Roadmap for the Washington Region's Economic Future: Seven Key Economic Clusters

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Introduction

- We identify and quantify seven industry “clusters” that can drive the Washington region’s growth and development over the next decade.

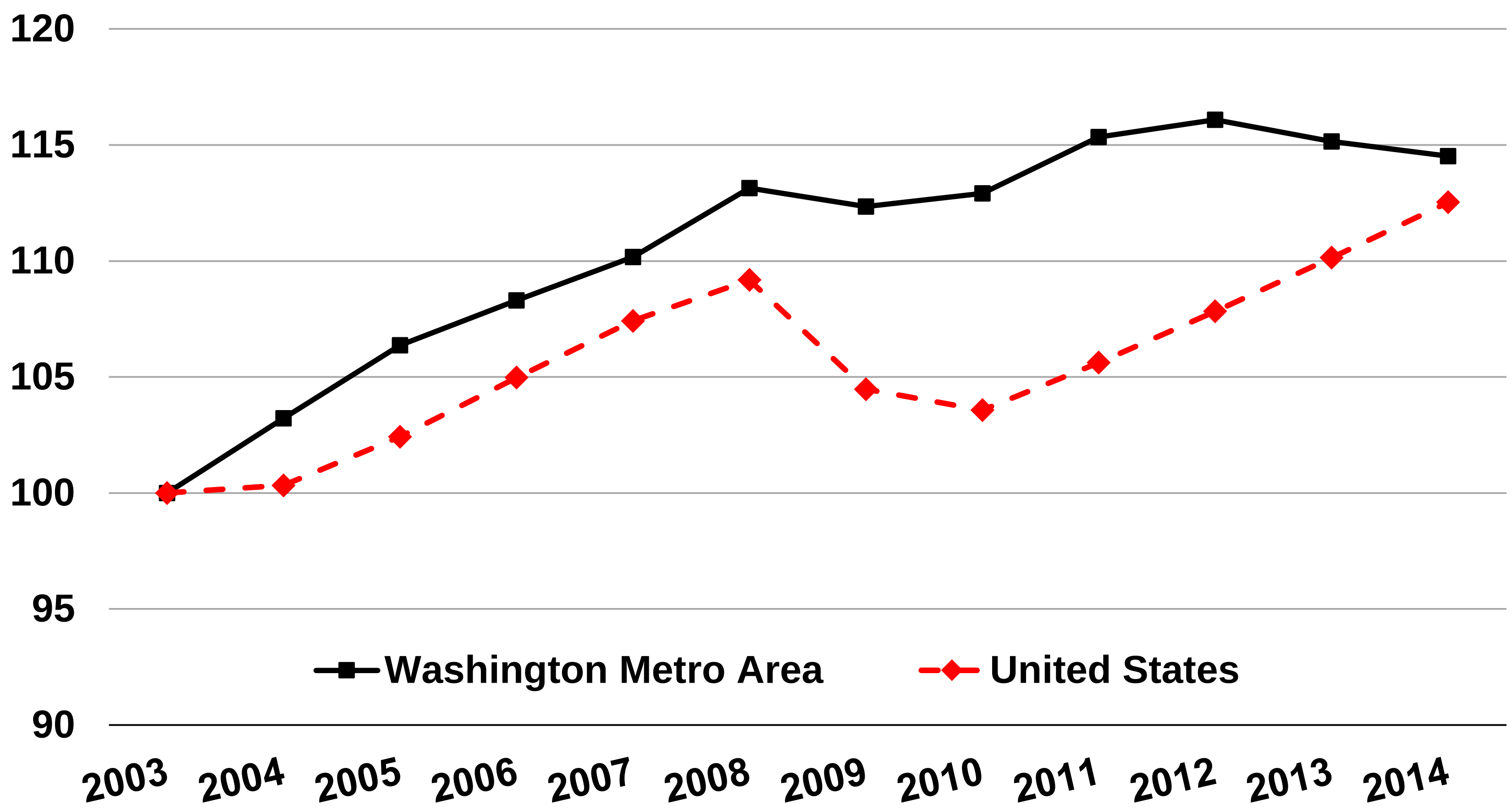
1. Advocacy
2. Information & Comm Tech
3. Science & Security Technology
4. Biological & Health Technology
5. Business & Financial Services
6. Media & Information
7. Business & Leisure Travel

- The clusters were chosen for their employment levels and job quality, growth potential, high wages, and natural location in the WMA.

- The seven clusters accounted for more than 800,000 jobs in the DC Metro area in 2014, more than a quarter of the region’s total of nearly 3 million jobs.

Seven Clusters, Total Employment Index

Growth of Seven Clusters Total Employment, WMA vs. USA. Index = 100 in 2003



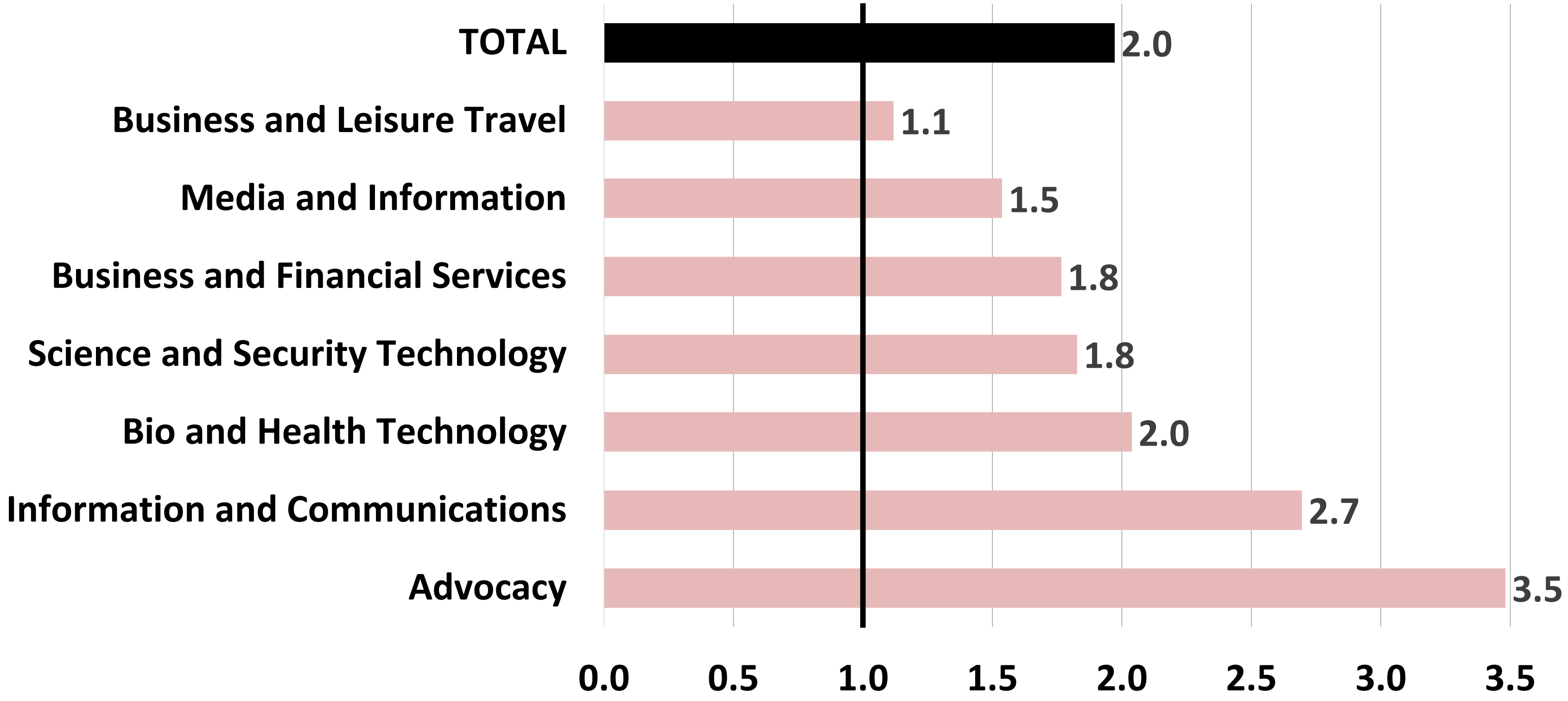
The Location Quotient

- The location quotient highlights each cluster’s concentration in DC, relative to the rest of the nation.
- It can reveal what makes a particular region “unique” in comparison to the national average.
- A cluster location quotient (LQ) is the share of that industry’s jobs in the region divided by the share of that industry’s jobs in the national economy.
- A LQ exceeding 1.0 indicates a regional concentration, and presumably a comparative advantage for the industry.

Jobs and Wages in the Washington Metro Area

		Washington Metro Area			
		2014	2003-14	2014	Location
Cluster		Jobs	Job Growth	Avg Wage	Quotient
Advocacy	ADV	115,731	19%	76,097	3.5
Information and Communications Technology	ICT	204,489	5%	97,216	2.7
Science and Security Technology	SST	123,785	19%	90,211	1.8
Biological and Health Technology	BHT	55,396	25%	88,324	2.0
Business and Financial Services	BFS	190,128	39%	88,813	1.8
Media and Information	MAI	35,745	-20%	73,450	1.5
Business and Leisure Travel	BLT	85,919	-1%	45,457	1.1
Total of Seven Clusters	**TOT**	**811,193**	**15%**	**84,028**	**2.0**
Washington Metro Area	**WMA**	**2,973,337**	**9%**		

WMA Location Quotients, 2014



Advocacy (ADV) - Description

- Made up of private sector employers at:
  - Research and polling organizations (think-tanks)
  - Labor unions and trade associations
  - Public and private foundations
  - Social and religious organizations

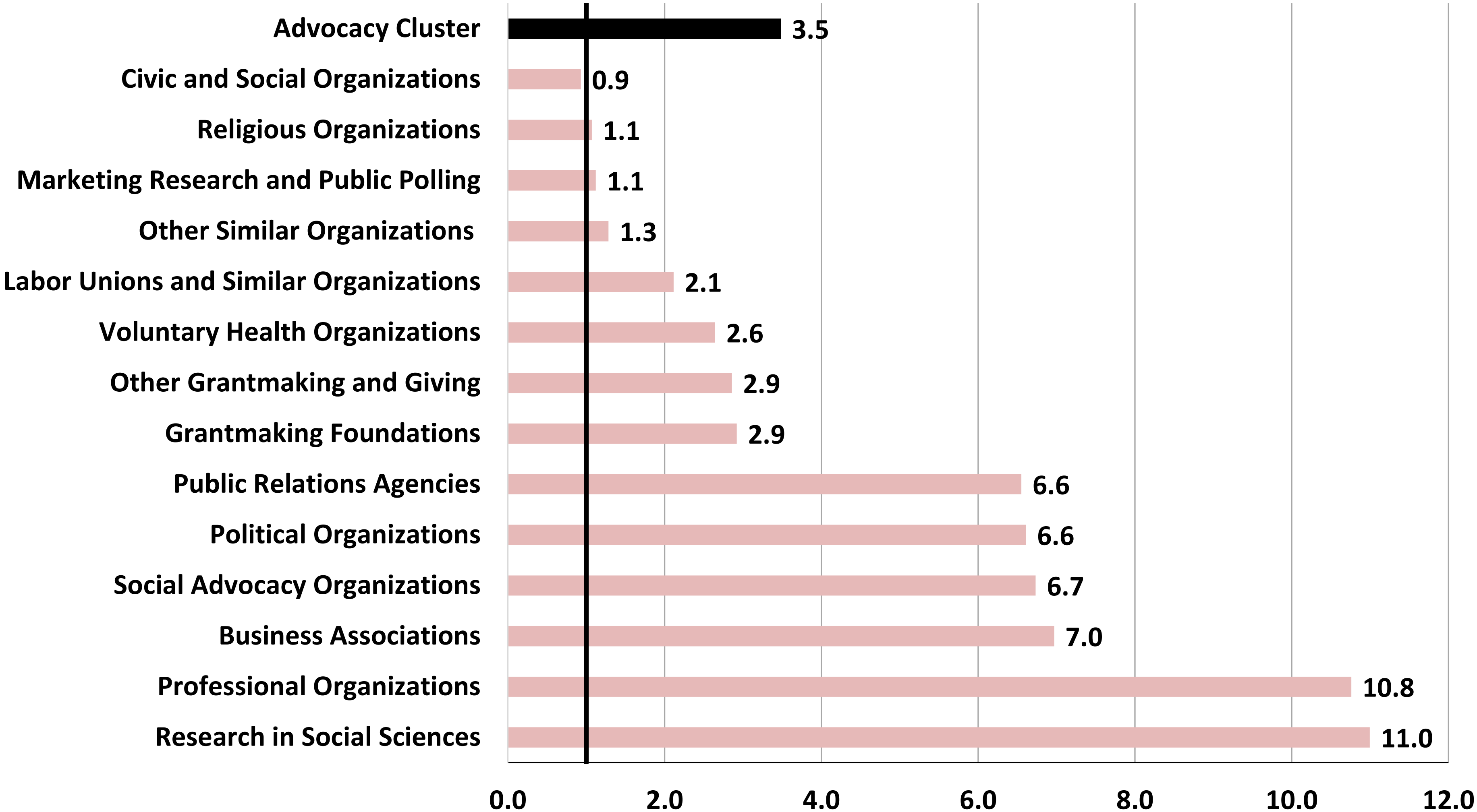
- The primary mission of such entities is to influence societal outcomes by lobbying government, conducting research, and assembling coalitions.

