2015

The Advanced Industry Economy in the Mountain West: Finding the Next Silicon Valley

Robert E. Lang
Brookings Mountain West, robert.lang@unlv.edu

The Advanced Industry Economy in the Mountain West: Finding the Next Silicon Valley (*Hint: It's Not Las Vegas*)

ROBERT LANG, PH.D. | PROFESSOR AND DIRECTOR
THE LINCY INSTITUTE | BROOKINGS MOUNTAIN WEST
UNIVERSITY OF NEVADA, LAS VEGAS

What's in This Talk?

I Start With a Quick Look at the Las Vegas Economic Sector Mix Based on the Bureau of Labor Statistics Location Quotient Data

Then I Turn to Analysis of the Mountain West's Advanced Technology Sector Based on New Data From the Brookings Metro Policy Program

First: What's a Location Quotient (LQ)?

From the Bureau of Labor Statistics (BLS):

"If an LQ is equal to 1, then the industry has the same share of its area employment as it does in the reference area. An LQ greater than 1 indicates an industry with a greater share of the local area employment than is the case in the reference area. For example (assuming the U.S. as the reference area), Las Vegas will have an LQ greater than 1 in the Leisure and Hospitality industry because this industry makes up a larger share of the Las Vegas employment total than it does for the country as a whole."

BLS Location Quotients: Las Vegas 2014

Industry Name	Las Vegas LQ 2nd Q 2014
Construction	1.17
Education	0.53
Finance & Insurance	0.66
Health Services	0.64
Information	0.56
Leisure and Hospitality	3.01
Manufacturing	0.28
Professional and Business Services	1.00
Trade, Transportation and Utilities	1.00

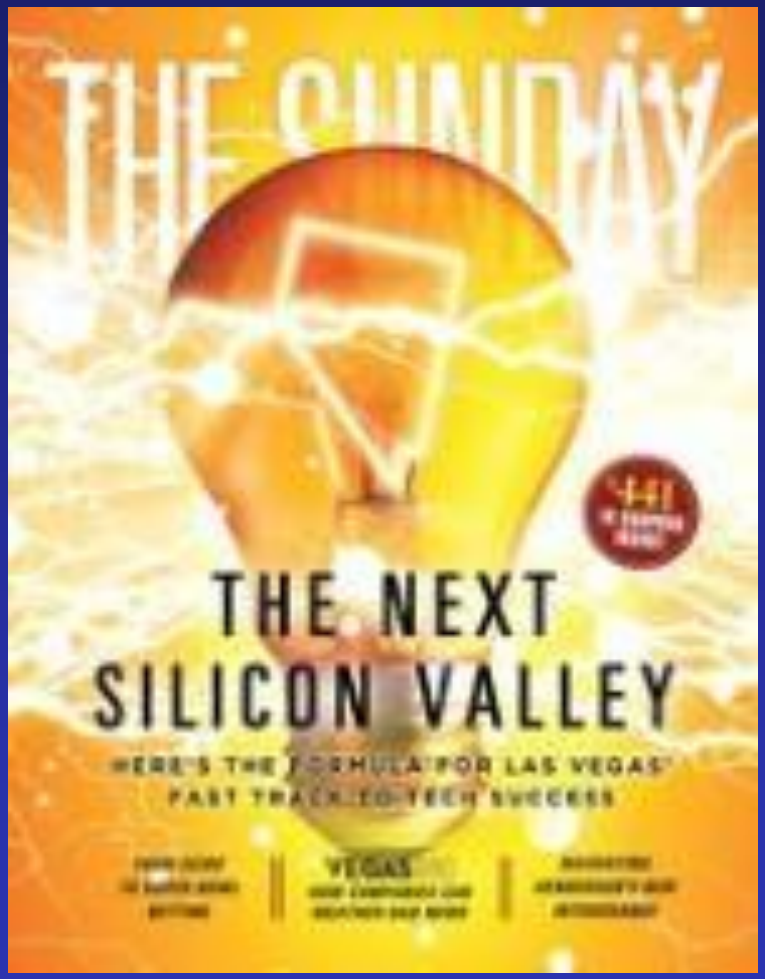
Behind the Location Quotient Numbers

Las Vegas Posts Solid LQ Numbers in Trade and Business Services; Both Sectors Have Helped in the Job Recovery

