#### **Lighting the Burning Platform**

Data Visualization to Support Oregon Education Attainment Policy

#### Oregon's Ambitious 40-40-20 Attainment Goal (2011)

- 40 percent of Oregon adults = a bachelor's degree or higher
- 40 percent = at least an associate's degree or other technical credential
- 20 percent = a high school diploma that represents a high level of academic and work readiness skills.



### Part 1: The Why



## The Reality Since 1980: Declines in Real Wages for High School Grads and Dropouts



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Source: US Census. Average Portland Wages (2010 dollars) by Education Attainment, Laborforce Participants Ages 25-64

#### Unemployment Rates and Earnings by Attainment (2017)



Note: Data are for persons age 25 and over. Earnings are for full-time wage and salary workers. Source: U.S. Bureau of Labor Statistics, Current Population Survey.

#### Postsecondary Attainment Rates Circa 1960s



#### Postsecondary Attainment Rates Circa 2000s



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### Part 2: The Goal Gap



#### Current Education Attainment of Oregon Adults, Versus the 40/40/20 Goal



#### Unknown 1

45,000 Oregonians come of age each year. So, an 80 percent postsecondary completion goal translates to **36,000 credentials per annual cohort**.

Oregon higher education institutions—public and private —granted almost **34,000 associates and bachelors degrees** in 2011-12.

**But**, degrees reported by Oregon institutions include non-residents, students of all ages, and students with multiple degrees.

How does an individual, emerging cohort fare?



#### Unknown 2

How does a pipeline that appears to generate **16 percent bachelors completion** in 150 percent time end up with more than 30 percent of its population with a bachelors degree?

#### 100 90 80 70 60 50 40 30 20 10 0 # Graduate # Are Still # Graduate For every # Enter 100 Ninth from High College Enrolled within Graders School Their 150% Time Sophomore Year

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#### Ninth Grade to 150% Time Graduation, Oregon, 2010

#### Unknown 3

Self-reported attainment on the Census suggested **87 percent** of young Oregonians had at least a high school diploma.

But, the cohort graduation rate estimates (2010-11) indicated only **68** percent of Oregonians graduated high school on-time.

What explains the difference?



# Part 3: Lighting the Challenge – a Single Cohort



#### Task for Oregon Learns: an OBC Initiative To Support Higher Attainment & Redesign Policy



#### The Task: How to Portray Data on Cohort Attainment?

						2 Year	4 Year		
Pattern	Popularity	No Attainment	HS Attainment	2 Year Attainment	4 Year Attainment	Enrollment Efficiency	Enrollment Efficiency	2 Year Credit Efficiency	4 Year Credit Efficiency
Н	46.8%	42.9%	57.1%						
H4	21.5%	3.3%	30.7%	0.3%	65.8%	1.4	1.1	1.0	1.0
H2	17.8%	19.8%	66.0%	14.1%	0.1%	1.1		0.8	
H24	7.1%	3.4%	27.3%	15.2%	54.1%	1.8	1.2	1.4	1.1
H42	2.2%	4.9%	64.0%	18.0%	13.1%	1.5	1.2	1.1	1.0
H424	2.0%	1.3%	32.1%	10.8%	55.9%	2.1	1.3	1.7	1.1
H242	0.9%	6.3%	57.6%	16.4%	19.8%	2.2	1.3	1.7	1.1
H2424	0.9%	3.3%	26.0%	15.5%	55.1%	2.9	1.4	2.3	1.1
H42424	0.2%	1.0%	40.8%	5.1%	53.1%	2.8	1.4	2.1	1.1
H4242	0.2%	5.4%	66.2%	6.8%	21.6%	1.8	1.3	1.1	1.0
H242424	0.1%	1.7%	30.0%	10.0%	58.3%	3.4	1.4	2.4	1.1
H24242	0.1%	2.1%	51.1%	23.4%	23.4%	2.7	1.3	1.8	1.0
H4242424	0.0%	0.0%	52.9%	5.9%	41.2%	4.1	1.3	2.6	0.9
H424242	0.0%	0.0%	77.8%	22.2%	0.0%	3.0		2.1	
H24242424	0.0%	0.0%	50.0%	0.0%	50.0%		1.5		1.3
H2424242	0.0%	0.0%	25.0%	0.0%	75.0%		1.6		1.1
H42424242	0.0%	0.0%	0.0%	0.0%	100.0%		1.2		0.8
H424242424	0.0%	0.0%	0.0%	0.0%	100.0%		1.6		
H2424242424	0.0%	0.0%	0.0%	100.0%	0.0%	3.8		2.9	
All		24.7%	50.2%	4.7%	20.4%	1.5	1.2	1.1	OREGON

