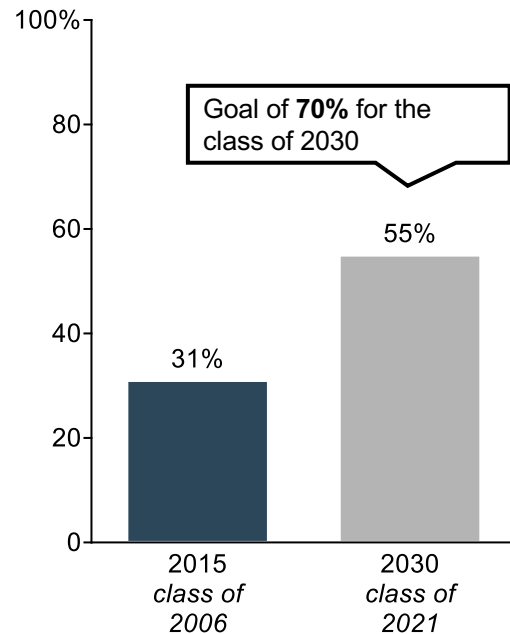
Source: WA STEM Career Connected Learning Framework

We will know we are successful when Washington improves across 4 key metrics

/ ILLUSTRATIVE

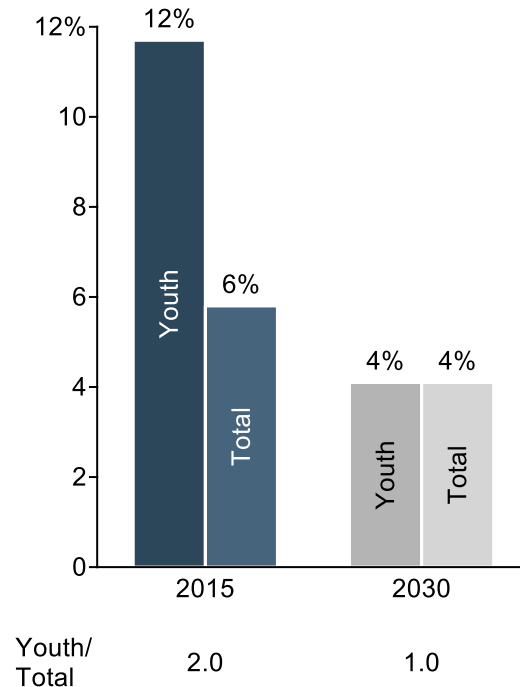
Increased postsecondary credential attainment...

% WA high school students who earn a postsecondary credential by age 26



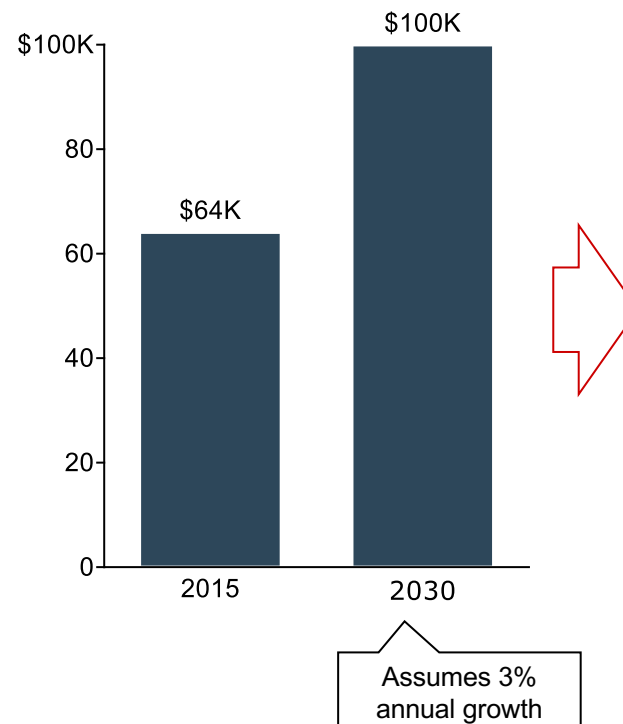
...increased youth employment...

WA unemployment rate



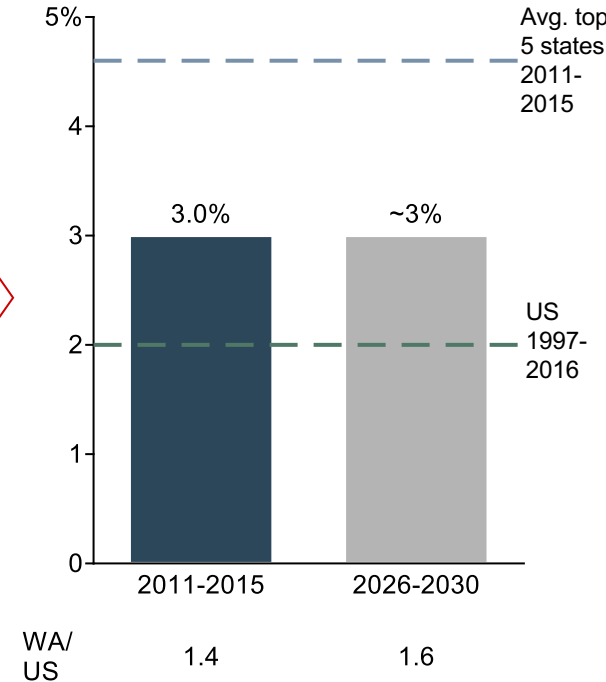
...and increased economic mobility...

WA Median Household Income



...will all drive economic prosperity in Washington

WA 5 year real GDP CAGR



Note: Assumes both youth (16-24) and WA total unemployment reach US average unemployment (4.1%); Assumes US 5 year real GDP CAGR of 2% from 2026-2030; Assumes top quartile states on average ~1.5X US 5 year real GDP CAGR based on top quartile states for 2011-2015

Source: WA Roundtables Pathway to Great Jobs in Washington State; Bureau of Economic Analysis; Bureau of Labor Statistics; U.S. Census Bureau

How can you engage with Career Connect WA State System design

We want to hear your voice during the system design process

- Drop us a note anytime at info@careerconnectwa.org and sign-up for our webinars

Help us identify systemic barriers and opportunities you see

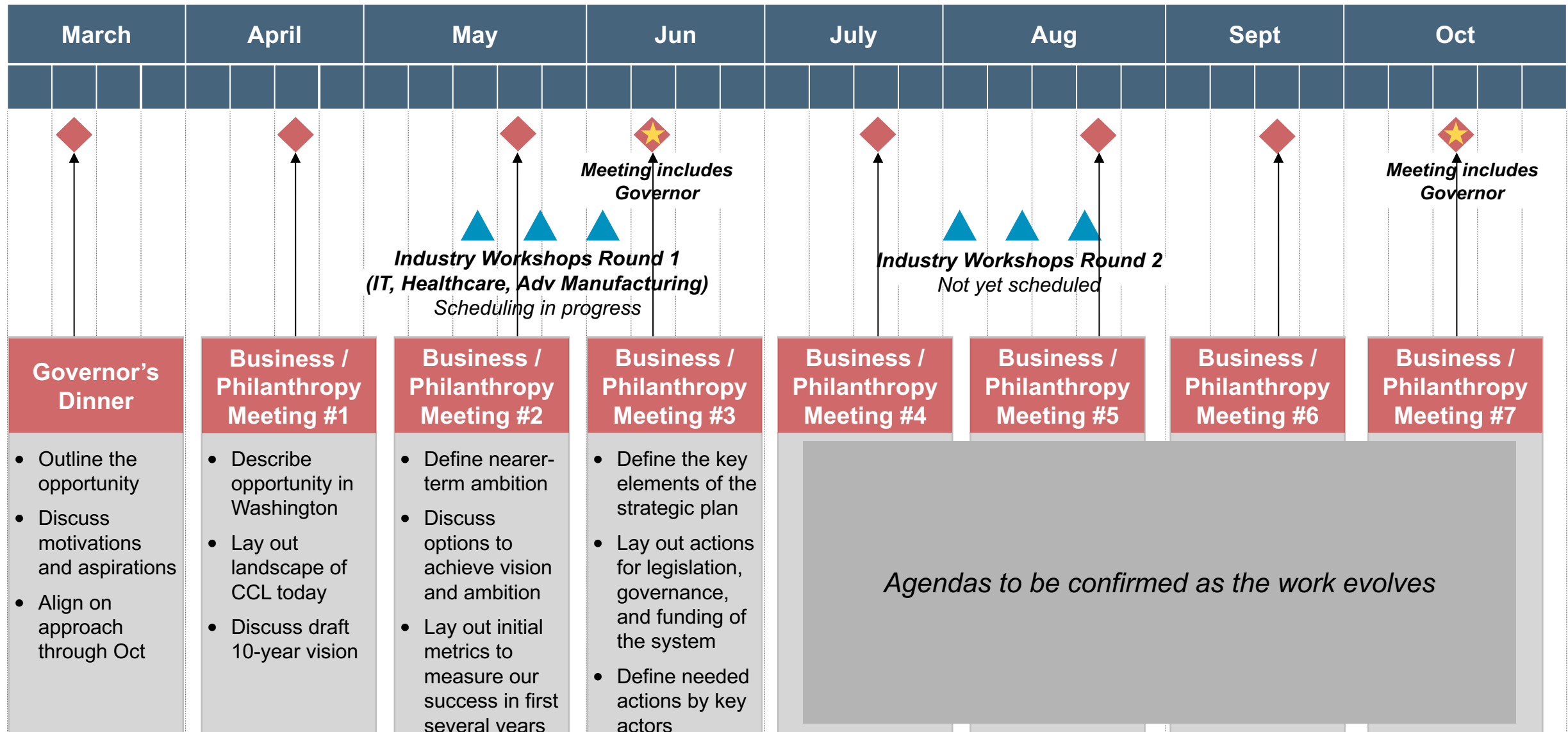
- Help us understand policy and procedural challenges (e.g. funding disincentives)
- Help us understand tools that are already in place to support the system (e.g. Running Start for dual credit)

Help us understand how to grow Career Connected Learning experiences

- How can we grow and diversify registered apprenticeships?
- How can we work with employers to create other high-quality Career Connected Learning experience?

