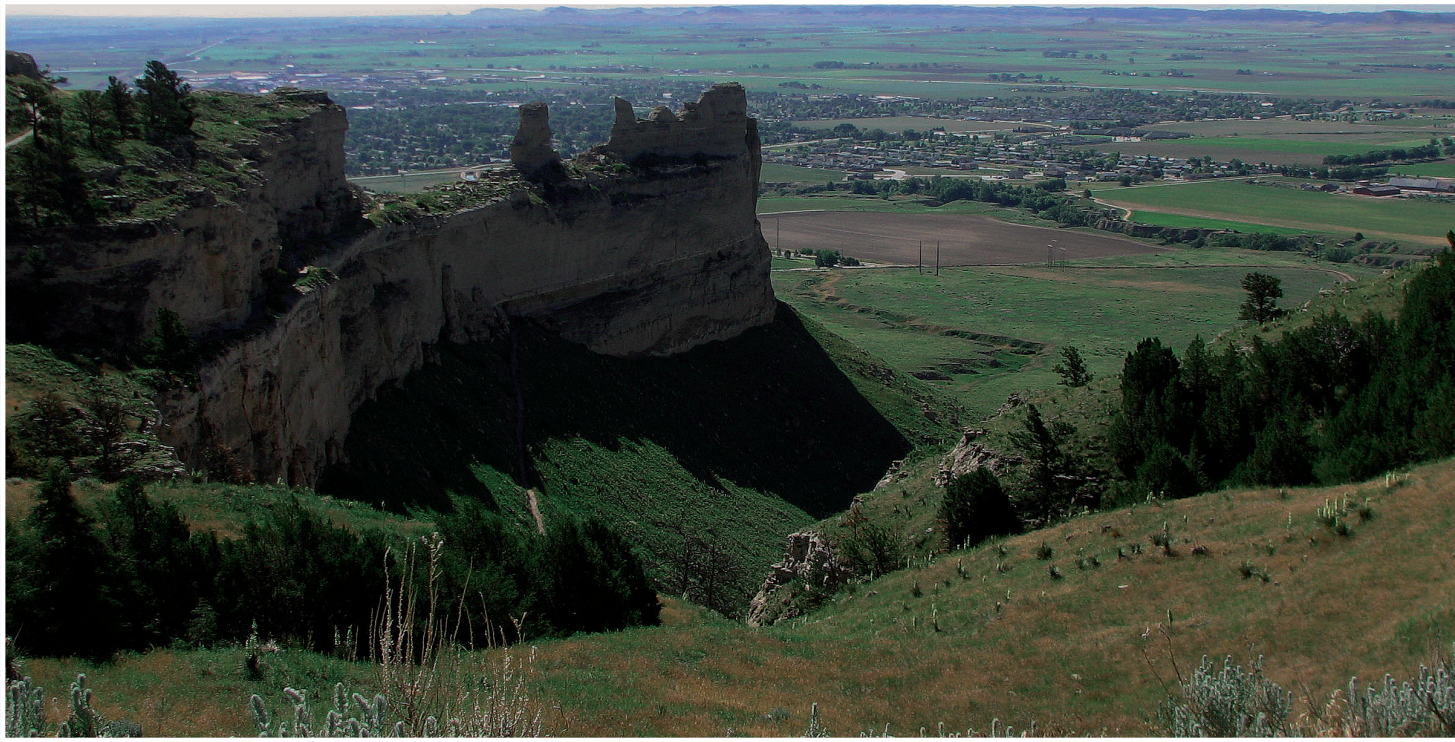
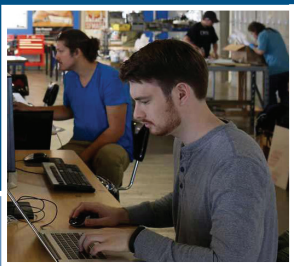
NEBRASKA'S NEXT ECONOMY



ANALYSIS AND RECOMMENDATIONS



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Nebraska's Next Economy

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Executive Summary

Nebraska's economy has enjoyed a period of continuous growth, even during the great recession. As a result of this success, Nebraska's economic development is at a turning point. It has the opportunity to pursue high-quality economic growth consistent with the high quality of life the state's citizens already enjoy. This path, towards Nebraska's next economy, will help resolve some of its its present economic challenges

At the moment, unemployment is at very low-levels, with labor force participation rates that are the envy of the country as a whole. Nebraska is a job machine, with significant shortages of workers in many key areas. However, wages are still well below the national average. This makes it hard to keep the best and brightest from leaving the state, and hard to recruit workers from elsewhere.

The report that follows contains analysis and recommendations aimed at helping Nebraska's leaders as they accelerate the shift towards a new equilibrium in which Nebraska is home to technology-intensive, well-paid jobs served by a reliable, highly skilled workforce pipeline.

Goals

This report identifies four interrelated, strategic objectives that should be pursued through a variety of means in order to make the transition towards a high-quality/high-value economy

- **High skill, high wage jobs**
- **Technology intensive investment**
- **Innovation**
- **High quality communities**

Clusters

Cluster analysis reveals that Nebraska will continue to enjoy enduring strengths in agriculture, food processing and agricultural machinery. Nebraska's urban areas enjoy significant prospects in skill intensive and technology intensive services and research, in addition to strengths in materials and non-agricultural machinery, and automotive and transportation equipment.

Businesses that require higher skills, pay higher wages, and with a history of employment growth, will be at the heart of the state's future. For example:

- Large clusters and/or established strengths in Nebraska, including Agribusiness (including machinery) & Food Processing, Financial Services, E-Commerce, Transportation & Logistics
- Smaller clusters with emerging strengths & good growth trends including Biosciences, Renewable Energy, Advanced Manufacturing, IT & Data Services
- Large clusters with a developing value proposition including Health & Medical Services, Business Services and Tourism

Workforce

Nebraska faces the following workforce challenges:

- General shortage in all regions given very low unemployment;
- Acute shortage of IT and other STEM graduates in high pay, fast growing occupations;
- Acute shortage of workers with qualifications in the building trades;
- Failure to integrate underserved and non-English speaking populations into the pipeline;
- Above average time to degree in the University of Nebraska system; and
- Loss of teachers through the credentialing pipeline.

Workforce responses could include the following:

- **An increase in support for graduates who stay in the state, and various kinds of internships and short courses**
- **Increase students in the pipeline through out of state recruitment and high school programs with wide stakeholder engagement**
- **Design and implementation of a funding formula for four year institutions that reward success in faster graduation rates and increased STEM graduates**

Infrastructure, Housing and Community Development

Nebraska's challenges in the areas of infrastructure, housing and community development are challenges brought on by success. In addition to constraints in the area of municipal infrastructure, there are changes that can be made to align the state more closely with a skill-intensive, technology-intensive future. Meeting these challenges and making these changes will require some money and a great deal of imagination.

Business Attraction & Development

Nebraska Advantage Act (NAA) tax credits target almost any kind of job at present, reflecting Nebraska's needs in years gone by. Furthermore, as result of program design and implementation requirements, the program is best suited to the needs of established, larger firms on a steady path to expansion. There are plenty of firms in Nebraska like that who are glad for this support. However, this design tends not to help high-technology, high-skill, fast-growing firms with modest capital needs. The tax credits at the heart of the NAA could be changed in the following ways so that they better serve the needs of those businesses Nebraska is targeting for the future:

- **Credits should be distributed on a pay-as-you-perform basis.**
- **Performance measures should rely on independent, low cost sources of data.**
- **Nebraska should operate a discretionary fund based on rigorous ROI estimates.**
- **Tax credits should only be available for new jobs at or above county median wages.**
- **Comparable cash incentives should be available for new jobs at more than 200% of county median wages.**
- **Tax credits should be available for new investments that yield increased pay, sales, and income.**

Approach and Activities

The Center for Innovation Strategy and Policy (CISP), at SRI international, began work on this project on October 19, 2015.

- Based on the counsel and guidance of the leadership and staff at NDED, the SRI team identified and reviewed a wide range of supporting materials including studies, reports and other documents that addressed different aspects of the economic and policy environment in the state.
- The teams also developed a list of stakeholders for interviews, including DED staff, staff from other state agencies, representatives of higher education, and business representatives from all key sectors in Nebraska. Over 45 Interviews were conducted, each lasting between 45 minutes and an hour.
- The SRI team also reviewed an earlier study of target industries by Battelle, and an update completed by DED. Based in part on this work and on SRI's own custom cluster analysis, the SRI team developed a new and comprehensive map of target industries for the state, highlighting existing strengths and potential opportunities for the future.
- At the end of January, a team from SRI went to Nebraska and conducted a series of stakeholder focus groups in four locations across the state: Scottsbluff, Kearney, Lincoln, and Omaha. Each focus group was attended by more than two dozen participants including business people, economic development practitioners, and other community leaders.
- The chapter on innovation was the result of a separate, parallel set of activities, including additional interviews.

A New Direction for the Next Economy

Nebraska's economy is, by any measure, the envy of many other states. It has enjoyed a period of continuous growth, even during the great recession. Part of this growth is related to strong agricultural commodity prices (which turned down in 2014), but this economic success is broadly based and reflects fundamental strengths including a skilled workforce, excellent infrastructure and a high quality of life.

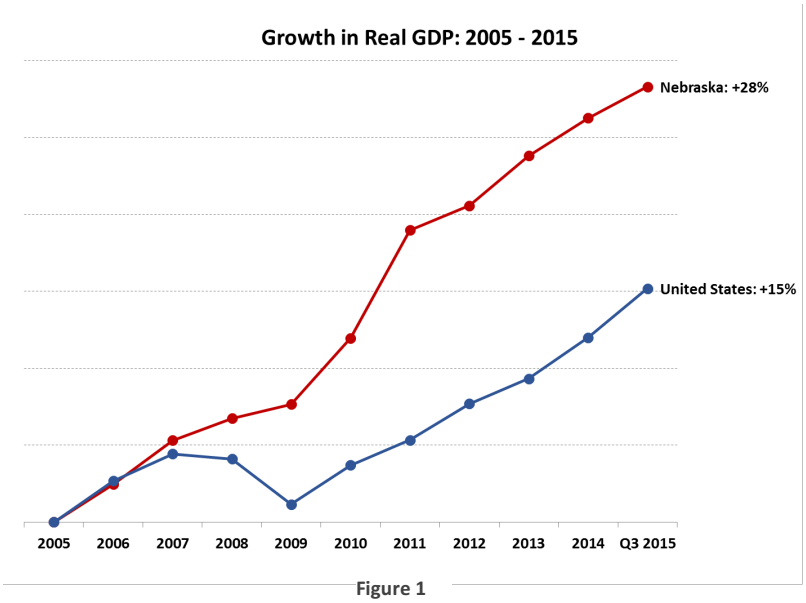

Figure 1

As a result of these successes, Nebraska's economic development is now at a turning point. This period of steady growth has led to conditions of very low unemployment and very high labor force participation compared to the rest of the country. While the people and stakeholders interviewed for this project invariably commented favorably on the high-quality of the workforce in Nebraska, and on high quality of workforce institutions, they also observed that employees of all kinds were in short supply.

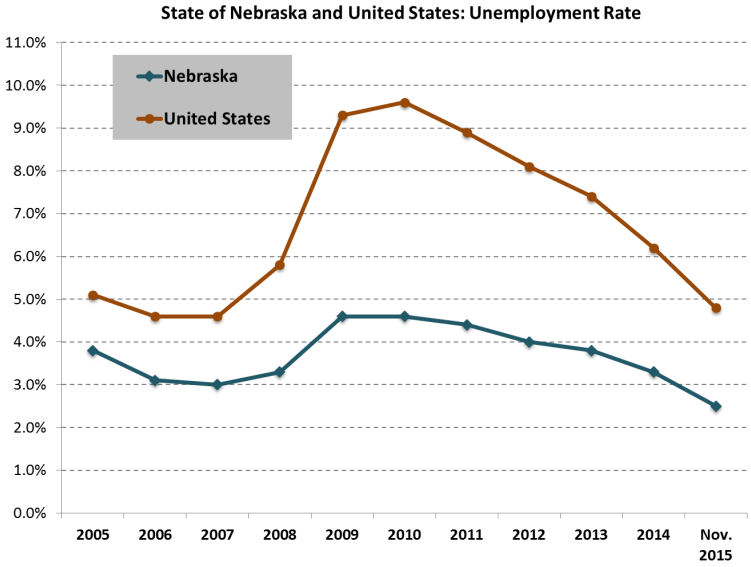

Figure 2

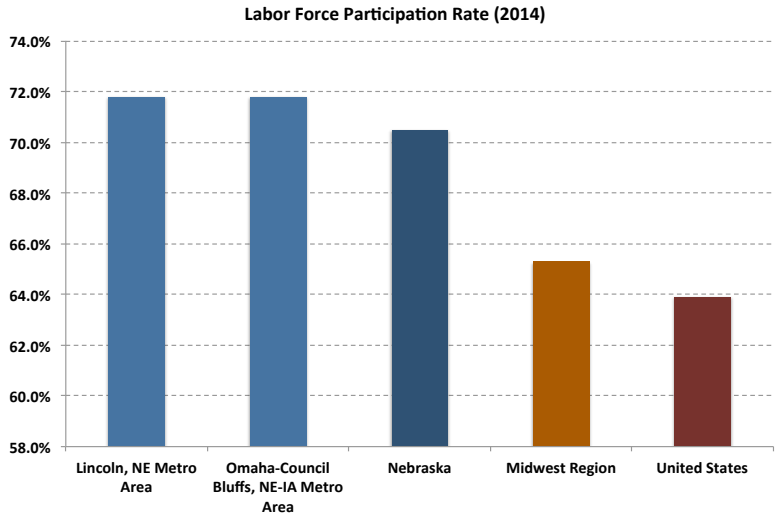

Figure 3

Workforce and wages

Interviews with employers of all kinds across different regions indicate that finding and keeping staff is a constant concern. This single factor was reported to have capped expansion plans in some cases. Furthermore, the data also indicate that wages in Nebraska are relatively low, even though housing prices are comparable to other states in the Midwest.[1] While wage growth rates in Nebraska have mirrored national growth rates, outside the urban area of Omaha, wages and income remain significantly below the state average, which is itself below the national average. Average annual pay in Nebraska is 21% below the national level, and that gap has been consistent over the last 10 years.

Nebraskans compensate, in part, for low wages by working harder at more than one job. As a result, household incomes in Nebraska are much closer to the national average.

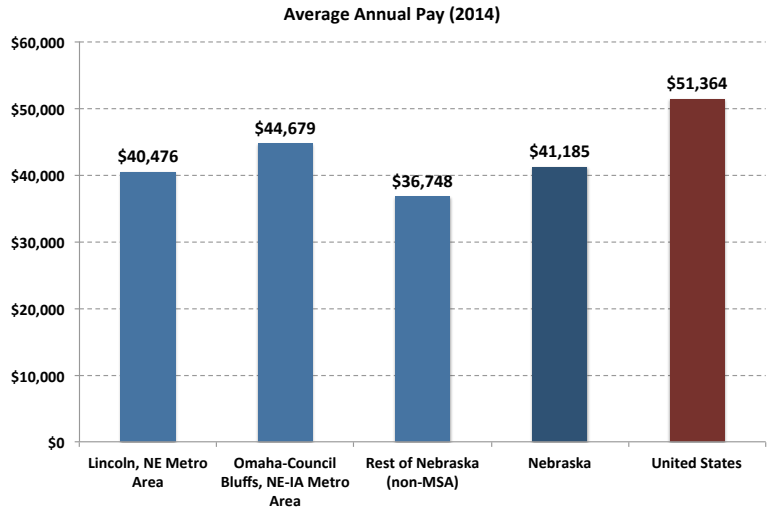

Figure 4

[1] Average per capita income in Nebraska compares well with the national average, however we view average pay as a better measure of the relative prosperity of working Nebraskans.

High wage, high skill jobs

The straightforward implication is that Nebraska's economic development future cannot be based on growth that generates jobs of any kind, but rather growth that emphasizes high-quality jobs. A high quality job tends to be technology intensive, skill intensive, and pay above average wages. As it happens, the jobs Nebraska should target have already been defined by the Nebraska Department of Labor: High wage, high demand, high skill, or H^3. Simply stated, Nebraska's next economy should represent a shift towards quality over quantity.

This is not to say that the challenges facing the state are the same everywhere. There are important differences, especially between the principal urban areas and rural Nebraska. In Figure 5 below the urban core is highlighted, superimposed on a map of the state as a whole.