#### The Ingredients

- Longitudinal data system
- Access
- Data mining capability

#### The Team

- Economist/data analyst
- Data visualization designer
- Writer/editor
- Policy specialist



#### Some Initial Stumbling Around



## Sankey Chart Inspiration – Charles Minard's 1869 Map of Napoleon's 1812 Russia Campaign

(From 400,000 soldiers to fewer than 10,000)



#### The Economist's Sankey, First Take



#### The Economist's Sankey, Second Take



#### The Data Visualization Designer's Product



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That Triggered Requests for Disaggregation of Data From Secondary and Postsecondary Officials

- By high school
- By school district
- By student gender
- By student family income (FRL)
- By student ethnicity



#### Step 1: Custom Drawn Disaggregations



### E.g., Linn-Benton CC Feeder High Schools

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#### **The Education Pathway**

LINN-BENTON COMMUNITY COLLEGE

Where the Oregon public high school class of 2006\* went over the next nine years  $_{\rm *sophomores\ in\ 2003-04}$ 



#### E.g., Multnomah County High Schools



# Step 2: The Interactive Tool data.oregonlearns.org/?



Where students in the public high school class of 2006\* went by age 25

\*Sophomores in 2003-04

Full

Low

Cohort,

Income

</>>



Where students in the public high school class of 2006\* went by age 25 \*Sophomores in 2003-04

Full

Non

Low

Income

₽ </>>



Where students in the public high school class of 2006\* went by age 25

<>> 🔒

\*Sophomores in 2003-04



Full Cohort, Latino

Where students in the public high school class of 2006\* went by age 25

</>

\*Sophomores in 2003-04



Full Cohort, White

Where students in the public high school class of 2006\* went by age 25

\*Sophomores in 2003-04

309

Gender \*

All

Ethnicity \* School District High School Income Level \* v . All All V Coos Bay SD 9 ٧ All . 68% graduated from high-64% started post-secondary 17% received school in Oregon postsecondary sophomores education credential by age 25 9% enrolled in 4-year institution 12% 4-year degree 4% 2-year degree 1% certificate 55% enrolled in 2-year institution 52% high school diploma 16% graduated high school but went no further 31% no known credential

4-year degree

2-year degree

high school diploma

no known credential

₽

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Coos Bay School District

Where students in the public high school class of 2006\* went by age 25

\*Sophomores in 2003-04

Lake

School

₽  $\langle \rangle$ 



### Part 4: The Impact



## Within Oregon, Significant Policy Leverage on Attainment

- Community college shift in focus from enrollment to completion
- Outcome payments to universities for completion improvement (overall and targeted)
- Successful ballot measure campaign to invest in greater high school completion



### Part 5: Tremendous Upside

![](_page_34_Picture_1.jpeg)

We'd Like to Lead the Way In Using Data Visualization to Move State Policy

![](_page_35_Picture_1.jpeg)

#### There's More We'd Like to Do With this Tool

- Build out a look at the full continuum, P20+
- Do deeper dives on schools, cohorts, and sub cohorts
- Add cohorts to detect change and progress
  - What's working well
  - What isn't
  - Opportunities

![](_page_36_Picture_7.jpeg)

#### Secondary & Postsecondary Outcomes

![](_page_37_Figure_1.jpeg)

Note: All percentages refer to entire cohort Source: ECONorthwest analysis of ODE and NSC data

#### Employment, Income & Families

![](_page_38_Figure_1.jpeg)

Note: All percentages refer to entire cohort Source: ECONorthwest analysis of ODE and NSC data

#### Understanding, Affecting the Whole Continuum

![](_page_39_Figure_1.jpeg)

#### The Generational Loop

![](_page_40_Figure_1.jpeg)

#### We're Eager to Take this Forward. Thank you!

![](_page_41_Figure_1.jpeg)