Backup

Context for our efforts: The Business and Philanthropy Leadership Committee for the system design meets monthly



Executive summary – where we stand now

Opportunity

- **Washington is growing GDP >3% per year**, but our **young adults are not accessing economically self-sufficient, choice-filled lives** – unemployment remains twice as high for youth as for the state overall
 - Despite the majority of job listings in WA being accessible to young adults and paying a sustainable wage, employers are struggling to fill these jobs in a timely manner (<1 month)
 - Most of these jobs (~70%) require post-secondary education, but only ~31% of WA students are earning a post-secondary degree, creating a gap between demand and supply of talent, even as Washington is set to create 740K new jobs by 2021

Ongoing efforts

- **Many career-connected learning programs exist today in WA**, serving thousands of young adults statewide with programs that guide them toward fulfilling careers and / or further education
 - ~8K young adults participate in Registered Apprenticeships annually
 - Many other career-connected programs are supported by key government agencies, plus enabling programs (e.g., Running Start) and intermediaries (e.g., Road Map Project, WA STEM)
 - With strong support from Governor Inslee, Washington is ramping its efforts to create an integrated, scalable system to reach more young adults

Challenges

- **Washington's breadth in career-connected learning is exciting, but we have opportunities to improve**, and a unique window of opportunity with bipartisan, broad-based support. **We need:**
 - A unified, well-understood, long-term vision, and an understanding of where we fall short today
 - Greater ability to scale career-connected learning to reach more young adults, families, and employers
 - Better coordination across programs, at regional and state level, to make career-connected learning more effective for young adults, families, and employers
 - Progress toward removing cultural barriers to further adoption of career-connected learning

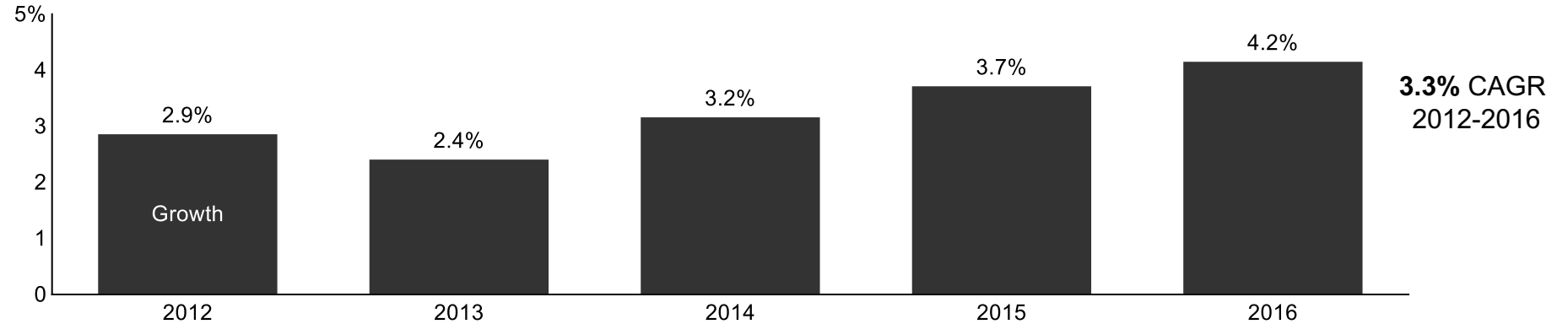
Vision

- Our **long-term vision** is that every young adult in Washington will have **multiple pathways toward economic self-sufficiency**, strengthened by a **comprehensive state-wide system for career-connected learning**
 - Vision should also improve equity of opportunities for disadvantaged groups (e.g., lower income and minorities)
- In the next Business and Philanthropy Leadership meeting, we will focus on our **nearer-term ambition**, with more specific goals for years 1-5

The opportunity: Washington's economy is growing 3%+ per year, but the youth unemployment rate remains >2X that of WA overall

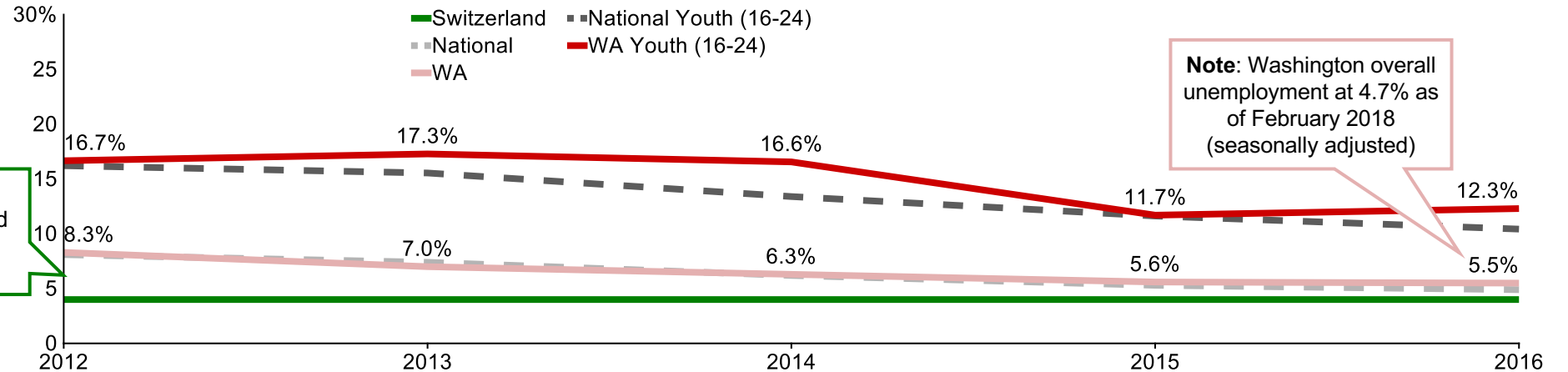
Washington's economic (GDP) growth

Real YoY GDP Growth, Washington State



Washington's youth unemployment

Unemployment rates (%)



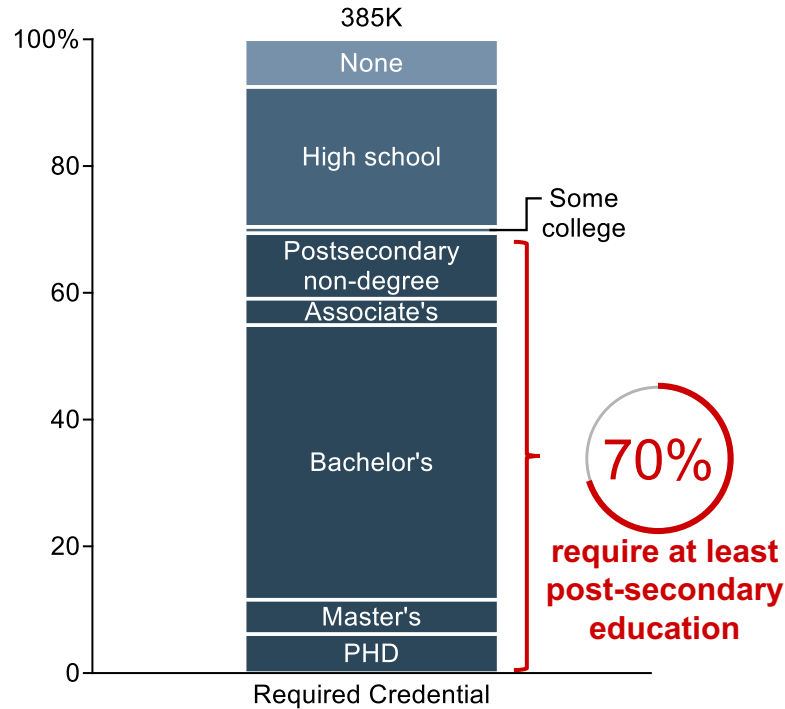
Reference point: Youth unemployment in Switzerland is the same as overall unemployment at ~4%

Note: Unemployment rates do not include individuals who are not in the labor force (e.g., students). Unemployment rates are annual (not seasonally adjusted). Source: Bureau of Economic Analysis; Bureau of Labor Statistics; Employment Security Department; Interview with Swiss Industry Association

The opportunity: Employers' stated job requirements do not align with credentials being earned by WA young adults, creating a gap in talent supply and demand

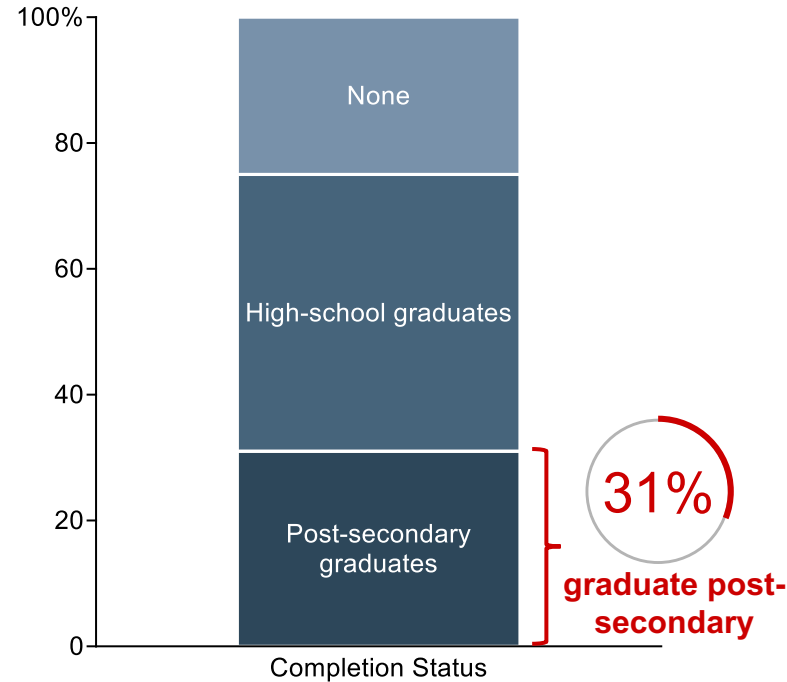
~70% of high opportunity jobs require post-secondary ed...