- Some advocates are employed by individual firms, many others work for business, labor, or professional associations.

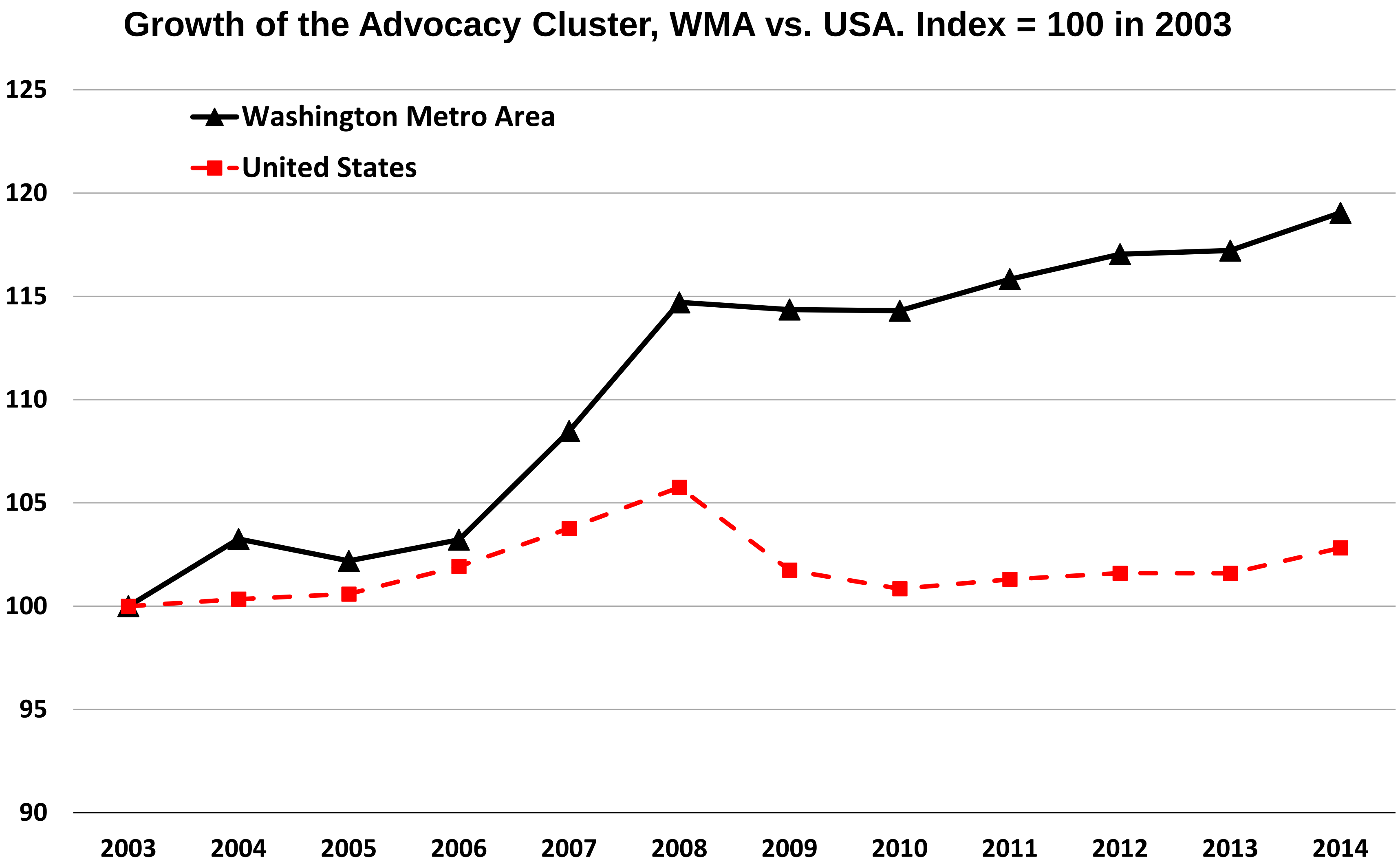
Advocacy (ADV) - Employment

Industry	WMA Employment 2003	WMA Employment 2014	WMA Growth 2003-14	USA Employment 2003	USA Employment 2014	USA Growth 2003-14	LQ
Research in Social Sciences	11,205	14,546	30%	67,392	60,761	-10%	11.0
Public Relations Agencies	6,608	7,992	21%	46,016	56,035	22%	6.6
Marketing and Public Opinion Research	3,209	2,467	-23%	106,068	100,994	-5%	1.1
Religious Organizations	4,002	4,335	8%	172,669	186,000	8%	1.1
Grantmaking Foundations	1,899	3,914	106%	41,689	61,565	48%	2.9
Voluntary Health Organizations	1,685	2,280	35%	40,049	39,617	-1%	2.6
Other Grantmaking and Giving Services	1,842	2,311	25%	55,992	37,150	-34%	2.9
Social Advocacy Organizations	12,548	22,468	79%	109,264	153,254	40%	6.7
Civic and Social Organizations	8,790	8,058	-8%	420,227	397,845	-5%	0.9
Business Associations	17,577	18,084	3%	120,164	119,171	-1%	7.0
Professional Organizations	16,529	19,297	17%	72,513	82,370	14%	10.8
Labor Unions and Similar Organizations	6,607	5,300	-20%	139,178	115,227	-17%	2.1
Political Organizations	1,418	1,746	23%	6,230	12,132	95%	6.6
Other Similar Organizations	3,296	2,933	-11%	87,660	104,892	20%	1.3
Advocacy (ADV)	**97,217**	**115,731**	**19%**	**1,485,110**	**1,527,012**	**3%**	**3.5**

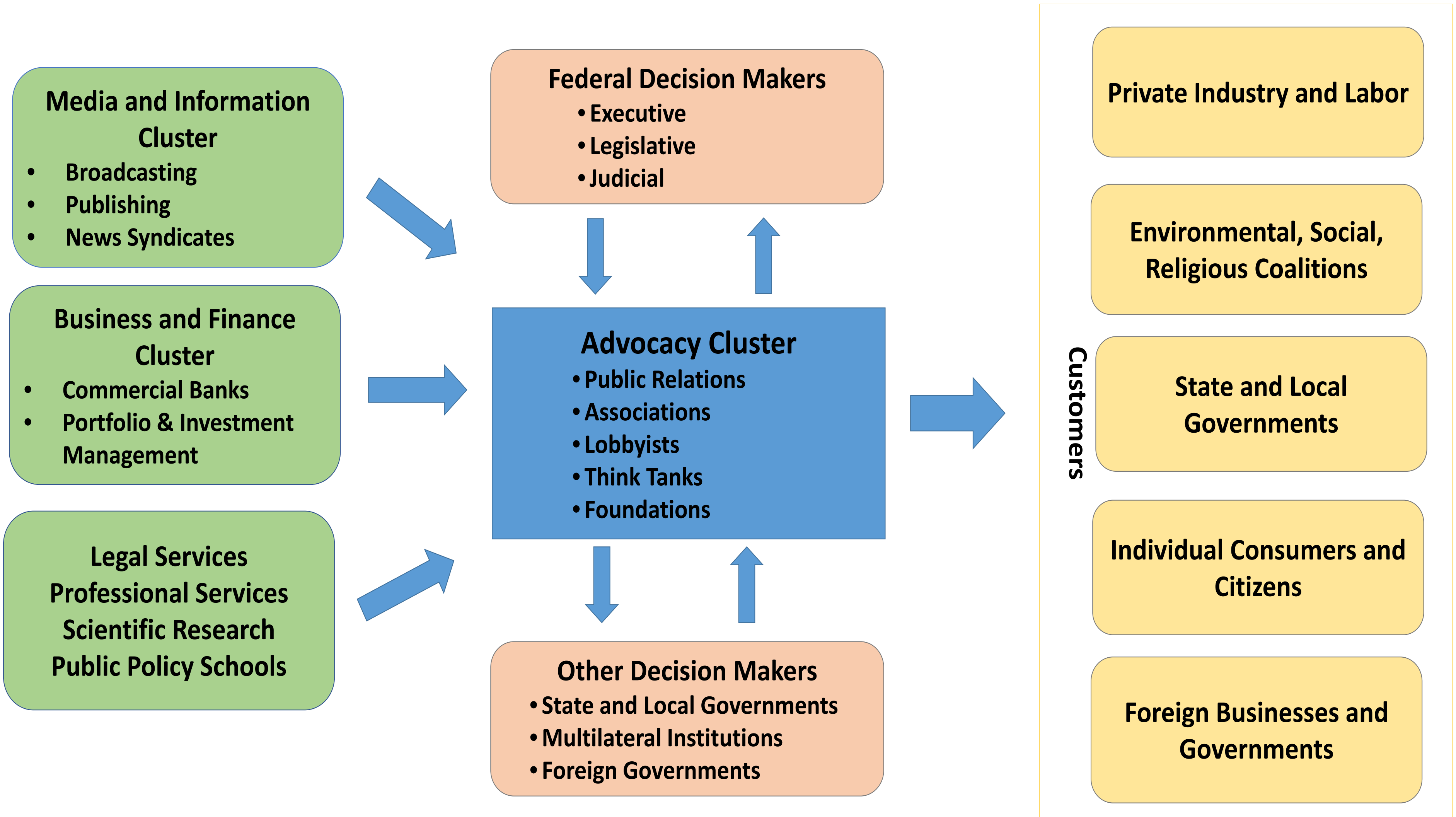
Advocacy (ADV) – Location Quotient



Advocacy (ADV) – Employment Index



Advocacy (ADV) – Cluster Ecosystem



Information & Communications Technology (ICT) - Description

- The Information and Communications Technology (ICT) cluster is comprised of three major types of activities:
  - Hardware and software providers
  - Telecommunications and data processing
  - Computer programming, design, and other services

- A large and sophisticated ICT sector is particularly important in the global economy since it supports other regional industries via spillovers of technology and productivity.

