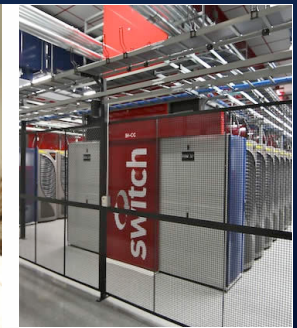
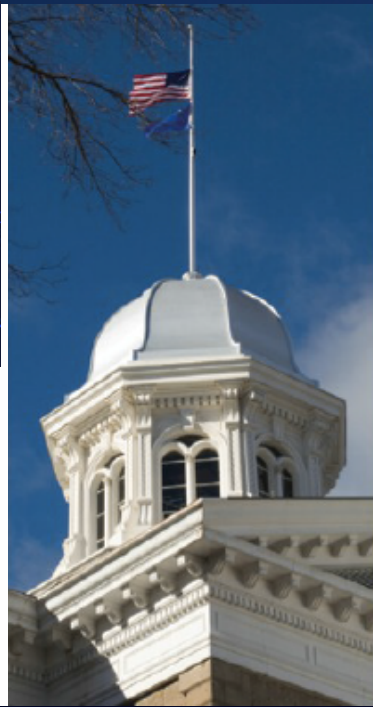


Nevada's Hidden STEM Economy — and How to Expand It



1 2 3 4

Project

Initial Trend Findings

Strategy Development

Discussion

I

Project

In 2011 we worked with SRI International to provide research that informed the creation of the state's first economic development plan



STEM workers will be crucial



All of the state's target industries have a significant STEM orientation

Therefore, we want to provide a new framing that combines Brookings' approach to STEM analysis with a look at the state's ability to meet the STEM workforce imperative



✓ Fresh analysis of the Nevada's STEM worker demand and supply tensions

✓ Systematic review of challenges

✓ Possible action steps

Throughout the report will employ an expansive new definition of STEM employment



✓ Based on jobs' actual skill requirements

✓ Inclusion of thousands of previously neglected blue-collar and technical jobs

Timeline

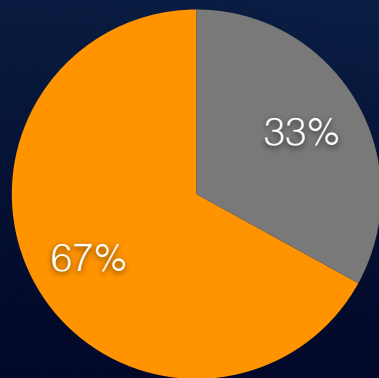
Winer 2013-14	Initial background work
January 2014	Initial listening sessions in Reno, Las Vegas
February-May	Analytics and policy scan
May-June	Report and recommendation development
Summer	Recommendation sharing
Fall	Report release

2

Initial Trend Findings

Rapid job growth characterizes Nevada's target industry sectors, which employ over half of the state's workforce

Contribution to Growth in Jobs 2010Q3-2014Q1



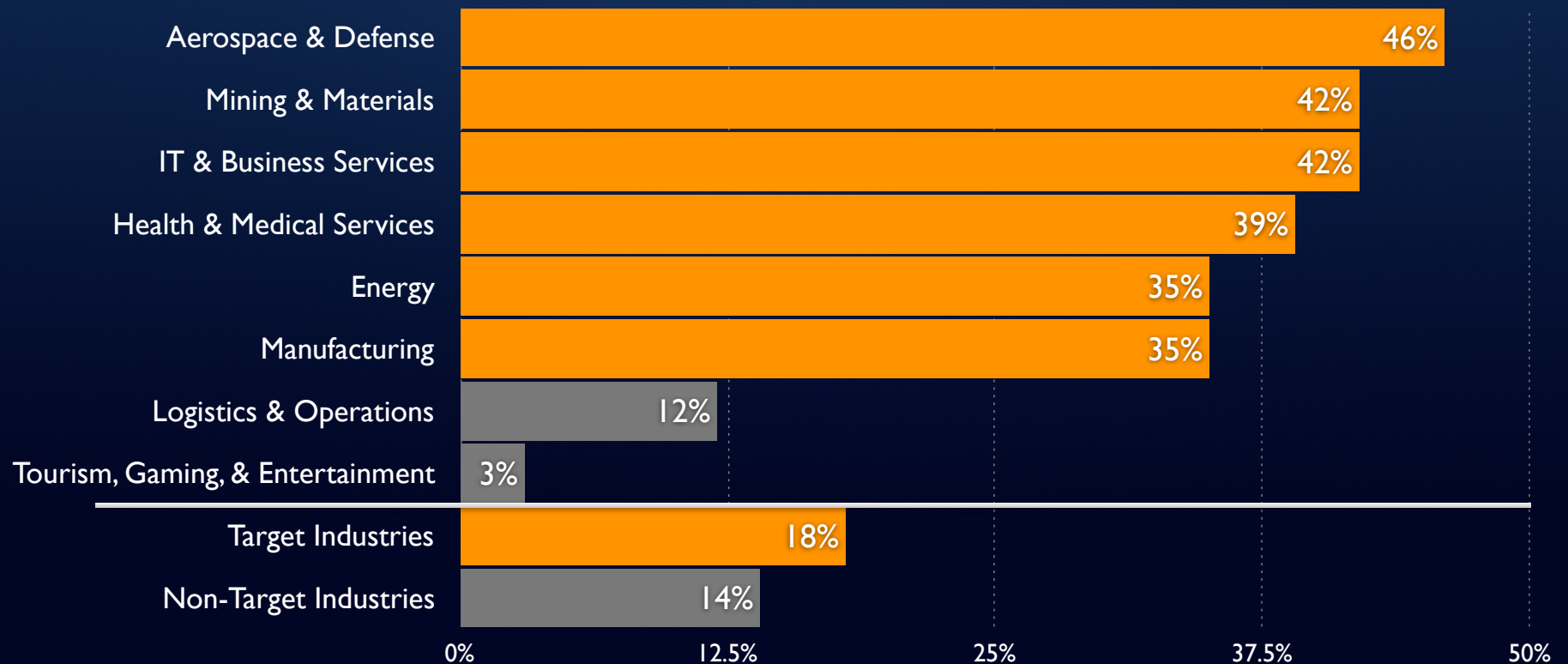
- Non-Target Industries
- Target Industries