Washington high-opportunity online job postings reporting required credential 2017



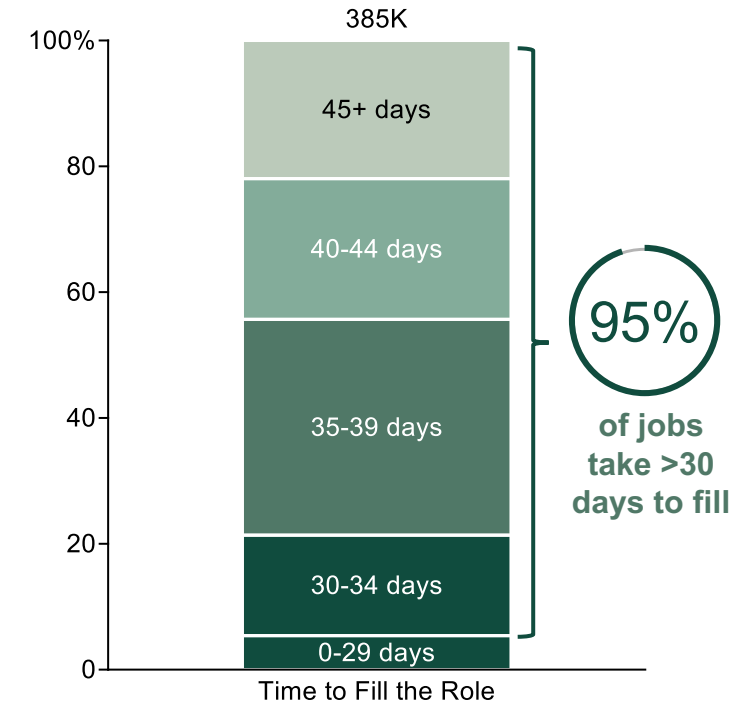
...but only ~31% of WA students are completing post-secondary...

Washington high schoolers by completion status (cohort graduating high school in 2006)



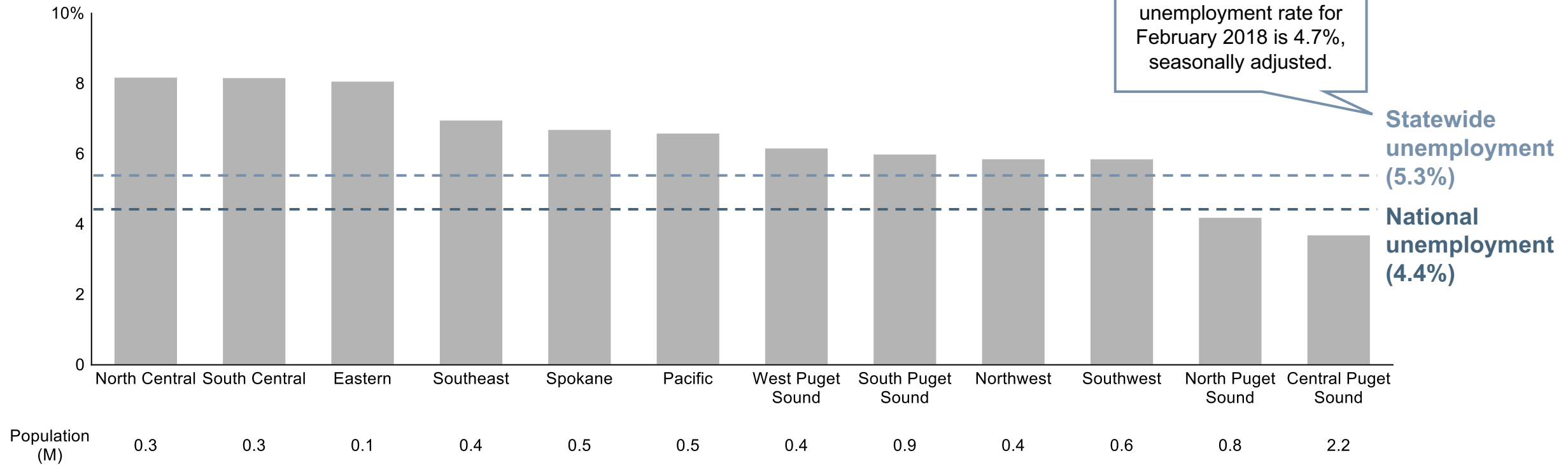
... creating a labor market inefficiency and unfilled jobs

Washington high-opportunity online job postings by time to fill 2017



The opportunity: One effect of this gap is that, despite strong economic growth, too many WA residents experience unemployment well above the national average

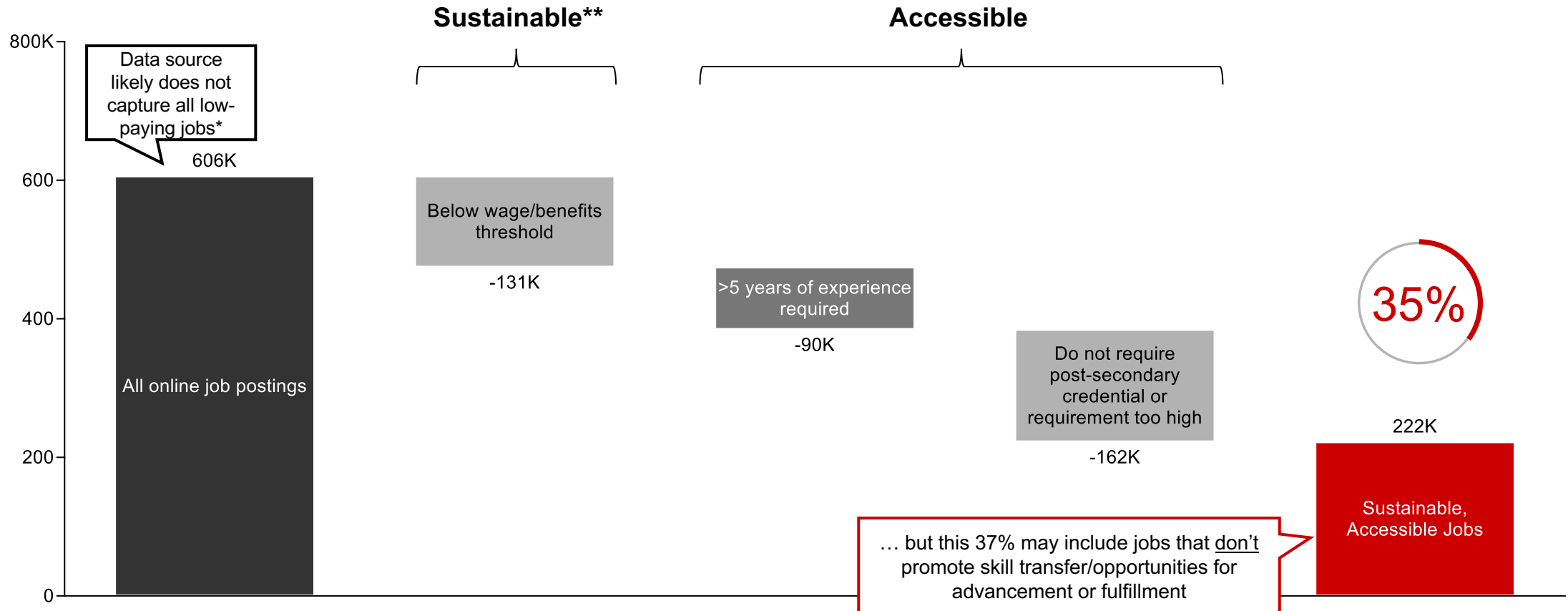
Unemployment rate by region, February 2018
(not seasonally adjusted)



Unemployment is a serious issue across Washington state, particularly in central and / or rural regions

Filtering all online job postings in WA for high-opportunity careers suggests up to ~35% of posted jobs are both sustainable and accessible

Washington online job postings 2017



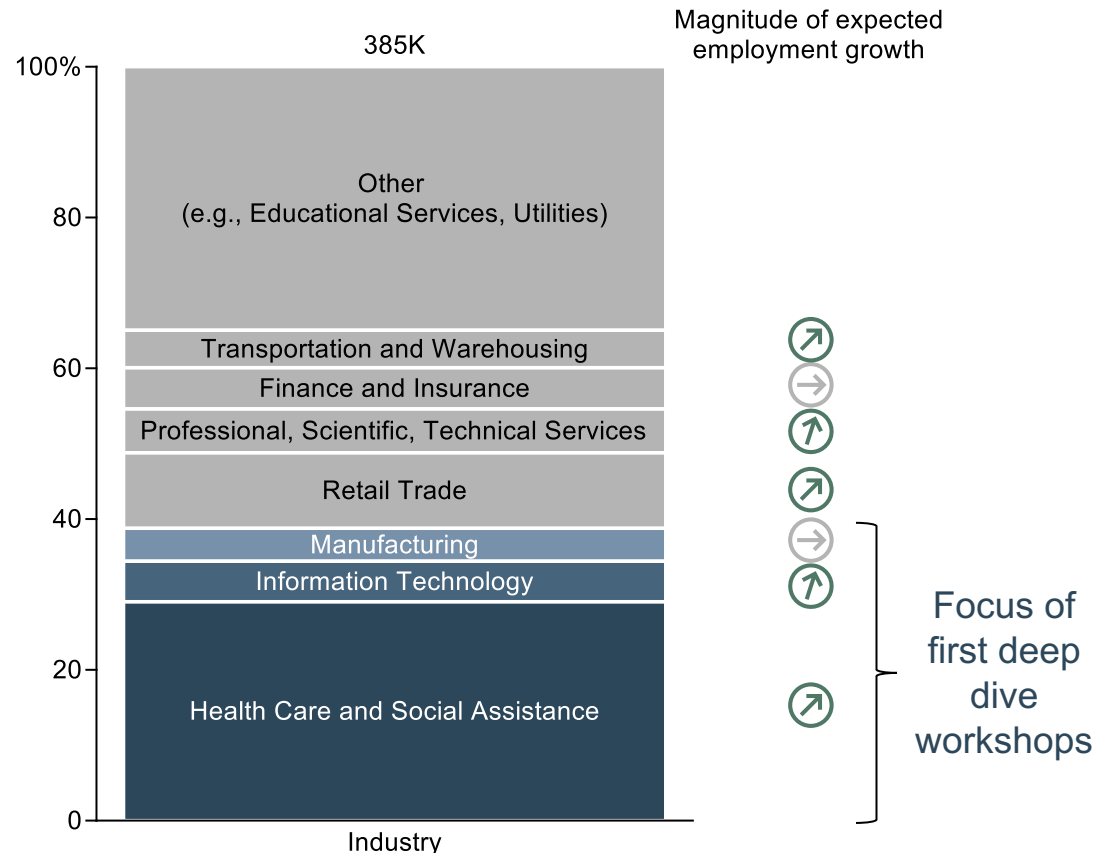
Note: *Low-paying jobs may not be captured due to the platform (never posted online), the reporting (posters do not indicate salary if unattractive), or the source (Burning Glass biases away from part time/temporary job postings). Additionally, more job postings are posted for very high demand jobs. Wage threshold calculated as 50% above WA STEM reported living / family wage of ~\$14 / hour for a value of \$43,500; **Sustainable jobs may include some jobs with vulnerability to automation
Source: Burning Glass; Bureau of Labor Statistics; WA STEM

