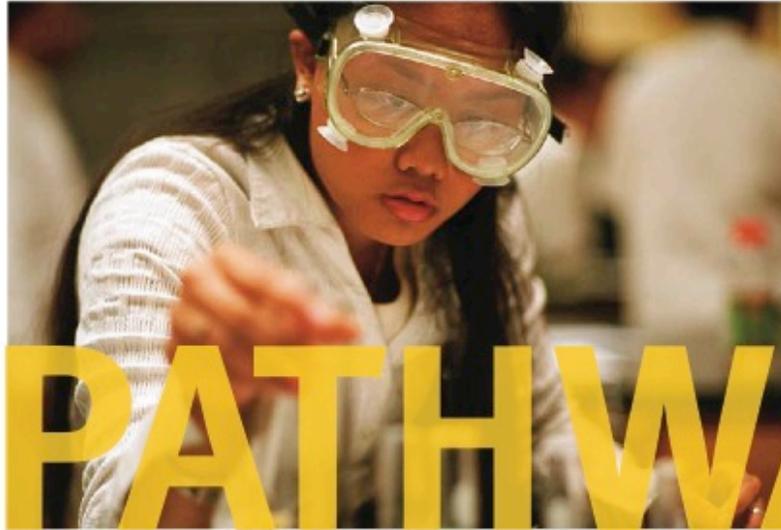


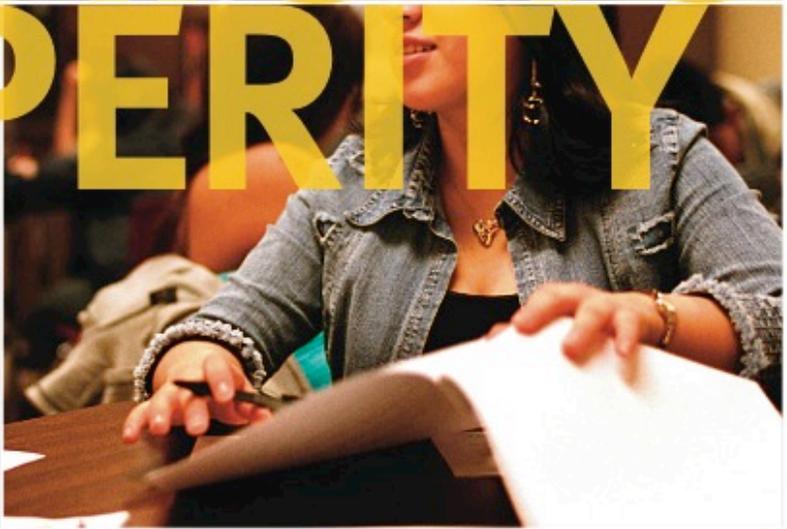
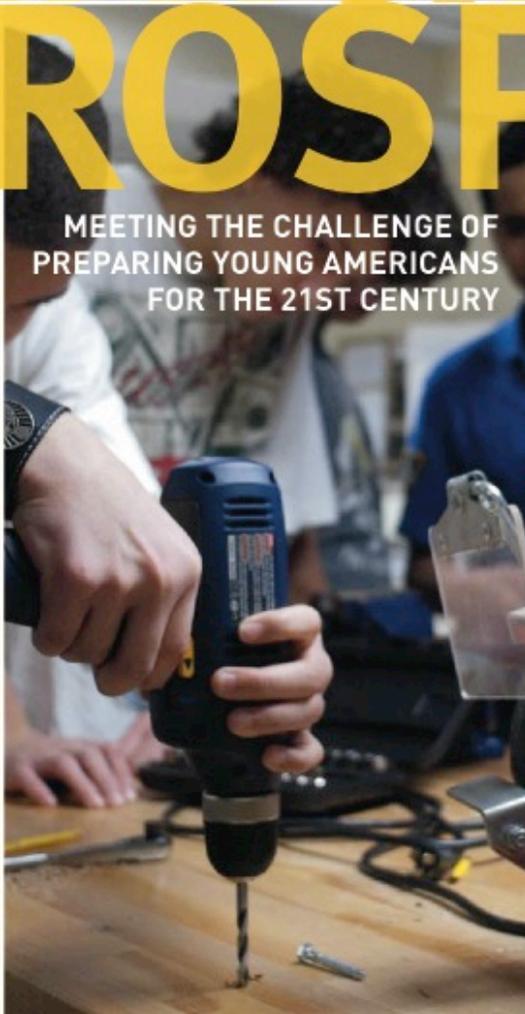
# RUTHERFORD COUNTY, TENNESSEE ASSET MAPPING PROJECT

A PATHWAYS TO PROSPERITY NETWORK REPORT



# PATHWAYS TO PROSPERITY

MEETING THE CHALLENGE OF  
PREPARING YOUNG AMERICANS  
FOR THE 21ST CENTURY



PATHWAYS TO PROSPERITY NETWORK



JOBS FOR THE FUTURE



HARVARD  
GRADUATE SCHOOL OF EDUCATION

AUGUST 2015



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**The Pathways to Prosperity Network**, a collaboration of states, Jobs for the Future, and the Pathways to Prosperity Project at the Harvard Graduate School of Education, seeks to ensure that many more young people complete high school and attain a postsecondary credential with currency in the labor market. Each participating state is engaging educators and employers in building a system of grades 9-14 career pathways, combining high school and community college, that launches young people into an initial career, while leaving open the prospect of further education.

[WWW.PATHWAYSTOPROSPERITY.ORG](http://WWW.PATHWAYSTOPROSPERITY.ORG)

## **ACKNOWLEDGEMENTS**

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- Business Education Partnership Foundation
- City of Murfreesboro
- Linebaugh Libraries
- Middle Tennessee State University
- Mind2Marketplace
- Motlow State Community College
- Nashville Technology Council
- Pinnacle Financial
- Southeastern Technology
- Rutherford County Chamber of Commerce
- Rutherford County Office of Information Technology
- Rutherford County Schools
- TCAT – Murfreesboro
- Tennessee Small Business Development Center
- United Way of Rutherford and Cannon Counties

## INTRODUCTION

Stakeholders in Rutherford County are working to build grades 7-14 career pathways, aligned with the Pathways Tennessee framework and strategic plan, that support young people in the county in attaining their educational and career goals. This asset mapping report provides baseline data that will serve as a foundation for the region's initial planning and design work as part of the Pathways to Prosperity Network. The Pathways to Prosperity team carried out asset mapping work in Rutherford County in April 2015. This report provides a preliminary look at the region's many resources for pathways development, concluding with observations about starting points for the next phase of this work.

The Pathways to Prosperity (PtoP) Network—a collaboration of states, Jobs for the Future, and the Harvard Graduate School of Education—seeks to ensure that many more youth complete high school, attain postsecondary credentials with currency in the labor market, and get launched into careers, while leaving open the prospect of further education. State and regional stakeholders from across education, business, and government lead the work in each Pathways to Prosperity state, with the long-term goal of creating statewide systems of grade 7-14 career pathways that serve most students. Key sectors for building pathways aligned with labor-market demand include STEM fields such as information technology, health care, and advanced manufacturing.

Overall, Rutherford County is well positioned for success in building grades 7-14 pathways linked to local labor market needs. Pathways in mechatronics and industrial maintenance have already been developed, and many of the key building blocks for additional pathways are already in place, including supportive state policies, committed employers, career-focused learning and career exploration opportunities for students, and secondary and postsecondary institutions that are working to create programs of study aligned with labor-market demand. In addition, the stakeholders who were interviewed by the asset-mapping team repeatedly voiced tremendous enthusiasm for the work and a willingness to contribute to it.

Summary of recommendations:

- **7-14 Pathways.** Rutherford County has in place very strong models for pathways development in the existing mechatronics and industrial maintenance pathways. The region also benefits from energetic and committed secondary and postsecondary education leaders, but stronger connections and communication between secondary and postsecondary institutions will be needed in order to scale up pathways to serve more students. A shift from thinking at the school or district level to thinking about the work in a regional context will be a key component of successful pathways development.
- **Career Information and Advising.** Stakeholders in Rutherford County have already begun to develop programs that provide young people with opportunities to learn about the world of work. As the pathways work moves forward, it will be important to continue

to develop a sequence of career exploration opportunities that provide students with exposure to a range of careers and ensure that young people are able to make informed choices about their futures.

- **Employer Engagement and Work-Based Learning.** Leading employers in the region are committed to the development of a talent pipeline in Rutherford County and are already partnering with educational institutions and other community organizations to develop pathways. Efforts to provide work-based learning opportunities, including internships, are underway, but relatively few internships are currently available to students. In order to scale up these opportunities, it will be important to engage additional employers by providing clear entry points and connections to the pathways work and to ensure that employers have the support that they need to continue to be strong partners in the pathways work.
- **Intermediaries.** The Rutherford County Chamber of Commerce has emerged as a very strong intermediary organization that is highly respected by stakeholders in the region. However, as the pathways work moves forward, the Chamber may require additional staff capacity in order to continue in this role. An immediate action is to convene a Pathways working group in order to determine how the intermediary functions will be filled for the Pathways work, what additional capacity will be required, and to make recommendations for ensuring that Rutherford County continues to have a robust intermediary.