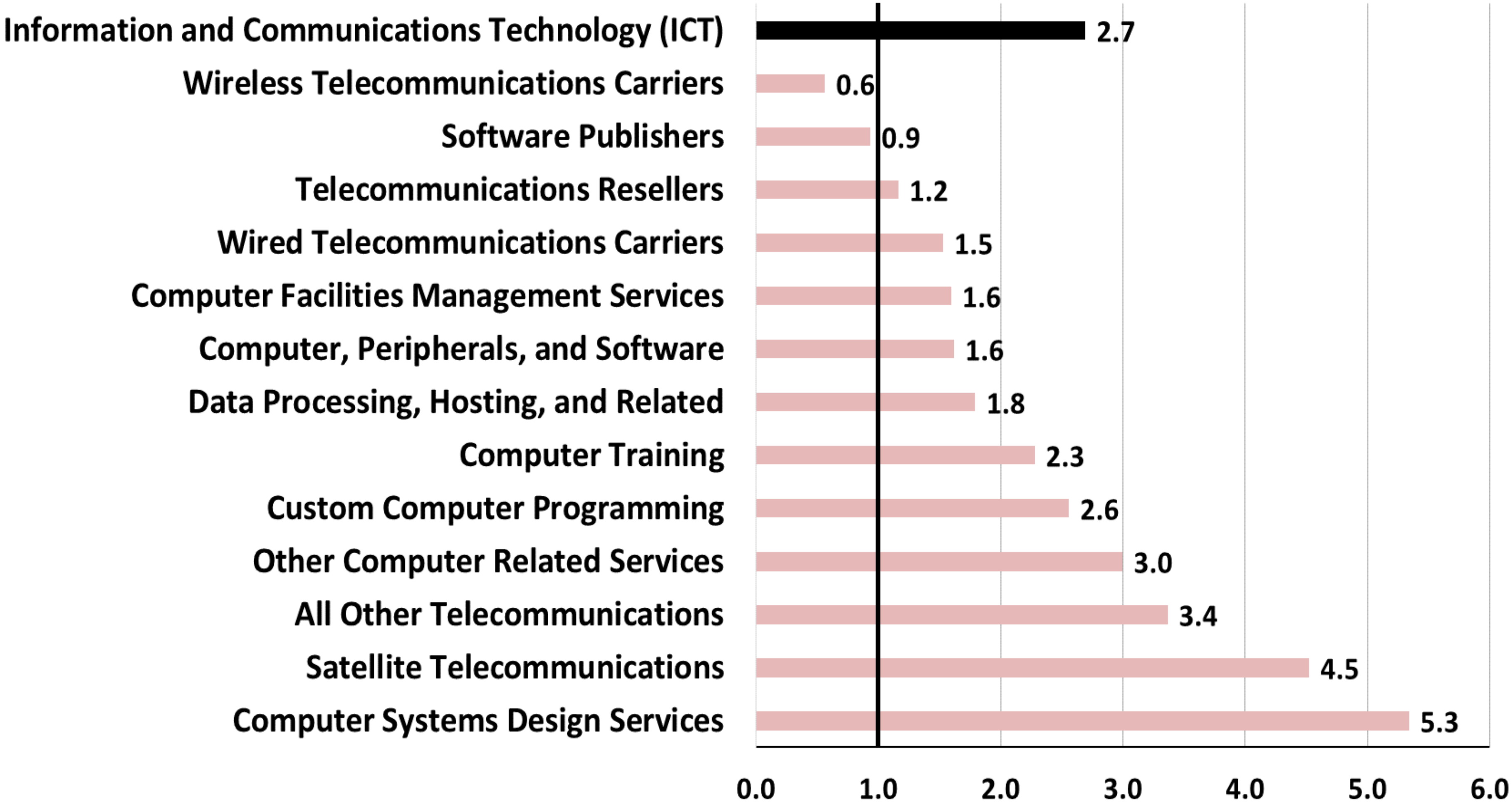
- The nurturing and development of the ICT cluster will complement the others, since ICT has important regional customers in other clusters, especially health care, science and security technology, and business and financial services.

Information & Communications Technology (ICT)- Employment

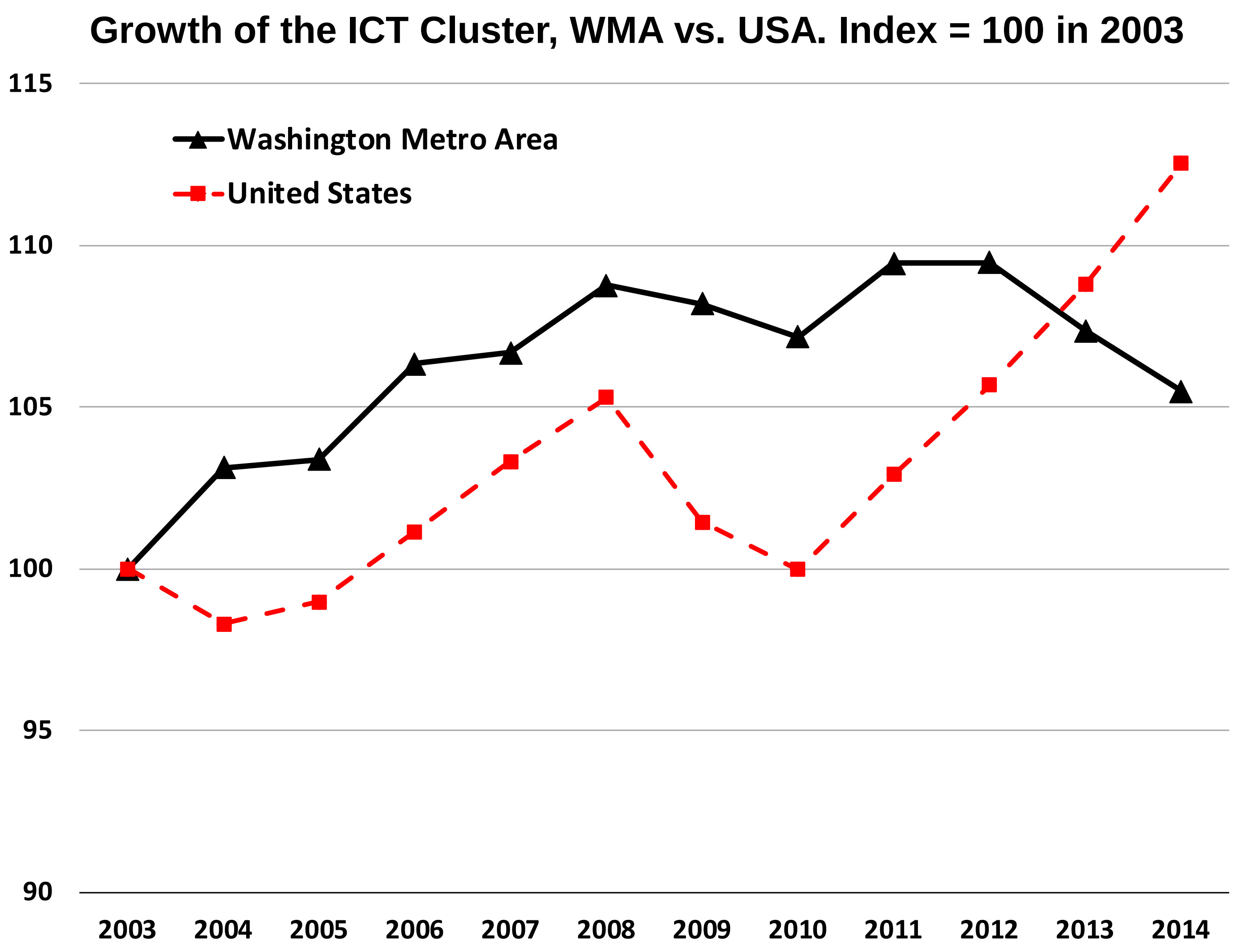
INFORUM

Industry	WMA Employment 2003	WMA Employment 2014	WMA Growth 2003-14	USA Employment 2003	USA Employment 2014	USA Growth 2003-14	2014 LQ
Hardware and Software Providers							
Computer and Peripherals Wholesalers	9,216	7,970	-14%	250,674	225,856	-10%	1.6
Software Publishers	9,913	6,349	-36%	237,277	311,135	31%	0.9
Telecommunications and Data Processing							
Wired Telecommunications Carriers	36,116	20,207	-44%	786,422	606,134	-23%	1.5
Wireless Telecommunications Carriers	3,557	1,929	-46%	189,902	156,585	-18%	0.6
Satellite Telecommunications	1,193	903	-24%	17,206	9,164	-47%	4.5
Telecommunications Resellers	2,610	1,390	-47%	158,527	54,808	-65%	1.2
All Other Telecommunications	3,513	2,016	-43%	37,890	27,488	-27%	3.4
Computer Programming, Design, and Other Services							
Data Processing, Hosting, Related Services	11,423	11,005	-4%	285,268	281,626	-1%	1.8
Custom Computer Programming Services	47,816	43,204	-10%	490,035	774,636	58%	2.6
Computer Systems Design Services	55,921	99,903	79%	448,393	859,079	92%	5.3
Computer Facilities Management Services	2,487	2,028	-18%	60,198	58,334	-3%	1.6
Other Computer Related Services	9,081	6,845	-25%	113,554	104,830	-8%	3.0
Computer Training	995	742	-25%	20,922	14,937	-29%	2.3
Information and Communications Tech (ICT)	**193,839**	**204,489**	**5%**	**3,096,269**	**3,484,613**	**13%**	**2.7**

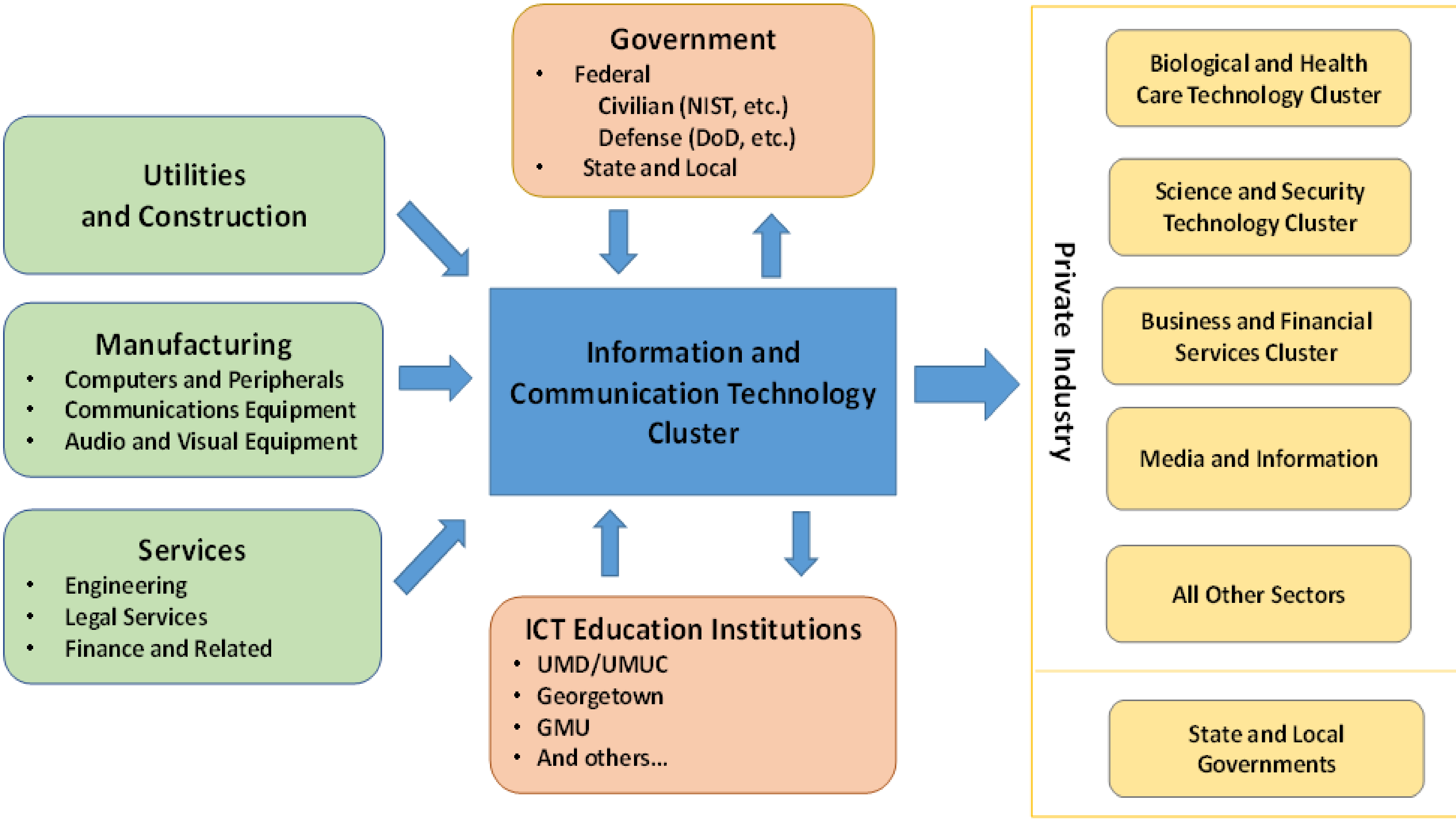
Information & Communications Technology (ICT) - Location Quotient