Many industries in Washington provide high opportunity jobs today, but struggle to fill those jobs in a timely fashion

OPPORTUNITY

385K+ postings for 'high opportunity' jobs last year, across a variety of key Washington industries

Washington high-opportunity online job postings 2017



Note: Software Developer roles from Professional Services and Amazon postings included in IT. Retail and Healthcare postings skew toward high 'churn' roles and heavy re-postings. Source: Burning Glass; WA State ESD industry employment projections

... but many can take months to fill

/ EXAMPLES

Manufacturing

- Mechanical Engineer (35-39 days)
- Production Supervisor (35-39 days)

Information Technology

- Software Developer / Eng. (40-44 days)
- Program Manager (40-44 days)

Healthcare

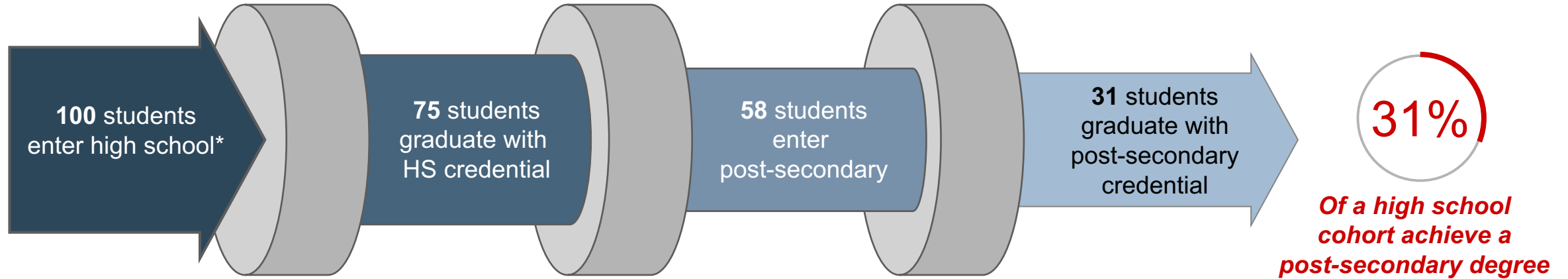
- Registered Nurse (35-39 days)
- Nursing Assistant (30-34 days)

Other

- Systems Analyst (45+ days)
- Maintenance Technician (35-39 days)

Education gap begins well before applicants enter the job market, highlighting the importance of K12 education to build the pipeline

OPPORTUNITY

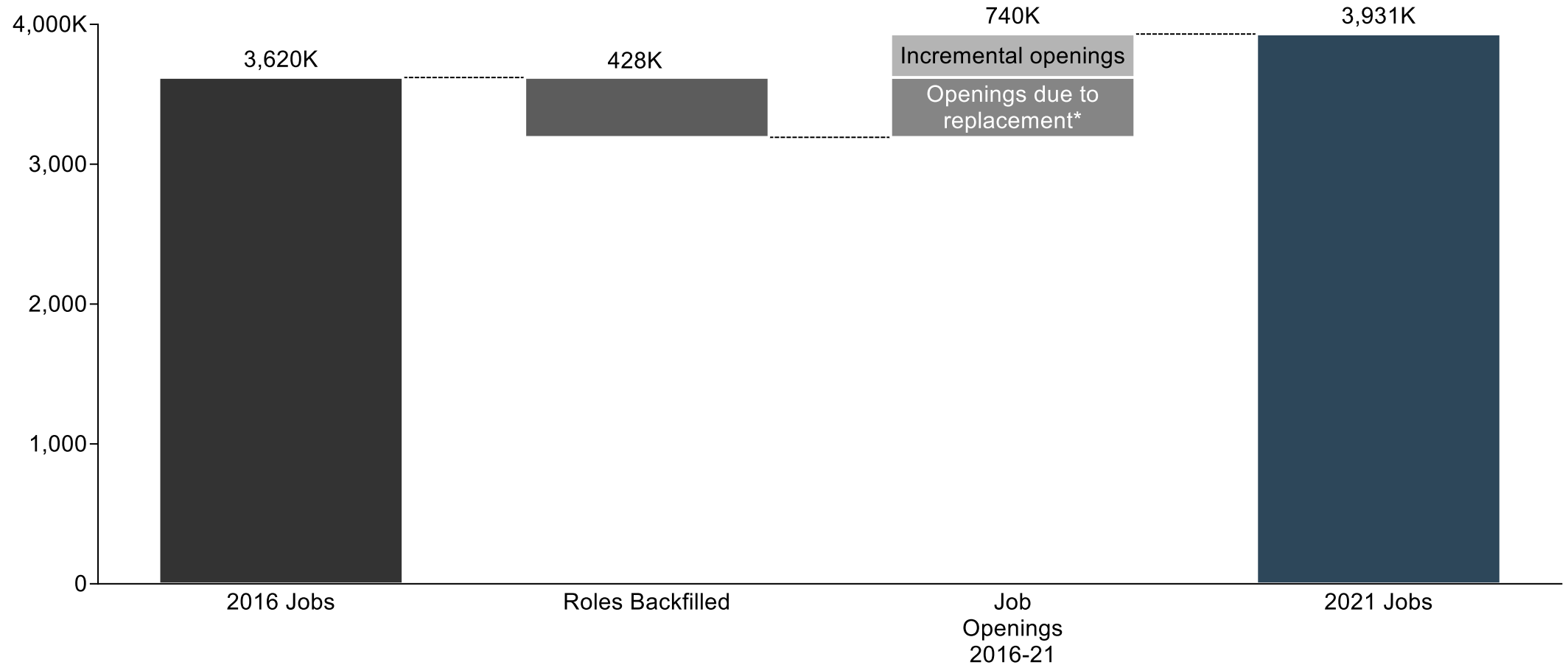


Note: *Data collected for high school cohort class of 2006
Source: WA Roundtable Final Report

Problem will escalate as job growth accelerates – 740K jobs will be added in Washington between 2016 and 2021

OPPORTUNITY

Projected job openings in WA State 2016-2021



Note: *Includes retirees, individuals leaving workforce, individuals leaving the state
Source: Bureau of Labor Statistics; WA Roundtable report

Washington is serving thousands of young adults today with a wide variety of programs

ONGOING EFFORTS

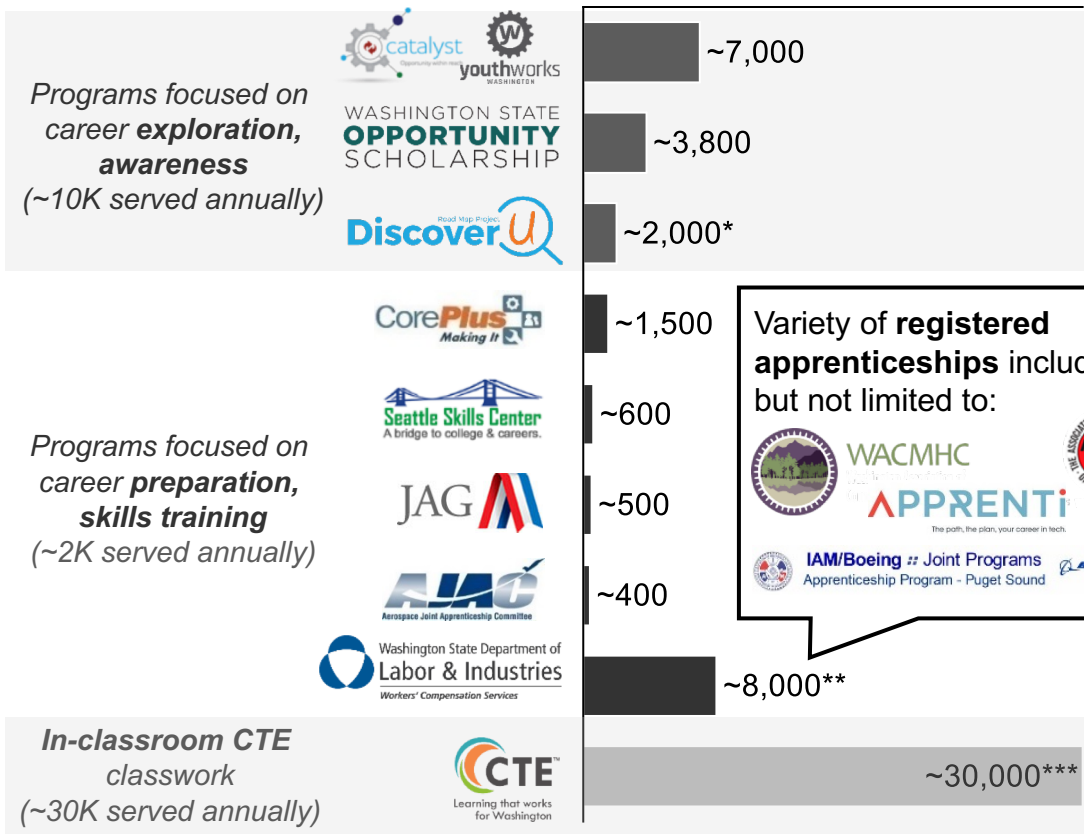
Ongoing programs serve thousands of young adults with a variety of CCL opportunities...

...plus several other programs from state and local providers...