## **STRATEGIES NEEDED: THE PATHWAYS POINT OF VIEW**

To prepare young people for an ever-changing and increasingly global labor market, and to create a pipeline of skilled workers for key industries and professions, Tennessee's public education institutions—high schools, community colleges, and public universities—must be responsive to employer needs. Employers, too, need to do their part by opening their enterprises to young people and by working closely with educators who design pathways to careers. These collaborations, which require ongoing communication with and feedback from industry and education partners, will ensure that the skills taught and practiced match the requirements of the labor market. The education system must support young people's exploration of potential career options and provide rigorous, relevant instruction that prepares them for college and careers upon graduating from high school. Students must be able to see the real-world applications of what they do in school in order to set realistic career goals and pursue paths toward those goals. Real-world learning engages students and increases the likelihood of their graduating; students who cannot connect their learning to future job opportunities are less likely to finish their degrees on time or ever.

While schools and postsecondary institutions can offer relevant, rigorous curricula, work-based learning is the most effective way to provide young people with the real-world learning they need to acquire the skills for workforce success. Switzerland, Germany, Austria, the

Netherlands, and Australia, all with strong career-technical education systems, have high upper-secondary completion rates (90+ percent) and low youth unemployment (3-6 percent). In 2010, Learning for Jobs, an ambitious study of vocational education in 17 of the 30 OECD nations, concluded that workplaces:

...provided a good place to learn both hard skills in modern equipment and soft skills in terms of working with people in a real-world context. Workplaces improve transitions from school to work by allowing employers and potential employees to get to know one another, trainees contribute useful work, and workplace training within vocational programs provides a lever to link the mix of vocation provision to employer needs.

With an emphasis on work-based learning, the Pathways to Prosperity framework includes four elements of a grades 7-14 pathways system:

- Employers that are committed to providing learning opportunities at the workplace and supporting the transitions of young people into the labor market
- Career pathways with clear structures, timelines, costs, and requirements linking and integrating high school and community college curricula and aligning both with labor market needs
- An early and sustained career information and advising system strong enough to help students and families make informed choices about education and career paths
- Local or regional intermediary organizations to provide the infrastructure and support for the development of such pathways.

A fifth lever must be in place at the state level: a high-visibility stakeholder group representing employers, policymakers, labor, and K-12 and higher education. Its members support the regional work as public spokespeople and champions, ready to develop, promote, and enact policies that enable state systems to support career pathways for high school and postsecondary students.

## PATHWAYS TO PROSPERITY FRAMEWORK

### Goal: Grade 9-14 Pathways Linked to Local Labor Market Needs

*To demonstrate in key regional labor markets that many more young people can complete high school, attain a postsecondary credential with currency in that labor market, and get launched into a career while leaving open the prospect of further education*

Levers for Implementation	What the Work Looks Like
<b>Career pathways</b>	High schools and community colleges create 9-14 career pathways with clear structures, timelines, costs, and requirements linking and integrating high school and postsecondary curriculum and aligning both with labor market requirements.
<b>Career information and advising system</b>	Starting in the middle grades, students are exposed to a wide range of career options, information, and opportunities to learn about high school and postsecondary courses of study leading to careers. Students engage in a 9-14 continuum of work-based learning opportunities in their chosen career areas. Intermediaries, employers, and community-based organizations help young people make informed choices throughout each 9-14 pathway.
<b>Employer engagement</b>	Employers commit to providing a continuum of learning opportunities at the workplace throughout the 9-14 pathway. Employers collaborate with educators and are supported by intermediaries in structuring and managing workplace learning. Employers support students' transitions into the local labor market.
<b>Intermediaries</b>	Local or regional intermediaries serve as conveners, brokers, and technical assistance providers to schools and employers engaged in building and sustaining pathways. Intermediaries recruit business, nonprofit, and public employers and ensure that participating leaders understand and support the vision.
<b>Enabling state policies</b>	State dual enrollment policies provide access for low-income students. Districts and community colleges have financial incentives and sustainable funding to provide 9-14 programs of study in career and technical education and leading to diplomas, certificates, or Associate's degrees. Accountability systems weight dual enrollment courses as they weight AP and IB. The state provides incentives for employers and unions to provide work experience opportunities.

## **THE PURPOSE OF ASSET MAPPING**

Each new regional engagement in the Pathways to Prosperity states begins with mapping the new region's assets. The purposes of the asset mapping are as follows:

- To assemble baseline data about the region in relation to the five levers to determine a starting point for planning
- Within the limits of a short visit, to bring a helpful “outsider” look to the region from a national perspective
- To serve as the foundation for the 12- to 18-month work plan to be written by stakeholders
- To help to identify regional leaders with the energy and commitment to make and implement the plans with the support of JFF and regional and state leads.

## **RUTHERFORD COUNTY OVERVIEW**

Rutherford County, which is part of the Nashville-Davidson-Murfreesboro-Franklin, TN Metropolitan Statistical Area (MSA), is located in the center of Tennessee, approximately 35 miles southeast of Nashville. Murfreesboro, the county seat, is one of the fastest-growing cities in the country.<sup>1</sup> Census data indicate that Murfreesboro's population grew by 58%, from 68,816 to 108,755, between 2000 and 2010. The population of Rutherford County as a whole increased by 44%, from 182,023 to 262,604, over the same period. According to the 2013 American Community Survey, Rutherford County's racial makeup is 80.4% white, 13.1% Black or African American, 0.4% American Indian or Alaska Native, 3% Asian, and 2% two or more races. Hispanic or Latino residents of any race comprise 6.8% of the population. Children under the age of 18 account for 25.8% of the population.

In 2014, the average unemployment rate in Rutherford County was 5.3%, lower than the 6.7% average rate for Tennessee as a whole.<sup>2</sup> According to the 2013 American Community Survey, Rutherford County's per capita income is \$25,443. The median family income in the county is \$66,215. Rutherford County's poverty rate of 17.6% is the same as the rate for Tennessee overall. The child poverty rate in the county is 20.9%. In 2013, 12.5% of the population received food stamps or SNAP benefits.

## **ECONOMIC AND LABOR MARKET OVERVIEW**

The labor market in Rutherford County is enjoying robust growth, and the total number of jobs in the county is projected to increase by 22% - a total of more than 32,000 jobs – in the next decade. New opportunities are emerging in industries such as manufacturing, health care, IT, and transportation and warehousing. A number of global companies appear on lists of the county's largest employers, which include Nissan North America, National Healthcare Corporation, State Farm, Asurion, Amazon, Verizon Wireless, Bridgestone/Firestone, and

Square D/Schneider Electric.<sup>3</sup> Rutherford County has traditionally been home to a large number of manufacturing jobs and other middle-skills, but in the last few decades, many companies established corporate headquarters and other offices in the region, leading to a shift in the regional labor market and an increased number of office-based jobs in professional, managerial, and clerical roles. More recently, companies such as Schwan Cosmetics have chosen to co-locate corporate offices and manufacturing facilities in Rutherford County, leading to an uptick in both administrative and technical job openings in the region.

Numerous economic development and workforce initiatives aim to contribute to the development of a skilled workforce and economic growth in Rutherford County. The Rutherford County Chamber of Commerce plays an active role in many of these. In 2011, the Chamber launched Destination Rutherford 2015, a public-private partnership focused on economic development and intended to create 5,000 jobs by the end of 2015. Targeted sectors for new business recruitment include Advanced Manufacturing, Shared Services Operations/Back Office, Research and Development, Food Manufacturing, Green Technology/Renewable Energy, and Logistics.<sup>4</sup> Through its Rutherford Works initiative, the Chamber has also played a very active role in career exploration and pathways development efforts. The city of Murfreesboro is also in the midst of developing a 20-year comprehensive plan focused on promoting cross-sector partnerships and economic development.

The county is home to several postsecondary institutions, including Middle Tennessee State University (MTSU), Tennessee College of Applied Technology – Murfreesboro (TCAT – Murfreesboro), and Motlow State Community College in Smyrna, that are contributing to workforce development initiatives. In addition, these institutions play an important role in the local economy. MTSU is the second-largest employer in Murfreesboro and the third-largest in the county, employing approximately 2,200 people.<sup>5</sup> However, many on-campus jobs are low-wage positions in retail and food services.

### **Labor Market Information: Top Industries and Occupations in Rutherford County**

Data from Economic Modeling Specialists, Inc. (EMSI) and the Bureau of Labor Statistics (BLS) project growth in all of the county's ten largest industries. Projections show that, over the next decade, manufacturing will continue to be the county's single largest industry and will add over 5,000 jobs. The second largest industry, government, which includes MTSU and other public educational institutions, is forecast to grow by 27% by 2024. Over the same period, health care and finance and insurance are also expected to see substantial growth. (See Table 1.) However, wages in several of Rutherford County's largest and fastest-growing industries are insufficient to support a family. These industries include administrative and support and waste management and remediation services, where the average wage is \$23,879; retail trade, with an average wage of \$25,435; and accommodation and food services, where the average wage is \$15,283. (See Table 1.) According to MIT's Living Wage Calculator, the average living wage for a single person in Rutherford County is \$19,786 annually, or \$9.51 per hour; those figures increase to \$38,190 annually, or \$18.36 per hour, for an adult supporting one child.<sup>6</sup>