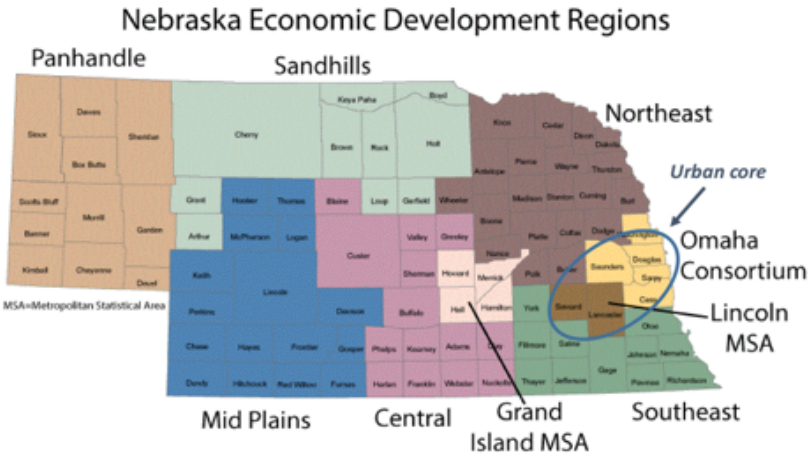

Figure 5

More than 60% of the population of the state live in the Omaha and Lincoln metropolitan areas. This is the urban core, home to diverse, technology-intensive businesses (as well as a research medical center, two large state universities and state government). These two Metro areas have been growing in population at about 13% a year for the last decade, significantly above the state and national average.

To the west is the Grand Island MSA (newly defined). Adding Kearney and Hastings to the formal MSA, this area could be characterized as a town and country mix, with relatively vibrant towns (Kearney, Grand Island, and Hastings) characterized by high quality of life in a rural setting. It has been growing at the same rate as the state and national average. Further west and to the north is rural Nebraska, with important towns in the Northeast like Columbus and Norfolk growing slightly, while rural areas and the towns of North Platte on the Platte River, and Scottsbluff in the Panhandle, experiencing population decline.

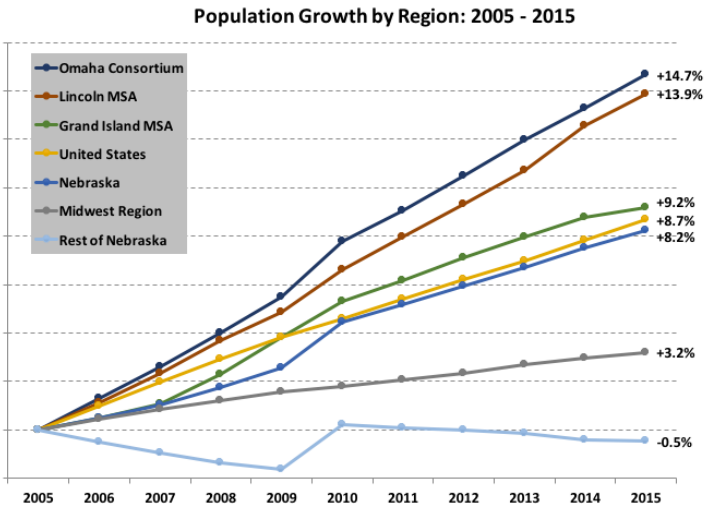

Figure 6

What constitutes a high wage, high skill job varies across these regions, even if the broad goal remains constant. For example, as will be seen in the discussion below of target clusters, food wholesaling is a relatively high paying sector in more rural areas of the state, while agricultural and medical biosciences offer relatively high paying jobs for the Omaha/Lincoln metro areas. Policy instruments aimed at fostering these kinds of jobs should be designed in ways consistent with these regional differences.

Technology intensive investment

High skill and high technology jobs are generally associated with capital intensive activities. Capital intensive investments are an important goal in order to make the transition towards Nebraska's next economy. Technology intensive and capital intensive investments may not always have a direct impact on jobs, but they are associated with higher wages, and make an important long-term contribution to overall growth (such investments tend to generate significant productivity spillovers into the rest of the regional economy). Where employment of any kind is no longer the priority, policy instruments can be aligned with technology- and capital-intensive investments with less regard to an immediate impact on new jobs, but rather with a view to faster growth that builds the tax base and has powerful indirect, long-term effects on the quality of jobs.

Innovation

A turn towards quality also requires a turn towards innovation based economic development, in which Nebraska's economy fosters start-ups and rapidly growing small- and medium-sized businesses. Farmers were always innovators and entrepreneurs, ingenious when improving their equipment, and improvising solutions to challenges they encountered on a regular basis. As a result, Nebraska has several successful home grown farm equipment businesses, in addition to serving as a destination for investment by multi-national producers.

Nebraska's other assets, including outstanding universities and colleges and a medical center in Omaha with a growing reputation, are also building blocks for the innovation economy. Here, quality means not only high wages and high technology, but variety in investment opportunities and employment. Nebraska's talent and innovation initiative, launched in 2011, is aimed squarely at this piece of the economic development puzzle, and the report below includes a section reviewing its initial success.

Quality of Place

Finally, a turn towards quality of place is an important goal, in addition to high skilled jobs, capital- and technology-intensive investment, and innovation. The cost of living in the Omaha/Lincoln metro areas has caught up with the rest of the Mid West (some interviewees commented that housing in Lincoln was more expensive and in limited supply compared to, for example, Kansas City or St. Louis). This reflects economic success.

The U.S. economy is increasingly divided between regions that are home to talent and technology, that enjoy in-migration, and that are growing faster than the national average, as compared to regions with less talent and technology, outward migration and low population growth, and lackluster economic growth. The Omaha/Lincoln metro areas are firmly on the right side of this divide. However, in order to sustain this success, these metros can't expect to compete on price in the future, but rather must compete based on quality of place.

The key to this competition is talent. In a 20th century economy, economic development meant building existing businesses and attracting new business. Workers then follow. In the 21st century this has been turned on its head. If you keep or attract the right talent, established businesses and outsiders will invest more, and new businesses will be launched. Both Omaha and Lincoln have high quality of life, as reported in numerous interviews, but there is always more to do and policies aligned around building community assets are critical for the long-run.

Other regions of the state offer both a lower cost of living and the particular attractions of small town life (numerous interviewees were Nebraskans who had grown up in the state, left, and returned in part because of the family-friendly qualities they recalled well). Further, the nature of work is changing so that working at home from locations outside urban areas is much more practical, as long as connectivity is good. For example, it is important that download speeds of 10 – 25 Mbps are available in the Omaha and Lincoln metro areas, in towns in the Northeast, and in towns along I-80 and the Platte River. Access to this key infrastructure is comparable to proximity to the railroad in the 19th century (however, tariffs are very high in some places). The fact that cell-phone service is weak in more rural areas is another infrastructure gap.

Summary

Nebraska is making the transition towards a high-quality/high-value economy, as defined by four strategic goals:

1. **High skill, high wage jobs**
2. **Technology intensive investment**
3. **Innovation**
4. **High quality communities**

These goals need to be integrated into a compelling, inclusive vision of the future that serves to coordinate the actions of leaders, stakeholders, businesses and citizens.

Vision for the Future

The SRI team conducted a listening tour in January in Nebraska, where they heard a great deal of detailed ideas regarding the future for the state. These ideas were generated by dozens of participants from across the state, attending meetings in four communities: Scottsbluff, Kearney, Lincoln and Omaha. The participants, invitees of the Department of Economic Development, were not a representative group in any formal sense, however taken as a whole they represented a diverse cross-section of backgrounds. They reflected on their vision of the future of the state from three different points of view: New college graduates, small- or medium-sized businesses, and a young family.

Although many things were mentioned, a review of the written notes revealed recurring key themes (as depicted in Figure 7 below). Affordable housing was mentioned by almost everybody, quality of place and quality of life were also seen to be a shared aspiration for the future. Finally, from the point of view of business, a reliable supply of high quality workers was seen as critical, while from the point of view of college graduates high-quality, rewarding jobs were viewed in the same way. Closing that gap, to the extent that it exists, is one of the key tasks facing Nebraska.

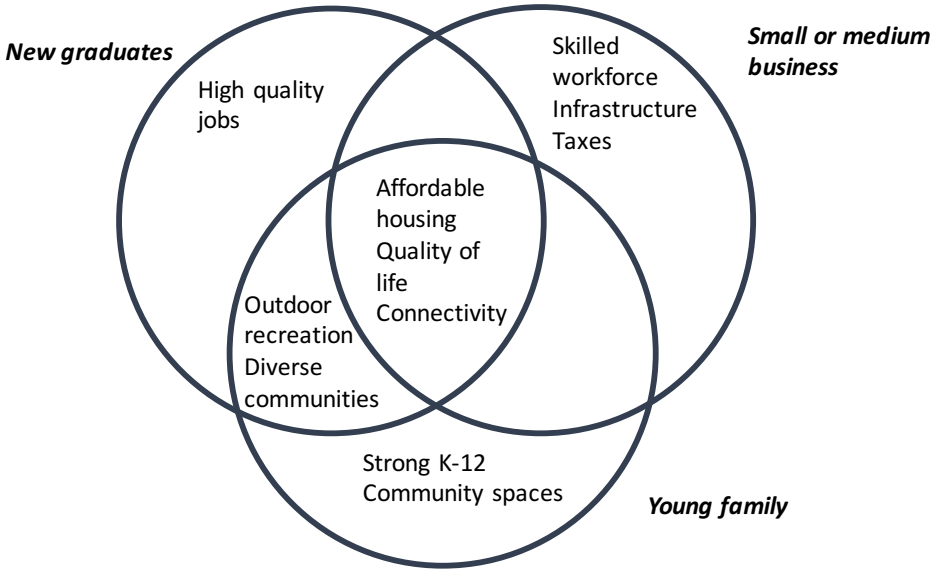

Figure 7

Everybody was concerned about quality: high-quality job opportunities, high-quality employee skills, and high quality of place. Citizens want their children to stay, or come home if they have left (low wages and quality of life issues are part of the reason why graduates with good skills, needed in Nebraska's labor force, leave the state).

Diversity and scale

Participants see a high value, diverse economy as the solution. An economy that is diverse in terms of skills, but also diverse in terms of scale. Given the limits on the labor force, Nebraska cannot expect to often recruit very large scale inward investments, at least for the foreseeable future. In many ways, this represents an opportunity, not a challenge.

It should be remembered that most of Nebraska's exports come from small- and medium-sized enterprises (SMEs). For example, SRI's analysis identified a cluster of SMEs in Nebraska that are integrated into the automotive supply chain. An economy that rests on a portfolio of businesses at different scales is more resilient in the face of changes in long-term economic trends, less exposed to short-term economic shocks, and, some argue, more likely to breed a risk accepting, entrepreneurial culture. If this is the heart of Nebraska's economy, and likely to remain so in the future, then it will be important to have incentive packages aligned accordingly.

Vision

The vision for the future implied by the discussion above is already unfolding. Nebraska is building a diverse economy with high value businesses at different scales. This kind of economy is characterized by rich career pathways, with opportunities for starting businesses, that is attractive to outside investment by skill and technology intensive businesses. This is an economy that benefits from high quality, diverse communities, where individuals and families flourish. In summary, this is an economy where all the assets and values of Nebraska underpin a high value, high technology and connected future.

Targeted Business

As with the US economy as a whole, Nebraska's economy is chiefly a service sector economy, albeit with some important and distinctive characteristics. As can be seen in Figure 8 below, education, government, and health services play important role, along with the retail sector. In addition, business financial and other services are overrepresented based on the success of the insurance cluster in Omaha. The important role for transportation distribution and agribusiness and food processing is also well known to Nebraska's leaders and citizens. Two areas of importance that don't represent as yet a significant share of the economy are non-agricultural machinery manufacturing and high-technology, research and creative sectors.[2]

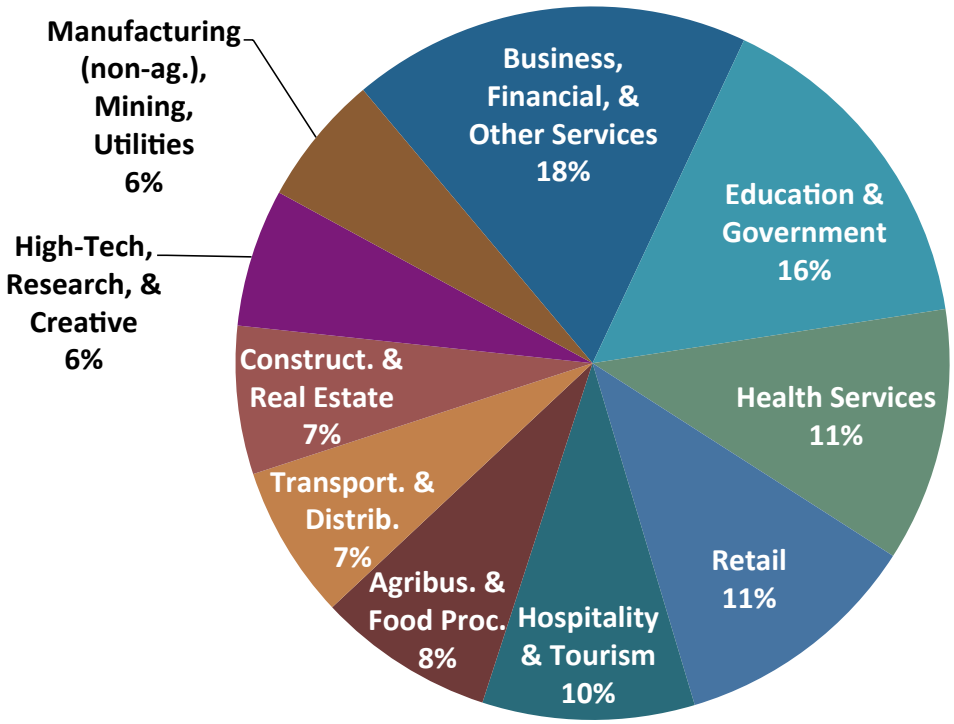

Figure 8

When we look at the growth and employment in the sectors over the last 10 years, it is clear that business, financial, and other services, and agribusiness and food processing have flourished. Worth noting also is strength in hospitality and tourism and relative weakness in high tech research and creative businesses. However, high-skill, technology intensive activities are now spread across all sectors, and when we turn to the kind of jobs now in Nebraska, we will see an important role for this kind of employment.

[2] These sectors are calculated based on Bureau of Labor Statistics data using SRI's custom methodology

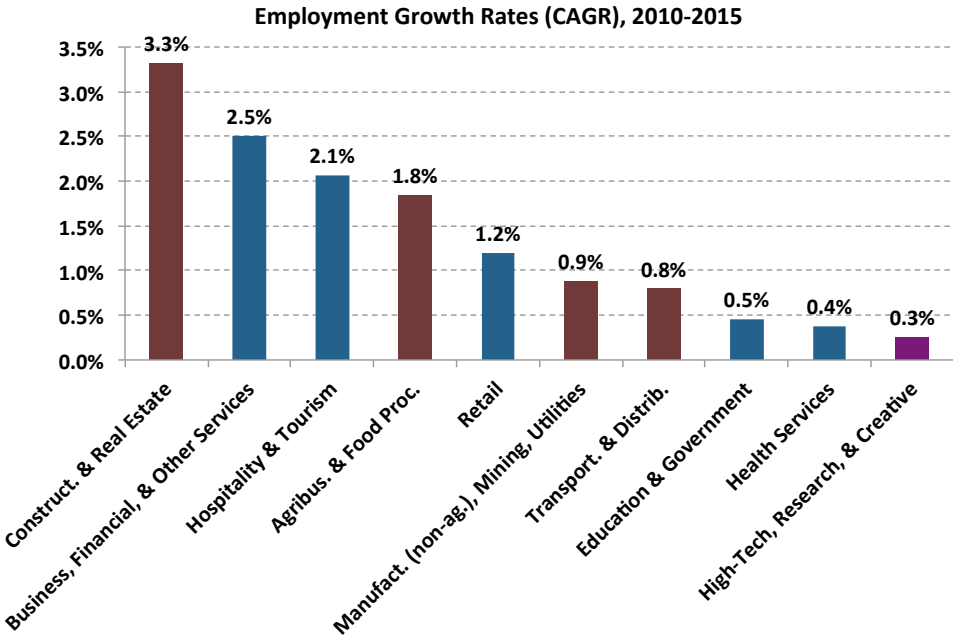

Figure 9

Cluster Methodology

SRI has done a comprehensive industry cluster data analysis for Nebraska, looking at 5-year trends from 2010-2015. Our analysis covers 32 industry clusters and 93 sub-clusters underneath those clusters. While we have taken into account the work done by Battelle in 2010, our work is not just an update of their numbers.[3] We decided to do a full-scale data update at this point, for several reasons:

1) Industry growth rates are relative. The importance of growth trends depends on comparisons to other industry sectors in Nebraska and also to national growth rates.
2) The NAICS codes (which we use to define the industry clusters) have been updated since 2010, and the new codes let us do a more granular definition of some segments than was possible in the 2010 analysis (e.g., for renewable energy).
3) It is important to "slice and dice" the data at multiple levels (looking at both high-level clusters and also microdata down to the 6-digit NAICS level) so that we can understand what's driving Nebraska's industries and pinpoint small sectors that may be emerging in the state.
4) While we did incorporate the industries that were assessed by Battelle in 2010, we also wanted to expand upon them and reshape some of the clusters. What made sense 5 years ago may not make sense today.