/ NOT EXHAUSTIVE

...but CCL only touches a small % of students

Young adults served annually (approximate)



1.1M

students in the K12 system in Washington

83K

students to enter 9th grade this year

Note: *Includes students participating in worksite tours; **Approximately 17,000 active apprentices in 2017, 47% young adults (under 29); ***CTE students served based on enrollment in any CTE class
 Source: Business and Philanthropy Leadership Interviews; Individual program press releases and publicly-available data; OSPI Key Facts as of 2015

Most career-connected learning experiences are owned and funded by a range of government agencies, statewide and local

ONGOING EFFORTS



- **Role in CCL:** Support overall employment for Washington, lead regional teams for initial RFP
- **Key areas of impact:** Operated RFP / grant process for CCL programs, operate Work Source Washington portal for job matching



- **Role in CCL:** Manage workforce standards, including for registered apprenticeships
- **Key areas of impact:** Created WSATC (Apprenticeship & Training Council)



- **Role in CCL:** Advocate for a better educated / prepared WA workforce, led Career Connect Taskforce
- **Key areas of impact:** Participated in Policy Academy to create initial findings on CCL, ran 'Showcase of Skills' for CTE across the state

Agencies partner to create, fund, and support many career-connected learning (CCL) programs



- **Role in CCL:** Provide strategic guidance, advocacy for higher education, administer specific programs (e.g., Gear Up)
- **Key areas of impact:** Financial aid support for CCL, Passport to Careers program, manage Washington State Opportunity Scholarship and College Bound



OSPI | Office of Superintendent of Public Instruction

- **Role in CCL:** Operate public education, including Career Training & Education (CTE)
- **Key areas of impact:** Partnerships for student support, administer programming (Core+, STEM)



- **Role in CCL:** Operate community / technical colleges in Washington, including partnering with OSPI on CTE, supporting Running Start
- **Key areas of impact:** Administer dual credit programs for CTE and job skills programs

Deep Dive: Youth Registered Apprenticeship

/ PRELIMINARY / EXAMPLE

Youth Registered Apprenticeships are apprenticeship programs for high school students (ages 16+) that provide skills required to meet employer needs, yielding a high school degree, credential, and work experience. Upon completion, workers are competitive candidates for employment.

Criteria

On-the-job experience

- At least 2000 hours
- At employer site
- Paid for work hours
- Dedicated mentor

Classroom learning

- 144 hours+ each year (per every 2K hours OJT)
- In-class instruction awarded through HS or CTCs, up-to-date with industry needs

High-opportunity jobs

- Jobs are recognized and valued throughout an industry
- Highly skilled occupations

Credentials

- High school degree attained
- Trade certification (may be stackable)

Funding sources

- Employers, State operating funds

Governing Bodies



Current WA programs / services

- **Include a subset of Registered Apprenticeships (age 16-18) and include three focus areas for Washington:**
 - Healthcare
 - Manufacturing
 - Food preparation and serving

Spotlight:



Aerospace Joint Apprenticeship Committee

- Designed for high school juniors/seniors to develop **career-ready skills in the aerospace and advanced manufacturing industries and a direct path to trade certification** (may be stackable)
- Successful pilot program yielded **heavy employer engagement** (11 active / 36 prospective)
- **55-75 YA's projected to enroll** in the 18/19 school year across 8 school districts and 5 WA counties

What we've heard

"Employers and schools have the curriculum and on-the-job training set up for us to succeed, because that is what they are trying to do, so I am really excited about it."

Student, AJAC Apprentice

"We need to have youth apprenticeships - if we're waiting until they're 18 or even 16, we lost the moment in time. How do we excite young people about careers at a young age?"

Executive, Healthcare

"The best thing about my job is that no two days are ever the same. It is a challenging and rewarding job and I love it!"

Student, Dispatch Apprentice

"[To scale Youth RAs]... you have to have fundamental changes in education system and the department of Labor and Industries to allow youth to get on the shop floor and work with the equipment. For instance, high school students are not allowed to touch the same equipment at work that they work with at school."

Leader, Industry Association

Source: <https://www.lni.wa.gov/TradesLicensing/Apprenticeship/>; Business and Philanthropy Leadership Interviews; 2018 AJAC Youth Apprenticeship Year-In-Review

Other Career Launch Programs can take a variety of forms; one example is Shoreline CC's Automotive Training Center

/ PRELIMINARY / EXAMPLE

“The Professional Automotive Training Center at Shoreline Community College is the premier automotive technician program in the US. The Center and its industry partners originated this innovative model that integrates education with hands-on workplace experience.”

Shoreline Community College website



*“Automotive manufacturers are **thinking about the long term**. Employers are **shaping the curriculum**, and if they didn't, the program would not meet its objectives.”*

Leader, Education

On-the-job experience and Classroom learning

- Factory-sponsored programs are 2 years with 11 weeks on-the-job for every 11 weeks in the classroom
- General Service Technician program is two quarters at the Center and one quarter in a workplace setting

High-opportunity jobs

- Typically leads to an automotive technician job, \$50-52K salary
- Variety of career pathways into parts, sales, finance and insurance, management, and marketing.

Credentials

- Two-year Applied Associate in Arts and Sciences degree
- Other manufacturer-specific training certificates
- GST students receive a certificate of proficiency

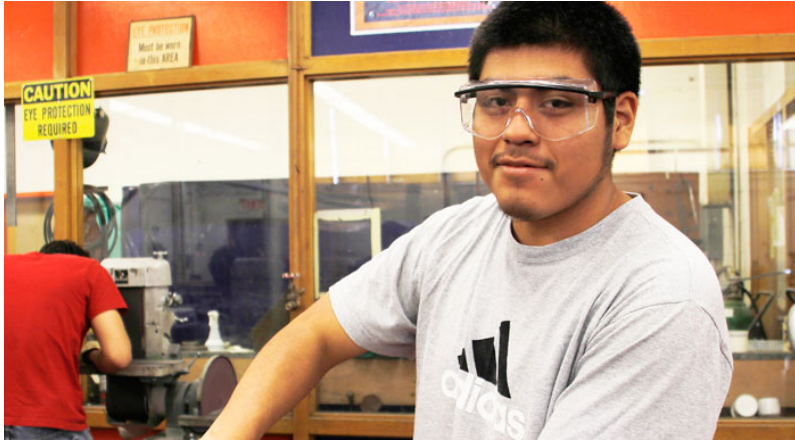
Funding sources

- Local dealerships sponsor students
- Employers help fund program startup costs
- Shoreline supports education and infrastructure costs

Program offerings



Deep dive: CorePlus



What is CorePlus?

- Career and technical education program (manufacturing)
- Two year commitment: first year dedicated to ~540 hours of basic transferrable skill sets (Core), second year dedicated to ~540 hours of occupation-specific skill sets (Plus)
- Serves ~1,500 students per year
- Curriculum available at 50+ schools across the state with 25+ participating companies
- Skill Centers and Comprehensive High Schools awarded \$450K a year in start-up grants to teach Core Plus

Key facts

- Developed by MIC (Manufacturing Industrial Council), OSPI, and Boeing
- Received funding from legislature to open 20 new locations in 2017
- Mixed (public / private) funding
- Statewide presence

“Being in a class that’s professionally based has helped me understand what employers want out of me when I enter the real world.”

Senior, Seattle Skills Center

“Most of the time I have no idea why I’m learning something in math class, but I understand the math here because I have to apply it to my project. It just makes more sense to me.”

Junior, Granite Falls

“It’s not a shop class for drop outs. Over the last 6 years I have had every valedictorian in my manufacturing class. It was what set them apart to get them into Ivy league schools like MIT or Stanford.”

Michael Werner, Granite Falls High School

Deep dive: Apprenti

ONGOING EFFORTS

TECHNOLOGY



Key facts

- Run by Washington Technology Industry Association (WTIA)
- Free for apprentices
- Focus on underrepresented students
- Mixed (public / private) funding
- National presence

What is Apprenti?

- Short, intensive training followed by registered apprenticeship
- Guaranteed job offer after acceptance to Apprenti, focused on high-tech positions
- Graduated approximately 150 apprentices to date
- Received \$3.5M in grants for program set-up spread over 5 years from US Dept. of Labor and WA State L&I, with \$200K from JP Morgan
- Received \$4M in state funding

"[Apprenti] is sending the best-quality candidates, based on their soft skills and their ability to learn."

Jennifer Carlson, Executive Director WTIA Workforce Institute

"I was ready to move past the academics and get into the workforce."

Jared Call, Apprenti apprentice

Deep dive: Washington State Opportunity Scholarship (WSOS)

ONGOING EFFORTS

ACROSS INDUSTRIES



Key facts

- \$2,500-\$7,500 given per year for up to 5 years (for a total potential scholarship of \$22,500)
- Created by the Washington State Legislature and industry partners
- Supports students from low- and middle-income households
- Every private dollar raised is matched dollar-for-dollar by the state through a unique public-private partnership
- Statewide presence

Source: WA Opportunity Scholarship website; The Seattle Times

What is WSOS?

- Strives to fill open seats in high-demand, economy-driving sectors (e.g., aerospace, STEM, health care) by providing targeted scholarships
- In addition to scholarships, WSOS provides professional development, mentorship, skills-building workshops and industry exploration opportunities
- WSOS will serve 16,000 students pursuing high-demand degrees by 2025

“The success of the program has, in many ways, exceeded our expectations. We’re reaching people of lower means, we’re reaching people of color, women as well as men, people who have never been to college...the opportunity to take this kind of formula and apply to other postsecondary credentials is not only exciting but important for the state.”

Brad Smith, President of Microsoft

“There is a resurgence of valuing technical education, and I see this as part of that pendulum swinging a little more...A four-year university is not for everyone. It’s really important that we provide different opportunities for young people.”

Amy Morrison Goings, President of Lake Washington Institute of Technology

Other programs enable career-connected learning by supporting K12 education and encouraging post-secondary education

ONGOING EFFORTS

/ NOT EXHAUSTIVE

Role of “enabling” programs

Train critical skills

- Employers expect students to bring primary skills (e.g., math, writing) to the workplace

Ready students for post-secondary education

- Students prepared for post-secondary are more likely to succeed in CCL paths – and vice versa

Deep dive

What is Running Start?

- Dual-enrollment program allowing 11th and 12th graders to attend college courses while in high school
- Provides up to two years of paid tuition to WA community and technical colleges, Central WA University, Eastern WA University, WA State University, Northwest Indian College
- Enables students to complete a significant amount of college credits in advance so that they can then earn a degree faster
- Accounts for 25% of community college enrollment in WA State



Dozens of efforts, both local and national



Source: OSPI; The Seattle Times; Business and Philanthropy Leadership Interviews

“[Running Start] teaches you to work for quality, and not for quantity.”