**Table 1**  
**Industries Ranked by Growth in the Number of Jobs from 2013 to 2023: Rutherford County**

Description	2014 Jobs	2024 Jobs	Change	% Change	2014 Location Quotient	2024 Location Quotient	Current Wages, Salaries, & Proprietor Earnings*
Manufacturing	25,487	30,959	5,472	21%	2.49	2.76	\$62,681
Government	18,285	23,149	4,864	27%	0.95	1.07	\$40,617
Administrative and Support and Waste Management and Remediation Services	12,110	16,271	4,161	34%	1.29	1.37	\$23,879
Retail Trade	16,363	19,624	3,261	20%	1.11	1.14	\$25,435
Health Care and Social Assistance	11,365	14,493	3,128	28%	0.68	0.66	\$42,726
Accommodation and Food Services	11,584	13,707	2,123	18%	1.08	1.05	\$15,283
Finance and Insurance	6,259	8,340	2,081	33%	0.74	0.74	\$49,307
Other Services (except Public Administration)	6,919	8,108	1,189	17%	0.84	0.80	\$22,327
Real Estate and Rental and Leasing	6,071	7,206	1,135	19%	0.87	0.81	\$26,450
Construction	7,327	8,377	1,050	14%	0.98	0.92	\$37,730
Professional, Scientific, and Technical Services	5,372	6,363	991	18%	0.53	0.49	\$40,368
Transportation and Warehousing	6,360	7,311	951	15%	1.30	1.23	\$43,845
Wholesale Trade	5,315	6,204	889	17%	1.03	0.99	\$53,277
Arts, Entertainment, and Recreation	2,530	3,196	666	26%	0.76	0.76	\$12,531
Educational Services	1,378	1,899	521	38%	0.38	0.42	\$15,944
Management of Companies and Enterprises	935	1,076	141	15%	0.51	0.50	\$70,413
Mining, Quarrying, and Oil and Gas Extraction	80	92	12	15%	0.07	0.06	\$38,858
Utilities	337	316	(21)	(6%)	0.74	0.65	\$62,511
Information	2,825	2,714	(111)	(4%)	1.06	0.90	\$55,030
Crop and Animal Production	1,366	890	(476)	(35%)	0.49	0.29	\$17,263

\*Wages below a living wage for one adult supporting one child appear in red.

Source: QCEW Employees, Non-QCEW Employees, Self-Employed & Extended Proprietors - EMSI 2014.1 Class of Worker

In light of its projected growth and importance to the regional labor market, manufacturing is an especially promising sector in which to develop career pathways. Forecasts show that the number of jobs in manufacturing will grow by 21% from 2014 to 2024, for a total of nearly 32,000 jobs. In addition, wages and salaries for manufacturing jobs are the second-highest

among all industries in Rutherford County. (See Table 1.) Manufacturing’s state location quotient also highlights its importance to the regional economy. The location quotient is a comparison of an industry’s share of employment in a region with its share of employment across the state. A location quotient above one indicates that an industry is more concentrated in a particular region than in the state as a whole. Industries with high location quotients are generally “export” industries that have particular economic significance because they bring money into a region.<sup>7</sup> The location quotient for manufacturing is projected to rise from 2.49 to 2.76, with much higher location quotients in some manufacturing sectors. (See Tables 1 and 2.) However, there is some variability in projected growth across manufacturing sectors. For example, while there will be strong growth in several sectors related to motor vehicle manufacturing, the number of jobs in rubber product manufacturing is forecast to decline sharply, with the sector losing about 750 jobs by 2024. There is similar variability by sector in terms of wages; while pay is high in the industry as a whole, some sectors do not offer wages sufficient to support a family. (See Table 2.)

**Table 2**  
**Top 10 Manufacturing Sectors in Rutherford County Ranked by Projected Number of Jobs in 2024**

Description	2014 Jobs	2024 Jobs	Change	% Change	2014 Location Quotient	2024 Location Quotient	Current Wages, Salaries, & Proprietor Earnings*
Motor Vehicle Manufacturing	8,885	10,315	1,430	16%	59.11	62.53	\$88,265
Motor Vehicle Body and Trailer Manufacturing	4,389	8,792	4,403	100%	38.64	65.07	\$32,365
Motor Vehicle Parts Manufacturing	2,568	3,411	843	33%	5.94	6.95	\$48,339
Fruit and Vegetable Preserving and Specialty Food Manufacturing	1,192	1,358	166	14%	8.46	9.08	\$55,081
Electrical Equipment Manufacturing	1,487	1,291	(196)	(13%)	12.48	10.47	\$92,200
Soap, Cleaning Compound, and Toilet Preparation Manufacturing	926	1,045	119	13%	9.42	9.15	\$51,657
Bakeries and Tortilla Manufacturing	927	796	(131)	(14%)	3.75	2.86	\$36,580
Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	415	454	39	9%	1.29	1.18	\$54,743
Iron and Steel Mills and Ferroalloy Manufacturing	305	402	97	32%	4.17	5.17	\$41,531
Rubber Product Manufacturing	1,030	278	(752)	(73%)	9.81	2.57	\$68,499

\*Wages below a living wage for one adult supporting one child appear in red.

Source: QCEW Employees, Non-QCEW Employees, Self-Employed & Extended Proprietors - EMSI 2014.1 Class of Worker

Health care is another industry in which career pathways development should be considered. It is projected to add over 3,000 jobs in the next decade, becoming the county’s fifth-largest industry by 2024. (See Table 1.) Across health care occupations, 10-year projections show

strong growth and good wages; home health aide is the only one of the top 20 health care occupations that does not pay a wage sufficient to support a family. Fourteen of the top 20 occupations require sub-B.A. credentials. (See Table 3.)

**Table 3**  
**Top 20 Health Care Occupations Ranked by Projected Number of Jobs in 2024:**  
**Rutherford County**

Description	2014 Jobs	2024 Jobs	2014 - 2024 Change	2014 - 2024 % Change	2013 Avg. Hourly Earnings*	Typical Entry Level Education
Registered Nurses	1,046	1,171	125	12%	\$25.46	Associate's degree
Nursing Assistants	762	899	137	18%	\$11.72	Postsecondary non-degree award
Home Health Aides	597	897	300	50%	<b>\$8.05</b>	Less than high school
Medical Assistants	535	733	198	37%	\$13.94	Postsecondary non-degree award
Licensed Practical and Licensed Vocational Nurses	568	701	133	23%	\$17.84	Postsecondary non-degree award
Pharmacy Technicians	450	624	174	39%	\$12.85	High school diploma or equivalent
Physical Therapists	343	447	104	30%	\$33.77	Doctoral or professional degree
Dental Assistants	292	373	81	28%	\$15.89	Postsecondary non-degree award
Pharmacists	273	351	78	29%	\$52.31	Doctoral or professional degree
Physicians and Surgeons, All Other	260	310	50	19%	\$90.13	Doctoral or professional degree
Massage Therapists	206	298	92	45%	\$16.76	Postsecondary non-degree award
Dental Hygienists	160	217	57	36%	\$31.41	Associate's degree
Speech-Language Pathologists	157	203	46	29%	\$27.88	Master's degree
Nurse Practitioners	120	163	43	36%	\$37.76	Master's degree
Physical Therapist Assistants	116	156	40	34%	\$23.79	Associate's degree
Occupational Therapists	115	143	28	24%	\$35.33	Master's degree
Medical Records and Health Information Technicians	116	142	26	22%	\$14.98	Postsecondary non-degree award
Emergency Medical Technicians and Paramedics	131	130	<b>(1)</b>	<b>(1%)</b>	\$16.22	Postsecondary non-degree award
Medical and Clinical Laboratory Technicians	109	127	18	17%	\$15.09	Associate's degree
Physical Therapist Aides	89	122	33	37%	\$10.28	High school diploma or equivalent

\*Wages below a living wage for one adult supporting one child appear in red.

Source: QCEW Employees, Non-QCEW Employees, Self-Employed & Extended Proprietors - EMSI 2014.1 Class of Worker

Transportation and warehousing and wholesale trade are also growing industries in which pathways development is likely to prove worthwhile. Together, these industries will grow by 16%, adding about 2,000 jobs, by 2024. (See Table 1.) Both industries generally offer family-sustaining wages and projections show that, in both industries, there will be growth in four of the five largest sectors over the next decade. (See Tables 3 and 4.) Occupations in the transportation, distribution, and logistics (TDL) industry extend beyond vehicle drivers and operators to encompass engineers, maintenance and repair specialists, billing and shipping clerks, and a wide variety of other administrative and business roles.

**Table 4**  
**Top 5 Wholesale Trade Sectors in Rutherford County Ranked by Projected Number of Jobs in 2024**

Description	2014 Jobs	2024 Jobs	Change	% Change	2014 Location Quotient	2024 Location Quotient	Current Wages, Salaries, & Proprietor Earnings*
Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers	878	1,338	460	52%	3.06	4.21	\$51,590
Wholesale Electronic Markets and Agents and Brokers	838	1,089	251	30%	1.05	0.98	\$48,698
Machinery, Equipment, and Supplies Merchant Wholesalers	803	669	(134)	(17%)	1.43	1.02	\$71,559
Professional and Commercial Equipment and Supplies Merchant Wholesalers	414	510	96	23%	0.80	0.81	\$62,097
Apparel, Piece Goods, and Notions Merchant Wholesalers	402	468	66	16%	2.78	2.81	\$48,208

\*Wages below a living wage for one adult supporting one child appear in red.