Information & Communications Technology (ICT) - Employment Index



Information & Communications Technology (ICT) - Cluster Ecosystem



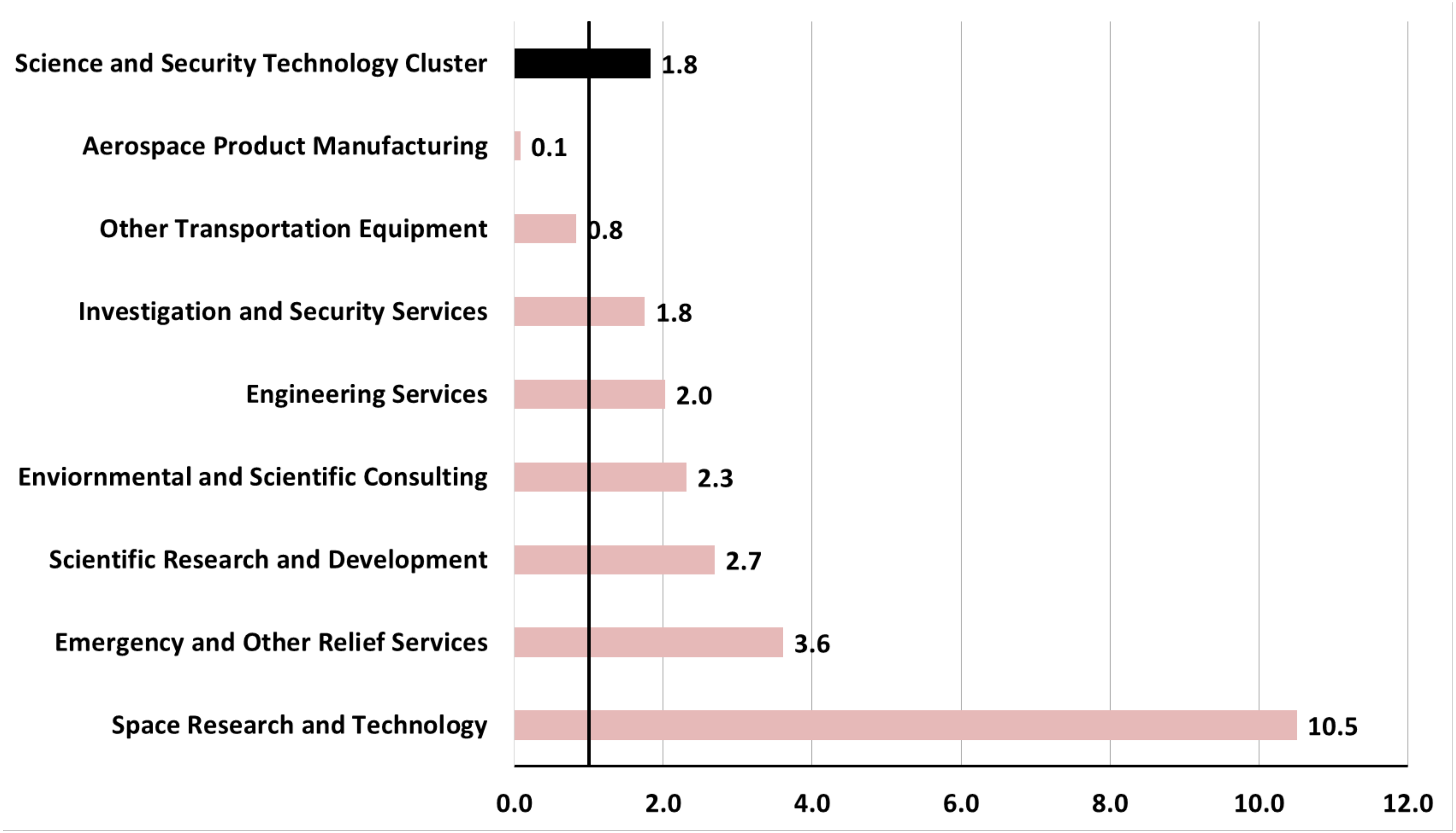
Science and Security Technology (SST) - Description

- The Science and Security Technology (SST) cluster is made up of three major types of activities:
  - Aerospace and Other Defense Manufacturing
  - Scientific Research and Services
  - Security and Emergency Services
- The second category includes Space research and technology, in which most of the employment consists of federal employees at NASA's Goddard Space Flight Center in Maryland.
- This cluster's presence provides important spillovers for other clusters in the metropolitan area.
- The strong local ICT cluster contains particular expertise in cyber-security and so will be intimately linked with SST.

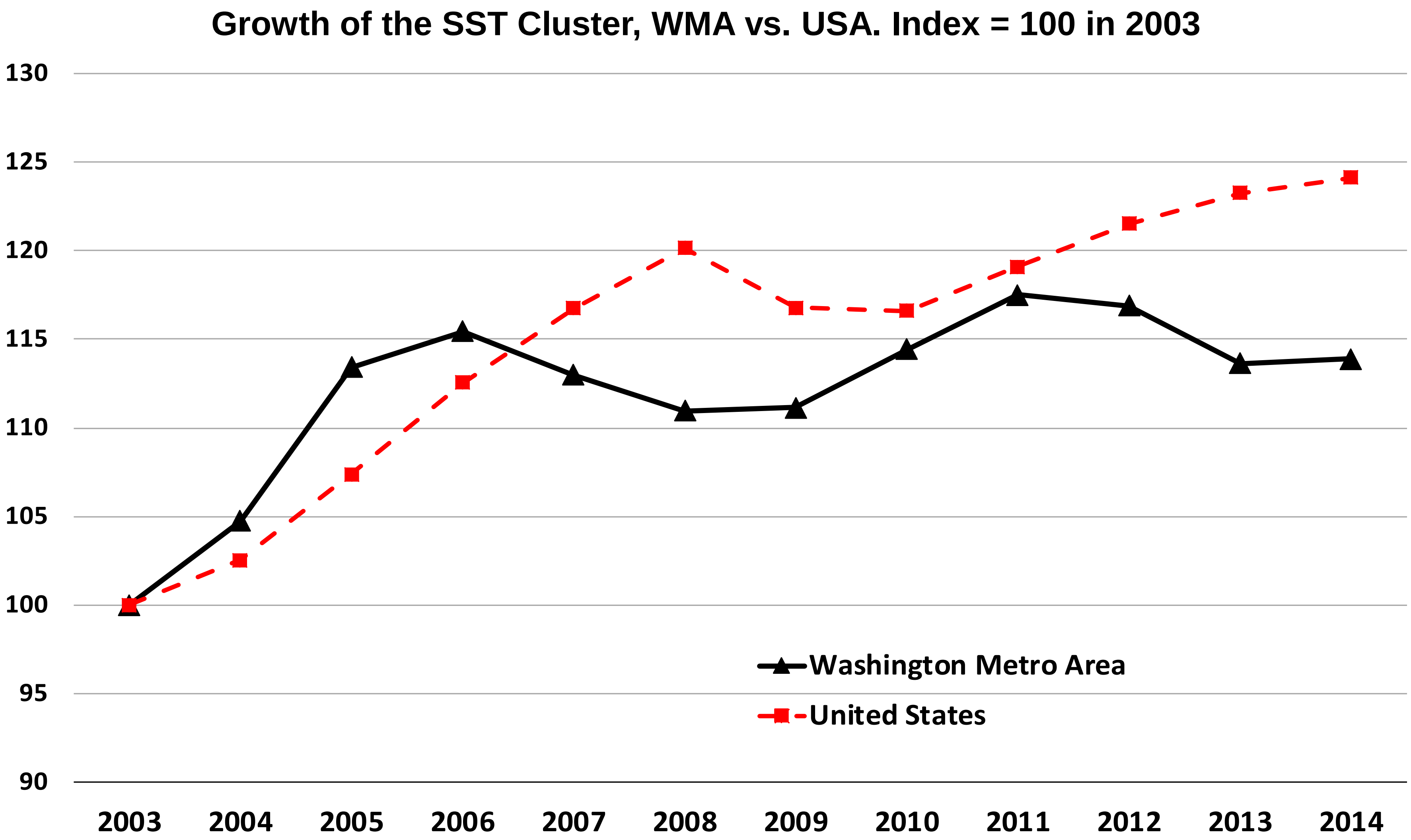
Science and Security Technology (SST) - Employment

Industry	WMA Employment 2003	WMA Employment 2014	WMA Growth 2003-14	USA Employment 2003	USA Employment 2014	USA Growth 2003-14	2014 LQ
Aerospace Manufacturing							
Aerospace Product and Parts Manufacturing	2,039	853	-58%	441,182	490,384	11%	0.1
Other Transportation Equipment Manufacturing	65	110	71%	8,445	6,128	-27%	0.8
Scientific Research and Services							
Engineering Services	41,382	42,786	3%	805,454	970,770	21%	2.0
Environmental and Scientific Consulting	5,639	14,824	163%	120,576	294,481	144%	2.3
Scientific Research and Development	24,145	26,423	9%	377,002	450,967	20%	2.7
Space Research and Technology (NASA)	3,092	4,065	31%	17,358	17,763	2%	10.5
Security and Emergency Services							
Investigation and Security Services	25,626	32,716	28%	709,166	856,440	21%	1.8
Community Emergency, Other Relief Services	2,368	2,008	-15%	28,596	25,542	-11%	3.6
Science and Security Technology (SST)	**104,357**	**123,785**	**19%**	**2,507,779**	**3,112,474**	**24%**	**1.8**

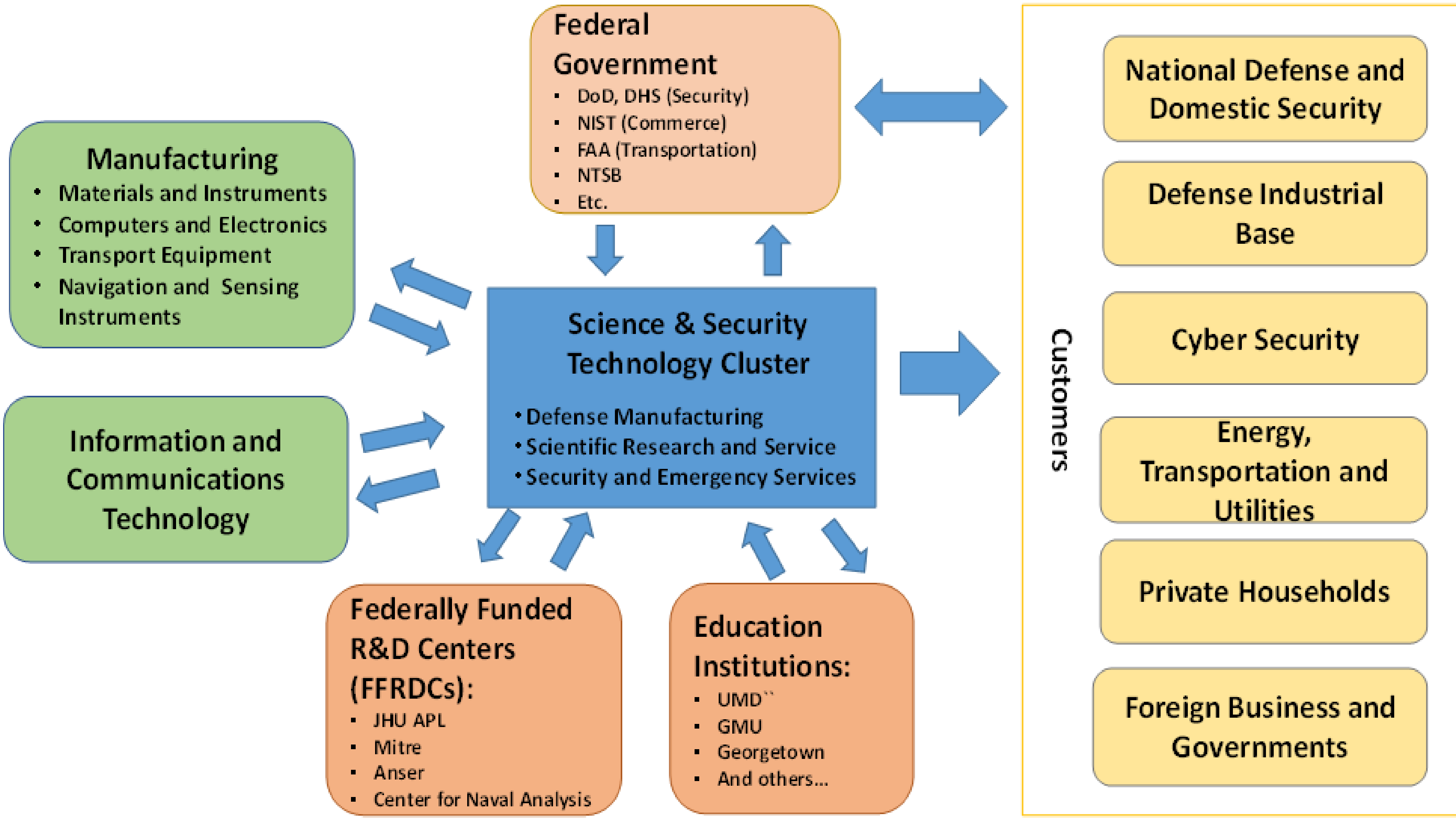
Science and Security Technology (SST) - Location Quotient