[3] "Growing Jobs, Industries, and Talent: A Competitive Advantage Assessment and Strategy for Nebraska" Battelle Technology Partnership Practice, October 2010

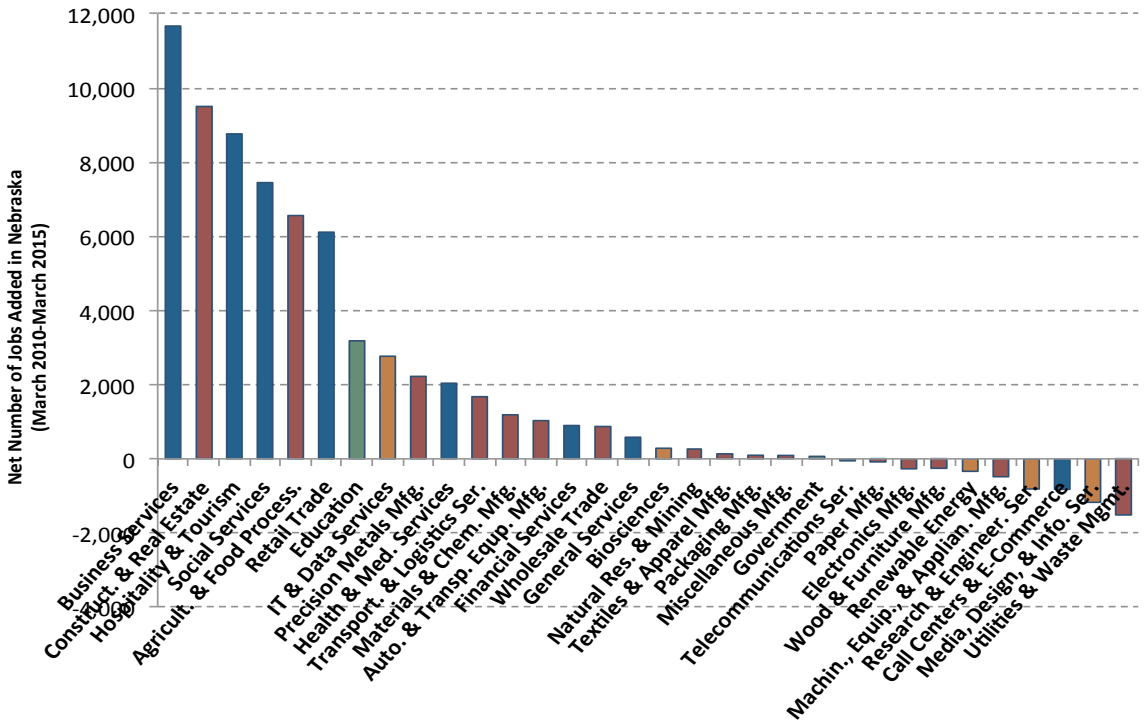

Figure 10: Net Employment Growth

High Level Clusters

While business services, construction and real estate, and hospitality and tourism are the strongest performing clusters for Nebraska, several sizeable manufacturing/production clusters have shown also strong growth – the ones that stand out are: *Agriculture & Food Processing* (+6,560 jobs), *Precision Metals* (+2,224 jobs), *Materials & Chemicals* (+1,188 jobs), and *Automotive & Transportation Equipment* (+1,031 jobs).

Nebraska will continue to enjoy enduring strengths in agriculture, food processing and agricultural machinery (although jobs in these sectors have very different skill levels and pay scales). Nebraska's urban areas enjoy significant prospects in skill-intensive and technology-intensive services and research. In addition, we want to take note of businesses in materials and non-agricultural machinery, and automotive and transportation equipment, that have a significant presence and which, as we will see, offer the prospect of good jobs based on mid-level skills. The right workforce practices could situate Nebraska very well for this diverse set of activities.[4]

As we look at the data in greater detail below, it is important to outline the criteria or filters that should be used to prioritize sectors and subsectors. The criteria that we think important are presented below in Table 1. In particular, we see the question of job quality as paramount. Nebraska has very low levels of unemployment, but not enough of its workforce have the high-skill, technology-intensive jobs that pay well and that will be important in the future. This means businesses that require higher skills, pay higher wages, and with a history of employment growth, will be at the heart of the state's future.

[4] Thomas A. Kochan, David Finegold & Paul Osterman "Who Can Fix the "Middle-Skills" Gap?" Harvard Business Review, 2012

Categories and Criteria for Identifying High-Potential Target Clusters for Nebraska	
Category	**Criteria**
Job Quality	■ Does the cluster offer high-wage jobs? ■ Does the cluster offer high-skill jobs?
Critical Mass	■ Does Nebraska have an existing "critical mass" of firms or employment to build upon (i.e., not trying to grow a cluster from scratch)? ■ Does Nebraska have unique assets or strengths for developing this cluster, or that provide opportunities to "pivot" toward new opportunities?
Growth Trends	■ Does the cluster have positive growth trends in Nebraska (i.e., indicating potential for future growth)? ■ Does the cluster have positive growth trends/forecasts nationally or globally (i.e., do not invest in a declining industry)?
Other Factors	■ Is the cluster tradable/export-oriented (i.e., brings in revenues from out of state)? ■ Does the cluster offer an opportunity to diversify the state economy into new, high-potential sectors?

Table 1

Beyond the question of quality, other criteria should also be applied. Critical mass is always an important precondition for the successful development of a cluster. Clusters are characterized by positive spillovers, so having a pre-existing critical mass of firms or employment to build on offers a positive environment in terms of skills, supply chain components, and other business networks, ready to fuel above average growth. Existing growth in a cluster, in Nebraska, nationally or internationally, is also important. Nebraska should pivot towards businesses and sectors with significant long-term potential. More generally, and this is a theme that recurred constantly in stakeholder interviews and focus groups, a key criterion for the future is the degree to which a cluster will diversify Nebraska's economic base. Stakeholders were interested in a diverse, high quality set of economic and social opportunities in the future. The shift towards quality for Nebraska will also be a shift towards economic diversity.

The future for the state's urban areas may also lie in new businesses and start-ups, that are small but which often have exciting prospects. A separate, focused assessment of Nebraska's innovation economy is included as a separate section in this report. In short, while the framework below is a very good starting point for identifying valuable targets, it will not tell the whole story. New business, small businesses, and startups will play an increasingly important role in Nebraska's future.

Cluster Details

Clusters and sub-clusters of potential interest to Nebraska in the future, based on a mix of the criteria discussed above, are circled below.

Agribusiness & Food Processing

Nebraska's very high location quotients indicate its longstanding strengths in this cluster, which span the entire agriculture supply chain. This is Nebraska's 5th largest cluster in terms of jobs, and the cluster's location quotient has increased over the last five years. Over half the cluster's jobs are in food processing. Nebraska's employment growth has exceeded the national average for the primary agriculture and ag./food wholesale sub-clusters, was similar to the national average for ag. machinery, and lagged the national average for food processing. High-wage sub-clusters include ag. machinery and ag./food wholesale, while primary ag. and food processing offer below-average wages.

Nebraska Cluster & Sub-Cluster Data Q1 2015						
	Employment	**Employment CAGR (2010-2015)**		**LQ**	**Establishments**	**Average Annual Pay**
		NE	***US***			
Primary Agriculture	14,955*	+4.1% (+2,725 jobs)	*+2.8%*	1.56	2,350	$36,128
Food Processing	35,001	+1.0% (+1,657 jobs)	*+1.2%*	3.07	348	$36,042
Agricultural Machinery	10,670	+2.4% (+1,179 jobs)	*+2.4%*	7.59	432	$55,997
Agricultural & Food Related Wholesale	14,593	+1.4% (+999 jobs)	*+1.1%*	2.16	1,341	$46,777
TOTAL: Agribusiness & Food Processing Cluster	**75,219**	**+1.8% (+6,560 jobs)**	***+1.7%***	**2.58**	**4,471**	**$40,973**

Table 2: Agribusiness & Food Processing

Biosciences

The Biosciences cluster is really comprised of two small and separate sectors: agricultural biosciences and medical biosciences. Both offer above average wages and highly-skilled jobs. The medical biosciences sector is larger in terms of employment, but the number of jobs in Nebraska has shrunk in recent years. On the other hand, agricultural biosciences has had a very strong growth trend, well above the national average, and has obvious local linkages. It is important to note that biosciences is very challenging to measure using traditional NAICS-based data, so cluster data are just ballpark estimates and may undercount the size of these sectors in Nebraska.

Nebraska Cluster & Sub-Cluster Data Q1 2015						
	Employment	Employment CAGR (2010-2015)		LQ	Establishments	Average Annual Pay
		NE	*US*			
Agricultural Biosciences*	2,194	+4.3% (+416 jobs)	*+0.7%*	0.55	114	$64,136
Medical Biosciences*	9,636	-0.3% (-130 jobs)	*+0.9%*	0.93	560	$69,805
TOTAL: Biosciences Cluster*	**11,830**	**+0.5% (+286 jobs)**	***+0.9%***	**0.82**	**674**	**$68,754**

Table 3: Bio-sciences

Advanced Manufacturing

Advanced manufacturing is a large cluster in Nebraska, with solid growth trends across a number of sectors, indicating emerging opportunities for the state. Employment is primarily concentrated in precision metals, materials and chemicals, and automotive and transportation equipment, all of which have posted strong job growth over the last five years. Nebraska also has sizeable employment in machinery, equipment, and appliances, and electronics manufacturing, but both of these sectors have been losing jobs in the state. Note that only non-agriculture-related manufacturing is counted in this cluster (ag.-related manufacturing is included in the agribusiness cluster, in table 2 above).

Nebraska Cluster & Sub-Cluster Data Q1 2015						
	Employment	Employment CAGR (2010-2015)		LQ	Establishments	Average Annual Pay
		NE	*US*			
Precision Metals	10,739	+4.8% (+2,224 jobs)	*+3.1%*	0.78	338	$45,975
Materials & Chemicals	9,052	+2.5% (+1,188 jobs)	*+1.6%*	0.96	260	$31,297
Automotive & Transport. Equipment.	8,891	+2.5% (+1,031 jobs)	*+3.7%*	0.73	97	$42,229
Machinery, Equipment, & Appliances	5,752	-1.6% (-482 jobs)	*+3.0%*	0.68	453	$42,216
Electronics	4,806	-1.1% (-268 jobs)	*-0.7%*	0.61	187	$29,146
Wood & Furniture	3,433	-1.5% (-269 jobs)	*+1.6%*	0.61	154	$34,606
Packaging	1,812	+1.1% (+97 jobs)	*+0.3*	0.71	32	$45,551
Other (textiles & apparel, paper, etc.)	1,880	NA	*NA*	NA	145	NA
TOTAL: Advanced Manufacturing Cluster	**46,365**	**+1.7% (+3,658 jobs)**	***+1.9%***	**0.71**	**1,666**	**$38,810**

Table 4: Advanced Manufacturing

Renewable Energy

Renewable energy is a small cluster in Nebraska, with above average wages, which is comprised of two sub-clusters: renewable energy production and environmental consulting and organizations. Renewable energy production, driven chiefly by ethanol, has had very strong job growth in Nebraska and its very high location quotient has also been growing. On the other hand, environmental consulting and organizations has lost jobs over the last five years. As a result, overall cluster employment in Nebraska has been shrinking and the state's location quotient has declined. It is important to note that renewable energy is very challenging to measure using traditional NAICS-based data (including data suppression problems), so these are ballpark estimates and may undercount the size of these sectors in Nebraska.

Nebraska Cluster & Sub-Cluster Data Q1 2015						
	Employment	Employment CAGR (2010-2015)		LQ	Establishments	Average Annual Pay
		NE	*US*			
Renewable Energy Production	1,951	+1.3% (+121 jobs)	*-0.7%*	7.54	29	$64,937
Environmental Consulting & Organizations	2,940	-2.8% (-457 jobs)	*+0.2%*	0.98	330	$47,694
TOTAL: Renewable Energy Cluster	**4,891**	**-1.3% (-336 jobs)**	***+0.1%***	**1.50**	**359**	**$54,572**

Table 5: Renewable Energy

Financial Services

Nebraska has established strengths and critical mass in financial services – especially in the financial institutions and insurance sub-clusters, as evidenced by its relatively high LQs in both of these sub-clusters. This is Nebraska's 8th largest cluster in terms of jobs. The state's financial institutions/banks have significantly outperformed the national trend in terms of job growth, while the state's insurance sub-cluster has been losing jobs (and has performed far worse than the national trend). The entire cluster offers very high wages compared to the state average wage.

Nebraska Cluster & Sub-Cluster Data Q1 2015						
	Employment	Employment CAGR (2010-2015)		LQ	Establishments	Average Annual Pay
		NE	*US*			
Financial Institutions	24,340	+0.9% (+1,070 jobs)	*+0.1%*	1.37	1,572	$60,735
Securities	4,629	+0.4% (+92 jobs)	*+0.2%*	0.75	630	$112,579
Insurance	25,418	-0.2% (-263 jobs)	*+1.7%*	1.65	2,083	$76,204
TOTAL: Financial Services Cluster	**54,387**	**+0.3% (+899 jobs)**	***+0.7%***	**1.39**	**4,285**	**$72,377**

Table 6: Financial Services

IT and Data Services

IT and data services is a mid-sized cluster in terms of size and has had solid job growth in Nebraska over the last five years (however, Nebraska's growth rate is still lower than the national average and the cluster's location quotient has declined). The cluster offers high-wage, high-skill jobs. Nebraska's cluster employment is heavily concentrated in the data services, programming, and systems design sub-cluster, which has an above average location quotient in the state. The other two sub-clusters – internet services and software development – are relatively small but have posted strong employment growth.

Nebraska Cluster & Sub-Cluster Data Q1 2015						
	Employment	**Employment CAGR (2010-2015)**		**LQ**	**Establishments**	**Average Annual Pay**
		NE	***US***			
Data Services, Programming, & Systems Design	16,362	+2.4% (+1,834 jobs)	*+5.3%*	1.10	1,799	$85,221
Internet Services	628	+29.0% (+452 jobs)	*+15.4%*	0.51	67	$70,252
Software Development	799	+20.2% (+481 jobs)	*+4.8%*	0.36	44	$91,884
TOTAL: IT & Data Services Cluster	**17,789**	**+3.4% (+2,767 jobs)**	***+5.8%***	**0.97**	**1,910**	**$84,992**

Table 7: IT and Data Services

Health and Medical Services

Health and medical services is the largest cluster in Nebraska in terms of employment. Although the cluster has been growing relatively rapidly nationwide, Nebraska's growth trends have been just slightly positive (and employment in the hospitals sub-cluster has actually declined over the last five years). While most portions of this cluster typically offer higher-wage/higher-skill job opportunities, jobs in the nursing and residential care sub-cluster have very low average wages. Nebraska's location quotient for health and medical services is slightly below the national average, indicating a slight undersupply of services in the state.

This is an important sector because of its size, payscales, and because of the economic opportunity that may exist. An undersupply of services means, potentially, that Nebraska is importing them – that is to say that more Nebraskans leave the state for health services than out-of-state patients enter making Nebraska a net importer of health services. Given the excellence at UNMC, and the investment by the state in this area, this situation should be turned on its head.

Mission St. Joseph's health system in Asheville, NC, is a good model. It has a national reputation and is a powerful inducement to retirees looking to move to the area. An early adopter of best practices in evidence-based care, it is at the heart of a regional health information technology network. Asheville is also home to Project Access, through which uninsured or underinsured patients can get specialist care. These successes owe less to state initiatives and more to local control of the hospital that is seen as a crucial asset in the competition for visitors and retirees. As a result, Asheville is a substantial net exporter of health services to the western counties of South Carolina and Georgia, eastern Tennessee, and

southeast Virginia.In the same way, UNMC could become the regional hub for those specialized health services in which it enjoys recognized excellence. It could be a destination for patients from the Dakotas, western Iowa, and even further afield.

Nebraska Cluster & Sub-Cluster Data Q1 2015						
	Employment	Employment CAGR (2010-2015)		LQ	Establishments	Average Annual Pay
		NE	*US*			
Ambulatory Health Services	37,002	+2.0% (+3,529 jobs)	*+2.7%*	0.81	3,473	$57,777
Hospitals	37,056	-0.9% (-1,557 jobs)	*+0.6%*	0.89	159	$49,965
Nursing & Residential Care	33,943	0.0% (+67 jobs)	*+0.8%*	1.43	667	$28,173
TOTAL: Health & Medical Services Cluster	**108,001**	**+0.4% (+2,039 jobs)**	***+1.5%***	**0.97**	**4,299**	**$45,792**

Table 8: Heath & Medical Services

Business Services

Business Services are among Nebraska's largest clusters in terms of employment. However, two-thirds of the 65,000 jobs in this cluster are in "management of companies and enterprises" and "temporary employment services" – activities whose employment technically "belongs" to other industries but cannot be classified by the research team into the appropriate sectors.