Source: QCEW Employees, Non-QCEW Employees, Self-Employed & Extended Proprietors - EMSI 2014.1 Class of Worker

**Table 5**  
**Top 5 Transportation and Logistics Sectors in Rutherford County Ranked by Projected Number of Jobs in 2024**

Description	2014 Jobs	2024 Jobs	Change	% Change	2014 Location Quotient	2024 Location Quotient	Current Wages, Salaries, & Proprietor Earnings*
General Freight Trucking	2,461	3,144	683	28%	1.99	2.18	\$50,466
Freight Transportation Arrangement	938	1,208	270	29%	4.71	4.82	\$41,423
Specialized Freight Trucking	425	563	138	32%	1.08	1.15	\$43,385
Nonscheduled Air Transportation	181	293	112	62%	3.87	4.84	\$53,659

School and Employee Bus Transportation	191	188	(3)	(2%)	1.22	1.00	\$20,075
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\*Wages below a living wage for one adult supporting one child appear in red.

Source: QCEW Employees, Non-QCEW Employees, Self-Employed & Extended Proprietors - EMSI 2014.1 Class of Worker

Projections indicate that there will be substantial growth in the number of jobs in information technology (IT) over the next decade, but the total number of IT jobs is relatively low compared to the numbers of jobs in top industries in the region. In 2014, there were 2,221 IT jobs in Rutherford County, a figure projected to grow by 28% to 2,849 by 2024. (See Table 6.) However, it is important to note that the data for IT are for a set of occupations rather than for an industry. Key regional industries, such as manufacturing, government, and health care, share important crosscutting information technology (IT) functions that will likely make IT skills increasingly important across a variety of occupations.

**Table 6**  
**Top 10 IT Occupations Ranked by Projected Number of Jobs in 2024: Rutherford County**

Description	2014 Jobs	2024 Jobs	Change	% Change	2013 Avg. Hourly Earnings*	Typical Entry Level Education
Computer User Support Specialists	388	554	166	43%	\$18.79	Some college, no degree
Computer Systems Analysts	387	509	122	32%	\$28.98	Bachelor's degree
Software Developers, Applications	233	305	72	31%	\$33.67	Bachelor's degree
Network and Computer Systems Administrators	249	296	47	19%	\$28.87	Bachelor's degree
Computer Programmers	244	275	31	13%	\$31.26	Bachelor's degree
Web Developers	131	167	36	27%	\$18.64	Associate's degree
Computer Network Support Specialists	113	150	37	33%	\$24.91	Associate's degree
Software Developers, Systems Software	98	133	35	36%	\$33.90	Bachelor's degree
Computer Occupations, All Other	113	118	5	4%	\$26.47	Bachelor's degree
Operations Research Analysts	56	75	19	34%	\$30.03	Bachelor's degree

\*Wages below a living wage for one adult supporting one child appear in red.

Source: QCEW Employees, Non-QCEW Employees, Self-Employed & Extended Proprietors - EMSI 2014.1 Class of Worker

Finance and insurance is another rapidly growing industry; the number of jobs in the industry is projected to increase by 33% by 2023. (See Table 1.) The number of jobs for personal financial advisors is likely to increase by 63%, and there will also be strong demand for management analysts and accountants and auditors. In addition, most occupations in the industry offer high salaries. It is important to note that many entry-level occupations in the industry require a Bachelor's degree, which should be taken into account in the design of career pathways in this field. (See Table 7.)

**Table 7**  
**Top 10 Finance and Insurance Occupations Ranked by Projected Number of Jobs in 2024: Rutherford County**

Description	2014 Jobs	2024 Jobs	Change	% Change	2013 Avg. Hourly Earnings*	Typical Entry Level Education
Accountants and Auditors	1,052	1,241	189	18%	\$26.35	Bachelor's degree
Personal Financial Advisors	684	1,112	428	63%	\$23.85	Bachelor's degree
Management Analysts	648	766	118	18%	\$26.01	Bachelor's degree
Business Operations Specialists, All Other	532	625	93	17%	\$24.96	High school diploma or equivalent
Claims Adjusters, Examiners, and Investigators	493	531	38	8%	\$21.23	High school diploma or equivalent
Market Research Analysts and Marketing Specialists	344	470	126	37%	\$23.16	Bachelor's degree
Human Resources Specialists	337	422	85	25%	\$25.39	Bachelor's degree
Appraisers and Assessors of Real Estate	316	345	29	9%	\$16.68	Bachelor's degree
Purchasing Agents, Except Wholesale, Retail, and Farm Products	221	281	60	27%	\$24.20	High school diploma or equivalent
Loan Officers	199	272	73	37%	\$29.97	Bachelor's degree

\*Wages below a living wage for one adult supporting one child appear in red.

Source: QCEW Employees, Non-QCEW Employees, Self-Employed & Extended Proprietors - EMSI 2014.1 Class of Worker

**Labor Market Information: Top Industries in the Nashville-Davidson-Murfreesboro-Franklin, TN MSA**

Rutherford County is located roughly 30 miles southeast of Nashville, well within commuting distance of jobs located in the state’s capital city and the surrounding metro area. While Rutherford County’s economic growth and strong labor market make it likely that young people who wish to work in the county will be able to do so, it is still valuable to consider the broader regional labor market, which offers additional career opportunities for young people from Rutherford County. Rutherford County is part of the Nashville-Davidson-Murfreesboro-Franklin, TN MSA, which also includes Davidson, Sumner, Wilson, Cheatham, Dickson, Maury, Robertson, Williamson, Cannon, Hickman, Macon, Smith, and Trousdale counties. Projections indicate that the total number of jobs across all industries in the MSA will grow by 16% by 2023.

**Table 8**  
**Industries Ranked by Growth in the Number of Jobs from 2013 to 2023: Nashville-Davidson-Murfreesboro-Franklin, TN MSA**

Industry	2013 Jobs	2023 Jobs	2013 - 2023 Change	2013 - 2023 % Change	2013 Location Quotient	2023 Location Quotient	Current Wages, Salaries, &
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							Proprietor Earnings
Health Care and Social Assistance	122,426	152,917	30,491	25%	0.96	0.96	\$52,962
Administrative and Support and Waste Management and Remediation Services	80,560	100,915	20,355	25%	1.15	1.17	\$31,075
Professional, Scientific, and Technical Services	72,858	92,694	19,836	27%	0.94	0.99	\$63,900
Retail Trade	112,861	127,442	14,581	13%	1.00	1.02	\$28,650
Government	128,436	142,322	13,886	11%	0.86	0.90	\$43,385
Finance and Insurance	62,350	75,775	13,425	22%	0.98	0.93	\$68,645
Construction	56,220	68,092	11,872	21%	1.00	1.03	\$40,584
Real Estate and Rental and Leasing	51,360	62,190	10,830	21%	0.98	0.96	\$34,260
Other Services (except Public Administration)	67,001	77,816	10,815	16%	1.06	1.05	\$24,632
Accommodation and Food Services	87,039	95,706	8,667	10%	1.07	1.00	\$19,026
Wholesale Trade	41,421	49,612	8,191	20%	1.05	1.09	\$62,455
Transportation and Warehousing	42,825	50,142	7,317	17%	1.16	1.16	\$42,649
Arts, Entertainment, and Recreation	36,142	43,273	7,131	20%	1.44	1.41	\$39,401
Management of Companies and Enterprises	14,925	18,706	3,781	25%	1.07	1.18	\$103,283
Educational Services	29,115	32,261	3,146	11%	1.07	0.98	\$37,905
Manufacturing	79,070	80,505	1,435	2%	1.01	0.98	\$55,266
Information	25,316	26,549	1,233	5%	1.23	1.20	\$61,099
Mining, Quarrying, and Oil and Gas Extraction	1,487	1,878	391	26%	0.18	0.18	\$56,447
Unclassified Industry	64	0	(64)	(100%)	0.06	0.00	\$42,651
Utilities	1,188	995	(193)	(16%)	0.34	0.28	\$72,189
Crop and Animal Production	15,957	14,843	(1,114)	(7%)	0.74	0.67	\$18,972

\*Wages below a living wage for one adult supporting one child appear in red.

Source: QCEW Employees, Non-QCEW Employees, Self-Employed & Extended Proprietors - EMSI 2014.1 Class of Worker

Several of the largest or fastest growing industries in the MSA as a whole parallel those in Rutherford County. Health care and social assistance is projected to overtake government as the Nashville MSA's largest industry by 2023. Forecasts indicate that the health care industry will grow by 25%, adding more than 30,000 jobs with an average salary of \$52,962. (See Table 8.) As is the case in Rutherford County, demand will be especially strong for registered nurses, licensed practical and licensed vocational nurses, and medical assistants. The number of jobs in IT is also projected to increase by 23%, with the largest number of available openings in occupations such as computer systems analysts, computer user support specialists, soft ware developers, computer programmers, and network and computer systems administrators.

However, projections for manufacturing across the MSA suggest that competition for the available manufacturing jobs in Rutherford County is likely to become increasingly fierce over the next decade. While the MSA as a whole is projected to add 1,435 manufacturing jobs, this is significantly fewer jobs than the 5,472 manufacturing jobs that Rutherford County is expected to add by 2023. (See Tables 1 and 8.) Because the projections for the MSA as a whole include Rutherford County, this indicates a loss of manufacturing jobs elsewhere in the MSA. Some workers whose jobs are eliminated are likely to seek employment in Rutherford County's growing manufacturing sector. Therefore, young people in Rutherford County who plan to pursue careers in manufacturing will need to be equipped to compete with experienced workers for manufacturing jobs.

As stakeholders in Rutherford County move forward with the Pathways work, it will be critical to develop opportunities for young people that recognize the important distinction between jobs and career pathways. Defining features of pathways include coordinated involvement from major employers in the area, opportunities for young people to enter and move up within a company with increased education and experience, and a focus on careers in which young people can expect to earn a family-supporting wage.