Science and Security Technology (SST) - Employment Index



Science and Security Technology (SST) - Cluster Ecosystem



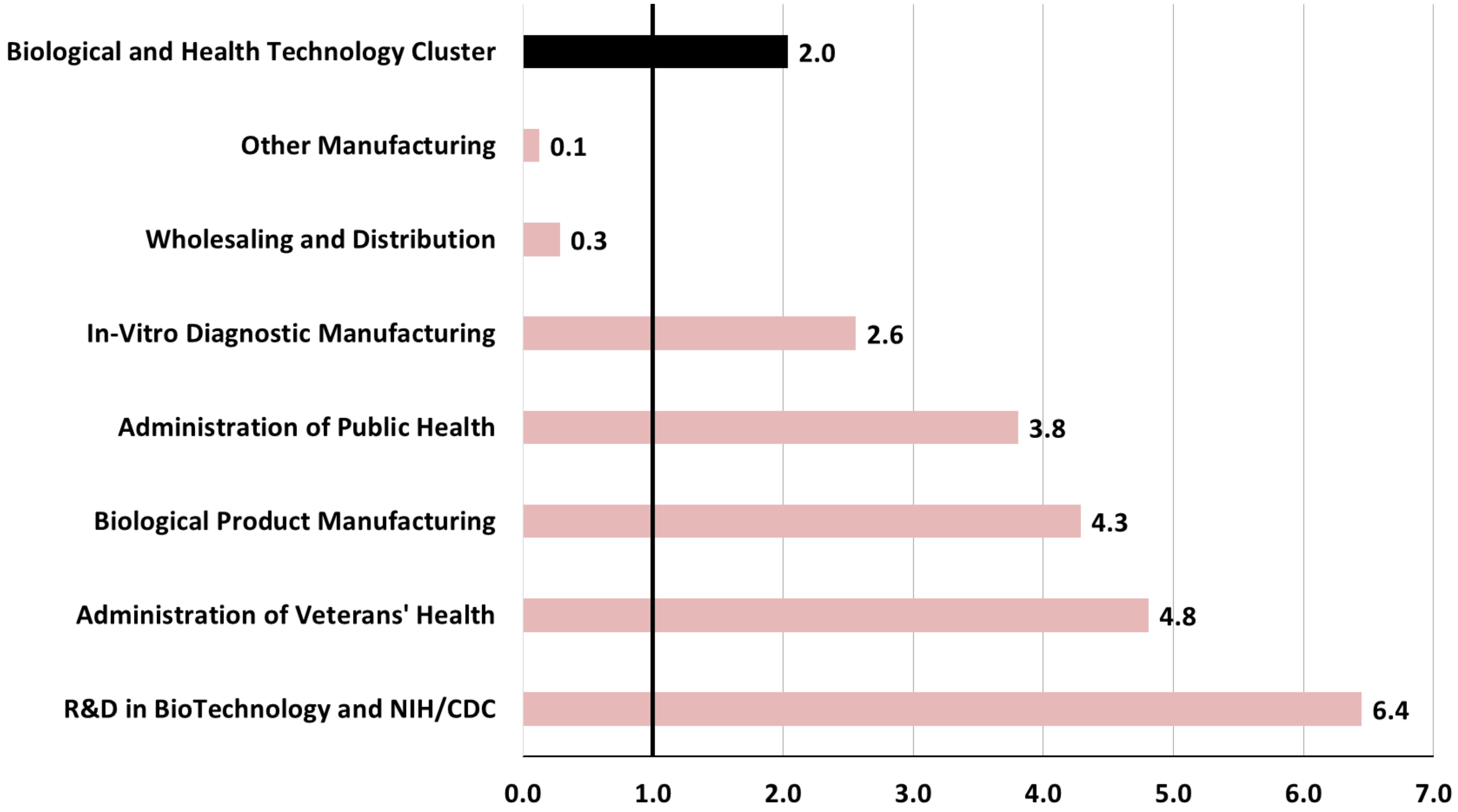
Biological and Health Technology (BHT) - Description

- Includes relevant federal employees as part of the work force, including:
  - Researchers at NIH
  - Regulators at FDA
  - Veterans Affairs (VA) medical employees
- Federal funding of health research and development through the National Institutes of Health (NIH), the Center for Disease Control (CDC), and other agencies helps to foster relationships with private sector firms and non-profits which strive to find cures for diseases and improve the effectiveness and value of health care services.
- Importantly, we did not include employment in local hospitals or offices of physicians as part of the BHT cluster

Biological and Health Technology (BHT) - Employment

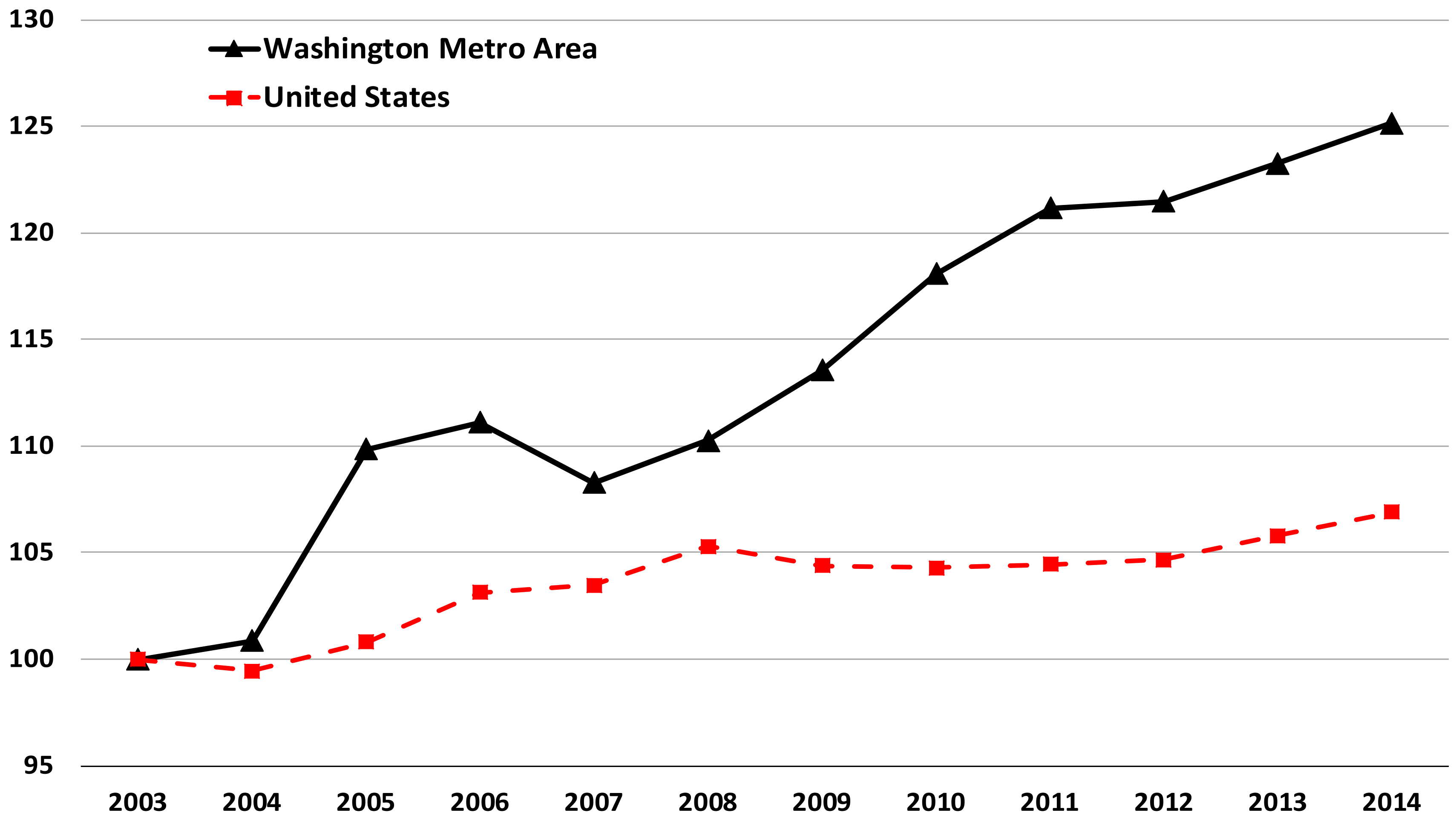
Industry	WMA Employment 2003	WMA Employment 2014	WMA Employment Growth 2003-14	USA Employment 2003	USA Employment 2014	USA Employment Growth 2003-14	2014 LQ
Manufacturing							
In-Vitro Diagnostic Manufacturing	659	1,255	90%	13,964	22,504	61%	2.6
Biological Product Manufacturing	947	2,645	179%	25,693	28,327	10%	4.3
Other Manufacturing	1,079	1,496	39%	549,836	535,506	-3%	0.1
Wholesaling and Distribution	1,503	1,307	-13%	187,090	210,088	12%	0.3
Research and Development							
Private Sector Biotechnology	7,993	6,166	-23%	124,797	146,469	17%	1.9
National Institutes of Health	17,123	17,848	4%	18,112	18,932	5%	43.3
Centers for Disease Control	594	591	-1%	8,348	9,859	18%	2.8
Federal Administration							
Food and Drug Administration (FDA)	8,060	12,818	59%	11,664	16,795	44%	35.1
Agency Healthcare Quality and Research (AHRQ)	289	289	0%	326	326	0%	40.7
Administration of Veterans' Affairs (VA)	3,826	5,473	43%	25,265	52,242	107%	4.8
Other Public Health Programs	2,192	5,507	151%	202,856	207,383	2%	1.2
Biological and Health Technology (BHT)	**44,265**	**55,396**	**25%**	**1,167,951**	**1,248,430**	**7%**	**2.0**

Biological and Health Technology (BHT) - Location Quotient

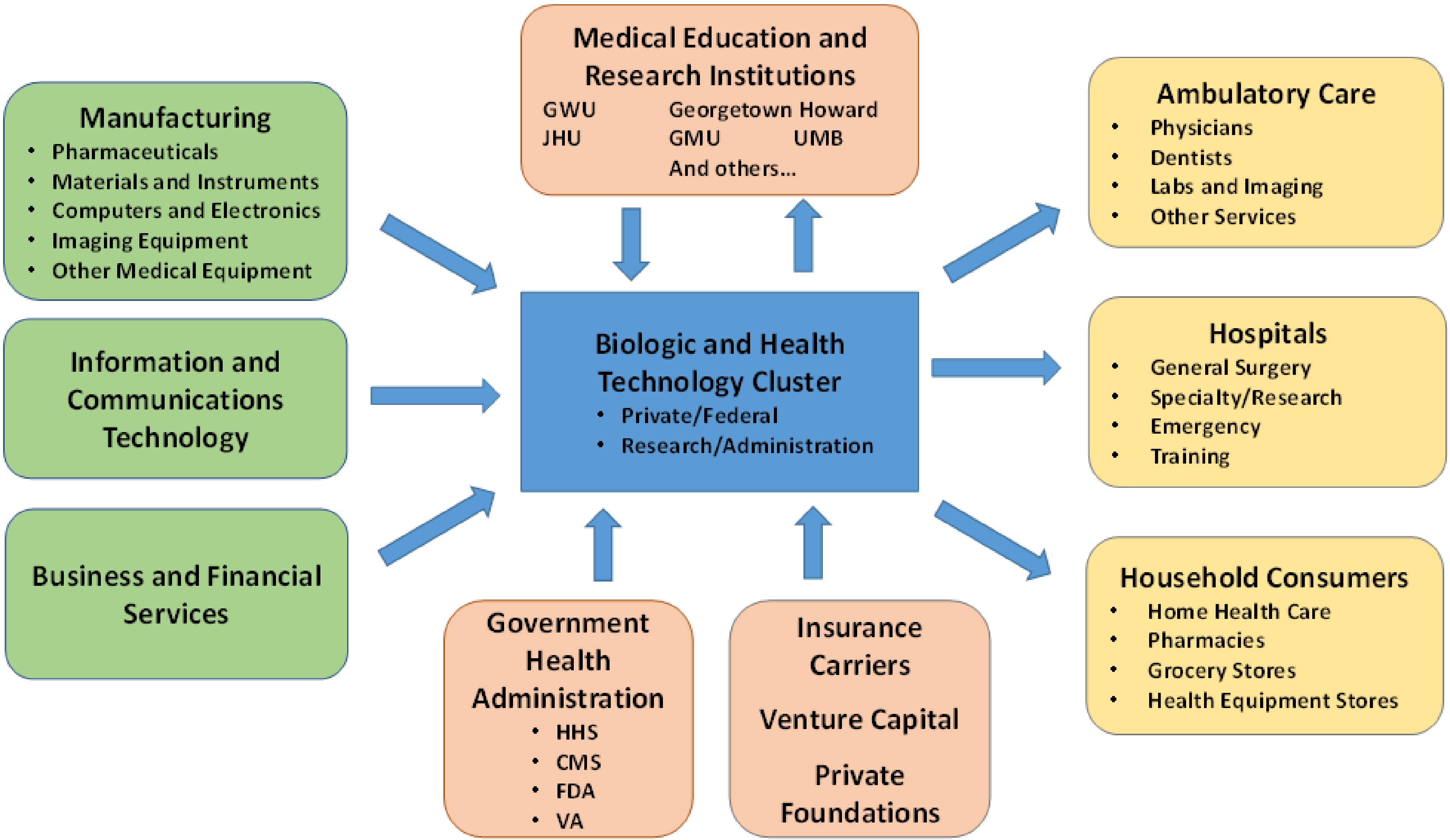


Biological and Health Technology (BHT) - Employment Index

Growth of the Bio and Health Technology Cluster, WMA vs. USA. Index = 100 in 2003