The Las Vegas 0.53 LQ in Education is a Very Low Employment Share for a Large Metro and Reflects an Under Investment in K-16 by State

The Las Vegas 0.64 LQ in Health is Last Among the Top 100 U.S. Metros—A Shortage of $6 Billion Per Year in GRP

Las Vegas as the Next Silicon Valley?



Despite the Buzz, Las Vegas is Not on Track to be the Next Silicon Valley—Based on the Low LQ Numbers in Information and Manufacturing

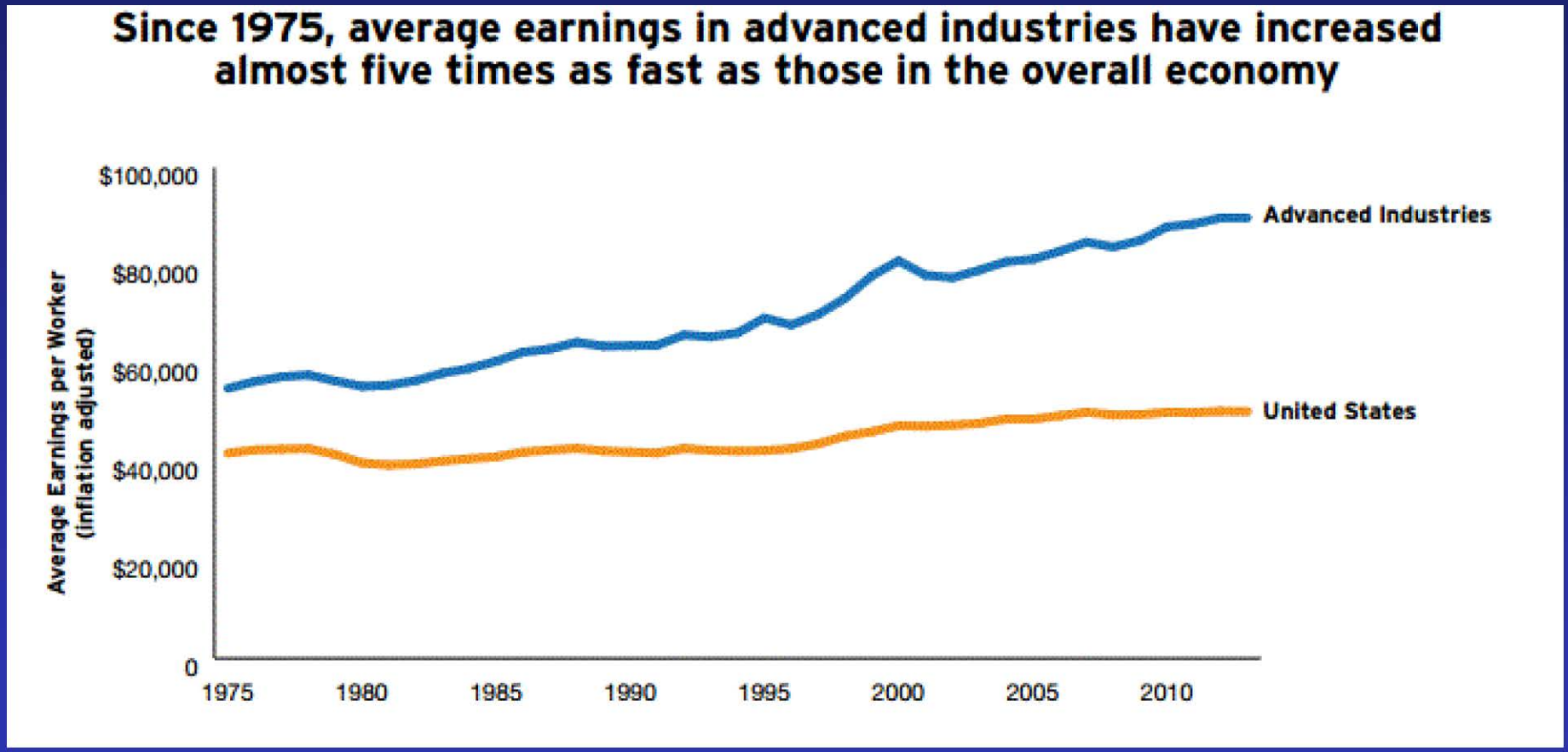
Las Vegas Ranks 97 out of 100 Large Metros in Advanced Industry; Behind Honolulu, HI and Ahead of Fresno, CA