## **STATE LEADERSHIP AND POLICY ENVIRONMENT**

Stakeholders in Rutherford County will benefit from an exceptionally strong set of state policies that provide a foundation for the work. Tennessee was among the initial six states to join the Pathways to Prosperity Network in spring 2012 and has been fast-moving and focused in adapting the Pathways to Prosperity framework and strategy to build stronger pathways to careers for Tennessee's young people. The Department of Education leads the Pathways Tennessee work and staffs and convenes a Pathways State Planning Team comprising leadership from the Department of Labor and Workforce Development, the Tennessee Higher Education Commission, the Tennessee Business Roundtable, the Governor's Office, the Tennessee State Board of Education, the Department of Economic and Community Development, the Tennessee Council on Career and Technical Education, Tennessee Independent Colleges and Universities Association – Tennessee Board of Regents, and the State Collaborative on Reforming Education. Each member is integrating the Pathways Tennessee work into organizational goals and communications, including but not limited to: advocacy, funding, convenings, data sharing, and additional technical assistance needed to develop sustainable regional pathways statewide. The work is being carried out with effective leadership from Danielle Mezera, Assistant Commissioner of College, Career and Technical Education, and Nick Hansen, program director for Pathways Tennessee. Pathways work is underway in four regions – Northwest, Upper Cumberland, Southeast, and Southwest – and state leaders are moving quickly to roll out the work in other regions. To support the Pathways strategy, the State Department of Education is using Perkins Reserve Grants to provide assistance with the development of pathways in schools. The state also made non-competitive grants to support intermediaries—the organizations charged with aggregating work-based learning opportunities and with linking schools, community colleges, and employers.

The work of the Pathways Tennessee team is complemented by several statewide education initiatives. Governor Bill Haslam has continued the aggressive push of his predecessor to increase the postsecondary attainment rates of the Tennessee population under the banner of *Drive to 55*, with the goal that 55 percent of Tennessee citizens will have a postsecondary degree or credential by 2025 (currently, 32 percent of Tennesseans do). He has made substantial funding and human resource commitments to provide up-to-date equipment for the Tennessee College of Applied Technology (TCAT) system, “last-dollar” scholarships for college students to bridge the gap between Pell Grants and the real costs of attendance, and access to a variety of online learning opportunities, including launching Western Governors University Tennessee—an online, competency-based nonprofit university with a successful record of helping adults who have completed some college, but do not have degrees.

In addition, Tennessee’s General Assembly appropriated \$10 million for the Labor Education Alignment Program (LEAP) grant competition, which is part of the Drive to 55 initiative. The LEAP competition was intended to support regional work aligned with the Pathways Tennessee work or with Nashville’s Skills Panel. LEAP grants were awarded to 12 regions across the state that are focused on increasing the number of Tennesseans who acquire postsecondary credentials aligned with local workforce needs. In December 2014, several Pathways Tennessee regions won LEAP grants. Rutherford County is included in an application led by the Nashville Technology Council. The grant will be used to support the development of IT pathways that begin in several school districts in the Nashville area.

Tennessee is scaling SAILS (Seamless Alignment and Integrated Learning Support), a promising dual enrollment math initiative that prepares students for college-level math courses by introducing the college developmental math curriculum to students in their senior year of high school, thereby reducing student remediation needs at the postsecondary level. The program embeds the Tennessee Board of Regents Learning Support Math program in the high school Bridge Math course, which is required during the senior year of high school for students who took the ACT in their junior year and scored less than a 19 in math. The Governor’s Office has provided over \$1 million in funding to support the development of SAILS statewide.<sup>8</sup>

The Tennessee Promise will increase access to higher education and career pathways, enabling many more high school students to earn two-year degrees in career areas of their choice. The Tennessee Promise targets seniors graduating from the state’s public high schools. Along with the promise of a last-dollar scholarship, it builds in a set of requirements based on recent research on what keeps college students on track. Students must apply early in their senior years, fill out the Free Application for Federal Student Aid, attend mandatory advising sessions before or after school, attend college full-time, and meet virtually or in-person with mentors a prescribed number of times per year. There is no GPA requirement; only the completion of high school is needed to qualify. Once in the program, students who wish to retain their scholarships must maintain a 2.0 GPA, complete eight hours of community service per term enrolled, and complete the FAFSA by February 15 every year that they are in the program. Tennessee lawmakers plan invest a portion of state lottery funds in an endowment that will sustain the Tennessee Promise; additional funding for the program will be created by lowering

HOPE scholarship awards for college freshmen and sophomores while raising them for juniors and seniors. The initiative, which launched in fall 2014, is intended to send a strong signal to young people, their families, and employers that the state's current postsecondary educational attainment rate is not sufficient to build and sustain a strong Tennessee economy.

The state is completing Phase II of its CTE Standards Revisions, a multi-step process to revise Tennessee's CTE course offerings. The first phase streamlined the Programs of Study while increasing alignment of secondary programs to postsecondary and career opportunities. Phase I was completed in fall 2012 and implemented for the 2013-14 school year. The second phase involves the review and revision of specific course standards and the development of new courses to ensure all courses promoted by the department are rigorous, relevant, and student-focused. The revised and new courses are being rolled out in the 2014-15 school year. The next phase of work will be to develop low-stakes and high-stakes course assessments to ensure that students are achieving marked growth in targeted skills attainment.<sup>9</sup> The state's CTE programs are based on the 16 nationally recognized career clusters.

The CTE Standards Revisions encompass a redesigned approach to work-based learning that emphasizes the importance of sequential work-based learning activities that help students prepare for postsecondary education and careers.<sup>10</sup> Changes to Tennessee's work-based learning policies, which will go into effect for the 2015-16 school year, include the development of a continuum of activities that span elementary school through high school. The state provides a comprehensive set of guides and other materials to support work-based learning in Tennessee. The Work-Based Learning Policy Guide sets expectations for district-level programs, student experiences, and learning outcomes, while the Implementation Guide provides examples and information on best practices. Rutherford County Schools is one of several districts across the state that participated in a work-based learning pilot program as part of this effort.

Both dual credit and dual enrollment programs are in place at the state level. In Tennessee, dual credit is earned via classes taught in high schools by high school faculty; students may earn postsecondary credit by demonstrating proficiency on exams. Both local and statewide dual credit programs exist. For the local dual credit program, postsecondary institutions develop or approve assessments; students who pass are awarded credit at the postsecondary institution that developed the exam. The statewide dual credit program offers standardized challenge exams through the Tennessee Board of Regents learning platform, and passing students earn credits that may be applied at and public postsecondary institution in the state. The statewide program began as a pilot in the 2013-14 school year and currently includes five courses. Tennessee defines dual enrollment as postsecondary courses taught by college faculty (including credentialed adjunct faculty). The classes may take place on either high school or college campuses; students who successfully complete the course earn both secondary and postsecondary credit. The Tennessee Education Lottery Scholarship Program provides grant funding to cover the cost of dual enrollment. Beginning in the 2015-16 school year, Dual Enrollment Grants of up to \$1,200 per year will be available to students. These grants will cover tuition and fees for 2 dual enrollment courses (which cost \$500 each) and will provide \$200 to

defray the cost of a third dual enrollment class. Students who take additional courses may be eligible for further funding.<sup>11</sup> However, dual credit and dual enrollment are currently limited to students in their junior and senior years of high school. Opening these opportunities to students in their freshman and sophomore years of high school would help promote the development of career pathways.

## **7-14 PATHWAYS**

This supportive policy environment and leadership at the state level provide a strong foundation for the work of building regional career pathways aligned with labor-market demand. Grades 7-14 career pathways expand the range of options available to young people by preparing them for success in both college and careers. Ten years of data from early college high schools indicate that taking college-level courses in high school is especially beneficial for underserved students. Student achievement is motivated by the opportunity to take free college courses and to accelerate postsecondary credit attainment, with a 90% high school graduation rate for early college students, as compared to the 78% national average rate. Dual enrollment is also associated with increased rates of postsecondary enrollment, persistence, and credit and degree attainment, as well as higher student GPAs and 4-year graduation rates. Pathways through associate's degrees represent a first step on students' career ladders. Students who complete associate's degrees may choose to enter to the labor market and/or to pursue further education, including bachelor's and graduate degrees. Grades 7-14 pathways encourage student success in both college and career by equipping students with credentials valued by employers and with the skills needed to do well in both college and the workplace.

Rutherford County has taken impressive steps toward achieving these goals with the development of pathways in mechatronics and industrial maintenance. Siegel High School, TCAT – Murfreesboro, and Nissan have established a pathway that prepares young people for highly paid careers in advanced manufacturing. Similarly, Oakland High School, Motlow State Community College, and Bridgestone have collaborated in the creation of a pathway that incorporates work-based learning, dual enrollment, and opportunities for young people to earn industry certifications. Both high schools have on-site mechatronics labs, which were funded by a combination of grants and equipment donations from postsecondary and industry partners. Students take introductory classes in their freshman and sophomore years of high school and are dually enrolled beginning in their junior year. Students receive mentoring from both faculty and industry partners, and stakeholders are currently working to expand the work-based learning opportunities embedded within the pathways to encompass internships for all high school seniors in the pathways. Scholarships from the Rutherford County Manufacturing Council and Perkins funds from both secondary and postsecondary partners have made it possible to cover all costs of the programs, including materials and textbooks, for enrolled students. The first cohort of 24 students graduated from Oakland High School in 2014 having completed Siemens Mechatronics System Assistant Level 1 certifications. Following high school graduation, students have the option of completing two-year programs in mechatronics at Motlow State or TCAT – Murfreesboro, where they will have a head start thanks to dual enrollment. Students

may also opt to complete bachelor's degrees in mechatronics at Middle Tennessee State University (MTSU).