Nia Hall, Running Start student from Garfield High School

“If they’re truly ready to take college classes, why should we hold them back?”

Adam Lowe, National Expert in Dual-Credit Courses

“In 25 years, this dual-credit program has [become] so successful... that some think the state should...bring in greater numbers of low-income and minority students who could benefit the most from such a program.”

The Seattle Times Education lab

An ecosystem of ‘intermediaries’ provide a foundation for CCL by engaging stakeholders and developing research and policy recommendations

ONGOING EFFORTS

/ NOT EXHAUSTIVE

Role of intermediaries in CCL

Bring stakeholders together

- Serve as connection point for individuals and agencies involved

Develop policy recommendations

- Invest in research and strategy for potential policy or programmatic changes

Engage with programs indirectly

- Administer and fund specific student-facing programs

Deep dive

What is Washington STEM?



- Aims to match Washington youth with the thriving STEM economy in the state by increasing access, interest, and success
- Creates a “network of networks” to spread STEM best practices across the state
- Maintains an innovation team to incubate ideas for teaching and learning STEM education
- Focuses on passing legislative agenda that increase access to STEM and create pathways to high-demand careers

Dozens of efforts, both local and national



Source: WA STEM website; GeekWire; Business and Philanthropy Leadership Interviews

“STEM is everywhere – agriculture, aerospace and technology just to name a few favorite Washington industries – and should be for everyone...[WA state] has all the right ingredients to be a leader in universal STEM education and preparing a diverse and world-class workforce, and we won’t rest at Washington STEM until that is a reality.”

Caroline King, CEO of Washington STEM

“We said, we need to do something different, to think outside of district policies and have some collective approach to graduating more of our students, particularly our students of color.”

Tafona Ervin, Director of Collective Action for Foundation of Tacoma Students

Vision: Our stakeholders are not aligned on (or collectively working toward) a shared, well-understood, long-term vision



CHALLENGES

Educators

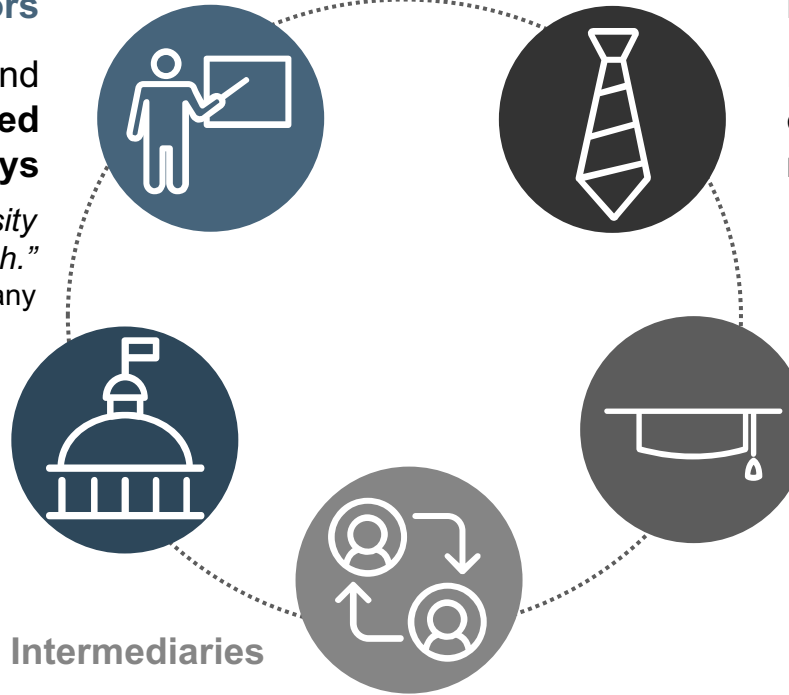
Measure success of students and educators on **traditional metrics, focused on traditional pathways**

“Educators are measured based on university readiness- everything is to push to a 4 year path.”
Executive, Technology Company

Government

Operates in **organizational siloes** when creating legislation, policy, and funding awards

“Groups are working individually because the convening mechanism to pull those groups together is missing.”
Leader, Philanthropy



Intermediaries

Operate independently to drive individual programming efforts forward

“There are many individual orgs working on their own efforts. People may say they’re aligned to a state-wide solution but will revert to their own method of program they’ve been developing instead.”
Executive, Industry Association

Employers

Fill many roles by **importing talent from outside WA or finding experienced hires**, rather than investing in the WA talent pipeline

“Right now, a lot of companies hire from out of state. We should be able to fill more roles locally.”
Executive, Life Sciences Company

Young Adults

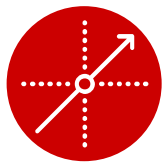
Are educated about and choose traditional paths, with majority of young adults not attaining post-secondary education

“If you’re a student in WA, the 2 and 4 year pathways are clear – the classes to take, the test, the application. The steps are clear.”
Leader, Education Association

“There’s a perception in the community at large that apprenticeships are a second tier approach for jobs, that it’s subpar to going to college.”
Executive, Technology Company

How can we bring stakeholders together around a shared vision?

Scale: There are aspects of the current career-connected learning ecosystem preventing us from reaching more young adults / families / employers



CHALLENGES

Barrier to scale

Existing infrastructure not leveraged across programs

Program solutions not always repeatable, particularly across different WA regions

Funding model doesn't incentivize growth

Impact

- New programs expend effort and lose momentum 're-inventing the wheel'
- Programs do not always share learnings and/or resources
- Regional employers build point solutions, even when there are opportunities to build once, then scale statewide
- Rural young adults have a narrower set of opportunities
- Current funding model (e.g., credit/completion targets for community colleges) doesn't move stakeholders to the right outcomes, and becomes a roadblock for growth

How it manifests

*"We need to **think about this as a system** – if we think about it only with the lens of individual programs, we will never scale."*
Executive, Non-profit

*"There are individual efforts all over the state, but they don't build on what the others have already started... We need to **tap into existing support systems** to accelerate."*
Executive, Healthcare Company

*"The economy in Seattle is not the economy on the east side of Washington... if all the apprenticeships are in Seattle, **we are missing the mark.**"*
Executive, Healthcare Company

*"We have to **figure out a different model** for kids who aren't close to skill centers."*
Leader, Education Association

*"There are huge **negative funding implications** when we have students learning **outside a traditional classroom**. We take a hit straight to our budgets"*
Leader, Education Association

Coordination: We lack coordination across programs, at regional and state level, to make career-connected learning more effective in Washington

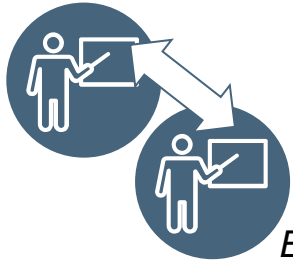


CHALLENGES

/ NOT EXHAUSTIVE

A few examples of stakeholder coordination challenges surfaced so far...

Educator

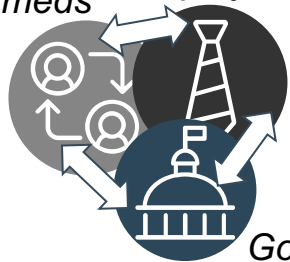


Credit transferability among educational institutions is too complex: Dozens of transfer agreements between community colleges and 4-year universities negotiated individually, creating a web of policies for students to navigate.

“Every community college in WA has a different equivalency guide set up with the University of Washington. Why can’t we streamline to one?”

Leader, Education Association

Intermeds Employer

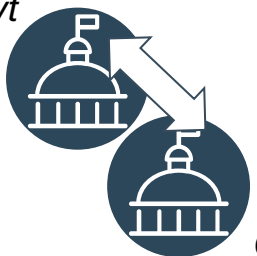


Employers missing a clear, simple way to engage in the ecosystem: Some employers are inundated by disjointed requests for supports from all angles, and others struggle to identify the right path to engage.

“Once employers express an interest, they’re inundated – there’s no coordinated approach.”

Executive, Construction Company

Govt



Lack of clarity around ownership or decision rights: Even when solutions to critical barriers are identified, efforts are diluted when it the responsible party isn’t clearly identified and given the right decision authority.

“Efforts are too diluted across various initiatives across agencies – I think there are too many levers are being pulled at once.”

Executive, Healthcare company

Source: Business and Philanthropy Leadership interviews

Perception: There are cultural barriers preventing further adoption of career-connected learning



CHALLENGES

The challenge

Cultural resistance to prioritizing pathways beyond standard 4-year college track

*“Perception is that **apprenticeships are a second-tier approach**, that they are subpar, don’t lead to good jobs, or prevent students from going to college.”*

Executive, Technology Company

*“In Switzerland, we make it clear that **apprenticeships are not a dead end** – many still go to college afterward, or immediately go into a good career.”*

Leader, Swiss Industry Association

What good looks like

- **Multiple paths** to high quality jobs with ability to shift between – no tracks, fully permeable
- **Community understands and promotes variety** in pathways to reach employment or further education



How can we shift mindsets?

Limited sense of collective responsibility among employers for state talent pool

*“We are a state of rugged individualists... but we need to learn to take on **collective initiatives**.”*

Executive, Industry Association

*“The Swiss model is community-based... and **cost is shared by the entire community**.”*

Leader, Industry Association

- Employers see their role as **preparing a workforce for the state and industry**, not just for their own talent pipeline
- Young adults learn a set of skills that are **portable across industries**



How can we find a more collective approach?



Maritime Welding Program at Harbor Island Training Center

Veronica Wade

Dean of Professional Technical and Workforce Education

Ona Fisher

Embedded Career Specialist, Professional Technical Education

May 15th, 2018



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TODAY'S DISCUSSION

- ▶ The Maritime Industry in Puget Sound and WA State
- ▶ Forming the public – private partnership
- ▶ Maritime Welding Intensive Training Program at Harbor Island
- ▶ Employment and industry engagement

MARITIME – A KEY ECONOMIC ENGINE

- ▶ Directly contributes approximately \$21.4 billion in gross business income and provides almost 70,000 people.*
 - ▶ In 2015, shipbuilding, repair, and maintenance provided 17,000 jobs
- ▶ Maritime jobs pay over \$20,000 more than the average job in Washington state.
- ▶ 75 ports in Washington state provide means for key businesses to stay competitively linked to both domestic and international markets.