Industry	Job growth, annual rate 2010-Q3 to 2014-Q1	Job change, 2010-Q3 to 2014-Q1
Mining & Materials	4.5%	3,509
IT & Business Services	4.4%	8,245
Energy	3.1%	1,374
Health & Medical Services	2.4%	7,159
Logistics & Operations	2.3%	6,429
Manufacturing	2.1%	1,406
Tourism, Gaming, & Entertainment	2.1%	24,503
Aerospace & Defense	-1.0%	-117
Target Industries	2.5%	+ 52,508
Non-Target Industries	1.4%	+ 26,234

Source: Brookings Analysis of Moody's Data

All but two of the target industries are STEM-intensive

Industry Share of STEM Jobs



Source: Brookings Analysis of O*NET and Bureau of Labor Statistics OES

A surprisingly significant proportion of Nevada jobs require STEM knowledge

STEM Economy in Nevada and Metros, 2012

Area	Conventional measures of STEM jobs	Conventional measures of STEM jobs, STEM share	Brookings STEM jobs	Brookings STEM share of jobs
Las Vegas-Paradise	18,000	2%	104,000	13%
Reno	6,900	4%	30,180	18%
Nevada	31,600	3%	163,700	15%
United States	6,879,730	5%	27,379,590	21%

Source: Brookings Analysis of Bureau of Labor Statistics OES, IPUMS, ACS, and O*NET

STEM occupations tend to pay well and don't necessarily require a bachelor's degree

+ \$24,000

Average STEM Job Wage Premium in Nevada (Compared to non-STEM Jobs)

52%

Share of Nevada STEM Jobs Requiring Less than a 4-Year Degree

However, in Nevada as elsewhere, STEM jobs take longer to fill than non-STEM jobs

Area	Median Number of Days Posted	
	STEM Jobs	Non-STEM Jobs
Las Vegas - Paradise	30	25
Reno-Sparks	29	20
Nevada	30	24
United States	39	33

Source: Brookings Analysis of 2013Q1-Q2 Data from Burning Glass

Hard-to-fill occupations tend to be in high-STEM categories

Ten Hardest to Fill Occupations in Nevada, 2013 Q1

Major Occupation	Median number of days ads are posted	Average number of days ads are posted	Numbers of ads with duration data	Percentage in STEM occupations
Healthcare practitioner and technical	8	35	1160	83%
Management occupations	8	32	749	28%
Life, physical, and social science occupations	6	29	81	83%
Education, training, and library occupations	5	48	177	12%
Architecture and engineering occupations	5	36	196	100%
Community and social services occupations	5	32	107	0%
Computer and mathematical science	5	31	596	100%
Sales and related occupations	5	29	1360	7%
Farming, fishing, and forestry occupations	4	23	7	57%
Food preparation and serving related	1	24	515	0%


Source: Brookings Analysis of Data from Burning Glass

Hard-to-fill occupations by industry in Nevada

Industry	Median duration of jobs vacancy	Average duration of job vacancy	Number of ads with duration data
Aerospace & Defense	27	38	61
IT & Business Services	7	28	198
Health & Medical Services	7	32	1525
Tourism, Gaming, & Entertainment	5	29	1249
Manufacturing	2	19	138
Logistics & Operations	1	25	203
Energy	1	15	43
Mining & Materials	1	6	16
Target Industries	6	30	3433
Non-Target and Unclassified Industries	1	23	5440