Biological and Health Technology (BHT) - Cluster Ecosystem



Business and Financial Services (BFS) - Description

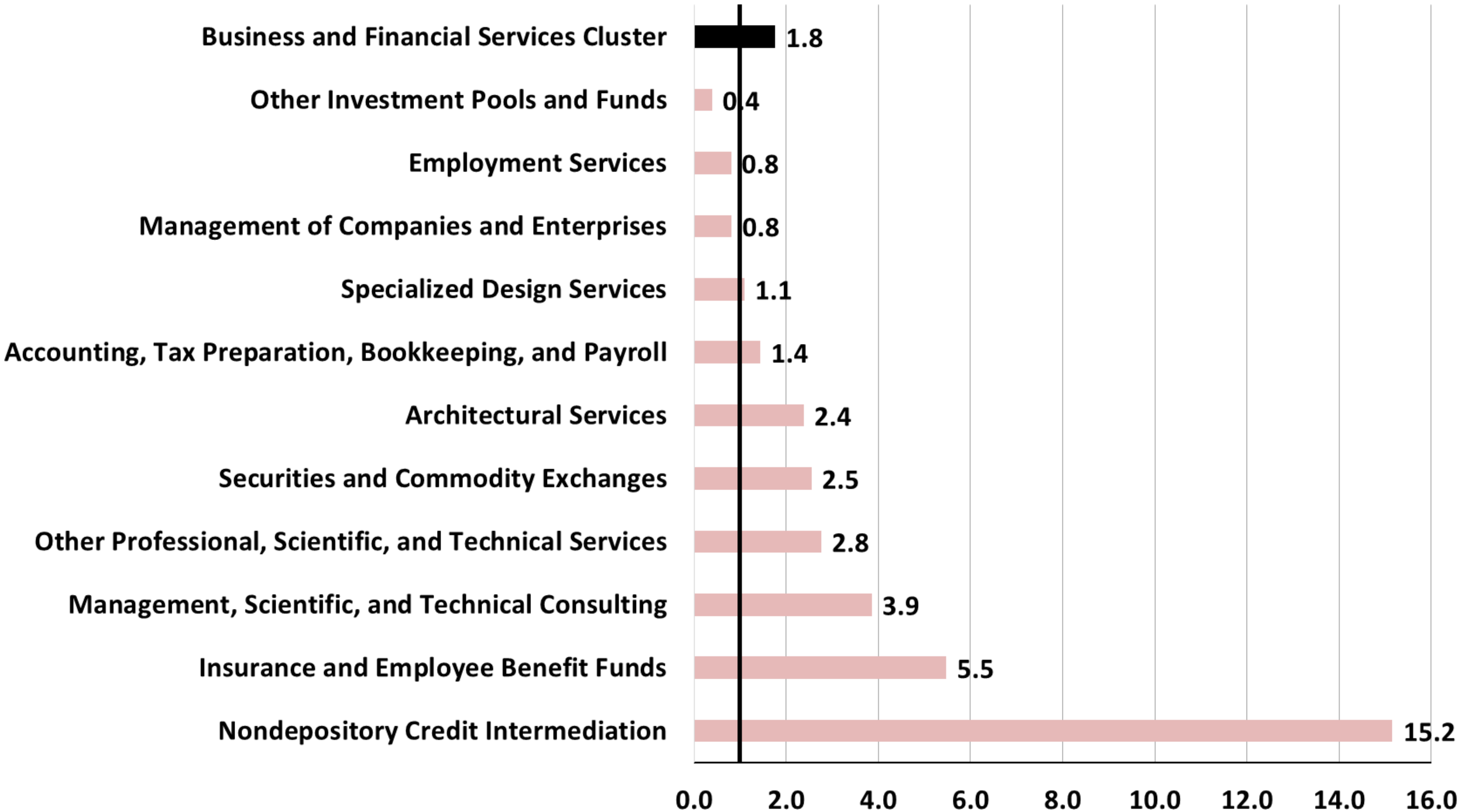
- One of the largest and most steadily growing sectors in the Washington Metro Area (WMA) over the last decade.
- Largest component is Management, scientific, and technical consulting services, which accounts for approximately 80,000 jobs in the region.
- Over the past couple of decades, the sector has shifted from being a peripheral facilitator of the federal government, to become a key element of government and corporate operations within and beyond the region.

Business and Financial Services (BFS) - Employment

INFORUM

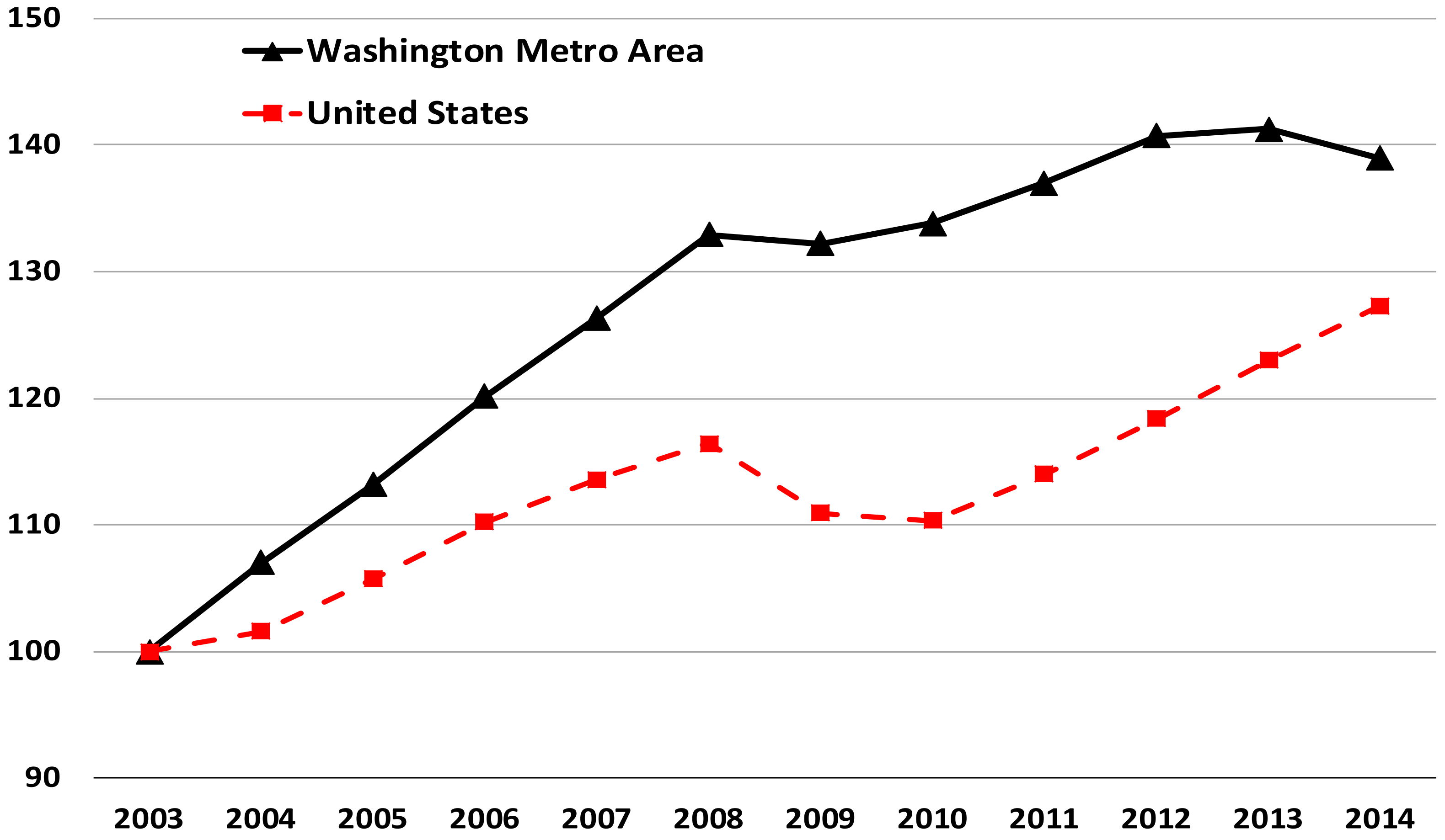
Industry	2003	2014	Growth 2003-14	2003	2014	Growth 2003-14	2014 LQ
Finance							
Nondepository Credit Intermediation	5,188	8,387	62%	19,152	25,409	33%	15.2
Securities and Commodity Exchanges	408	387	-5%	9,249	6,977	-25%	2.5
Insurance and Employee Benefit Funds	5,908	6,420	9%	52,562	53,839	2%	5.5
Other Investment Pools and Funds	354	340	-4%	33,343	40,021	20%	0.4
Business Services							
Accounting, Tax, and Payroll Services	23,098	30,390	32%	838,312	967,571	15%	1.4
Architectural Services	9,253	8,730	-6%	182,756	168,487	-8%	2.4
Specialized Design Services	3,222	3,034	-6%	121,055	127,150	5%	1.1
Management, Scientific, Technical Consulting	50,354	79,567	58%	608,370	947,816	56%	3.9
Other Professional and Technical Services	4,663	9,230	98%	59,754	153,423	157%	2.8
Management of Companies and Enterprises	28,333	38,343	35%	1,660,108	2,153,668	30%	0.8
Employment Services	6,057	5,300	-12%	300,867	303,046	1%	0.8
Business and Financial Services (BFS)	**136,838**	**190,128**	**39%**	**3,885,527**	**4,947,406**	**27%**	**1.8**