Brookings Advanced Industry Super Cluster

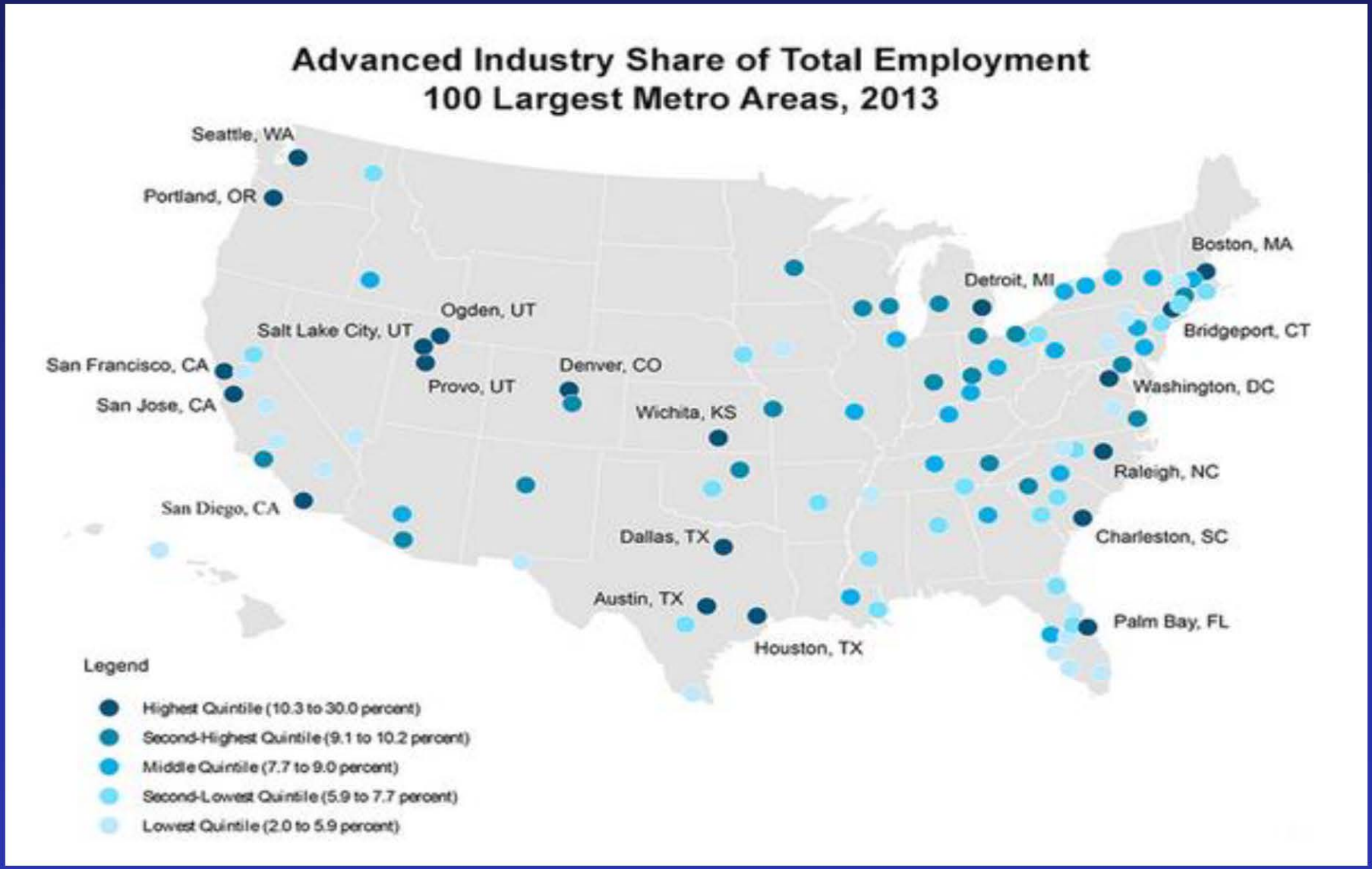
The 50 Industries That Constitute the Advanced Industries Sector

