

### REDESIGNING MONTANA'S EDUCATION SYSTEM FOR A CHANGING GLOBAL ECONOMY

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## A Disruptive Analogy to Start....

Often the current market leader is the last to see how the context has changed:

- Sears, K-Mart, Walmart, Target, Amazon and a change in how we buy things
- As recently as the 1990s, Sears was still the largest retailer in the U.S.
- Competition from K-Mart, Walmart and Target in the old paradigm
- Amazon recognizes the changing context and anticipates the new paradigm
- · Walmart and Target adapted, Sears and K-Mart did not



## Why Do We Have the System We Have?

The current education system has its roots in the turn of the century – The 20<sup>th</sup> Century!

Prepared workers for a burgeoning assembly line factory model

- Assimilated immigrants into American culture
- Provided widespread basic literacy and numeracy
- Eritical thinking necessary for only a select percentage



Leveraged lessons from across Europe



### How Has the Current System Performed?

Actually, quite well...for a long period of time

- For almost a century, the U.S. led the world in education attainment and quality
- Drove the biggest economy in the history of the world to ever new heights
- **H** Fostered an explosion of the middle class
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  - Backbone of a stable democracy
  - Production engine that helped win 2 world wars



### 80's, 90's and 00's: Global Economic Change

#### So what happened?





#### What We Spent, What We Got for It



\*Revised assessment format

Sources: The Nation's Report Card "NAEP 2012 Long-Term Trends in Academic Progress"; NCES Digest of Education Statistics 2014



#### What We Spent; What We Got For It



Per Pupil Spending and NAEP 12 Grade Reading Scores, 1971 to 2012

Sources: The Nation's Report Card "NAEP 2012 Long-Term Trends in Academic Progress"; NCES Digest of Education Statistics 2014



<sup>\*</sup>Revised assessment format

#### Mean (Average) Household Income by Quintile and Top 5%



### Milestones

2013, Frey and Osborne conclude that 47% of U.S. jobs could be automated with existing equipment

JOBS LOST, JOBS GAINED: WORKFORCE TRANSITIONS LA TIME OF AUTOMATION DECEMBER 2017 The Future of Employment Carl Benedikt Frey & Michael Osborne

on Technology and Employment



2017, McKinsey and Co. conclude that ~50% of global work activities can be automated with currently available equipment

Demand for high-wage [highskill] occupations will grow, while demand for middle-wage [middleskill] occupations will decline

### Bottom line of economic argument...





### To What Extent is this True in Montana?



From Montana Department of Labor and Industry: "Increasing consumer demand coupled with a shortage of available workers led to more job openings remaining unfilled, even after businesses made 27,000 hires during August."



### Montana's Aging Population



Population > 65 has been growing, but the population < 65 has been relatively flat since 2000



Proportion of children expected to shrink as the state population is expected to grow around 1% per year



20% of Montana's workforce will retire in the next 10 years



### Can Montanan's Fill the Jobs

OF A FLOURISHING, HIGH-TECH INDUSTRY?

- Defined by BBER as "firms that make or sell high tech products, provide professional services or consulting related to high tech, conduct e-commerce, or engage in manufacturing using skilled labor"
- These jobs pay 59% more than average state earnings and raise wages 0.8% faster than the state average
- Forecast employment and revenue gains 7x higher than statewide growth rates
- In 2019, high-tech firms grew 9x faster than other sectors, generating \$2.5 billion in revenues (an all-time high)
- But as skill needs become more sophisticated, will Montanan's be able to continue to do the jobs needed?



### But it's about much more than economics ...

Morality and ethics Ability to deal as citizens with a wide range of highly complex existential issues Much fuller development of those qualities that make us fully human Ability to interact with a broad range of people all over the globe Capacity and desire to preserve and defend freedom and democracy



### So...What Do Young People Need to Compete in an A.I. World?



Deep understanding of the core concepts underlying the disciplines—the big ideas



Ability to apply those concepts and ideas to wide range of practical problems



Full range of intrapersonal and interpersonal skills



The moral and ethical grounding needed to make wise decisions



### Potential Solutions - How the US Responded

**REFORM AGENDA SINCE 1970'S** 





### **Our Competitors Had a Different Analysis**



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### Their Model vs. Ours

THE 2018 PISA RESULTS

- In reading...
  - 8 systems outscored the U.S.
  - 11 systems were statistically tied with the U.S.
  - 57 systems scored worse than the U.S.
- In mathematics...
  - 30 systems outscored the U.S.
  - 8 systems were statistically tied with the U.S.
  - 39 systems scored worse than the U.S.
- In science...
  - 11 systems outscored the U.S.
  - 11 systems were statistically tied with the U.S.
  - 55 systems scored worse than the U.S.





In mathematics performance, average 15-year-old US students are more than a year behind students from the top-performing countries. Students in Hong Kong and Singapore are between 2.5 and 3 full years ahead of average US students in math while Chinese students are nearly four full years ahead of US students.

Montana ranks just slightly above national average on NAEP, so how does this suggest Montana would compare at a global level?













## Equitable Foundation of Supports



National Center On EDUCATION And The Economy

## **Equitable Foundation of Supports**

Pre- and post-natal financial and parenting support for new and expectant families Financial, health and social services, and high-quality child-care for young children and families Schools coordinate access to the health, mental health, social services and supports students need to be successful

National Center Or E DUCATION





EDUCATION And The Economy

Highly capable, strategic, and coordinated leadership at all levels of the system Accountability systems with incentives and supports to perform well and innovate to reach strategic priorities

Financial systems that distribute resources equitably and efficiently Ongoing benchmarking of successful systems to inform strategies



# Questions:

- What is driving the recent teacher shortages across the country and here in Montana?
- Does Montana's approach to assessment incentivize the teaching and learning necessary to develop 21<sup>st</sup> century skills?
- Despite some outliers on both ends, why do charter schools perform similarly to traditional public schools?
- Do we need to aim at different targets?
  Can we?