These pathways provide a strong foundation for further Pathways work in Rutherford County. The number of students currently served by the existing pathways is relatively small, and there may be a possibility of scaling these pathways to serve more students. In addition, the principal at Siegel High School would like to build on the existing pathway to create a STEM academy within the high school. Stakeholders in the region agree that building out pathways in additional industries is a logical next step. There is a great deal of enthusiasm about IT pathways, and these could be supported by the LEAP grant awarded to the Nashville Technology Council and its partners. Stakeholders have also identified health care and aerospace as promising industries for pathways development. Several stakeholders noted that a regional approach to aerospace pathways would enable Rutherford County to better capitalize on its position within an aerospace corridor.

The work of building additional pathways in Rutherford County will benefit from the very strong secondary-postsecondary partnerships that already exist in the region and from stakeholders' recognition of the value of dual enrollment. Siegel High School, for example, has a goal of ensuring that all students graduate with some college-level credit. In addition to an A.A.S. in mechatronics (which incorporates Level 2 certification), Motlow State's programs include nursing & allied health, business, and IT. They also offer dual credit and dual enrollment options; students can pay for dual enrollment classes using state grants. TCAT Murfreesboro has been building its dual credit and dual enrollment offerings in the last several years, and students are able to dually enroll in mechatronics and IT courses. TCAT courses are offered at no cost to high school students and are taught by TCAT instructors who travel to the high school. TCAT – Murfreesboro has in place programs in high-demand fields that include mechatronics, auto repair, machine tool, IT, and allied health. MTSU is also working with several high schools in Rutherford County to offer courses in subjects such as engineering, economics, psychology, and sociology. MTSU faculty members teach some classes in high schools; students are also able to enroll in classes online and on-campus.

However, there are some challenges around dual enrollment in Rutherford County. Numerous stakeholders flagged transportation as an ongoing issue that prevents students from taking advantage of dual enrollment and work-based learning opportunities. The use of the Compass test for placement in college-level courses has also created some obstacles, as high schools students with high GPAs are often placed in remedial courses on the basis of their Compass scores. This issue is one that the Tennessee SAILS program aims to address; it would also be helpful to use multiple measures, including GPA and teacher recommendations, to assess students' readiness for college-level coursework. In addition, some high schools in the district are emphasizing Advanced Placement (AP) courses, instead of dual credit or dual enrollment, as an especially promising avenue for earning college-level credit while in high school. However, for many students, AP courses do not offer a clear path to college credit. The costs associated with AP exams are a barrier for some students, and colleges' policies on granting credit based on AP coursework and exams vary widely.

Finally, stronger communication and systemic collaboration are needed among secondary and postsecondary partners. Most dual credit and dual enrollment arrangements in the region take the shape of agreements between individual high schools and postsecondary institutions, which has led to some competition for students and a lack of stability in dual enrollment programs. A more coordinated regional approach to dual enrollment, in which all secondary and postsecondary partners agree on the responsibilities of each educational institution, would minimize these issues.

The Rutherford County Schools' strong career and technical education (CTE) program will be an advantage in the pathways work. In 2013-14, 10,307 students enrolled in CTE courses, and 21.92% of students were CTE concentrators (taking 3 or more courses in a program of study or career cluster). This is slightly higher than the rate of CTE concentrators in the state as a whole, which was 19.24%. The district offered 56 dual credit courses; 2,450 CTE students – 23.77% - enrolled in dual credit courses, with over 99% successfully meeting all dual credit requirements. However, the district offered only 2 dual enrollment courses, in which 41 CTE students – 0.4% - enrolled. One hundred percent of enrolled students earned college credit. The district is working to increase the available opportunities for students to earn college-level credit and is participating in the state's dual pilot.<sup>12</sup> The district offers CTE courses in all 16 of Tennessee's career clusters, though student enrollments in the clusters are uneven, pointing to a need for additional career information and advising (discussed below). In addition, there is a need for greater integration of CTE and core academic content, which would encourage more students to take at least some CTE courses while reinforcing the important idea that all students, whatever their career aspirations, should prepare for both college and careers.

Another challenge for the district is attracting and retaining qualified CTE teachers. Teachers' salaries are far below those in industry, so individuals with the needed skills often choose to work in industry. This problem is compounded by the requirement that teachers complete 18 hours of coursework in pedagogy, which deters some potential teachers. In addition, it is difficult for high schools to offer classes in computer programming because the state does not offer teacher certification in programming. As a result, many IT classes are taught by teachers who hold certifications in business. Some stakeholders expressed interest in addressing these issues by pursuing changes in state policy that could include incentives, tax credits, and support for graduate education.

Both Motlow State and TCAT – Murfreesboro are well positioned to play key roles in the pathways work. TCAT - Murfreesboro is building a \$35 million training facility across from the Nissan plant in Smyrna.<sup>13</sup> The facility is expected to open in fall 2016; Haslam attended the groundbreaking ceremony last December. The facility will offer training in a variety of fields relevant to advanced manufacturing, such as robotics and manufacturing maintenance. The facility will be jointly occupied by the college and Nissan. Motlow State already has a facility co-located with the Bridgestone plant; Oakland high school students in the mechatronics pathway take classes in the facility. Both institutions also have strong relationships with numerous other business partners, representing a range of industries, that could be leveraged as stakeholders

build out new pathways. However, both institutions expect to see substantial enrollment increases as a result of the Tennessee Promise, in addition to the influx of adult students utilizing the Tennessee Reconnect program, which may make it more difficult to find space for high school students in high-demand programs. As young people consider their postsecondary options, it would be beneficial to ensure that high school students are aware that the Tennessee Promise program can be used for technical programs.

MTSU is also a very active and engaged community partner. It began offering bachelor's degrees in mechatronics engineering in 2013 and leaders at the university are eager to partner in the pathways work. MTSU is using grant funds to defray the costs of dual enrollment and is welcoming high school students into its labs and facilities. MTSU's Women in STEM program works with middle and high school students in Rutherford County, and the university hosts summer camps for middle and high school students. The university also has strong relationships with major employers, including Nissan.

## **CAREER INFORMATION AND ADVISING**

Middle and high school students often have little access to information about the world of work, even though they are at an age where their choices may affect their future opportunities. A strong career and advising system is therefore an important component of the Pathways to Prosperity framework. This system should provide students with a continuum of experiences—from awareness to exploration to immersion—that familiarize students with the world of work and the range of career options available to them. Rutherford County is fortunate to have a wide array of programs in place that offer students career information and opportunities to explore their career options. In addition, there was a general consensus among stakeholders about the importance of exposing students early to career exploration opportunities. The Pathways work presents an opportunity to better align opportunities available to middle and high school students with career pathways and to ensure that students have access to a clear sequence of career exploration activities.

An impressive range of career awareness and exploration activities, especially those focused on STEM fields, is available to middle and high school students. These include in-school STEM-based activities and after-school and summer programs. Several middle schools in Rutherford County offer career exploration activities that include career days and classes that rotate through a variety of fields. Interest inventories are also used beginning in the middle grades to assess students' career interests. Several of the available programs aim to teach students employability and life skills in addition to helping them better understand their career options. TCAT – Murfreesboro hosts science camps for students in the middle grades, and MTSU offers summer camps that expose middle and high school students to a range of fields, hosts career exploration days, and offers DigiGirlz, a Microsoft program intended to teach high school girls about STEM careers.

The Rutherford County Chamber of Commerce, in collaboration with community partners, launched the ACE (After-school Career Exploration) program for middle-school students last fall.

The program aims to strengthen connections between industry partners and K-12 in Rutherford County and focuses on educating students and their families about high-demand occupations and postsecondary education. The program uses the “It’s My Future” curriculum developed by Junior Achievement (JA), and students meet regularly with a JA mentor. Students also have the opportunity to hear guest speakers from industry and to participate in field trips. Both the guest speakers and the field trips are intended to help students better understand the industries represented in the 16 career clusters offered by the Rutherford County Schools.<sup>14</sup>

Community-based organizations are also offering middle and high school students opportunities to explore careers. The United Way of Rutherford and Cannon Counties and the Boys and Girls Club offer STEM programs for students in the middle grades. The United Way is also providing financial support for programs that offer career awareness activities and wraparound supports, including those operated by the Girl Scouts and Youth CAN. The Business Education Partnership (BEP) Foundation, which works closely with the Chamber, runs a guest speaker program, SPARK, as well as a summer business camp, which is sponsored by State Farm Insurance, in which students work in teams with mentors from industry to develop business plans. The camp is designed to teach students about financial statements and basic accounting, marketing strategy, creative and critical thinking, and public speaking.

BEP also offers several programs that provide high school teachers and counselors with professional development opportunities and exposure to industry. STEM Factor is a summer in-service teacher externship program that connects teachers and employers in STEM fields. The program is designed to provide teachers with examples of how classroom content is applied in industry and to help teachers develop hands-on learning experiences for students. The BEP Counselors’ Leadership Institute is a summer workshop that provides school counselors with information on labor-market trends, including in-demand skills. BEP is also partnering with Nissan to offer mini-grants to teachers who are developing innovative approaches to teaching STEM skills.