Nebraska Cluster & Sub-Cluster Data Q1 2015						
	Employment	Employment CAGR (2010-2015)		LQ	Establishments	Average Annual Pay
		NE	*US*			
Legal & Accounting Services	9,131	+0.6% (+280 jobs)	*+0.4%*	0.76	1,436	$50,073
Management of Companies & Enterprises*	21,600	+4.5% (+4,281 jobs)	*+3.4%*	1.44	780	$102,960
Business Process Outsourcing & Employment/Temp. Services**	21,944	+9.3% (+7,864 jobs)	*+4.9%*	0.69	1,553	$38,980
Printing Services	3,255	-4.1% (-751 jobs)	*-1.6%*	1.05	226	$38,116
Other Business Support & Security Services	7,509	+0.4% (+142 jobs)	*+1.8%*	0.74	484	$41,563
Business Associations & Organizations	1,334	-2.1% (-146 jobs)	*0.0%*	0.62	274	$41,775
TOTAL: Business Services Cluster	**64,773**	**+4.1% (+11,670 jobs)**	***+2.9%***	**0.87**	**4,753**	**$62,193**

Table 9: Business Services

The remaining 21,000 jobs in this cluster are in skilled and semi-skilled activities such as legal and accounting services, printing services, and other business support/security services. These sub-clusters generally offer average to slightly above average wages in Nebraska and have location quotients that are below average.

Tourism & Hospitality

Tourism and hospitality is Nebraska's 4th largest cluster in terms of employment, and recent growth trends in the cluster have been very strong both in Nebraska and nationally. Nearly three-quarters of Nebraska's employment in this cluster (and most of its recent job growth) is in the food and beverage sub-cluster. As is typical for this cluster, average wages in Nebraska for the tourism and hospitality cluster are very low. The travel arrangements sub-cluster has a relatively high location quotient in Nebraska, while the location quotients for the other sub-clusters are all below average.

These low pay scales should not be allowed to obscure some important aspects of this sector, and its contribution to Nebraska's economy. Many of the small businesses involved represent "lifestyle" entrepreneurs, who employ seasonal visitors, students and retirees. More importantly, their services add appreciably to the quality of life in the state, making it an appealing destination not only to visitors, but to employees recruited from out of state. Omaha is not home to "big time" professional sports (and there is no evidence that providing heavy subsidies to recruit a professional team makes business sense). However, it is home to amateur sports, hunting and fishing, and other outdoor activities. The depth and variety of offerings in this sector make a key contribution to quality of life.

Nebraska Cluster & Sub-Cluster Data Q1 2015						
	Employment	**Employment CAGR (2010-2015)**		**LQ**	**Establishments**	**Average Annual Pay**
		NE	***US***			
Travel Arrangements	3,962	+1.6% (+310 jobs)	*+2.4%*	1.54	204	$32,169
Accommodations	7,648	+1.2% (+436 jobs)	*+2.1%*	0.70	477	$17,799
Food & Beverage	66,238	+1.9% (+5,778 jobs)	*+3.2%*	0.88	3,937	$13,626
Arts & Culture	2,158	+3.8% (+370 jobs)	*+2.6%*	0.93	198	$22,642
Sports & Recreation	10,205	+4.0% (+1,812 jobs)	*+2.5%*	0.86	657	$14,965
Gambling	992	+1.2% (+56 jobs)	*+0.4%*	0.24	41	$21,328
TOTAL: Tourism & Hospitality Cluster	**90,203**	**+2.1% (+8,762 jobs)**	***+2.9%***	**0.85**	**5,514**	**$15,246**

Table 10: Tourism and Hospitality

Transportation and Logistics

Nebraska has established critical mass in the transportation and logistics cluster, which is a mid-sized industry in terms of the number of jobs in the state. Cluster wages are generally near the state average. The bulk of this cluster's employment and recent job growth is in the freight, distribution, and warehousing sub-cluster, which also has an above average location quotient. Note that the BLS dataset used for this analysis does not include railroad employment (due to data suppression), but there are at least an additional 8,000 workers employed by Union Pacific and 5,000 employed by Burlington Northern Santa Fe in the rail transportation sub-cluster, not included in the data analysis shown here.

Nebraska Cluster & Sub-Cluster Data Q1 2015						
	Employment	Employment CAGR (2010-2015)		LQ	Establishments	Average Annual Pay
		NE	*US*			
Freight, Distribution, & Warehousing	40,307	+0.9% (+1,672 jobs)	*+2.5%*	1.45	2,825	$43,944
Air Transportation	472	-3.7% (-97 jobs)	*+0.0%*	0.15	42	$47,580
Rail Transportation*	NA	NA	*NA*	NA	NA	NA
Water Transportation	0	NA	*+1.7%*	NA	0	NA
Passenger Transit	2,424	+0.9% (+101 jobs)	*+1.6%*	0.48	106	$22,093
TOTAL: Transportation & Logistics Cluster	**43,203**	**+0.8% (+1,676 jobs)**	***+2.2%***	**1.20**	**2,973**	**$42,758**

Table 11: Transportation and Logistics

Call Centers and e-Commerce

Although this is a relatively small cluster in terms of employment, Nebraska has a well-established critical mass in call centers and e-commerce, as evidenced by its high location quotients. The call centers sub-cluster has been growing, while the e-commerce has seen significant job losses in Nebraska over the last five years (even though it has had strong growth at the national level). Jobs in this cluster tend to be lower skill, as reflected in the cluster's below-average wage levels. Note that the e-commerce category has significant overlap with other industry clusters, such as IT or retail, and is difficult to measure using traditional NAICS-based data so it is likely that Nebraska's employment in this sub-cluster is undercounted.

Nebraska Cluster & Sub-Cluster Data Q1 2015						
	Employment	Employment CAGR (2010-2015)		LQ	Establishments	Average Annual Pay
		NE	*US*			
Call Centers	6,311	+0.7% (+221 jobs)	*+3.9%*	1.80	128	$35,620
E-Commerce*	3,038	-5.7% (-1,043 jobs)	*+5.2%*	1.25	153	$36,130
TOTAL: Call Centers & E-Commerce Cluster	**9,349**	**-1.7% (-822 jobs)**	***+4.4%***	**1.57**	**281**	**$35,786**

Table 12: Call Centers and e-Commerce

Business Attraction and Development

This section will focus on the set of economic development policies that comprise the Nebraska Advantage Act (NAA), as well as some discussion of Nebraska Department of Labor policies. Innovation, Workforce, and Local and Community Development are addressed in subsequent sections. The discussion here will focus heavily on tax credits, or as they are also known, tax expenditures. There are other, valuable elements to the NAA (to be discussed below), but they are dwarfed by the dollar value of the tax credits.

The top priority for any state is to improve its fundamental assets—for example, through workforce development and investment in infrastructure. Surveys always report that these basics are the highest priority for businesses contemplating expansion or relocation. Taxes and the regulatory environment are also important, but generally rank a little lower. However, after taking account of these basics, businesses often still face a choice among possible locations. It is here that states, and increasingly regions, seek to tip the balance in their favor with a wide variety of economic development incentives. There are people across the country with reservations about these kinds of incentives, but absolutely everybody uses them.

The key to their use is that they be aligned around a strategy consistent with a state or region's needs. The growth of business clusters based on proximity and spillovers—a phenomenon now firmly established by economic analysis—can be shaped by policy and complemented by strategic economic development practices. The analysis of Nebraska's policies and practices in the discussion below is aimed at identifying ways in which they can be amended and improved to be more strategic and more aligned with the clusters and broader goals outlined in the first two sections of this report.

A hypothetical example can illustrate the current state of affairs: The University of Nebraska is home to nationally recognized research capabilities in agriculture related bio-sciences. This complements Nebraska's world comparative advantage in certain kinds of agriculture. It makes perfect sense to recruit technology businesses in the same space to locate alongside these research capabilities. This is the aspiration behind the Innovation Campus at the University of Nebraska at Lincoln (UNL). The key question is whether the other economic development tools available to the Department of Economic Development (DED) are aligned with this kind of recruitment.

At present, NAA tax credits are only available to a business that creates at least 10 jobs and retains them for a five-year attainment period (the benefits at this, the lowest threshold for qualification, are modest). A promising bio-science investment might not meet that threshold. In contrast, a factory selling its products out of state but paying wages well-below the state average could qualify. Is this the right balance?

The first section of this report outlined the desirability of a strategic shift in Nebraska's policies towards high skill, technology- and capital-intensive investment. The example given above suggests that, at present, Nebraska's tax incentives may not be aligned accordingly. There is a simple explanation for this. Nebraska's economy has not only grown, but changed significantly. The NAA, and earlier legislation upon which it is based, reflects a time when job-rich investments of any kind were the priority. The time has come for thorough update to meet the needs of the future.

LB 775 & LB 312

The Nebraska Advantage Act (NAA), passed in 2005 (to take effect in 2006), was designed to amend and

improve LB 775, originally passed in 1986, which was the first substantial piece of legislation to use tax expenditures (that is, tax relief, typically on sales and use taxes paid for business inputs) to target business recruitment, retention, and expansion. In particular, LB 775 targeted the recruitment of business headquarters and large manufacturing plants. It was a program with a long time horizon by design, aimed at engaging and supporting long-term investors in the state in what could be described as traditional manufacturing sectors. A business could take up to seven years to reach attainment—the moment when a business was certified to have hired and retained the promised numbers of employees. Thereafter, the credits could be earned and used over the next seven years, and any remaining credits could be cashed in over the next seven years, for a total period of 21 years. The long attainment period reflected conservative auditing requirements included in the statute, consistent with Nebraska's conservative fiscal practices.

Obviously the Net Present Value (NPV) of the program from the point of view of business is quite low. Only businesses in a relatively stable commercial environment could realistically expect to realize all the benefits to which they were entitled (and which business is completely insulated from the business cycle?). As a result, many firms earned credits but had trouble cashing them in. This steadily accumulating balance of unused credits also represented a future claim on state revenues. While some credits expired, to the frustration of some businesses, many are still being claimed—last year, more was paid under LB 775 than under LB 312, even though LB 775 was ended in 2005 (it is estimated that over 70% of the total credits will be used used).

LB 312, the Nebraska Advantage Act, addressed some of these challenges by tying the attainment period to the carryover period, during which credits could be claimed, for a maximum total of eight years, while leaving the entitlement period, the time when credits can be earned and used, unchanged at seven years. This shortens the period of participation for businesses and limits exposure to the state for those projects that take more than one year to attain. Because businesses typically have the same amount of time to earn credits and less time to use them, between 2006 and 2014, almost $600 million credits have been earned, and only a little more than $220 million used. Participants are once again accumulating credits that they may or may not use, and the state's exposure in terms of outstanding tax credits continues to increase. The addition of a withholding tax credit, as well as the existing sales and income tax credits, were designed to improve the low NPV by allowing businesses to retain a portion of their employee's state income tax withholding. However, to some degree, the challenges identified in the case of LB 775 have been reproduced in its successor legislation. While state exposure may have been reduced, the issue of low NPV remains, at the cost of more unused, and potentially unusable, credits.[5]

Complex criteria

LB 312, the NAA, is also comprised of complicated criteria designed chiefly to reward job-rich investment. But this goal is not explicit—indeed, when the Legislative Performance Audit Committee came to examine

[5] The credit levels were kept high even as the carryover period was reduced to as little as one year, depending upon how long it took the project to meet the investment and jobs thresholds. This, along with the failure to reduce the amount of credits earned, leads to the large credit balances. Without a longer time-frame for analysis it is difficult to prove, but it is believed that LB 312 will result in many more unused and unusable credits.

the performance of the NAA in 2013, it found that the goals of the statute were too broad to allow for meaningful evaluation.

Scrutiny of the details of the system of tax credits at the heart of the NAA reveals a policy that rewards different combinations of dollar investments and new jobs (with special rules for data centers, renewable energy investments, and smaller investments in rural areas). Investments can only obtain a refund on the sales tax on capital purchases when they attain a related level of new employment, as defined by six different tiers or levels of investment. These jobs have to be from within a series of nominated sectors (which cover most of manufacturing) or from headquarters operations. There is also a sliding scale for wage credits, determined by new employee compensation as a percentage of the Nebraska average wage. Credits start to be available at 60% of the state average, or roughly $25,000 in 2014.

This summary does not do justice to all the complexities of the program. The goal, generally stated, is that the more credits you want to claim, the more people you have to hire. The consequences of these program characteristics were clearly revealed by the business interviews conducted as part of this study.

One set of businesses were very satisfied, and had used NAA credits more than once in some cases. They may have hired outside experts to help navigate the initial paperwork and subsequent auditing requirements, but just as often they had internal capacity adequate to the task of meeting the expectations of program participation. These firms tended to be medium- to large-sized firms, often (but not always) in manufacturing, with a decades long-presence in Nebraska and a stable business trajectory. They also reported established relationships with the Nebraska Department of Economic Development (DED) and local develop agencies.

At the opposite end of opinion, more than one technology-based start-up that had scaled rapidly with more than 100 full-time employees (FTE) were unable (and unwilling) to invest management capacity in participating in the program, to the extent that they understood it. Not only do such firms often not meet the capital investment criteria, but under conditions of rapid growth in an uncertain and competitive environment they did not have the band-width to dedicate to navigating a complicated program with uncertain and deferred benefits.

Beyond these two limit cases, the complexity of the program (especially thresholds for employment and investment, which seemed arbitrary) and the burden of complying were often mentioned by interviewees, even though businesses were appreciative of the credits.

One final group interviewed were economic development professionals. Feedback here indicated that the complexity of the program and low NPV of the tax credits makes the NAA as presently designed less effective than it could be as an instrument for external recruitment.

In summary, NAA tax credits target almost any kind of job, reflecting Nebraska's needs in years gone by. Furthermore, as result of program design and implementation requirements, the program is best suited to the needs of established, larger firms on a steady path to expansion. There are plenty of firms in Nebraska who fit this profile and are glad for this support. However, this design tends not to help high-technology, high-skill, fast growing firms with modest capital needs. The discussion below highlights

practices elsewhere that can provide ideas for reworking the NAA so that it better serves the needs of those businesses Nebraska is targeting for the future.

Best practice

Alternative practices, more aligned with the strategic goals identified in the first section of this report, can be identified by reference to practices in other states. Five recognized approaches offer new directions.

Quality Jobs

Many state tax credit programs provide rebates to employers for job creation without consideration of the kind of employment they are incentivizing. However, some states have implemented "quality jobs" incentives that provide credits or rebates to employers only for new employment that meets certain standards. Quality jobs tax credits typically require that positions pay above a certain wage threshold, usually in relation to the county average or median wage. Adjusting the eligibility criteria at the local, rather than statewide level takes into consideration local variations in labor markets and cost of living. Quality jobs tax credits emphasize the creation of new high-paying jobs, rather than a potentially larger number of low-paying jobs; given Nebraska's exceptionally low rate of unemployment, and comparatively low wage rates, this targeted approach may provide advantages to the state.

Quality jobs programs vary substantially in their structure and requirements by state. For example, Georgia's Quality Jobs Tax Credit provides tax breaks for companies that create at least 50 jobs in a 12-month period provided they pay at least 10% more than the county average wage. The size of the tax break scales based on the pay difference of the new job versus the county average: employers receive a tax credit of $2,500 per job that pays between 10 – 20% higher than the county average, and $5,000 for each job paying at least twice the average.[6] The 50 job threshold would be rather high under Nebraska's circumstances, but this kind of program design would be aligned with a strategic goal of high quality jobs.

Arizona requires that companies create both a minimum number of jobs and make a minimum capital investment to qualify for its Quality Jobs Tax Credit: 25 jobs and $5 millions of investment for metro areas, and 5 jobs and $1 million investment for rural areas. The program emphasizes longer term employment, providing $3,000 per new position pay above the county median wage for each of the first three years of employment.[7] This program emphasizes quality adjusted for urban or rural conditions (by using local median wages as a benchmark).

Oklahoma's Quality Jobs Program, targeted at specific manufacturing and service industries, provides cash payments to employers of up to 5% of new taxable payroll (paying at the local or state median wage) for those with at least $2.5 million in new payroll investment, for up to 10 years.[8] This program emphasizes quality, combined with very high NPV in the form of cash payments.

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[6] Georgia Department of Economic Development, "Quality Jobs Tax Credit," http://www.georgia.org/competitive-advantages/tax-credits/quality-jobs/.
[7] Arizona Commerce Authority, "Quality Jobs," http://www.azcommerce.com/incentives/quality-jobs.
[8] Oklahoma Department of Commerce, "Quality Jobs Program," http://okcommerce.gov/business/incentives/quality-jobs-program/.

Pay for Performance (P4P)

Tax incentives that involve up-front payments or grants carry the risk that the issuing agency may not be able to recover funds in the event that the recipients fail to meet certain conditions. Programs that operate on a pay for performance basis (P4P; also called pay for success) address this vulnerability as they only commit funds when specific goals are met or criteria satisfied. At the same time, this approach is closer to a pay-as-you go, rather than a perform-then-pay approach, and so the benefits are received sooner.