*State of Washington Department of Commerce, Office of Economic Development and Competitiveness, Maritime Sector,
http://www.wedaonline.org/documents/Con2014/Maritime_final.pdf.

FORMING A PARTNERSHIP



INDUSTRY NEED

- ▶ Nearly 20% of Vigor workforce will reach retirement age within 10 years
- ▶ Need to create pipeline for skilled trades - marine welders, electricians, machinists, pipefitters
- ▶ Number of people entering industry is also decreasing, due more often to lack of knowledge rather than lack of interest

FORMING A PARTNERSHIP



- ▶ Modeled after Vigor's successful partnership between Swan Island/Portland Community College
- ▶ Planning began in Nov. 2012, first class started in June 2013
- ▶ South Seattle College created a 6-month welding intensive curriculum
- ▶ Vigor provided the 8,000 sq ft training space

ADDITIONAL KEY PARTNERS

- ▶ State of Washington
- ▶ Pipefitters Union
- ▶ Workforce Development Council of Seattle-King County
- ▶ Community-based organizations

TECHNICAL CURRICULUM AND TRAINING

Maritime Welding Certifications

- ▶ FCAW-ASME Section IX Structural Steel welding 3G/4G
- ▶ Shielded Metal Arc Welding
- ▶ Gas Metal Arc Welding
- ▶ Gas Tungsten Arc Welding Aluminum
- ▶ Oxy-fuel and Plasma Cutting
- ▶ Material Safety Data Sheet - MSDS
- ▶ Blueprint Reading
- ▶ Applied math
- ▶ Process Applications and Welding Symbols

Industry Recognized Credentials in Manufacturing

- ▶ Fall Protection
- ▶ Maritime Shipyard OSHA 10
- ▶ Fire Watch training
- ▶ First Aid, CPR and AED Certification
- ▶ Forklift training

STUDENT STATISTICS

- ▶ Class size – 17-25 students per cohort
- ▶ Since 2013 - Completions/Employment
 - ▶ 173 students enrolled to date
 - ▶ 143 (82.6%) completion rate
 - ▶ 108 (75.5%) employed in industry within 3 months of graduation
- ▶ Upon entry:
 - ▶ 41% on unemployment
 - ▶ 20% unemployed longterm
 - ▶ 45% on food assistance
 - ▶ 27% minority, 12% women, 18% veterans



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COLLEGE NAVIGATION AND CAREER READINESS

WRAP AROUND SUPPORT SERVICES

- ▶ Community based organizations (CBOs)
 - ▶ enroll qualified students
 - ▶ Housing assistance
 - ▶ Financial support
 - ▶ Class materials
 - ▶ Transportation assistance
- ▶ Workforce Education Funding
 - ▶ Tuition
 - ▶ Tool costs
- ▶ Program Coordinator/Navigator
 - ▶ Outreach, recruitment, and enrollment
 - ▶ Orientation
 - ▶ Career development workshops and 1:1 appointments
 - ▶ Campus liaison

How are we preparing students to enter the industry?

- ▶ In class presenters
 - ▶ Vigor HR, application process
 - ▶ Union representatives
 - ▶ Other industry professionals
- ▶ Site visits
- ▶ Events: Pacific Marine Expo
- ▶ Career preparation
 - ▶ Resume and interview skills
 - ▶ Workplace and industry expectations
 - ▶ Job search and application skills

EMPLOYED IN THE INDUSTRY AND BEYOND

- ▶ Vigor Industrial
- ▶ Vigor Marine
- ▶ Vigor Fabrication
- ▶ Kvichak
- ▶ Foss Maritime
- ▶ Puget Sound Naval Shipyard
- ▶ WA State Ferries
- ▶ Puglia Genie Industries
- ▶ Nichols Brothers
- ▶ Bremerton Naval Shipyard
- ▶ Pacific Fisherman Shipyard
- ▶ Stabbert Maritime



QUESTIONS?



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NextGen-WA

(NSF-IUSE #1625566)



The Next Generation of STEM Teacher Preparation Programs in Washington State

STEM Education Innovation Alliance Meeting

May 15, 2018

Ed Geary, Dan Hanley, and Roxane Ronca (WWU), Jenny Dechaine (CWU), Julie Antilla (SPU), Kathryn Baldwin (EWU), Tamara Holmlund (WSU-Vancouver), Ann Wright-Mockler (PNNL), Jose Rios (UW-Tacoma), Ellen Ebert (OSPI), Ann McMahon (UW-Bothell), Jen Sorenson (SU), Terry Bergeson (PLU)

Statewide Vision

A larger, more diverse, and more effective STEM teaching workforce, where every student sees a path to becoming a STEM teacher or a teacher of STEM



The STEM Teachers of 2030: Our Project Vision

Elementary Teachers will need to be:

- ▶ Generalists with strong understanding of STEM, project-based learning, and experienced in STEM outside of the classroom
- ▶ Advocates for STEM Learning in their schools

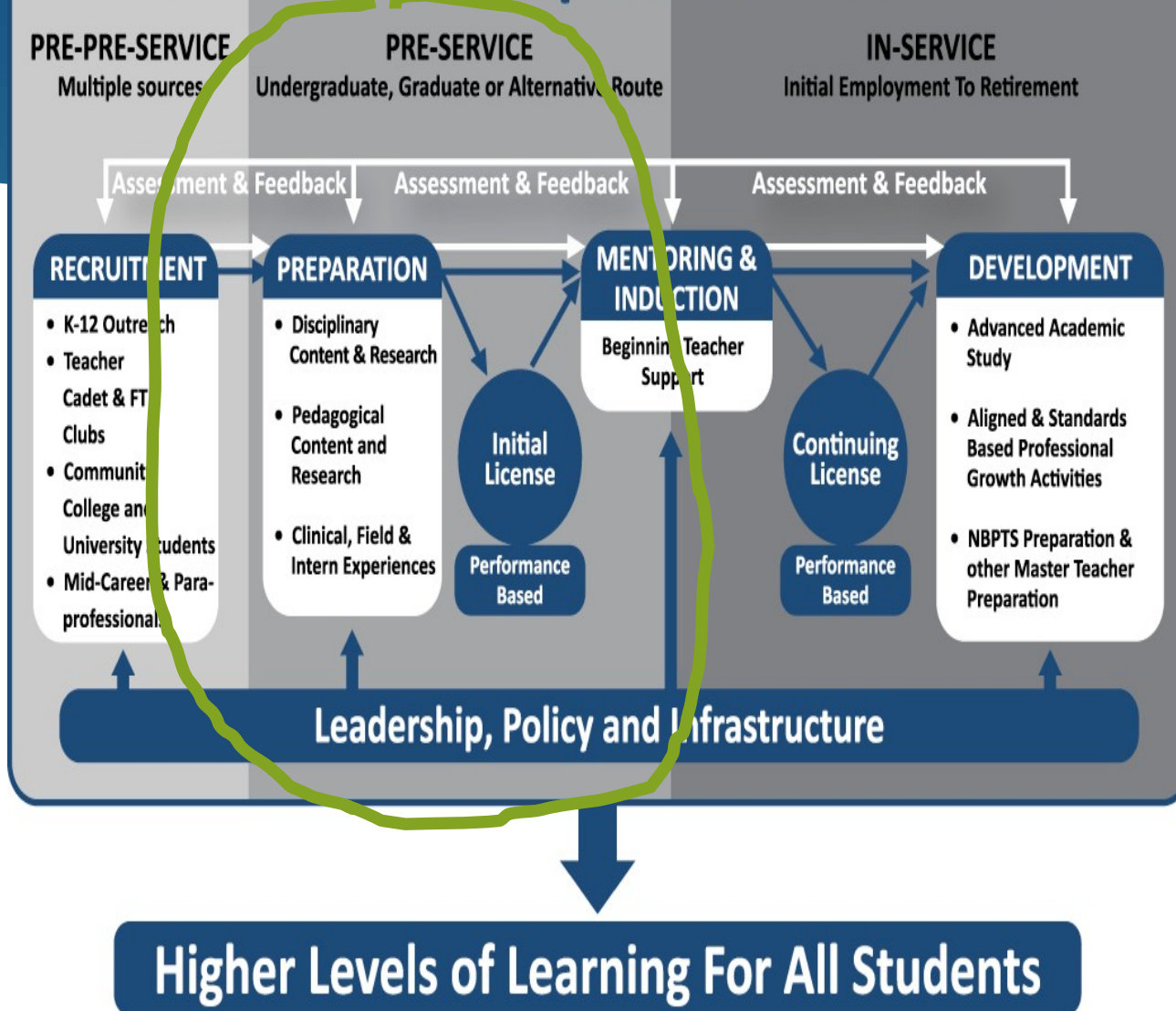
Middle & High School Teachers will need:

- ▶ Strong content and pedagogical content knowledge in the subject(s) they teach on a regular basis**
- ▶ Research and/or work experiences in one or more aspects of STEM
- ▶ The ability to work across disciplinary boundaries

All Teachers will need to:

- ▶ Understand & connect with diverse students, families, and communities
- ▶ Incorporate Education for Sustainability, Computer Science, and Engineering principles
- ▶ Regularly collaborate with colleagues in the creation of a connected, coherent STEM program
- ▶ Approach curriculum through inter- or transdisciplinary approaches
- ▶ Incorporate, integrate, and model disciplinary practices, concepts, and specific ideas (3-dimensional teaching)

Teacher Development Continuum



Components of NextGen STEM TP: Research to Implementation

Teacher Preparation Program Components that Implementation Teams work to revise

Elementary Education

Secondary Education

Content Courses

Education Courses

Field Experiences

STEM

Content Areas (Working Groups)

Computer Science

Engineering

Math

Science

Cross-Content Areas (Working Groups)