While the Rutherford County Schools are offering career awareness and exploration opportunities, more work needs to be done to ensure that students have access to individualized career advising. Much of this type of advising is currently the responsibility of school counselors, but counselors’ caseloads currently average about 450 students, far in excess of the 250 students recommended by the American School Counselors Association. Counselors must also spend significant time on multiple duties in addition to career guidance. These factors make it very difficult or impossible for counselors to provide students with truly personalized career guidance.

Another challenge is that career awareness and exploration programs are not necessarily sequenced or implemented in a systematic way that ensures that all young people and parents in Rutherford County have access to information about a range of careers and corresponding postsecondary requirements and opportunities. Expanded career exploration programs would also help students and their families better understand the range of high-wage, high-demand jobs that require industry certifications and Associate’s degrees rather than Bachelor’s degrees.

Several stakeholders noted that there is work to be done in terms of demonstrating that stereotypes of manufacturing careers as dirty and dangerous are untrue, and many students and parents need more information about middle-skills job opportunities. A more unified approach to career exploration and advising could help overcome these barriers. Existing initiatives could benefit from having a centralized point person to unify their efforts in order to reach more students in a systematic fashion. Moreover, organizations that offer career awareness and exploration programs could leverage one another's work by collaborating or referring students to the appropriate resources. An effective communications strategy will be key in facilitating this process.

## **EMPLOYER ENGAGEMENT AND WORK-BASED LEARNING**

Preparing young people to join an educated and skilled workforce requires employer engagement. Pathways must be responsive to labor-market demand if they are to lead young people to satisfying and family-supporting careers that contribute to regional economic development. Employer engagement in the pathways work includes collaborating with educators, providing work-based learning opportunities to students, and supporting young people's transitions into the labor market. Employers in Rutherford County are enthusiastic about initiating and expanding relationships with the Rutherford County Schools and are eager to develop a talent pipeline, but recognize that greater coordination may be needed to make partnerships truly effective. The Pathways work represents an opportunity to deepen these partnerships and to build on the work already being done by extraordinarily committed partners from business and industry.

Employers in the manufacturing industry in Rutherford County are leading the way in terms of investing in the Pathways work, which they see as an important step in terms of meeting their workforce needs. Bridgestone and Nissan are key partners in the mechatronics pathways already in place and are offering an array of career exploration and work-based learning opportunities, including plant tours, guest speakers, and mentors. Bridgestone is working with Oakland High School to develop internships for high school seniors, and the company's director of corporate training is teaching a class on problem-solving skills for high school students. This summer, Nissan offered an engineering program for 30 high school sophomores and juniors, who worked with engineers at the company's plant in Smyrna to solve real workplace problems. Southeastern Technology, a medical device manufacturer, is also engaged in providing career exploration activities such as career fairs and guest speakers. In addition, the company has created paid positions – about 8 part-time and 3 full-time – for high school students as part of its talent development strategy. Southeastern offers flexible scheduling for these positions in order to accommodate students' school schedules.

The IT industry in the region is similarly committed to developing a talent pipeline. In September 2014, the Rutherford County Tech Community was created to develop relationships with K-12 and postsecondary partners, with the goal of strengthening the talent pipeline in the IT sector. The Rutherford County Tech Community is working with the Rutherford County Chamber of Commerce to develop dual enrollment pathways for networking and programming. IT employers in the region are also collaborating with the Chamber and the Rutherford County

Schools to offer internships to both high school and college students. The Chamber also partnered with the Nashville Technology Council to offer two summer coding camps – at no cost to attendees and their families – for middle school students.

Several employers are also offering financial support for pathways-related work. In addition to the financial commitments made by tech employers, Industry partners have provided funding for scholarships for students in the mechatronics pathways and for equipment for mechatronics labs at Oakland and Siegel High Schools. State Farm Insurance, one of the largest employers in Rutherford County, sponsors the Business Education Partnership Foundation’s summer business camp, and Nissan provides funding for the mini-grants program.

Numerous employers have opened their doors to high school interns through a summer internship program coordinated by the Rutherford County Chamber of Commerce. This program will be an important asset as the pathways work moves forward. The program is launching this summer, with 12 employers in a variety of industries offering a total of 19 internships. Interns will earn \$10 an hour, with employers paying half and the Chamber paying half. The Chamber is leading the process of matching students with internships, including pre-screening and interviewing student applicants. The internships are structured in a way intended to ensure that students gain real work experience by completing industry-related projects and skills-based tasks. After two days of pre-employment training, students will work four hours a day for four days a week. On the fifth day, they will participate in training sessions that focus on employability skills and will be led by Youth CAN, a youth workforce program. This emphasis on developing employability skills is especially important because numerous stakeholders noted that the current high school curriculum does not adequately cover employability skills and suggested that this is an area in which employers could make a substantial contribution to preparing young people for the world of work. Youth CAN is also serving as the employer of record for the internship program, including taking on responsibilities related to payroll and workers’ compensation.

While there is a great deal of energy around work-based learning and many committed partners are at the table, some challenges to scaling up work-based learning remain. One obstacle has been corporate policies that require that workers in fields such as manufacturing and health care must be at least 18 years old, a cut-off that excludes most high-school students. However, stakeholders have recently had success in addressing this issue. Youth CAN’s willingness to serve as the employer of record for the summer internship program has made it much easier for employers to participate. Nissan is offering two internships on the shop floor to students under 18. This commitment by regional employers is complemented by recent efforts at the state-level to institute policies that will reduce or eliminate employers’ concerns about possible legal and liability issues connected to offering internships to students under the age of 18.

There has been similar progress in terms of addressing the need for funding for work-based learning. The Pathways to Prosperity framework advocates for paid internships for students, in part because students may need to be earning money for their own expenses or to contribute to their families. These students may choose to take entry-level jobs in industries such as food

services or retail rather than participate in unpaid work-based learning opportunities. The issue of funding for work-based learning is therefore especially important in District 189, where a majority of students are from low-income families. In addition, according to research findings and JFF's extensive experience in promoting 9-14 career pathways, having a monetary component, whether that is an hourly wage or stipend, is essential for students' momentum and motivation throughout high school. Some employers, including many tech employers and Southeastern, are already committed to paying students. In addition, employers that are participating in the summer internship program are paying half of students' wages, though the Chamber is still paying the other half.

As the Pathways work moves forward, it will also be important to establish clear lines of communication with all employers in Rutherford County, large and small, and to ensure that employers have the support they need to continue to partner in this work. Industry partners that do not already have relationships with schools may need help connecting with educators and young people. In addition, they may need support with tasks such as developing job descriptions or training their employees to mentor and supervise high school students. This is particularly the case for smaller businesses, which can be great partners because they often have more flexibility than large corporations, but which may lack the staff capacity needed to take on this work without substantial support. Educators and intermediary organizations can provide resources that will greatly reduce employers' barriers to participation in the Pathways work. A first step toward meeting this need is the Pathways Partnership, an online platform that the Chamber is launching this summer that will allow employers and educators to share their contact information, needs, and available resources. The goal is to have 200 employers signed up on the platform by the end of the summer.

## INTERMEDIARIES

Within the Pathways to Prosperity framework, an intermediary organization connects key stakeholders, including employers and educational institutions, and creates a body of knowledge and skills to serve the collective goals of the partners. The work of intermediaries includes two broad sets of functions. First, intermediaries hold the vision for the pathways work and convene key stakeholders. Second, intermediaries support the development of work-based learning opportunities by establishing a role for employers that ensures they see a return on their investment in the education of young people and by supporting high schools and colleges in securing, developing, and sustaining sequenced, systemic work-based learning opportunities. A single organization may take on the entire intermediary role, or the intermediary functions may be spread across multiple organizations. For example, a regional steering committee could play the convening role, while an employer association could broker work-based learning opportunities. Identifying organizations in Rutherford County that are able to play an intermediary role will be key to advancing pathways work in the region.

For context, Pathways to Prosperity highlights six functions of intermediaries:<sup>15</sup>

- **Organize a cross-sectoral top leadership group** to hold the pathways vision and to provide the glue between employers.

- **Oversee appropriate analyses**, including current and forward-looking labor supply-demand gap analyses, as preparation for conducting other functions.
- With support of top regional leadership, **recruit and enlist representatives of key business, labor, and nonprofit employment sectors** to provide adolescents and young adults with workplace experiences.
- **Assess needs for support** from schools and employers and broker agreements to provide it. Support functions can include:
  - Developing workplace experiences (e.g., job shadow, virtual projects, internships, apprenticeships)
  - Executing agreements between employers and schools
  - Providing training in the basics of a career area (including work-readiness certifications)
  - Developing curricula and assessments in partnership with educators
- **Establish metrics for success** in consultation with employers and schools, report publicly on progress, and hold participants accountable through an MOU or other formal agreement.
- **Assure sustainability.**

The Rutherford County Chamber of Commerce, with support from its partners, is currently fulfilling nearly all of the intermediary functions outlined above. The Chamber is leading efforts to convene key stakeholders and to develop a vision for the work. Stakeholders from the region all agreed that the Chamber is widely respected and has been extremely successful in championing the Pathways work and bringing new partners on board. The Chamber has also taken on functions related to organizing and brokering career exploration and work-based learning opportunities. The Chamber is working especially closely with employers and educators through the ACE and summer internship programs, and well as the Pathways Partnership program.