Arizona incorporates P4P principles into its Qualified Facility Tax Credit, established in 2012. This program is designed to promote the location and expansion of manufacturing in the state, including manufacturing-related R&D and headquarters facilities. Given certain wage and business activity requirements, companies receive refundable income tax credits based on their capital investment or new job creation.[9] The state reserves tax credits for applicants at an advance pre-approval stage, and the credits are claimed as the facility begins operations and passes a CPA-conducted. The state's Quality Jobs Tax Credit provides up to $9,000 to businesses per new qualified job created, but does so through installments of $3,000 spread over three years. In contrast to jobs programs that provide all credits up-front for new jobs created or at the end of a single year, this payment model incentivizes the creation and retention of higher paying jobs over multiple years.

Tiered Tax Credits

Regional economic systems do not conform to state boundaries, and significant disparities in economic and social well-being often exist within the same state. Nebraska has experienced the emergence of such disparities with respect to income and population growth between urban and rural areas of the state. State governments have moved to address these imbalances within their borders, in part through their tax systems and economic development programs. One approach of furthering regional economic equity is to implement a tiered system of ranking counties by level of economic well-being, and providing additional tax incentives to organizations generating economic activity in the most economically disadvantaged counties.

North Carolina annually ranks its 100 counties by economic well-being, and classifies them into three tiers, with Tier 1 representing the most distressed counties.[10] The state has integrated this tiered system in a variety of programs. For example, the One North Carolina Fund (OneNC) supports job creation projects throughout the state, but matches spending by local governments in Tier 1 counties on a 3:1 basis, and only a 1:1 basis in Tier 3 counties.[11]

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[9] Specifically, the tax credit is equal to the lesser of: 10% of the qualifying capital investment, $20,000 per net new job at the facility, or $30 million per taxpayer per year. Arizona Commerce Authority, "Qualified Facility," http://www.azcommerce.com/incentives/qualified-facility?referrerId=1310.

[10] Count tiers are calculated based on average unemployment rate, median household income, percentage growth in population, and adjusted property tax base per capita. The 40 most economically distressed counties are designated Tier 1, the next 40 as Tier 2, and 20 the least distressed as Tier 3. North Carolina Department of Commerce, "2016 County Designations," https://www.nccommerce.com/research-publications/incentive-reports/county-tier-designations.

[11] Economic Development Partnership of North Carolina, "One North Carolina Fund," http://edpnc.com/incentives/one-north-carolina-fund/.

The State of Maryland does not explicitly tier counties, but does provide additional incentives for businesses and projects in economically underperforming regions. The One Maryland Tax Credit provides up to $5 million in tax credits to businesses for costs associated with projects in Priority Funding Areas in Qualified Distressed Counties, and the One Maryland Start-up Tax Credit provides up to $500,000 in credits to businesses moving from outside the state to one of these areas.[12] The Job Creation Tax Credit that Maryland provides to employers creating new full-time positions paying at least 150% of the federal minimum wage increases from up to $1,000 per job to $1,500 per job in designated revitalization areas.[13]

Discretionary Incentive Programs

State tax credit programs generally provide funding automatically to all businesses that meet eligibility criteria, provided that resources are available. Alternatively, discretionary grant and incentive programs can provide support to businesses based on a set of review criteria of a project's merit. North Carolina's OneNC Fund and Job Development Investment Grant are both examples of such discretionary grant programs. Each program bases awards on criteria such as number and quality of jobs created, level of investment, economic impact, and the strategic importance of the industry to the state's economy, among other factors.

Capacity building

Discretionary incentive programs allow states to be more strategic when considering the economic and social impact of a project as compared to eligibility-based tax credits. Economic developers generally like these funds, seeing them as high NPV, "deal closing" tools. This sentiment was echoed by some interviewees. However, this requires a rigorous approach to ensure that projects are (and are perceived to be) an appropriate use of taxpayer dollars.

Virginia's economic development programs are notable for their comparative emphasis on direct business financing over standard tax credits. The Virginia Economic Development Partnership (VEDP) administers several discretionary fund initiatives, such as the Commonwealth's Opportunity Fund, Virginia Investment Partnership Grant, Major Eligible Employer Grant, and Virginia Economic Development Incentive Grant.[14] VEDP requires that all projects under these programs undergo a front-end return on investment (ROI) analysis to estimate net state revenue in advance, and also performs retrospective reviews through its return on invested capital (ROIC) process. VEDP has also developed a Local ROI Model for evaluating fiscal impacts of economic development projects, and made it available for local planners to use online, with methodological notes publicly accessible.[15]

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[12] Maryland Department of Commerce, "One Maryland Tax Credit," http://commerce.maryland.gov/fund/programs-for-businesses/one-maryland-tax-credit.

[13] Maryland Department of Commerce, "Job Creation Tax Credit," http://commerce.maryland.gov/fund/programs-for-businesses/job-creation-tax-credit.

[14] See Virginia Economic Development Partnership, *Virginia Guide to Business Incentives: 2015-16*, 2016, http://www.yesvirginia.org/Content/pdf/guides/Virginia%20Guide%20to%20Business%20Incentives%202015-2016%20Updated%201.19.2016.pdf.

[15] Charles B. Kennington, *The Virginia Economic Development Partnership Local Return on Investment Model:* A Tool for Analyzing the Local Fiscal Impacts of Economic Development Projects in Virginia, Virginia Economic Development Partnership, 2011, http://www.virginiaallies.org/assets/files/LocalROI.pdf.

This kind of capacity building within state agencies is unglamorous, and somewhat unappealing to political leaders. But it is very normal for businesses planning for growth and contemplating substantial investments to invest in business intelligence. This should be thought of a recipe for smarter, more strategic economic development, rather than merely more expensive government.

Goals, practices and metrics

As a result of the 2013 Legislative Performance Audit Committee's evaluation of the NAA, the committee published a report in December, 2014, LR 444, that recommended a clear process for the regular review and evaluation of all economic development programs, together with some indicators to be used as the basis for measures of success. This work was informed by the expert guidance of the Pew Charitable Trusts. The goal in this section is to fold some of these potential measures into the design of possible changes to NAA.

Some of the practices identified above can address weaknesses in the basic design of the NAA, for example the low NPV of its tax credits. Others can help align NAA around the strategic goals identified at the outset.

A shift to program design based on pay-as-you-go would make it more attractive, and could be combined with independent verification of performance. There would be no "attainment" period, the firm would hit the goal, and be rewarded incrementally according to some pre-arranged schedule. If employment levels drop, rewards would cease. LR 444 recommends tracking employment status both before, during and after program participation. This can be achieved through data obtained from the state's Unemployment Insurance (UI) system, using individual and firm reports (subject to careful treatment of confidential information). This would lighten the reporting load significantly.

In addition, Nebraska should develop a "discretionary" fund, subject to a transparent set of ROI calculations based on a pre-existing model that estimates expected impact of the investment. Having industry targets means that not all potential investments by such a fund would be treated equally, or reduced to a simple formula. Building clusters is a forward looking, strategic activity whose value can't be easily captured based on existing data. However, the capability to estimate impact in a rigorous way is a critical baseline for subsequent decision making.

Taken together, such changes would make the program more attractive to a wider set of taxpayers, easier to implement, and more effective as a tool for recruitment. But it would not automatically be more strategic. For example, fast growing, technology businesses that invest almost wholly in well-paid talent cannot benefit from sales tax rebates on capital equipment.

High skill, high wage jobs & capital intensive investment

Given low unemployment in Nebraska, combined with variance in average pay across regions, the NAA should set the wage threshold that qualifies for credits with reference to the median wage by county. Nebraska should not incentivize new jobs unless they are at or above this local median. This would align NAA with the goal of high skill, high wage jobs. By setting the threshold on a local basis, there would be no need to carve out a rural category. LR 444 recommends comparing wages at incentivized jobs with county and industry medians. The suggestion here is to set a threshold accordingly in the program's design.

Furthermore, thresholds for the number of jobs created and investment mobilized should be eliminated. This could be determined by a simple, continuous formula in which any new job, associated with some corresponding level of capital investment, garners sales tax or other relief as judged appropriate. LR 444 recommends estimating the cost per job of the tax credits. This would be calculation would be transparent under a continuous formula of this kind.

In the case of a technology and talent intensive firm, the state could turn to cash incentives, similar to the program in Oklahoma, but set the wage threshold at a much higher level (for example, 200% of the county median).

Finally, in the case of investment in new plant, equipment or processes that yields no new jobs, there should be a scale based only on the capital value of investment, with increase in the average pay of existing production workers and/or increased sales and income serving as the threshold test (these two elements will probably correlate). Changes of this kind will align NAA much more closely with the state's strategic goals.

In summary, the tax credits at the heart of the NAA should be reworked along the following lines:

- **Credits should be distributed on a pay-as-you-perform basis**
- **Performance measures should rely on independent, low cost sources of data**
- **Nebraska should operate a discretionary fund based on rigorous ROI estimates**
- **Tax credits should only be available for new jobs at or above county median wages**
- **Comparable cash incentives should be available for new jobs at more than 200% of county median wages**
- **Tax credits should be available for new investments that yield increased pay, sales and income.**

Training and sites & buildings

Two other pieces of the NAA were discussed by the interviewees, although the combined dollar value of these elements is much lower than the value of the NAA tax credits.

The customized job training offered as part of recruitment packages is easy for firms to benefit from, given that they control the curriculum, which is offered on site and aligned tightly with their production needs. Worth noting also is that Intern Nebraska (part of the Talent and Innovation Initiative) is also widely praised as a very effective way to secure a college to workplace pipeline.

The Community Development Block Grant (CDBG) and the Site and Building Development Fund (SBDF) are seen as crucial elements for business expansion. They will be discussed in more detail below but the only significant complaint relates to level of effort. The two-year allocation for the SBDF, January 2014 to December 2015, was about $4 million. NAA awarded about $160 million in tax credits over the same period. Yet plant expansion, or closing the deal with an outside investor, depends crucially on the availability and development of appropriate sites and infrastructure.

Both training and site development have high NPV, and significant spillovers into the economy and community. As a strategic matter, Nebraska should review the balance of its level of effort across programs.

Workforce

This overview for the State of Nebraska synthesizes information from existing economic development and labor market literature, findings from interviews and focus groups, and analysis of population, education, and occupational indicators. Our preliminary findings indicate several trends with implications for Nebraska's current and future workforce.

Discussions with numerous stakeholders, combined with knowledge of practices elsewhere, have yielded a variety of suggestions for building on, or adding to, a range of existing initiatives already addressing challenges indicated by these trends. It should be noted at the outset that workforce institutions and policies in Nebraska are generally viewed as very strong, working quite well with the pipeline of talent that exists.

Over the last decade, the Omaha and Lincoln metro areas have captured virtually all of the state's population gains, while communities outside Nebraska's two major urban centers have largely remained flat or declined in population. Furthermore, many of these communities are also aging relative to the rest of the state, though immigration has been a source of expanding and younger populations in some more rural areas.

Nebraska has a well-educated workforce, and has achieved a very high rate of high school graduation, but achievement gaps remain among certain segments of the state's population. Nebraska's higher education system has increased the volume of students earning postsecondary degrees. At the same time, science and engineering (S&E) degrees remain a small minority of the total, and are insufficient to fill current labor demand, particularly in information technology (IT).

Nebraska's workforce is most highly specialized in low-wage agricultural work, clerical, and e-commerce positions (although employment has declined somewhat in these areas). Strong employment growth and higher wages in "middle-skill" trades, business and financial operations, and STEM occupations indicate their continued and future importance to Nebraska's economy. The most important feature of Nebraska's workforce, notwithstanding its high quality, is the fact that it is in generally short supply. As the unemployment data reported above indicate, the limited quantity of available labor in Nebraska poses significant challenges for the state's economic future.

Population Trends

Nebraska has experienced steady, modest population growth over the last decade, rising from 1.74 million in 2004 to 1.88 million in 2014, with an average increase of 0.77% per year. However, as noted in the first section of this report, the state-level growth rate conceals important regional differences: population has increased substantially in Nebraska's major urban areas, while population in the rest of state has remained flat. In particular, some rural areas face existential challenges. The U.S. Census Bureau estimates that 63 of Nebraska's 93 counties lost population from 2010 to 2014.[16]

[16] U.S. Census Bureau, *Estimates of the Components of Resident Population Change: April 1, 2010 to July 1, 2014*. 2015.

In addition to a declining population, many areas of Nebraska face the challenge of an aging population. Nebraska's median age is 36.2 years, but much of the state is considerably older. Sixty-nine of Nebraska's counties have median ages of 40 or older, and 42 counties have median ages of 45 or older; these counties are predominantly in less densely settled areas in the Western portion of the state.[17]

An urban-rural divide exists in Nebraska with respect to workforce age: workers 55 years and older account for 21.6% of the workforce in metropolitan/micropolitan areas in Nebraska, but nearly 28% of the non-metropolitan/micropolitan workforce.[18] Although older workers can be a source of valuable business experience and tacit knowledge, they signal a need for transition of leadership and training of new workers. For example, a recent survey of small businesses owners in Nebraska found that "[t]he importance of succession planning continues to grow, and continues to be among the chief concerns of rural small businesses."[19] This finding aligns with the views of SRI focus group participants, many of whom identified small business succession as an urgent problem for the state of Nebraska.

Nebraska's population is not universally aging, as immigration from other nations has been a source of population growth and of younger workers for the state. From 2010 to 2014, Nebraska lost a balance of approximately 5,400 people to domestic migration, but gained nearly 15,500 people from international migration.[20] Furthermore, the foreign-born population of Nebraska is among the youngest in the nation, and these immigrants are likely to be a significant source of future births.[21]

Focus group participants did note that small Nebraska towns may face social and economic strains when integrating foreign populations, especially with respect to local education systems. Despite these challenges, immigrant populations are a potential resource for bolstering the state's limited supply of workers, especially in rural areas, and could help fill gaps in small business succession.

Educational Attainment

Nebraska's population has high educational attainment compared to the national average, suggesting that in broad terms, the state enjoys a comparative advantage with respect to the value of its workforce. As shown in **Figure 11** below, 90.5% of Nebraska's population age 25 years and older has at least a high school diploma, above the 86.3% rate for the United States overall. Nebraska also has a higher portion of Associate's degree holders (9.7%) and Bachelor's degree holders (19.6%) among its adult population. The

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[17] U.S. Census Bureau, *2010-2014 American Community Survey 5-Year Estimates*.

[18] U.S. Census Bureau, *Longitudinal Employer-Household Dynamics*, as cited in Nebraska Department of Labor, *2015 Scottsbluff MC Regional Review*, 2015, p.27. https://neworks.nebraska.gov/admin/gsipub/htmlarea/uploads/2015_Scottsbluff_Regional_Review.pdf.

[19] Jon M. Bailey et al., *Small Businesses in Rural Nebraska: Their Needs and Thoughts: Results of the Fourth Biennial Survey*, Center for Rural Affairs, 2014, p.2. http://files.cfra.org/pdf/small-business-needs-assessment-survey-results-2014.pdf.

[20] U.S. Census Bureau, *Estimates of the Components of Resident Population Change: April 1, 2010 to July 1, 2014*. 2015.

[21] Nicholas Bergin, "Census Report: Nebraska Immigrants Among Youngest in Nation," Lincoln Journal Star, December 3, 2015. http://journalstar.com/news/state-and-regional/nebraska/census-report-nebraska-immigrants-among-youngest-in-nation/article_0f6f86f7-6624-5e7f-908d-fda17f9c3e92.html.

one exception is at the graduate and professional degree level (e.g., law, medicine): 9.4% of Nebraska's population 25 years and older has reached this level of education, lower than the national rate of 11.0%.[22]

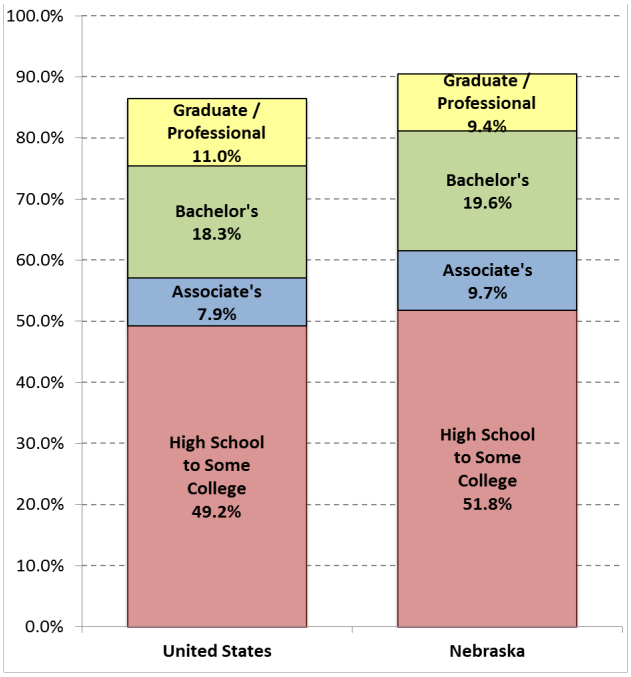


Figure 11: Percent of Population ≥25 Years Old, By Education Level (2014)
SOURCE: U.S. Census Bureau, Population Division

K-12

Turning towards Nebraska's future workforce, interview and focus group participants generally offered positive views on the quality of primary and secondary education in Nebraska. They qualified this overall assessment with remarks that K-12 education quality was not universally high across all areas of the state, and that certain school districts experience difficulty recruiting and retaining teachers due to rural isolation and more attractive employment opportunities in neighboring states.