MANUFACTURING		ENERGY
Aerospace Products and Parts	Motor Vehicles	Electric Power Generation, Trans., and Distribution
Agr., Construction, and Mining Machinery	Navigation, Measurement, and Control Instruments	Metal Ore Mining
Aluminum Production and Processing	Other Chemical Products	Oil and Gas Extraction
Audio and Video Equipment	Other Electrical Equipment and Components	**SERVICES**
Basic Chemicals	Other General Purpose Machinery	Architecture and Engineering
Clay Products	Other Miscellaneous Manufacturing	Cable and Other Subscription Programming
Commercial and Service Industry Machinery	Other Nonmetallic Mineral Products	Computer Systems Design
Communications Equipment	Other Transportation Equipment	Data Processing and Hosting
Computers and Peripheral Equipment	Pesticides, Fertilizers, and Other Agr. Chemicals	Medical and Diagnostic Laboratories
Electric Lighting Equipment	Petroleum and Coal Products	Mgmt., Scientific, and Technical Consulting
Electrical Equipment	Pharmaceuticals and Medicine	Other Information Services
Engines, Turbines, and Power Trans. Equipment	Railroad Rolling Stock	Other Telecommunications
Foundries	Resins and Synthetic Rubbers, Fibers, and Filaments	Satellite Telecommunications
Household Appliances	Semiconductors and Other Electronic Components	Scientific Research and Development
Industrial Machinery	Ship and Boat Building	Software Publishers
Iron, Steel, and Ferroalloys	Medical Equipment and Supplies	Wireless Telecommunications Carriers
Motor Vehicle Bodies and Trailers	Reproducing Magnetic and Optical Media	
Motor Vehicle Parts		

Brookings Metro Policy: Advanced Industry



Brookings Metro Policy: Advanced Industry



Advanced Industries: Mountain West States

Mountain State	2014 Population	A.I. Rank for U.S.	A.I. Rank for M.W.	Total State Emp.	Total State Output
Arizona	6,731,484	24	4	210,970	$41.6
Colorado	5,355,866	10	2	241,230	$55.5
Idaho	1,634,464	37	5	47,530	$8.1
Nevada	2,839,009	49	6	61,030	$16.1
New Mexico	2,085,572	21	3	70,840	$15.3
Utah	2,942,902	6	1	137,400	$24.0

Source: Brooking Metro Policy Program. Note: Rank for Advance Industry is Based on the Share of Total Employment. Output Figures are in Billions.