Several other organizations in the region have also taken on some intermediary functions. The Business Education Partnership Foundation is serving as an intermediary between educators and employers in its career exploration and externship initiatives, on which it is working closely with the Chamber. Youth CAN has taken on some of the possible functions of work-based learning intermediaries, including serving as the employer of record for internships and providing training and coaching to young people who are completing internships. The role of the Rutherford County Tech Community in the development of IT pathways is similar to the roles of employer associations that serve as intermediaries in other Pathways to Prosperity regions. The United Way is in the early stages of thinking about collective impact work in Rutherford County,

which may prove to be aligned with the Pathways work. While collective impact efforts generally tackle a range of challenges beyond building career pathways for young people, Pathways work in states and regions across the country is playing a role in collective impact work, and Pathways intermediary functions are sometimes integrated into the broader collective impact structure, including the backbone organization.

While the commitments of the Chamber and other organizations offer a strong foundation for the launch of the Pathways work, many intermediary functions are very labor-intensive, and it may be necessary to add intermediary capacity in order to move the work forward. This additional capacity could include adding staff to support the Chamber's intermediary work, expanding an existing organization, or creating a new one. In any event, it is likely that stakeholders will need to identify or seek additional funding to support the intermediary functions critical to the pathways work. It would also be useful to assemble a countywide Pathways steering committee to help determine how best to structure the intermediary role in Rutherford County and to lead the efforts to secure funding for an intermediary or intermediaries.

## **OPPORTUNITIES AND KEY QUESTIONS FOR PLANNING**

Pilot pathways and many core elements of additional grades 7-14 pathways are already in place in Rutherford County, and the work has support across a broad group of stakeholders, indicating strong potential for implementing an exemplary model in the region. Pathways in the region will also benefit from a strong foundation of state-level policies that support the work. However, frameworks for regional coordination and collaboration will be essential as stakeholders begin to scale up the work already happening in sites across the region.

In order to make the most of this potential, the asset-mapping team has developed a series of key questions for stakeholders to address as they develop a Pathways work plan.

### **Focus and Scale**

- What scale of initiative is Rutherford County prepared to create? How many schools and young people should it target and for what jobs? What industries should be the focus of the pathways work?
- How might the region use its widely engaged business and community leadership in a campaign to change public perceptions of regional career opportunities?
- How can stakeholders best ensure that the pathways work is aligned with current and future regional economic development strategies?
- What performance measures will be used to monitor progress and give institutions valuable feedback to improve educational and career outcomes?

## **Pathways Development**

- What process will be used to ensure that pathways are aligned with labor-market demand?
- What will the components of the pathways curriculum look like at the secondary and postsecondary levels? What industry-recognized credentials will be embedded in these pathways, and when and where will students in the pathways participate in work-based learning?
- How will academic and CTE content be integrated with one another and how will training be provided to faculty?
- What additional resources are needed to ensure that middle school, high school, and postsecondary curricula are aligned? Is a dedicated staff person required to oversee the process?
- What steps could be taken to make dual credit and dual enrollment classes accessible to all students? What kinds of flexible scheduling policies and transportation options are needed to enable students to enroll in postsecondary courses?
- What might a regional approach to dual enrollment look like? What norms could be put in place to help ensure open communication and collaboration across all regional secondary and postsecondary institutions in creating partnerships that benefit all stakeholders, especially young people?
- What strategies might be developed to recruit more qualified CTE teachers or to effect the policy changes that would be needed in order to do so?

## **Career Exploration and Advising**

- What resources are needed to provide more individualized advising to students? What resources are available to support counselors and teachers and to help them become more familiar with the world of work, and what additional resources are needed?
- How might the Pathways work be used to support collaborative planning across schools and community partners for sequenced career exploration activities?
- What strategies have schools or organizations in Rutherford County developed for educating parents about available career options, and what opportunities exist to scale these up across the region?
- How are student participants in career exploration programs recruited or selected? How can this process be managed in a way that ensures equitable access for all students?

## **Employer Engagement and Work-Based Learning**

- What do businesses view as the best and most feasible ways they can engage with high school students? With postsecondary students? What do businesses perceive as their greatest challenges in taking on and managing interns?
- Are there strong models already in place for fully integrating work-based learning into grades 7-14 pathways? If not, what would it take to develop such models?
- What are potential funding pools for compensating students participating in on-site internships?
- What organizations or individuals could potentially manage a unified process for employer engagement with schools? Would a sectoral approach make sense?
- From a business perspective, what is the ideal timeline for engaging and communicating with schools?
- What resources or examples could be developed to help employers think through challenges such as the requirement that workers be at least 18 years old?
- What strategies to make the best possible use of employers' time can be developed? Would a work-based learning curriculum or other tools for designing work-based learning experiences be helpful?

## **Intermediary Leadership**

- How should intermediary functions be structured or distributed?
- What individuals or organizations could be particularly effective at building public support for the Pathways vision?
- What organizations have the strong relationships with schools and businesses – and ability to understand the goals and perspectives of both educators and employers – needed to broker and scale up work-based learning opportunities?
- What organization has – or could build – the capacity to take on the logistics and operational tasks needed to support the Pathways work?

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<sup>1</sup> Mike Maciag, "New Population Estimates Highlight Nation's Fastest-Growing Cities," *Governing*, May 22, 2014. <http://www.governing.com/news/headlines/gov-population-estimates-highlight-nations-fastest-growing-cities.html#data>

<sup>2</sup> U.S. Department of Labor, Bureau of Labor Statistics, "Labor Force Data by County, 2014 Annual Averages," accessed April 25, 2015: <http://www.bls.gov/lau/laucnty14.txt>; U.S. Department of Labor, Bureau of Labor Statistics, "Unemployment Rates for States," accessed April 25, 2015: <http://www.bls.gov/lau/lastrk14.htm>

<sup>3</sup> "Rutherford County, Tennessee: Largest Employers," Rutherford County Chamber of Commerce, accessed April 25, 2015: <http://www.rutherfordchamber.org/external/wcpages/wcmedia/documents/Economic%20Development/Largest%20Employers/Rutherford%20County%20Largest%20Employers%202-13.pdf>

<sup>4</sup> "Destination Rutherford," Rutherford County Chamber of Commerce, accessed April 25, 2015: [http://www.rutherfordchamber.org/economic-development/destination\\_rutherford.aspx](http://www.rutherfordchamber.org/economic-development/destination_rutherford.aspx)

<sup>5</sup> "Murfreesboro, Tennessee: Largest Employers," Rutherford County Chamber of Commerce, accessed April 25, 2015: <http://www.rutherfordchamber.org/external/wcpages/wcmedia/documents/Economic%20Development/Largest%20Employers/Murfreesboro%20Largest%20Employers%201-13.pdf>; "Rutherford County, Tennessee: Largest Employers," Rutherford County Chamber of Commerce, accessed April 25, 2015: <http://www.rutherfordchamber.org/external/wcpages/wcmedia/documents/Economic%20Development/Largest%20Employers/Rutherford%20County%20Largest%20Employers%202-13.pdf>

<sup>6</sup> "Living Wage Calculation for Rutherford County, Tennessee," Poverty in America Living Wage Calculator, MIT, accessed April 25, 2015: <http://livingwage.mit.edu/counties/47149>

<sup>7</sup> For more detail, see Economic Modeling Specialists, Inc., "Understanding Location Quotient." Accessed September 28, 2014. [http://www.economicmodeling.com/wp-content/uploads/2007/10/emsi\\_understandinglq.pdf](http://www.economicmodeling.com/wp-content/uploads/2007/10/emsi_understandinglq.pdf); See also <http://www.andrew.cmu.edu/user/jp87/URED/readings/Caution%20Location%20Quotients%20at%20Work.pdf>;

<sup>8</sup> Chattanooga State Community College, "Sails Overview." Accessed August 28, 2014: <http://www.chattanoogaastate.edu/high-school/sails>

<sup>9</sup> Tennessee Department of Education, "Standards Revisions: Phase II." Accessed August 28, 2014: [http://www.tn.gov/education/cte/standards\\_revisions.shtml](http://www.tn.gov/education/cte/standards_revisions.shtml)

<sup>10</sup> Tennessee Department of Education, "Work-Based Learning Frequently Asked Questions." Accessed November 3, 2014: <http://www.tn.gov/education/cte/phase2/WBLFAQ.pdf>

<sup>11</sup> Tennessee Department of Education, "Early Postsecondary Opportunities." Accessed November 3, 2014: <http://www.tn.gov/education/cte/postsecondary.shtml>

<sup>12</sup> Career and Technical Education Report Card, Tennessee Department of Education. [https://srcreports.measuretn.gov/views/CTEReportCard2014/CTERC?:embed=y&:display\\_count=no](https://srcreports.measuretn.gov/views/CTEReportCard2014/CTERC?:embed=y&:display_count=no)

<sup>13</sup> "New TCAT Nissan Training Center Groundbreaking Ceremony," TCAT – Murfreesboro. <http://www.tcatmurfreesboro.edu/new-tcat-nissan-training-center-ground-breaking-ceremony>

<sup>14</sup> ACE (After School Career Exploration), Rutherford Works. <http://www.rutherfordchamber.org/external/wcpages/wcmedia/documents/Economic%20Development/ACE%20Description.pdf>

<sup>15</sup> This report often uses the term "intermediary functions" rather than "intermediary organization." It is possible to spread the functions across people and organizations.