Nebraska enjoys one of the highest high school graduate rates in the nation, reaching 89.7% for the 2013-2014 school year, second only to Iowa (90.5%).[23] Breaking down Nebraska's high school graduation rates by demographic characteristics, however, reveals achievement gaps in the state that leave room for improvement (**Table 13**), despite appreciable gains in recent years.[24]

[22] U.S. Census Bureau, *2010-2014 American Community Survey 5-Year Estimates*.
[23] U.S. Department of Education, *Common Core of Data (CCD) Data Tables*. 2015. https://nces.ed.gov/ccd/tables/ACGR_RE_and_characteristics_2013-14.asp. Graduation rates cited in this report are 4-year adjusted cohort graduation rates (ACGR).
[24] Joe Dejka and Julie Anderson, "Nebraska's 89.7% public school graduation rate just misses Heineman's 90% goal," Omaha World-Herald, November 22, 2014. http://www.omaha.com/news/nebraska/nebraska-s-public-school-graduation-rate-just-misses-heineman-s/article_80e79745-9c61-5c94-81a4-ec95b97b0033.html.

Graduation Rate (ACGR) for Nebraska (School Year 2013-2014)

Population	Graduation Rate	State Rank
Total	*89.7%*	*2*
American Indian / Alaska Native	69%	28
Asian / Pacific Islander	78%	49
Hispanic	82.8%	8
Black	81%	6
White	92.8%	4
Economically Disadvantaged	82.4%	6
Limited English Proficiency	60%	34
Students with Disabilities	72%	10

Table 13: Public High School 4-Year Adjusted Cohort
SOURCE: U.S. Department of Education, National Center for Education Statistics.

While 92.8% of white students in Nebraska graduate in four years, only 82.8% of Hispanic and 81% of black students do so. Nebraska ranks very low (49th) with respect to Asian and Pacific Islander students, who graduate at a rate of 78%. The state's lagging performance among students with limited English proficiency (LEP) is a significant outlier in comparison to its higher performance among most other demographics. Nebraska's four-year graduation rate for LEP students is 60%, ranking the state 34th in the nation in this metric.

Given the widespread workforce shortage that exists across the state, and as a result the increasing role that immigrants and their children are anticipated to play in Nebraska's economy, enhancing educational outcomes among this student population is a critical area for future improvement. These sub-groups (some isolated in small towns, some in North Omaha) are a near-at-hand solution to some of the state's workforce challenges.

Higher Education

Higher education institutions in Nebraska include the University of Nebraska public university system, the Nebraska State College System, private liberal arts colleges and universities, and a network of community colleges distributed throughout the state. In 2014, these institutions awarded approximately 30,000 postsecondary degrees and certificates, about 49% of which were Bachelor's degrees, by far the most common degree type in Nebraska. The University of Nebraska System accounts for over half (53%) of Bachelor's degrees, and 37% of all degrees.[25]

[25] U.S. Department of Education, National Center for Education Statistics, *Integrated Postsecondary Education Data System (IPEDS)*. Retrieved from National Center for Science and Engineering Statistics, WebCASPAR, February 3, 2016. https://ncsesdata.nsf.gov/webcaspar/.

Total higher education degrees awarded in Nebraska rose from about 22,800 in 2004 to 30,000 in 2014, an increase of 31%. During this period, certificates have been the fastest growing degree type, increasing by 46%. Associate's degrees also rose faster than the average for all degree types, increasing by 34%, indicating an increasing relative role of the Nebraska's community colleges in the state's educational pipeline.

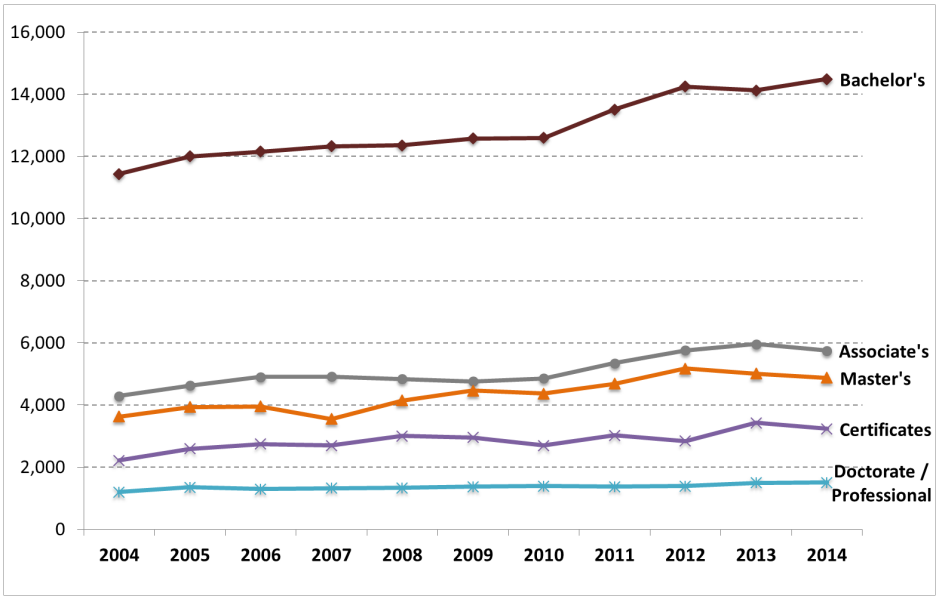


Figure 12: Postsecondary Degrees Awarded by Nebraska Institutions
SOURCE: U.S. Department of Education, National Center for Education Statistics.

Graduation rates at Nebraska's higher education institutions are low relative to the state's high school graduation rates and compared to national averages. According to the *Chronicle of Higher Education*, approximately 56.2% of all students at Nebraska's 4-year public colleges graduate within six years. Although this rate increased by 9.1% from 2002 to 2013, it still places Nebraska at 23rd in the nation, below the national average of 57.6%.[26] The graduation rate (within 150% of degree completion time) for 2-year public colleges is 27.0%, compares positively to the 2-year national rate of 19.4%.

There are anecdotal reports of a brain drain of good graduates of the NU system. However, the data suggest that Nebraska looks like much of the rest of the country, some graduates leave, and some are recruited from elsewhere, and most (more than 70%) stay in the state. Of more concern is the NU system's somewhat lengthy time to degree. This often leads to failure to complete.

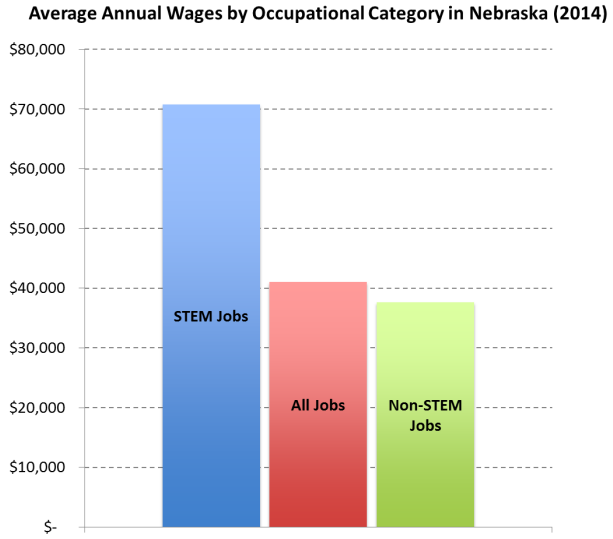
STEM

Students with degrees in science and engineering (S&E) disciplines generally experience greater demand for their skills and more favorable outcomes in the labor market than graduates in other fields. SRI's research supports the conclusion that the national trend of high demand for S&E graduates is also true for Nebraska, particularly in the Omaha area. STEM occupations account for a small share of total

[26] Chronicle of Higher Education, "College Completion," 2015. http://collegecompletion.chronicle.com/.

employment in Nebraska, making up 5% of the total. However, STEM jobs in Nebraska are both faster growing and higher paid than those outside STEM fields.

The number of STEM jobs in Nebraska increased by an average of 1.8% per year from 2004 to 2014, a significantly higher growth rate than that of total jobs (0.7%) and non-STEM jobs (0.6%). The average annual wage for STEM jobs in 2014 was $70,684 compared to $37,601 for non-STEM jobs. Furthermore, the wage gap has expanded by 27% over the last decade, increasing from approximately $26,000 in 2004 to $33,000 in 2014. The occupational data reinforce the attitudes expressed by SRI's interview subjects and focus group participants: STEM jobs are in high and increasing demand in Nebraska.



	2004 Jobs	2014 Jobs	Annual Job Growth (%)	Avg. Annual Wage
All Occupations	861,730	927,500	0.7%	$41,080
STEM Occupations	38,510	45,920	1.8%	$70,684
Non-STEM Occupations	773,690	821,870	0.6%	$37,601

Figure 13: STEM and non-STEM jobs in Nebraska

Nebraska institutions of higher learning are accelerating their output of S&E graduates at the Bachelor's level and higher: degrees awarded increased from about 3,500 in 2004 to 5,200 in 2014. Despite this 50% increase, S&E degrees still only account for 25% of the state total.[27]

The acute shortage of qualified information technology (IT) workers facing metro employers exemplifies Nebraska's high-tech workforce challenge. A 2013 survey of Omaha-area employers projected robust hiring over the next two years, with IT hiring in the region likely between 1,400 – 2,100 jobs per year.[28] In a 2014 survey commissioned by the Nebraska Departments of Labor and Economic Development, two-thirds (66.7%) of Lincoln businesses that routinely hire IT workers reported that it was difficult to find

[27] U.S. Department of Education, National Center for Education Statistics, *Integrated Postsecondary Education Data System (IPEDS)*.
[28] Greater Omaha Chamber of Commerce and AIM, *Omaha Area IT and Engineering Talent Study*, October 24, 2013. http://cdn.aimforbrilliance.org/pdf/2013omahaareaitandengineeringtalentstudy.pdf.

workers for computer and IT occupations, primarily due to a lack of applicants with necessary IT skills. [29] SRI's conversations with local economic development officials and IT business leaders reveal that a great number of open IT jobs are going unfilled due to a limited applicant pool. This severely constrains business expansion. The bottom line is that the existing pipeline is inadequate.

The National Center for Education Statistics reports that Nebraska institutions across the entire state awarded 704 computer science degrees at the Bachelor's level or above in 2014, with UNO awarding 195 degrees. Respondents to the 2013 survey reported that 54% of their projected 1,400 – 2,100 yearly IT openings would require at least a graduate degree, whereas all Nebraska institutions combined awarded 196 degrees at the Master's level or above, 73 of which were from UNO.

Occupational Analysis

Examining the occupational distribution of Nebraska's current workforce can provide insights into the current strengths of the state's economy, and the jobs and related skills that are in greatest demand in the labor market. Data on jobs concentration (i.e., location quotient), wages, and recent trends in employment growth are important indicators of the evolving nature of Nebraska's workforce.

Figure 14 below shows the top 20 specific occupations[30] with highest location quotients in Nebraska with employment levels of at least 1,500. In other words, these occupations are both heavily concentrated in the state, and common enough to have an appreciable role in the state's economy.

[29] University of Nebraska-Lincoln Bureau of Business Research, *Survey of Lincoln Area Businesses about Skill and Training Requirements,* December 4, 2014. https://neworks.nebraska.gov/admin/gsipub/htmlarea/uploads/UNL_Final_Report_120314.pdf

[30] As measured by six-digit Standard Occupational Classification (SOC) codes. For more information on the SOC system, see http://www.bls.gov/soc/home.htm.

Meat, poultry, and fish cutters and trimmers is by far the highest concentrated occupation in Nebraska, with an extremely high LQ of 10.57, followed by farm equipment mechanics and service technicians (7.16). Together, these high concentrations reflect the great specialization of the state's workforce in agriculture compared to the rest of the nation. The next highest concentrated occupation is Insurance. Underwriters, with an LQ of 2.9, are a sign of the strong presence of the insurance industry in Nebraska.

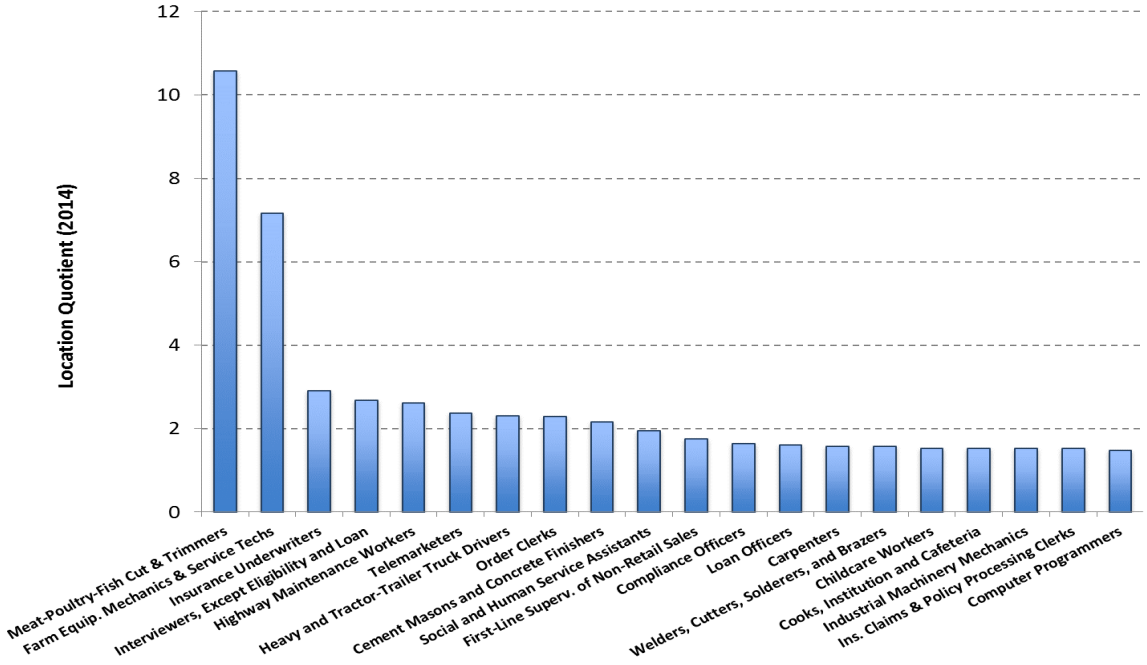


Figure 14: Top 20 Highest Concentrated Occupations in Nebraska
SOURCE: Bureau of Labor Statistics, Occupational Employment Statistics Survey

The fact that certain occupations are highly concentrated in a state does not necessarily mean that they have a positive outlook or should be targeted as part of economic development strategy. Median wages and employment growth rates are important indicators of the demand for specific occupations in a changing economic and technological landscape. This information is shown in **Table 14** for the same set of high-LQ occupations.

Occupation	LQ	Employment	Emp. Growth (2010-14)	Median Wage
Meat, Poultry, and Fish Cutters and Trimmers	10.57	11,090	19.4%	$ 28,010
Farm Equip. Mechanics & Service Technicians	**7.16**	**1,760**	**-0.6%**	**$ 36,860**
Insurance Underwriters	***2.9***	***1,860***	***28.3%***	***$ 51,880***
Interviewers, Except Eligibility and Loan	2.68	3,560	-18.9%	$ 26,420
Highway Maintenance Workers	2.62	2,570	8.4%	$ 32,890
Telemarketers	2.37	3,880	-10.8%	$ 20,920
Heavy and Tractor-Trailer Truck Drivers	**2.3**	**26,080**	**0.8%**	**$ 41,720**

Order Clerks	2.29	3,050	-30.7%	$ 24,120
Cement Masons and Concrete Finishers	2.16	2,300	0.9%	$ 34,250
Social and Human Service Assistants	1.95	4,820	6.4%	$ 24,010
First-Line Superv. of Non-Retail Sales Workers	***1.75***	***3,030***	***23.2%***	***$ 62,640***
Compliance Officers	***1.64***	***2,830***	***28.1%***	***$ 57,550***
Loan Officers	***1.6***	***3,360***	***11.6%***	***$ 65,600***
Carpenters	1.57	6,770	28.2%	$ 33,360
Welders, Cutters, Solderers, and Brazers	1.57	4,050	15.1%	$ 34,990
Childcare Workers	1.53	6,240	14.5%	$ 18,790
Cooks, Institution and Cafeteria	1.53	4,290	17.2%	$ 23,030
Industrial Machinery Mechanics	**1.52**	**3,340**	**73.1%**	**$ 43,250**
Insurance Claims and Policy Processing Clerks	1.52	2,690	-29.8%	$ 35,100
Computer Programmers	***1.48***	***3,120***	***13.9%***	***$ 73,720***

Table 14: Top 20 Highest Concentrated Occupations in Nebraska – Employment and Wages
NOTE: Occupations with employment growth and wages above the Nebraska median ($32,570) are in bold, those with wages above the Omaha median in italics.
SOURCE: Bureau of Labor Statistics, Occupational Employment Statistics Survey

Taken together, these data yield several insights into Nebraska's job market:

- First, Nebraska's strongest occupational specialization is in a low-paying job: meat and poultry workers are highly concentrated and numerous in Nebraska, but earn substantially below the state median wage.
- Second, clerical occupations, such as insurance claims and policy process clerks and order clerks, experienced significant declines in employment, along with telemarketers and interviewers. These declines are likely due to increased adoption of IT and automation of these positions.
- Third, above-median pay and strong employment growth in industrial machinery mechanics (73.1%), along with carpenters and welders, signals healthy demand for "middle-skill" occupations.
- Fourth, high pay, growth, and concentration are also present for insurance underwriters, compliance officers, and loan officers, indicating high value for banking and insurance occupations. Finally, although computer programmers are not particularly concentrated in Nebraska at this time, rapid growth and very high median wages ($73,720) demonstrate that IT skills are in great demand in the state's labor market.