Mountain West States Findings

- **Four of the Six Mountain West States with Large Metros Rank in the Top Half of States in Terms of Their Percentage of Workforce Employed in Advanced Industry Jobs**

- **Nevada Ranks Last Among the Mountain West States and 49th out of 50th in the U.S. in Terms of This Metric**

- **The Six Mountain West States Contain More Than 21 Million Residents and Output More Than $160 Billion in Their Collective Advanced Industry Economies**

Advanced Industries: Top Ten Metros in MW

Region/Metro	State	2013 POP	Rank US	Rank MW	Emp.	Output
Sun Corridor	AZ	5,395,306	-	-	187,050	$35.3
Phoenix	AZ	4,398,762	50	8	152,920	$28.6
Tucson	AZ	996,544	35	7	34,130	$6.7
Front Range	CO	3,375,795	-	-	162,600	$35.7
Denver	CO	2,697,476	20	4	134,760	$30.0
Col Springs	CO	678,319	33	6	27,840	$5.7
Boise	ID	650,288	56	9	22,900	$4.3
Las Vegas	NV	2,027,868	97	10	30,810	$6.0
Albuquerque	NM	902,797	25	5	37,460	$6.6
Wasatch Front	UT	2,324,302	-	-	123,210	$20.1
SLC	UT	1,140,483	15	3	71,590	$11.1
Ogden	UT	621,580	14	2	26,530	$4.6
Provo	UT	562,239	12	1	25,090	$4.4

Advanced Industries: Top Ten Metros in MW

Region/Metro	State	% AI Emp. Reg./Metro	% AI Output Reg./Metro	Average AI Pay 2013	Average Pay 2013
Sun Corridor	AZ	8.5%	15.7%	$88,495	$48,757
Phoenix	AZ	8.3%	15.2%	$91,960	$49,800
Tucson	AZ	9.2%	18.1%	$73,230	$44,160
Front Range	CO	10.1%	19.9%	$101,056	$57,216
Denver	CO	10.3%	19.8%	$100,250	$59,630
Col Springs	CO	9.3%	20.5%	$104,280	$47,560
Boise	ID	8.0%	17.1%	$81,320	$40,790
Las Vegas	NV	3.6%	7.1%	$81,320	$46,090
Albuquerque	NM	9.9%	17.5%	$76,190	$44,570
Wasatch Front	UT	11.4%	19.2%	$67,895	$44,336
SLC	UT	11.1%	16.5%	$70,410	$48,780
Ogden	UT	11.3%	20.5%	$60,580	$40,180
Provo	UT	12.0%	23.2%	$70,990	$39,940

Top Ten Metros in the Mountain West Findings

- **Five of the Ten Mountain West's Large Metros Rank in the Top 25 U.S. Metros in Terms of Their Percentage of Workforce Employed in Advanced Industry Jobs; Eight are in the Top 50 Metros**
- **Las Vegas Ranks Last Among the Mountain West States Large Metros and 97th out of 100th in the U.S. in Terms of This Metric**
- **The Wasatch Front—While Not the Next Silicon Valley—Leaves Las Vegas (a Comparably Sized Region) Far Behind In Advanced Industry**

Advanced Industry: Albuquerque, NM

Leading Sector	Number of Jobs	Location Quotient
R&D Services	11,130	6.56
Semiconductors	4,910	4.89
Architecture & Engineering	4,220	1.17
Wireless Telecom Carriers	3,640	8.82
Computer Systems Design	2,440	0.53

Advanced Industry: Boise, ID

Leading Sector	Number of Jobs	Location Quotient
Semiconductors	7,500	9.95
Architecture & Engineering	2,880	1.06
Computer Equipment	2,230	7.02
Management Consulting	2,090	0.88
Compter Systems Design	1,780	0.52

Advanced Industry: Col. Springs, CO

Leading Sector	Number of Jobs	Location Quotient
Computer Systems Design	8,060	2.26
Architecture & Engineering	4,780	1.69
Management Consulting	2,080	0.84
Semiconductors	1,670	2.12
R&D Services	1,640	1.23

Advanced Industry: Denver, CO

Leading Sector	Number of Jobs	Location Quotient
Architecture & Engineering	27,830	2.24
Computer Systems Design	27,410	1.74
Management Consulting	15,250	1.39
Oil & Gas Extraction	6,600	3.61
Aircraft Product & Parts	6,080	1.32