Source: Brookings Analysis of Data from Burning Glass

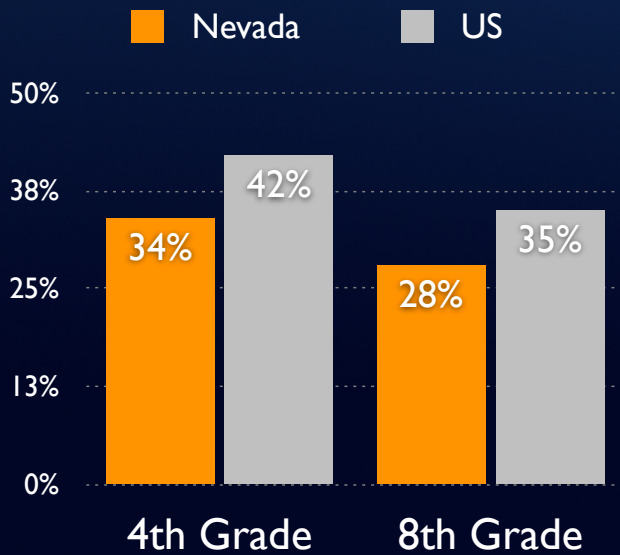
Nevada institutions of higher education do a middling job of preparing graduates for STEM jobs but struggle with graduation rates

Institution	Share of graduates prepared for STEM careers, 2012	On-time graduation rate, 2012	Graduation rate at 150% expected time, 2012
 TMCC COLLEGE OF SOUTHERN NEVADA	34%	1%	9%
 UNLV UNIVERSITY OF NEVADA LAS VEGAS	38%	14%	48%
 UNIVERSITY OF NEVADA, RENO 1874	62%	16%	51%

Source: Brookings Analysis of IPEDS, BLS OES, O*NET, and NSHE data

Nevada's K-12 education system provides a weak base for STEM proficiency growth

Nevada's Proficiency Rates on National Math Exams



Nevada Public High School Graduation Rates by Metro, as Compared to U.S, 2010-2011

Area	All Students	Low-Income Students
United States	80%	73%
Nevada	61%	53%
Carson City	59%	42%
Las Vegas - Paradise	59%	52%
Reno-Sparks	68%	53%
Non-Metro Nevada	74%	66%

Source: Brookings Analysis of NAEP, Department of Education NCES Data, 2013 and Brookings Analysis of Department of Education Graduation Rate Data

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Strategy Development

Critique # 1: Vision Gap

The state lacks a widely shared, cohesive vision of the importance of STEM workers and training to its economic goals

- ✓ Strong prioritization not evident
- ✓ Limited coordination of STEM-focused activity
- ✓ STEM definition, goals, and metrics absent
- ✓ Communication of STEM vision remains low-key

Critique # 2: Shaky Alignment

The state's education and training system remains weakly aligned to the needs of the state's STEM economy

- ✓ NSHE and other incentives for industry related STEM ed could be stronger
- ✓ Business / ed-training system interaction remains inconsistent

Critique # 3: Proficiency Crisis

The state struggles to address a STEM proficiency crisis at both the state and regional levels

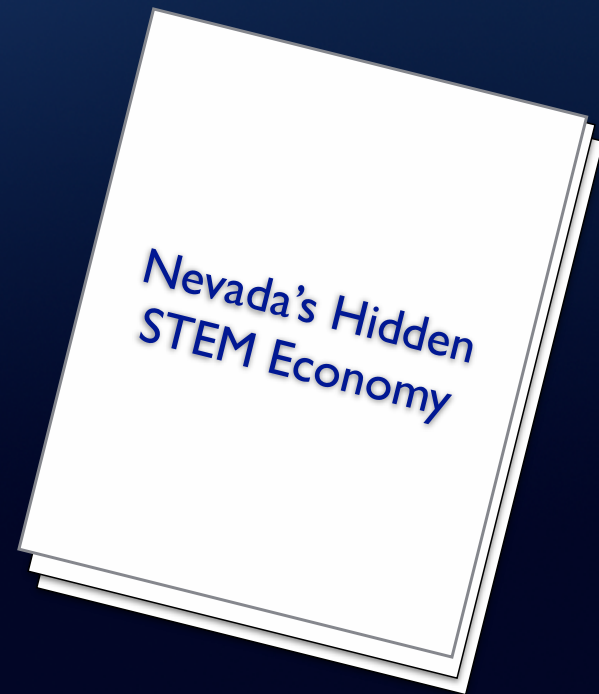
- ✓ Poverty, language proficiency problems place drag on student success
- ✓ Access to early education is inconsistent
- ✓ Prioritization of STEM education still nascent
- ✓ Teacher preparedness and STEM subject matter knowledge sub-optimal
- ✓ Grad rates, remediation needs at crisis levels

Nevada must make expanding the STEM economy a core priority

Set a vision

Align delivery

Establish proficiency



4

Discussion

Discussion

Does the basic framework resonate?

What are we missing or misstating?

Where should we go with specific recs?

For more information

Mark Muro
Washington Director
Brookings Mountain West
Senior Fellow and Policy Director
Metropolitan Policy Program at Brookings
mmuro@brookings.edu

twitter 
@markmuro1