The demand for these particular occupations is consistent with the overall picture generated by the cluster analysis in the previous section. Nebraska has a location advantage in a cluster of mid-skill sectors in the area of metals, transportation equipment, and transportation services that pay above the state median wage. The state also has a locational advantage in technology and skill intensive occupations in financial services, information technology and (presently at a smaller scale) bio technology that pay far above Omaha's median wage.

There are two other features of the landscape which contributes significantly to challenges in community development. There is a shortage of small businesses and qualified employees in the building trades. This reflects a variety of economic forces, but limited availability of curricula at some community colleges seems to be part of the problem. Also, because student teachers are not paid while they earn their classroom credits in order to get qualified, many turn to other states and do not return. This exacerbates the teacher shortage in rural areas.

A summary of the workforce challenges faced by Nebraska is straightforward:

- General shortage in all regions given very low unemployment
- Acute shortage of IT and other STEM graduates in high pay, fast growing occupations
- Acute shortage of workers with qualifications in the building trades
- Failure to integrate underserved and non-English speaking populations into the pipeline
- Above average time to degree in the University of Nebraska system
- Loss of teachers through the credentialing pipeline

Portfolio of responses

As noted, existing institutions in Nebraska have considerable strengths, and have already adopted practices and policies aimed at addressing many of these challenges. A variety of additional short-term and long-term solutions are identified below, recognizing that they could be complementary to, and build on, existing efforts, and also that there no silver bullets available to quickly resolve these challenges.

Short term

In view of the general importance of talent, and the crisis in technology talent in the metro areas, the state of Nebraska should redouble it's efforts to retain & recruit talent.

- Short programs such as the Interface Web School in Omaha, 1st Job Lincoln, and certificate or stand-alone short courses at community colleges could be enlarged to help plug identified workforce gaps (this often allows adults with some college credits to continue their education).
- The InternNE internship program (widely praised by interviewees) could be expanded, and other programs within universities in which students obtain short term placements (COOP, apprenticeships, etc.) could also be expanded.
- High schools could design programs so that students who enter the workplace on an experiential basis are sheltered from regulatory and liability obstacles (the activity is classified as educational).
- The Department of Labor workforce training grants could be accepted, considered and granted on a continuous basis in areas of acute need (subject to review by a smaller board operating outside a quarterly schedule).

Long term

In the long term higher education, K-12 and other workforce institutions should be more tightly aligned around the state's economic development goals.

- Nebraska higher education institutions could make some percentage of seats in degree programs in areas of high demand available to non-residents at in-state rates for tuition and fees (these programs would be expected to expand over time).

- The existing initiative of High School academies should be supported, and more emphasis placed on wrap around activities to encourage engagement in STEM fields by teachers, students, parents and community stakeholders (Iowa's STEM Scale-Up initiative can serve as a model)
- Teacher education programs could allow students to be paid when earning credits for classroom experience.
- Pilot or adopt measures of mastery and competence in areas of mid-skill shortages so that adults with some college credits can gain credentials

Funding formula

Best practice indicates that one way to incent college systems to be a closer collaborator in economic development and talent development initiatives is through a funding formula. The community college system in Nebraska is already governed by a funding formula, however the four year colleges are funded at present using a base-plus approach. In other words, last year's level is taken as a point of departure, and the budget increased or not as deemed appropriate. (The current base does reflect the earlier use of a formula based on FTEs). This is far removed from existing best practice.

Other states (for example, Tennessee and Washington State) have developed funding formulas that are designed to reward performance aligned around the state's goals, including economic development goals. In addition, collaboration between the state and the Universities on matters of economic development goals could be incented through a targeted tax incentive program that could provide funding based on licensing revenue that is used in Nebraska, and and so reduce the high cost for startups of the use of University facilities. Other goals could include rewards for shorter time to degrees, rewards for graduating members of underserved communities, and rewards for STEM degrees. Given the deficiency in the STEM pipeline in Nebraska, this should be considered as a long-term structural solution. In short:

- The Nebraska legislature could authorize a commission to research and design a funding formula for all four year institutions that provides rewards for reduced average time to degree, increased enrollment and graduation of underserved groups, and rewards for the production of graduates with STEM degrees.
- Within Nebraska Advantage or a successor program, an incentive or incentives could be provided to help align state and University economic development and research goals.

Infrastructure, Housing & Community Development

Good infrastructure, affordable housing, and high quality of life are aspirations shared by almost everybody when thinking about the future of Nebraska, and are the foundations for high quality economic development. Nebraska already enjoys these elements, to a greater or lesser extent. But economic growth has brought with it some stress to these existing assets.

Infrastructure

Interviewees generally reported very high satisfaction with infrastructure. Nebraska owes its early development to two rivers (the Missouri and the Platte), the transcontinental railway, and Interstate 80, one of the country's major transcontinental highways (although communities in the Northeast continue to push for widening Interstate 275 into a four-lane highway east of Norfolk). In addition, the presence of Offutt Airforce Base means that Omaha has a world-class connection to information networks. This infrastructure and connectivity allows Nebraska to make the most of its central geographic location and to send its products all over the world.

Power

Outside Omaha, wholesale power is mainly provided by the Nebraska Public Power District (NPPD), which delivers power at a competitive price. This system is heavily dependent on fossil fuel, with a goal of 10% renewables by 2020. This is a potential obstacle to the recruitment of large-scale data centers, where 100% renewable sources of power are often "non-negotiable", according to one interview. There are barriers to the easy adoption of renewables. As a non-profit, NPPD cannot directly benefit from federal renewable energy tax-credits, and there already exists substantial wind capacity in the Great Plains.

The Omaha Public Power District (OPPD) is moving more quickly towards renewables, with the recent retirement of a coal plant and the proposed retirement of a nuclear plant. Instead, it has signed agreements for the purchase of energy from renewable sources that will meet 30% of its retail sales by 2017. As a result, OPPD has been able to play a key role in the recruitment of data centers.

In the future, distributed renewable generation and storage (where power is produced at the local level based on a mix of renewable sources combined with adequate storage) is advancing rapidly. It may be a valuable option for rural areas in the future. This kind of approach to meeting local power needs has not yet closed the gap with grid scale prices, but the cross-over in price will probably occur sooner than expected. When the cross-over occurs distributed generation will build assets (and the tax base) and provide jobs in many rural communities.

Communications

The federal map of high speed internet indicates general availability outside the metro areas along Interstate 80 and the Platte River. However, some interviewees indicated gaps in coverage that were burdensome for business connectivity, as well as high prices. Beyond those areas, even cell phone coverage is patchy in many rural areas. Addressing these deficiencies is critical for the future of the state outside the metro areas, the equivalent of adequately providing and maintaining roads. Other states, such as Georgia and North Carolina, have experimented with public agencies tasked with extending the reach of the internet. These initiatives are not without controversy, but the difficulties of underserved rural areas are consistent across the U.S.

Utilities

Nebraska's metro areas and medium sized towns are now confronted with a serious constraint created by steady economic growth. The basic infrastructure for residential and commercial sites–water, sewer, gas, and power lines–is fully extended and has little extra capacity. This has a significant impact on the cost and availability of new residential housing (see below), on the available stock of shovel-ready sites for business recruitment, and especially on the development of new sites to meet the needs of new and expanding businesses.

The existing financial tools available to address this constraint need review and greater investment. The Site and Building Development Fund is exhausted, having received only a little more than $2 million in 2015. Community Development Block Grants (CDBG), now offered as loans at zero interest, are very helpful in both recruitment and expansion, but their value is diluted when firms must pay to connect new sites to the utility network.

Housing

Housing in the metro areas is generally available at competitive prices. Indeed, one recent study by the state of Oregon identified Omaha as in the sweet spot for affordability, economic strength and quality of life.[31] Omaha and Lincoln have the balance right among these competing dimensions, confirmed by many of the interviews.

However, outside the metro areas, access to market rate housing for new employees or young families is a very significant challenge. This is as important to economic development as challenges in the area of workforce. Indeed, shortcomings in access to housing contributes significantly to workforce challenges outside Nebraska's metro areas. It is very hard to recruit or retain talent if they have nowhere to live.

A simple contributing factor is relatively low wage rates compared to the rest of United States (as discussed above). In the long run, a shift towards a high-skill, technology intensive economy will have a useful impact on the problem. But otherwise there do not appear to be one or two singular reasons for this situation. Yet this shortage represents a serious, immediate constraint on economic development outside the metro areas.

Property taxes

Relatively high property taxes also contribute to the problem. Compared to other states, Nebraska's combined state and local revenues rest heavily on the property tax. The issue was raised in many of the interviews conducted for this project, and it is an outlier in Nebraska's otherwise welcoming tax and regulatory environment.

This report cannot address in useful detail the causes, consequences and cure for this situation. The legislature completed an exhaustive study in 2013 which identified a rebalancing of sources of revenue away from the property tax as a key goal. A problem with this kind of change is the dependence, in part, of schools and community colleges on the property tax.

[31] https://oregoneconomicanalysis.com/2016/06/08/the-housing-trilemma/

In the long-run, economic development that fosters the development of technology and capital intensive business investment (as proposed in the section on Nebraska's tax credits) will broaden the property tax base and help spread the burden.

Costs and income

Notwithstanding low wages and high property taxes, when we compare the cost of housing in Nebraska (and in specific parts of Nebraska), expressed as a share of median household income, to the Midwest and to the United States as a whole, we do not see that Nebraska residents face a peculiar burden in terms of price.

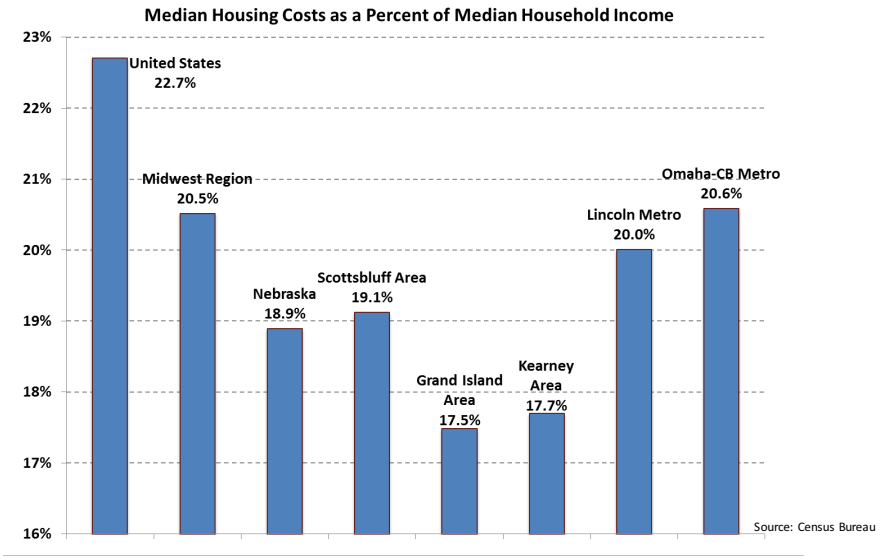


Figure 15

Yet in some communities outside the metro areas, housing is sometimes simply not available at any price. (In Kearney, average days on the market for a residential property has been as low as three days. For comparison, in the historically tight market of the Washington D.C. metro area, the average days on the market in the fall of 2015 was 32 days). As a result, smaller communities find recruiting key professionals, such as physicians or teachers, or skilled workers and managers for local businesses, an insuperable challenge. Identifying the factors that underlie this situation is an important first step towards crafting policies and practices that will help to mitigate the consequences of this situation.

Supply Constraints

There appear to be several reasons on the supply side for the shortage of housing. First, while Nebraska is land abundant, irrigated farmland is valuable (albeit somewhat volatile in price) limiting the supply of land for development in some cases. In addition, towns in Nebraska do not have the resources to pay to extend utilities to new parcels (see the discussion in the previous section). As a result, the development of these parcels must include the cost of expensive infrastructure, spread over just a few units.

Other inputs are also costly and in short supply, especially in small towns. Building supplies must be shipped from metro areas or Colorado. More striking is the scarcity of qualified workers in the building trades. Stakeholder participants commented repeatedly in different parts of the state on the difficulty of

finding and retaining the skilled craftsmen necessary to build new housing. Training in the building trades appears to be inadequate in Nebraska, a problem compounded by the lack of consistent opportunities for employment outside the metro areas.

Financing for individual home buyers is also not as readily available in Nebraska as might be imagined. Few local banks know or want to learn the details of federal programs (Veterans, F.H.A., etc.) that assist first-time home buyers, due to their complexity. Further, conservative valuations (based on limited comparable properties) often prevent a new sale from being financed, even where there are willing buyers and sellers.

A final, and critical issue, is that the final price of new housing is also often beyond the means of young workers earning modest wages because of the problem of scale. In Omaha or in the urban areas of Colorado, new housing development is at a scale that significantly lowers the cost of each individual unit. This kind of scale not available in the market in Nebraska outside the major urban areas, where new developments may comprise five or six houses, not fifty or sixty.

Regulatory Environment

There are some ways in which zoning increases the cost of developing residential housing. For example, requirements for wide suburban streets with sidewalks and extensive lighting may exceed the needs of modest developments at the edge of small towns. In addition, the 'distress' criteria required for the use of Tax Increment Financing (TIF)—a widely used tool across Nebraska to fund the extension of utilities—makes its use unwelcome in some communities.

A Housing Grand Challenge?

In summary the housing challenge faced by Nebraska, especially in small towns and rural areas, has many contributing elements. A further cause for concern are larger developments in the housing sector across the U.S. economy. A continuing national shortage of housing stock in the U.S. following the financial crisis, combined with the increased demand for housing that will follow as millennials establish families, will lead to substantial, continuing demand for inputs. In particular, an additional 500,000 construction workers will be needed across the country in the coming years. Rural areas of Nebraska stand little chance of successfully competing for this workforce.[32] The implication is that an already serious situation is likely to worsen in the medium-term.

Everybody knows the problem that needs to be solved—it can be precisely specified as market rate housing in the $90,000 - $120,000 range—but solutions are elusive. Taken together, these features of the problem make it amenable to the use of a grand challenge, or prize, as a policy response.

Grand challenges, or prizes, are used to mobilize a wide-range of talent towards finding a novel solution to a pressing problem. Their use has accelerated in recent years, including challenges organized by the Defense Advanced Research Projects Agency (DARPA), the Department of Education, and several private foundations.

[32] http://csen.tumblr.com/post/145455151989/why-housing-is-about-to-eat-the-us-economy

In this case, leaders in Nebraska (for example the Bankers Association, or a private foundation, in addition to Nebraska state government) could offer a substantial cash prize for the design and construction of a house, based on new technologies or new uses of existing technologies, and on innovative designs, that could be made widely available in Nebraska within the specified price range (the house to be consistent with existing building codes and zoning requirements).

Of course housing developers have been adopting incremental improvements to new construction techniques for many decades, so an objection to this idea is that there are few improvements available, especially few dramatic improvements, that are not already in use. However, the case in question applies to a specific niche in the housing market, in which construction cannot be done at scale. Here we need innovation of a specific kind. Further, grand challenges, by their nature, often accelerate developments that have otherwise been too slow and fragmented to meet existing needs.

There are precedents that serve as inspiration for this idea. Following Katrina, many architects were inspired to reinvent housing for the inhabitants of New Orleans, even though there were no specific prizes offered. The challenge created by the natural disaster appealed to their professional pride. At an earlier time, Nebraska was a beneficiary of another innovation in housing, the Sears house, which could be ordered from a catalogue and delivered to your home site. There have been moments in the past when people thought imaginatively about how to design and deliver housing. A grand challenge, which would attract a great deal of desirable attention to the state as an innovative place, could spark another such moment, and find a solution to a significant economic and social difficulty.