Business and Financial Services (BFS) – Location Quotient

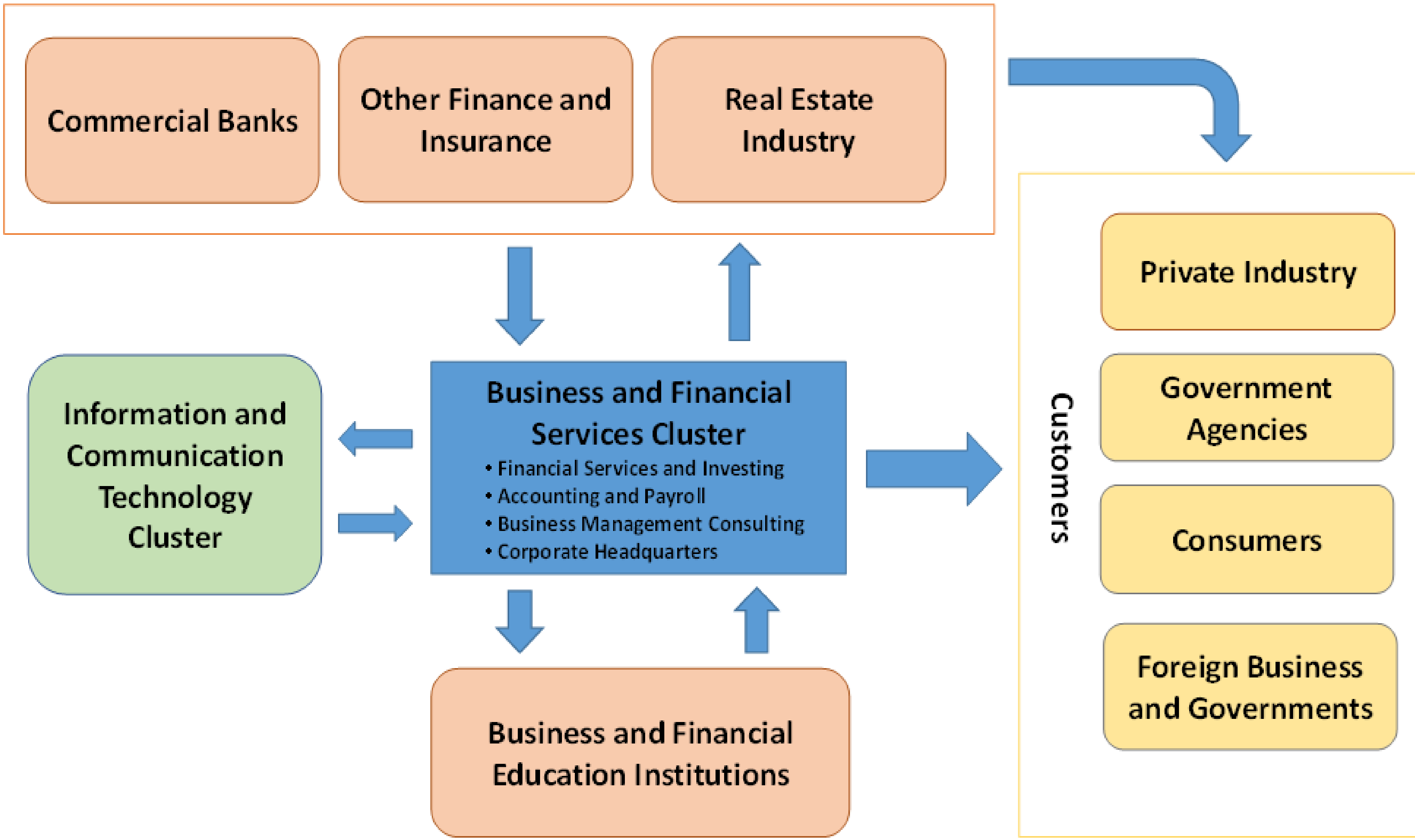


Business and Financial Services (BFS) – Employment Index

Growth of the Business and Financial Services Cluster, WMA vs. USA. Index = 100 in 2003



Business and Financial Services (BFS) – Cluster Ecosystem



Media and Information (MAI) - Description

- Comprises media of all forms, including:
  - Books, magazines, and newspapers
  - Radio, television, and internet publishing
  - News services and libraries.

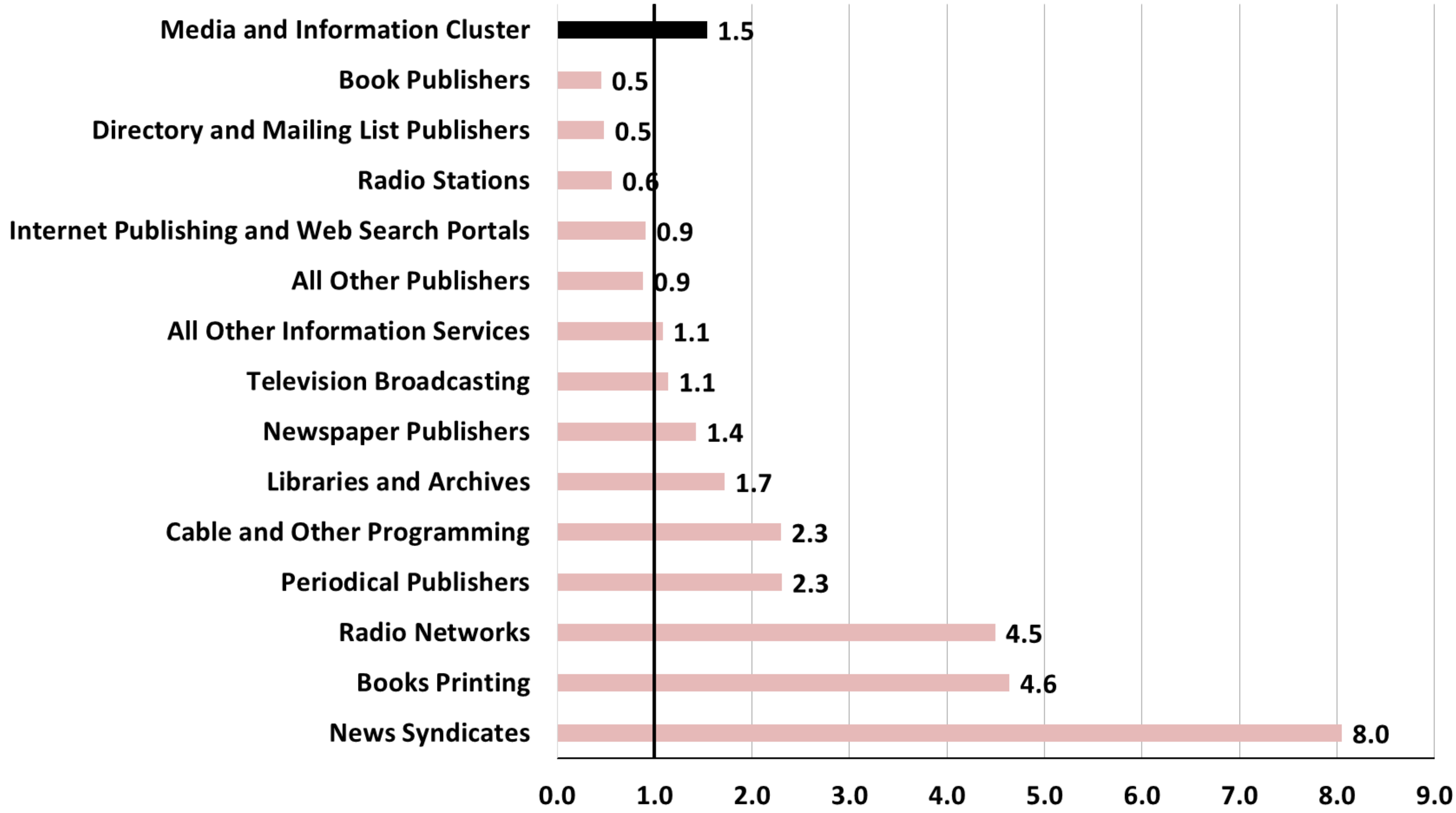
- Does not include telecommunication services such as wireless service providers, internet service providers, and data processing services.

- Mostly centered on the creation and dissemination of news and entertainment content, but not necessarily on the technical infrastructure on which that content is received and read.

Media and Information (MAI) - Employment

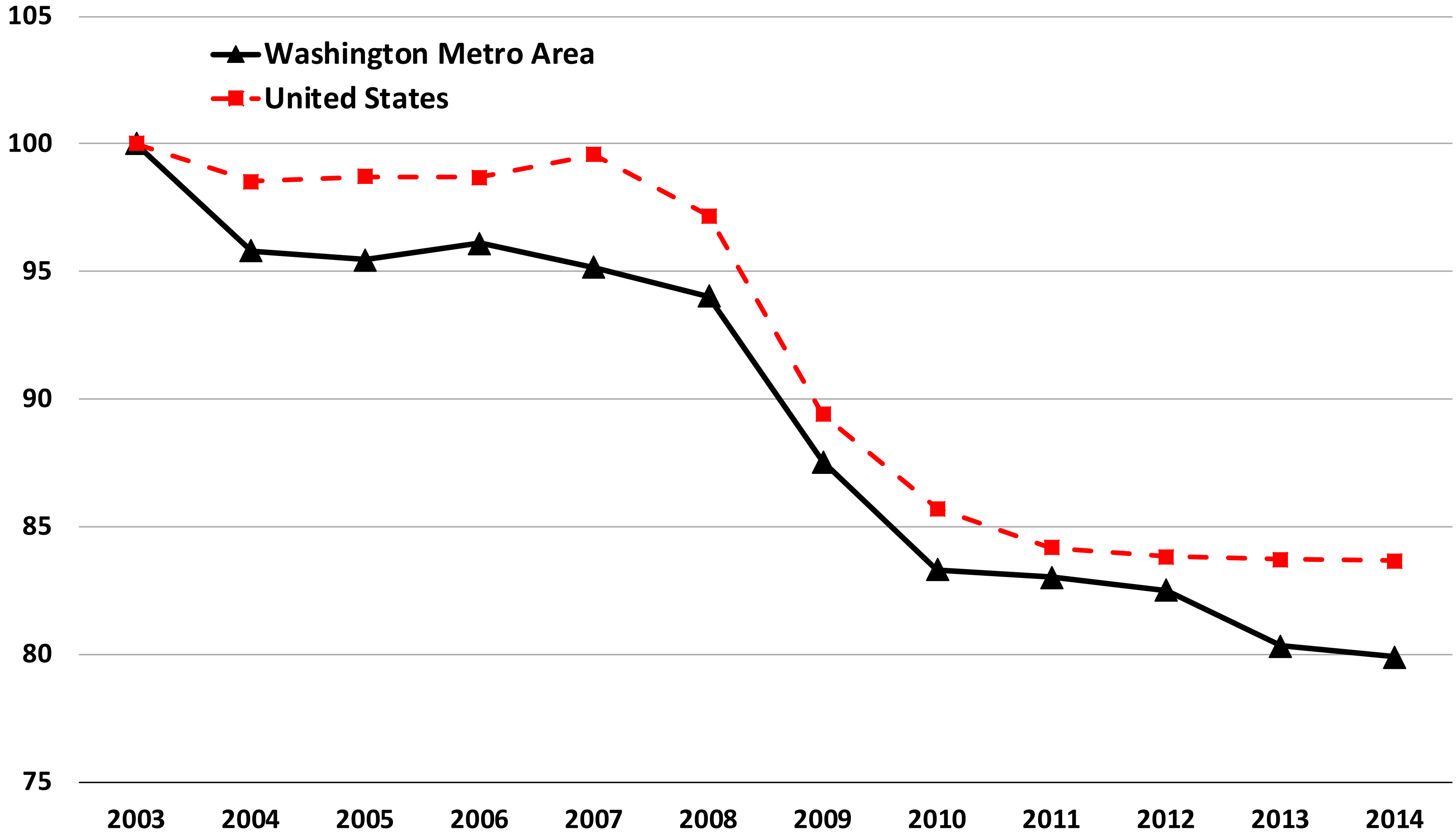
Industry	WMA Employment 2003	WMA Employment 2014	WMA Growth 2003-14	USA Employment 2003	USA Employment 2014	USA Growth 2003-14	2014 LQ
Print Publishing							
Books Printing	4,401	2,223	-49%	36,831	22,003	-40%	4.6
Newspaper Publishers	10,154	6,263	-38%	382,689	201,995	-47%	1.4
Periodical Publishers	7,148	5,168	-28%	149,081	103,046	-31%	2.3
Book Publishers	1,080	636	-41%	81,025	64,612	-20%	0.5
Directory and Mailing List Publishers	838	273	-67%	47,957	25,942	-46%	0.5
All Other Publishers	485	299	-38%	31,821	15,629	-51%	0.9
Broadcasting							
Radio Networks	1,656	1,900	15%	23,871	19,421	-19%	4.5
Radio Stations	1,308	866	-34%	85,827	71,065	-17%	0.6
Television Broadcasting	3,772	3,240	-14%	130,240	130,510	0%	1.1
Cable and Other Subscription Programming	2,684	3,136	17%	85,634	62,766	-27%	2.3
Other Information Services							
News Syndicates	2,011	2,102	5%	9,642	11,994	24%	8.0
Libraries and Archives	6,383	6,067	-5%	159,920	162,135	1%	1.7
Internet Publishing, Broadcasting, Search	2,469	3,206	30%	41,015	161,730	294%	0.9
All Other Information Services	352	365	4%	11,324	15,493	37%	1.1
Media and Information Cluster (MAI)	**44,741**	**35,745**	**-20%**	**1,276,877**	**1,068,341**	**-16%**	**1.5**