Advanced Industry: Las Vegas, NV

Leading Sector	Number of Jobs	Location Quotient
Architecture & Engineering	6,780	0.83
Misc. Manufacturing	4,780	2.85
Computer Systems Design	4,100	0.39
Management Consulting	2,900	0.40
Medical and Diagnostic Laboratories	2,550	1.70

Advanced Industry: Ogden, UT

Leading Sector	Number of Jobs	Location Quotient
Motor Vehicle Parts	3,880	4.61
Aircraft Products & Parts	3,570	4.34
Management Consulting	2,860	1.46
Architecture & Engineering	2,570	1.16
Misc. Manufacturing	2,250	4.96

Advanced Industry: Phoenix, AZ

Leading Sector	Number of Jobs	Location Quotient
Semiconductors	22,390	4.62
Computer Systems Design	20,460	0.93
Architecture & Engineering	18,340	1.05
Management Consulting	16,320	1.06
Aircraft Products & Parts	14,930	2.32

Advanced Industry: Provo, UT

Leading Sector	Number of Jobs	Location Quotient
Computer Systems Design	6,070	2.42
Software Products	3,560	8.08
Semiconductors	1,830	3.31
Web Search Portals and Internet Publishing	1,660	5.74
Data Processing & Hosting	1,640	4.14

Advanced Industry: Salt Lake City, UT

Leading Sector	Number of Jobs	Location Quotient
Computer Systems Design	10,320	1.33
Architecture & Engineering	7,990	1.31
Medical Equipment & Supplies	7,870	5.68
Precision Instruments	6,170	3.45
Management Consulting	4,910	0.91

Advanced Industry: Tucson, AZ

Leading Sector	Number of Jobs	Location Quotient
Aircraft Products & Parts	11,130	8.54
Architecture & Engineering	3,850	1.09
Computer Systems Design	3,380	0.76
R&D Services	2,140	1.29
Management Consulting	1,960	0.63

8 Small Metros with State Universities

AI in Small MW Metros with State Univ.

Metro	State	State Univ.	Metro Pop.	US Small Metro Rank	% AI Emp.	Total AI Emp.
Flagstaff	AZ	NAU	136,539	174	5.2%	3,400
Boulder	CO	UC	310,048	5	21.3%	37,270
Ft Collins	CO	CSU	315,988	54	9.7%	14,330
Pocatello	ID	ISU	83,249	244	3.5%	1,190
Missoula	MT	UM	111,807	214	4.2%	1,980
Reno	NV	UNR	437,637	167	5.4%	10,670
Las Cruces	NM	NMSU	213,460	140	6.0%	3,660
Logan	UT	USU	129,763	28	11.6%	6,750

Small Metros With State Universities Findings

- **Boulder—Home to the University of Colorado—Maintains a Large Share of Advance Industry Employment; It Ranks 5th out of 281 Small U.S. Metros On That Metric**
- **Logan (With Utah State University) and Fort Collins (With Colorado State University) Also Rank in the Top Quintile on Share of AI Jobs**
- **Reno (With the University of Nevada) Ranks Well Below the Midpoint of Small Metros in Share of AI Jobs, But the New Tesla Plant Could Lift its Rank**

Final Thoughts…

- We Should Avoid Hyperbole Such As Trumpeting Our Region as the Next Silicon Valley and Get Down to the Task of Investing in and Reforming Our Education Systems To Train for AI Jobs
- Las Vegas Needs to Build From its Competitive Advantage By Specializing in AI Jobs That Stem From its Core Sector in Tourism as Orlando Does
- No One Firm or One Capacity—Such as Internet Connectivity—Can Propel Las Vegas into the Top Ranks of AI Metro Economies

Past Connectivity Has *Not* Helped Nevada

The Advent of the First Transcontinental Railroad did Little to Lift Nevada—In Fact, in Some Ways it Hurt It

Thank You