Community Development

It was noted at the outset that quality of place is a key strategic goal for the future. In fact, almost everybody interviewed for this project reported that high quality of place and of life already exists in the state, and that these qualities were an important reason why residents came, invested, stayed or returned to Nebraska. However, maintaining and expanding this quality of life after years of successful growth will require an active approach by local communities. The limited capacity of municipal utilities discussed above is a good example of stress brought about by success.

Diverse people

The discussion of Nebraska's population at the beginning of the workforce section underlined the importance of in-migration to the overall demographic trajectory of the state, migration often from outside the United States. This is a significant opportunity for a variety of reasons. In the 21st Century businesses need diverse teams from many different backgrounds if they are to be competitive in world markets. Further, talent in the 21st century seeks out culturally rich, diverse communities. Also, smaller rural communities will have much richer, more dynamic futures to the extent they are able to take advantage of their immigrant workforce.

Some small communities are not comfortable with the sudden changes an immigrant workforce can bring. Each community is the best judge of its own interest in such cases. But given the slow, secular decline in population in rural areas, others will be glad of the vitality offered by new arrivals.

However, Nebraska will not fully benefit from these new population groups if they are isolated from the larger community and don't have easy access to employment opportunities.[33] Physical isolation in North Omaha is made acute by poor transportation options. The lack of an adequate system of public transport limits access to the workplace for these groups, even as employers in the same city face constant workforce shortages. Omaha's leaders understand the transportation challenge, and there is a vigorous debate about possible solutions, including the value of light rail or bus rapid transit. This report cannot speak to specific solutions, but it is important to make the larger point that any solution will require significant public investment. Many of the stresses created by Nebraska's success require investment, which should be acknowledged at the outset by state leaders.

In small towns and rural areas second generation immigrants already represent a pool from which small businesses will grow, and where community leaders may be found. It is important that professional advice, support services, and financing are available to potential entrepreneurs, and leadership programs and service opportunities are provided in support of potential community leaders.

Small businesses in rural Nebraska face the same succession problems experienced in other parts of the country, but with a much more restricted pool in which to look for candidates. Second generation immigrants should be included in that pool. They often represent relatively young, untapped talent. In addition, this a pool out of which could develop small businesses engaged in the building trades, where there is otherwise a severe shortage.

In a larger sense these groups can be the basis for the future success for whole communities, the best chance they have to reverse currant demographic and economic trends.

Diverse Places

Omaha and Lincoln are already the beneficiary of significant investments in the arts, and home to communities of artists, performers and musicians. These communities co-exist with technology talent in dense urban areas, and serve as an important ingredient for innovation districts and innovation eco-systems.[34] Small scale, modest and experimental investments in co-working spaces, public spaces (parks, pedestrian areas, murals etc.) and infrastructure for pedestrians and bicycles should be expanded and spread widely. The kind of talent associated with high-skill and high-technology businesses want a rich environment to live work and play. Growing that environment will require modest, widespread investments combined with civic vision and imagination.

In many ways the community needs of smaller towns in Nebraska are the same, albeit more modest. Interviews and the listening tour conducted by SRI yielded numerous comments about the value of third spaces/places. Libraries across Nebraska remain vibrant hubs for communities and model examples of such community assets, but small downtowns continue to struggle with aging, poorly maintained residential property and empty store fronts. The community approach encouraged by Main Street America is a mechanism for developing civic engagement as well as a plan for future improvements (Grand

[33] The relatively poor performance of some population sub-groups in an otherwise strong K-12 system is discussed in the workforce section above.

[34] http://www.brookings.edu/blogs/metropolitan-revolution/posts/2016/03/30-innovation-district-audit-wagner-storring

Island and Fremont have already employed these principles).[35]

Small communities have several tools for these purposes, including Tax Increment Financing (TIF) and Business Improvement Districts. There exist some reservations about the proliferation of these local financing options. They ring-fence future revenues, and are sometimes focused on projects of uncertain merit (for example, funding a car dealership on the edge of town). However, many leaders from smaller communities strongly defended the availability and use of these tools. The key to their effectiveness in building quality of place is a spatial focus. Diverse communities of talent want to live towards the heart of any community, the tools to improve and expand these places should be focused accordingly.

Summary

Broadly stated, Nebraska's challenges in the areas of infrastructure, housing and community development are challenges brought on by success. In addition to constraints in the area of municipal infrastructure, there are changes that can be made to align the state more closely with a skill-intensive, technology-intensive future. Meeting these challenges and making these changes will require some money and a great deal of imagination.

[35] http://www.preservationnation.org/main-street/about-main-street/main-street-america/the-main-street-approach.html#

Goals and Metrics

There are no silver bullets in economic development, it is chiefly a game of blocking and tackling—of getting the fundamentals right. Many of the suggestions and recommendations in this report are modest in scale. But if aligned with the four strategic objectives identified above, and applied as part of a broad waterfront of day-to-day activities by the state's leaders, businesses, and development professionals, then changes already underway, propelled by the market, will accelerate. Nebraska will emerge with a skill-based, technology-based and innovation-based economy.

These goals are easily associated with broad measures that capture progress. Setting the actual level for any particular measure is a continuous activity, amended as necessary from year to year. But selected indicators are offered below for illustrative purposes, associated with each goal.

High skill, high wage jobs

- Increase in compound annual growth rate of real wages (by county, MSA, state)
- Annual increase in employment over and above total employment growth in occupational classifications requiring associates degree or higher

Technology intensive investment

- Annual increase in average value added (input-output) by manufacturing businesses over and above national averages
- Annual increase in new capital investment per employee by business

Innovation

- Annual increase in venture capital deal flow (all forms) (three year moving average)
- Annual increase in new establishments engaged in "opportunity entrepreneurship"

High quality communities

- Annual increase in rankings in national satisfaction surveys
- Annual declines in net migration of recent college graduates

Appendix A: Select Bibliography

"Lincoln's Community Vision: Strategic Recommendations for a Globally Competitive City." Angelou Economics (2015).

Bartik, Timothy J., and Nathan Sotherland. "Migration and Housing Price Effects of Place-Based College Scholarships." (2015).

Business Incentives and Economic Development Expenditures: An Overview of Nebraska's Program Investments and Outcomes Nebraska Incentive Programs by Type Center for Regional and Economic Competitiveness (2015).

Nebraska Higher Education Progress Report, 2015. Coordinating Commission for Postsecondary Education (2015).

Chang, Judy W, J Michael Hagerty, and Johannes P Pfeifenberger. Nebraska Renewable Energy Exports: Challenges and Opportunities (LB 1115 Study). Prepared for the Nebraska Pwer Review Board, 2014.

David, H., David Dorn, and Gordon H. Hanson. "The China syndrome: Local labor market effects of import competition in the United States." The American Economic Review 103.6 (2013): 2121-2168.

The New Map of Economic Growth and Recovery. Economic Innovation Group (2016).

Feldman, Maryann, and Ted D. Zoller. "Dealmakers in Place: Social Capital Connections in Regional Entrepreneurial Economies." Regional Studies 46.1 (2012): 23–37.

Florida, Richard. "The U.S. Cities Winning the Battle Against Brain Drain." CityLab Mar. 2016.

Iowa STEM Education Roadmap: A Strategic Plan for Science, Technology, Engineering and Mathematics (STEM) Education. Governor's STEM Advisory Council (2011).

Görg, Holger, Alexander Hijzen, and Balázs Muraközy. The role of production technology for productivity spillovers from multinationals: Firm-level evidence for Hungary. No. 1482. Kiel working paper, 2009.

Harpel, Ellen. "Making the Most of Incentive Evaluations." Smart Incentives. 2015. Web.

Hathaway, Ian, and Robert Litan. "What's Driving the Decline in the Firm Formation Rate? A Partial Explanation." The Brookings Institution (2014).

Hicks, Michael J., and Dagney Faulk. "What Comes First, People or Jobs: Evidence and Lessons for Indiana." (2016).

LeRoy, Greg et al. Shortchanging Small Business. Good Jobs First (2015).

WORKFORCE DEVELOPMENT TASK FORCE. Lincoln Partnership for Economic Development (2015).

Liu, Amy. "Remaking Economic Development." The Brookings Institution (2016).

Lowe, N. J. "Beyond the Deal: Using Industrial Recruitment as a Strategic Tool for Manufacturing Development." Economic Development Quarterly 28.4 (2012) : 0891242412467365.

Lowe, Nichola, and Maryann Feldman. Breaking the Waves: Innovation at the Intersections of Economic Development Policy. Working paper. Chapel Hill: University of North Carolina, 2014.

Lowe, Nichola, and Allan Freyer. "A Moving Target: Rethinking Industrial Recruitment in an Era of Growing Economic Uncertainty." Environment and Planning C: Government and Policy 33.5 (2015): 1284–1300. Web.

Mazerov, Michael, and Michael Leachman. "State Job Creation Strategies Often Off Base." (2016).

Nebraska Department of Economic Development, 2014 Legislative Annual Report (2014).

Nebraska Department of Labor, Nebraska 2010-2020 Long-Term Occupational and Industry Projections (2013).

Nebraska Department of Labor, METRO AREA LABOR AVAILABILITY REPORT. (2015).

Nebraska Department of Labor, Regional Reviews: Scottsbluff MC 2015 (2015).

Nebraska Department of Labor, Nebraska Workforce Trends (2016).

Nebraska's Education and Revenue Committees, School Funding and Property Taxes in Nebraska, (2015)

Nebraska's Tax Modernization Committee, Balancing the Scales: A Comprehensive Review of Nebraska's State-Local Revenue System (2013).

Needed in Nebraska: A New Approach to Higher Education Policymaking at the State Level. National Center for Higher Education Management Systems (2013).

Nebraska Power Review Board, Nebraska Renewable Energy Export (LB 1115) Study (2014)

McKinsey Corporation, Public-Private Partnerships Harnessing the private sector's unique ability to enhance social impact (2009).

Reeves, Richard V., and Edward Rodrigue. "The American Middle-Class Is Still Thriving in Utah." The Brookings Institution (2016).

Stephen, R., & Freyman, C. *States' methods of funding higher education*. Menlo Park, CA: SRI International, 2012. Available at: http://www.sri.com/work/projects/states-methods-funding-higher-education

Stephen, Roland. Lessons for a New Reality from North Carolina. New America working paper series, 2012.

Thompson, Eric. Lincoln Skills Gap Report. Prepared for the Nebraska Department of Labor, 2016.

Thompson, Eric. Results of the December Survey of Nebraska Business: January 8, 2016. Prepared by the UNL College of Business Administration, 2016.

Thompson, Eric. Survey of Lincoln Area Businesses about Skill and Training Requirements: Final Report. Prepared for the Nebraska Department of Labor, 2014.

Tilsley, Alexandra. "Six Things States Should Know about Apprenticeships." The Urban Institute. 2016. Web.

Appendix B: Higher Education Funding Formulas

A summary of the funding formulas for three states are provided below that are generally recognized as representing best practice in this area. In particular, Tennessee emphasizes an approach focused entirely on outcomes rather than inputs.

Tennessee

The Complete College Tennessee Act (CCTA) of 2010 stipulated that higher education institutions should be funded based on outcomes rather than enrollment. The Tennessee Higher Education Commission, in conjunction with the University of Tennessee, Tennessee Board of Regents, and state government representatives developed an outcome-based formula that funds institutions based on metrics that measure success as well as weights that reflect institutions' priorities and missions. This formula applied to both state community colleges and universities. Based on the perceived strengths and weaknesses of the formula, structural changes to the model were implemented at the end of the first five-year cycle. The 2015-2020 Outcomes-Based Funding Formula is made up of three major elements: outcome metrics, institutional mission weights, and focus populations.

The outcomes measures for the community college sector include:

- Students accumulating 12, 24, and 36 credit hours;
- Dual enrollment students;
- Associates degrees earned;
- Long-term certificates earned;
- Short-term certificates earned (includes all technical short-term certificates, regardless of whether a student stops-out or continues to be enrolled; certificates defined as academic are not counted.);
- Job placements;
- Transfers outs with 12 credit hours;
- Workforce training; and
- Awards per 100 full-time enrollments (degree-seeking undergraduate students only).

The university outcomes include:

- Students accumulating 30, 60, and 90 credit hours;
- Bachelors and Associates degrees earned;
- Masters and Ed Specialist degrees earned;
- Doctoral and Law degrees earned;
- Research and service;
- Degrees per 100 full-time enrollments (degree-seeking undergraduate students only); and
- Six-year graduation rate.

A premium level is applied to the progression and undergraduate completion metrics for students who fall into the focus population categories. The premiums are differentiated based on the number of focus populations for which a student qualifies. The first subpopulation garners an 80 percent premium, the second garners an additional 20 percent, and the third (in the community college sector only) garners another 20 percent. Focus populations include:

- Adults;

- Low-income students; and
- Academically underprepared (community college only).

CCTA stipulates that outcomes must be weighted to reflect mission differentiation. During the formula review process, college presidents and chancellors were asked to prioritize the 2015-2020 outcomes and to provide narratives describing how the priorities reflect their institutions' missions. Weights at universities are based on a combination of the prioritized outcomes and on Carnegie classification. In the community college sector weights are largely based on institutional mission. Weights for certain outcomes are prioritized and standardized across the community college sector to reflect the needs of statewide completion initiatives: Associate degrees are weighted at 22.5 percent; progression metrics sum to 15 percent for all community colleges; and Long-term and Short-term certificates sum to 20 percent, with differentiation between the two certificate types based on institutional priority and historical performance.

Iowa

In 2014, the Board of Regents for the state of Iowa recommended the state adopt a new formula for allocating the state's general university appropriation among its three regent universities. Under this new formula, 65 percent of the appropriation would be allocated according to enrollment. Specifically, 60 percent of the general state university appropriation would be linked to the universities' undergraduate enrollment of resident students and 5 percent would be distributed according to resident graduate and professional student enrollment. All students would be counted equally, regardless of their academic program. The remaining 35 percent would be tied to performance outcomes. The funding formula includes these performance measures:

- Ten percent for providing college access to targeted resident student populations (to be determined by the regents, but could include low income, ethnic minority, veteran or Iowa community college transfer students);
- Five percent for the progress to degree of residents students (counted by the thresholds of 24-48-72 credit hours completed);
- Ten percent for the number of degrees completed by resident students
- Five percent for sponsored research levels that recognize the universities; contributions to state economic development; and
- Five percent determined by custom metrics set by the regents for each university.

In proposing this model, the Board of Regents sought to move funding decisions from a tradition plus inflation model to one based on performance measures. The Board was guided by two questions:

- Does the current method provide funding to cover the difference between resident tuition paid and cost of instruction?
- Does the current method incent the universities to educate Iowans?

Washington

Washington uses a base plus model to determine funding for its community and technical colleges where the colleges earn a portion of their funding based on results, not just student enrollment. The Student Achievement Initiative rewards institutions for moving students further and faster through college and improving student success. Colleges earn achievement points, which translate into financial awards

distributed each fall, based on student achievement. The system rewards colleges when students reach key academic momentum points in their academic careers, such as finishing college-level math, completing the first year of college, and earning a degree or certificate. In addition to individual momentum points, colleges are awarded for how far a student moves through college, with greater rewards for students who move the furthest. The goal of this funding model is to propel students to and through the "tipping point" –the level of education that means the difference between struggling in a low-wage job and having a career that leads to a better life. This funding mechanism has led institutions to link performance-based funding priorities to strategic planning and accreditation activities, and to focus on improving instruction, tutoring, assessment and advising.

One point is awarded each time a college student:

- Makes nationally recognized standardized test gains in math, English language, or reading as measured by pre- and post-testing or by earning a high school diploma or equivalency certificate;
- Completes the highest pre-college (remedial) math or English course and subsequently completes the college-level course;
- Earns the first 15 college-level credits;
- Earns the first 30 college-level credits;
- Completes the first 5 college-level math credits in computation, math, or logic;
- Earns the first 45 college-level credits in a professional-technical field or for university transfer;
- Earns a certificate backed by at least one year of college, earns a two-year degree, or completes an apprenticeship.

Each basic skills student who reaches an academic milestone beyond earning a high school diploma or equivalent are awarded one point more than other students who reach the same levels. An extra point is awarded if a student completes a college-level math or English class within the same year as completing a pre-college class. Students who increase their achievement from one year to the next qualify for an additional point.

Each college receives awards for improvements in student achievement measured by net gains in its total momentum points over the previous year. Prior to each academic year, the state sets the dollar value per point based on the total dollars available for awards. The dollar value per point is set conservatively so that funds available should cover all projected rewards. There is no upper limit to the number of points that can be earned by a college. If funds available do not cover all earned rewards, the unfunded points will be banked for incentive rewards the following year. Once earned, the reward is added to the college's base budget.