Clinical Practice

Education for Sustainability

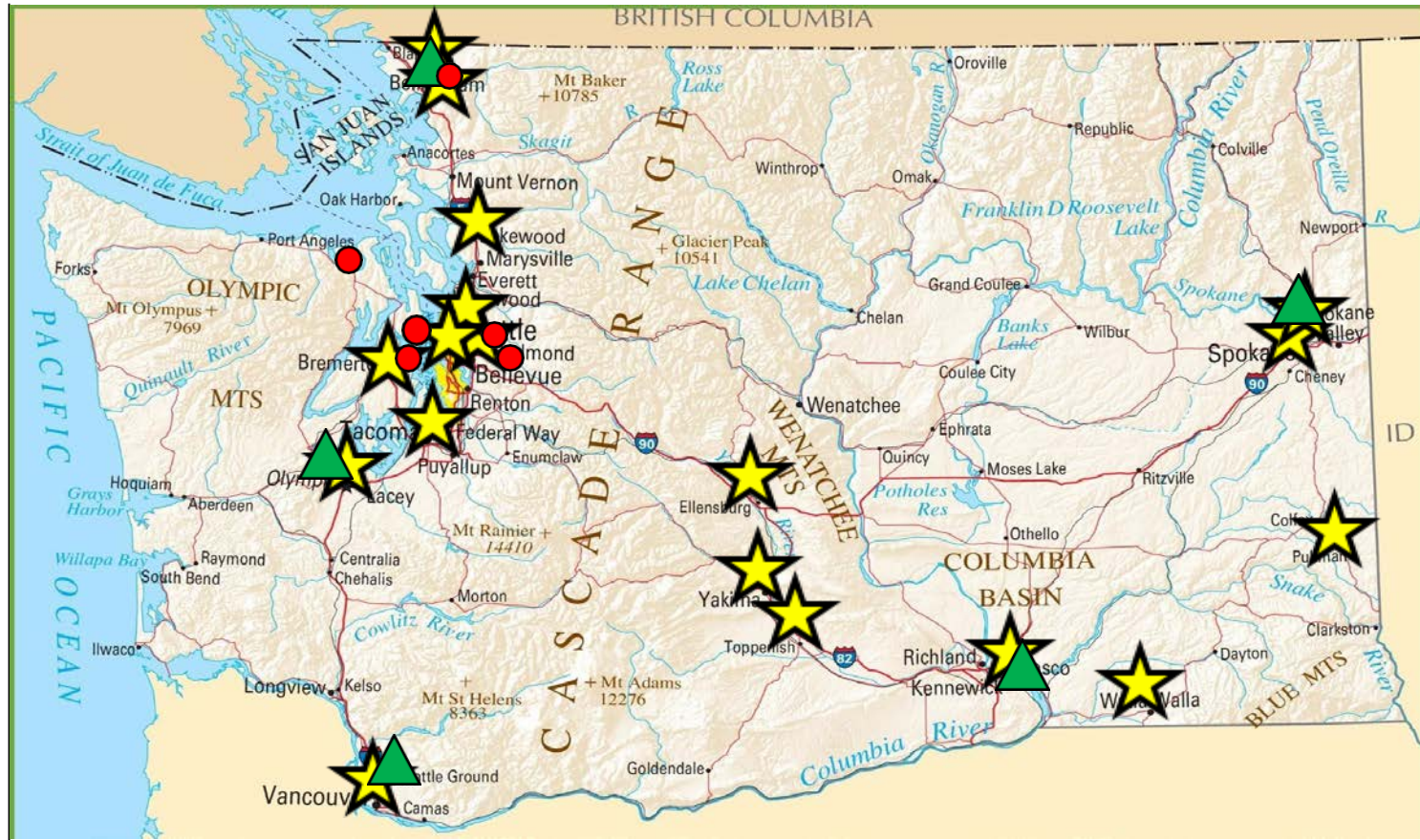
Pedagogical Content Knowledge

Emphasis Area for all Working Groups and Implementation Teams

Diversity

Systemic Organizational Change and Collaboration

A Growing Consortium of Partners



Drivers of Change

Next Generation Science Standards/WSSLS

DCI's, S&E Practices, Cross Cutting Concepts
3-D Teaching

Common Core State Standards

Math

Language Arts

Recertification for STEM integration

Computer Science Education Legislation---2017

STEM Workforce Needs

Teacher Shortages in STEM and SPED

STEM job vacancies in WA-State

Anticipated Outcomes and Benefits

- ▶ **State Level**

- ▶ Adaptive Model for ongoing Program Improvement through collaboration

- ▶ **Regional Level**

- ▶ Stronger Collaborations between IHE's, K-12, NGOs, businesses and Govt.

- ▶ **Institutional Level**

- ▶ Stronger Collaborations between Colleges and widespread support for improvement of STEM Teacher Preparation

- ▶ **Program Level**

- ▶ NGSS and CCSS aligned STEM Teacher Preparation Programs, Courses, and Curricula (including Computer Science, Engineering and EFS)

- ▶ **Individual Level**

- ▶ Faculty --- understand, use, and model evidenced based teaching-learning practices
- ▶ STEM Preservice Teachers--- Graduate ready to work in student-centered learning environments that engage all students in meaningful, STEM learning

Challenges and Needs

▶ **Managing Complexity**

- ▶ At multiple levels, within and across organizations
 - ▶ Everyone on the project has another full time job

▶ **Supporting Effective Communications**

- ▶ Within and Across Institutions, Regions, Working Groups, I-Teams
- ▶ Raising awareness of and support for STEM Teacher Preparation

▶ **Need for Backbone Support (Phase 2 work)**

- ▶ To attract, prepare, support, and graduate NextGen STEM teachers
- ▶ To encourage and sustain regular improvements to our programs

▶ **Need for an interlinked STEM TP Data System (K-16)**

- ▶ To support decision-making, and guide program improvements

Questions



NextGen Goals

- ▶ **Improve STEM teacher preparation programs statewide**
 - ▶ Using a collaborative, Collective Impact Framework
 - ▶ Using the PKAL/Keck “River Model” for Systemic Organizational Change
- ▶ **Increase the diversity of the STEM teaching Workforce**
 - ▶ To Reflect the demographics of Washington State
 - ▶ So that All students have a path to becoming a STEM (major)/Teacher
- ▶ **Create an adaptive, research-based model for improving STEM teacher preparation through collaboration**
 - ▶ So that other regions or states can use our models, resources, practices, and lessons learned to transform their STEM teacher preparation programs

Collective Impact Framework

Common Vision: One size does not fit all, but shared vision and goals are more likely to be realized

Shared Measurement: Results are measured consistently, with shared accountability

Mutually Reinforcing Activities: Activities of each group inform others' plans

Continuous Communication: Builds and maintains trust, collaboration, and motivation

Backbone Support: Takes on the role of overall coordination and management

Reference: Kania, J, and M. Kramer, 2011 and Hanleybrown, F., J. Kania, and M. Kramer, 2012---Stanford Innovation Review



STEM Education Innovation Alliance

Vigor's hiring challenges and workforce development initiatives

By
Sue Haley, EVP of HR

May 15, 2018

Vigor Harbor Island

Our Business

- Vigor is the leading provider of shipbuilding, complex fabrication and ship repair and conversion in the Pacific Northwest and Alaska
- We are a valued based company. TREL – Truth, Responsibility, Evolution and Love. These values drive the way we operate and communicate. We hire, promote, discipline and lead based on our values
- Projects; Repair cruise ships, large ships for the navy and other commercial customers; Build WA and AK ferries; specialized landing craft for our armed services; nuclear containment vessels, Ground Missile Defense silos, bridge and dam parts, wave energy buoys, and many other interesting projects

Our workforce and hiring challenges

- We hire primarily skilled workers – offer few direct pathways for unskilled workers
 - Professional positions include Project managers, engineers, schedulers, naval architects and various management and support roles
 - Skilled craftsmen and women including Welders, electricians, machinists, painters, pipefitters, carpenters, riggers
- Many of these are highly specialized positions and very difficult to find in our local markets
- Pipelines are getting smaller as this population ages and kids focus on 4 year degrees instead of jobs in manufacturing
- At the same time, job opportunities in manufacturing are growing and there is keen competition for skilled workers
- Vigor’s investment in community college welding programs, apprenticeships, internships and other workforce development initiatives allow for expanded pathways and pipelines

We've had some challenges along the way

- Getting people to be part of the journey
 - Learning how to align our employees around our vision for the company and the workforce
- Changing expectations around behavior
 - We can all imagine the behaviors in the shipyards of yesterday
 - How do we create a place that diverse populations want to work
- Making sure everyone goes home safely
 - TRIR change – from 50 to 4 – love value
- Finding ways to transfer institutional knowledge from longtime workers
 - 25% retirement in next 5 years – using more detailed OJT planning to make sure all skills are transferred
- Train for the work we do today and skills we will need tomorrow
- Generational considerations – workforce from 18-75
 - How to make work meaningful for different generations
 - Understanding expectations of different generations

Our Journey

- Begin and end with our values – TREL
 - We actively seek the truth; we actively speak the truth
 - We act on what we know is right
 - We seek mastery and adapt to a changing world
 - We care for the people we work with and the world we live in
- These are powerful words that are tied to our actions
 - Hires, promotions, corrective actions, strategy
 - Set clear expectations around behavior and mean it
- Make Vigor a great place to work
 - Offer living wage jobs and encourage second chance opportunities for people to succeed
 - Help people embrace who they are and expand their leadership capabilities
 - Understand what it takes to support a diverse workforce and make people understand why this is important and what needs to happen

Our Journey

- Find new ways to engage new generations
 - Embracing the maker movement and those that want to work with their hands
 - Creating Mindfulness initiatives to expand capacity and focus; promoting the “big breath” on the deck plates; mindful welding
 - Engaging our workers to support not only those they work with but the communities they live in through volunteerism and community support
 - Supporting Leadership opportunities for everyone from welders to executives so we learn how to work and lead together – Evolution in Leadership program

Our Journey

- Find new ways to do our work and remain competitive
 - We are creating new and better ways to plan our work
 - Creating consistent OJT expectations and experiences
 - Investing in technical training to keep ahead of the curve
 - We're using phones and apps to transform the way we are managing our work and our workers
 - Near miss App
 - Red line App
 - Beacon
 - Robotics are assisting with jobs that were hard on the workforce and time consuming

Where will the future take us?

- New and emerging technologies are changing the way we operate and see the world
- We are building a workforce that will be prepared to lead us through the changes to come
- Steve Jobs once said that “ **Innovation distinguishes between a leader and a follower**”. I invite all of you to help us drive the innovation needed to support the jobs of tomorrow
- Thank you
- Questions?