Media and Information (MAI) – Location Quotient

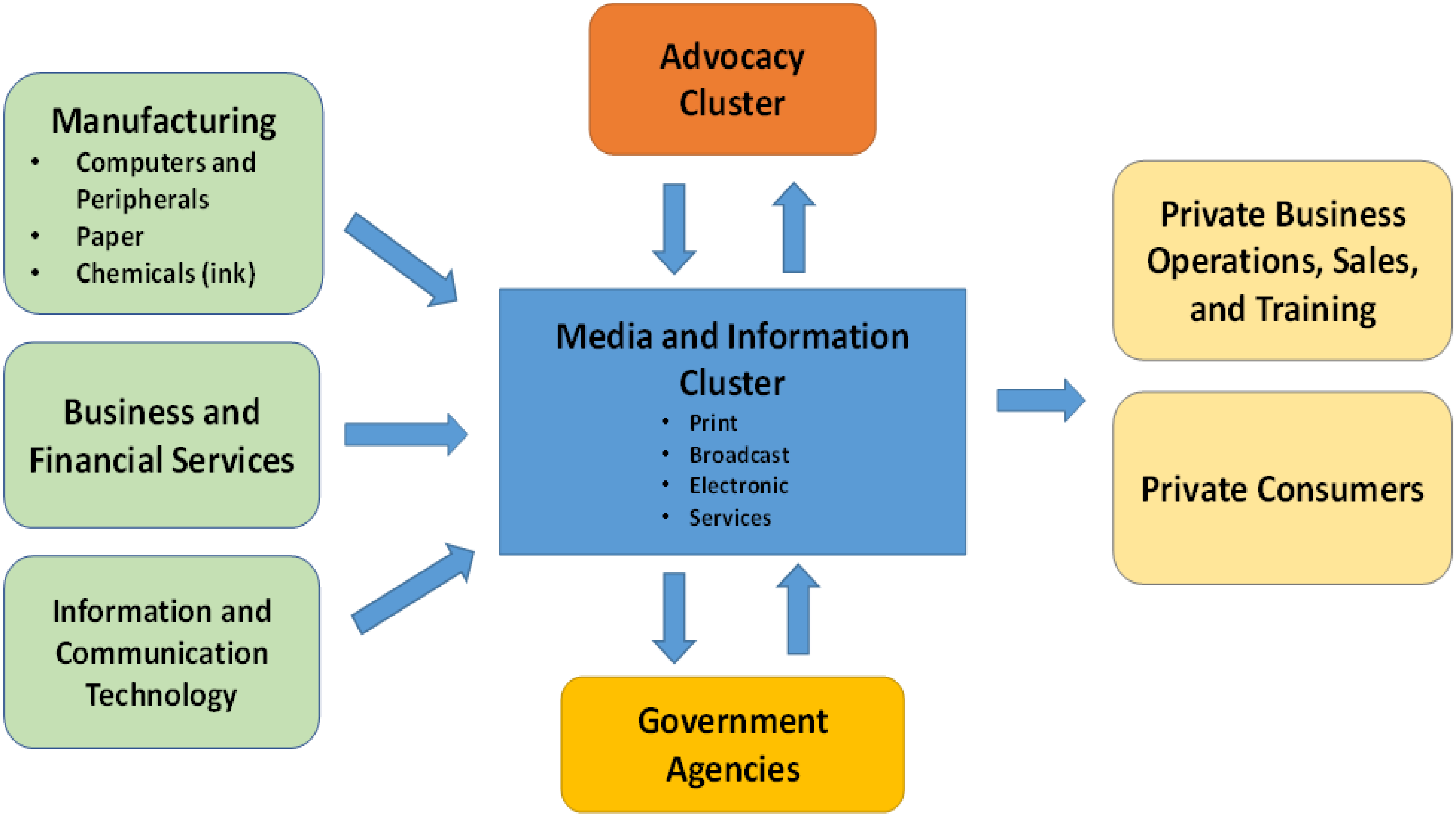


Media and Information (MAI) – Employment Index

Growth of the Media and Information Cluster, WMA vs. USA. Index = 100 in 2003



Media and Information (MAI) – Cluster Ecosystem



Business and Leisure Travel (BLT) - Description

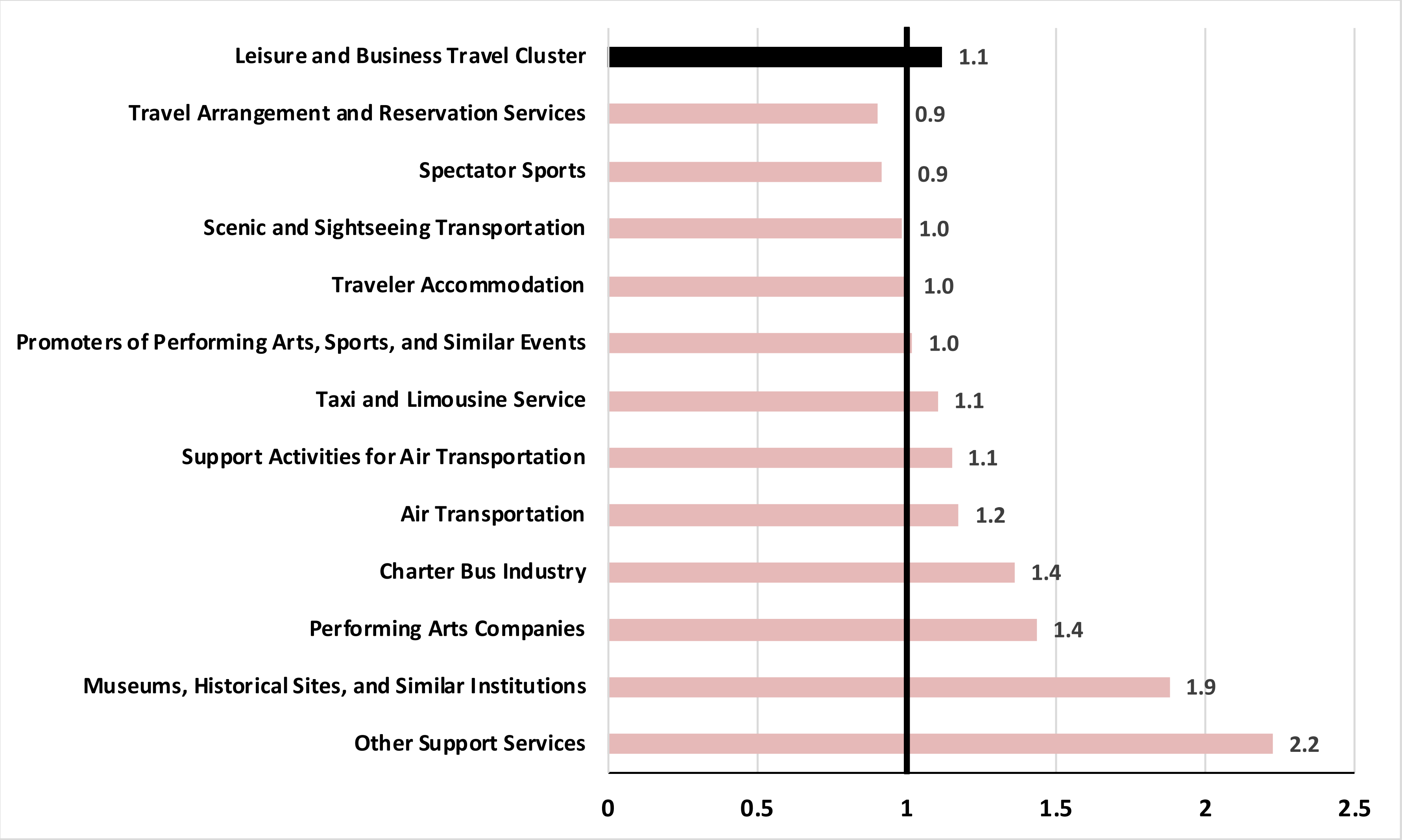
- As the nation's capital, Washington DC is a natural hub for conferences and conventions, high-level meetings, lobbying, and tourism.
- The Business and Leisure Travel (BLT) cluster is a stable and large source of jobs for the Washington Metro Area (WMA), including:
  - Accommodation and transportation services (especially air transport)
  - Entertainment
  - Sporting events, museums, and parks
- Cluster does not include restaurants and bars
  - We assumed that most of the activity of food and drinking places serves local customers, not tourists or business travelers.

Business and Leisure Travel (BLT) - Employment

INFORUM

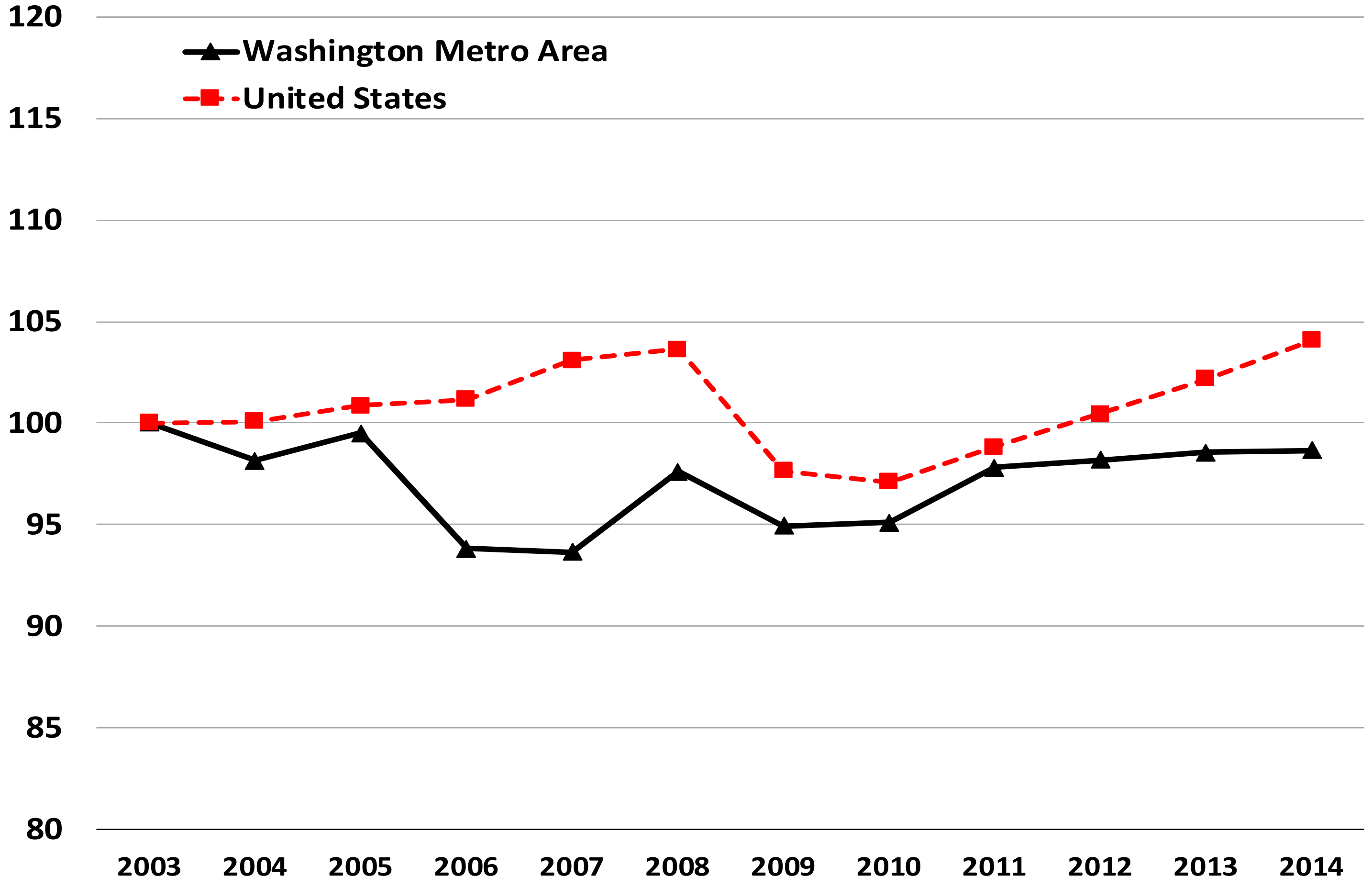
Industry	WMA Employment 2003	WMA Employment 2014	WMA Employment Growth 2003-14	USA Employment 2003	USA Employment 2014	USA Employment Growth 2003-14	2014 LQ
Transportation							
Air Transportation	14,569	10,735	-26.3%	504,955	419,830	-16.9%	1.2
Taxi and Limousine Service	1,894	1,907	0.7%	66,499	79,374	19.4%	1.1
Charter Bus Industry	723	885	22.3%	32,775	29,867	-8.9%	1.4
Sightseeing Transportation	231	683	195.6%	27,936	31,857	14.0%	1.0
Support for Air Transportation	3,840	5,582	45.4%	194,118	223,095	14.9%	1.1
Travel Arrangement Services	4,760	3,892	-18.2%	240,078	198,926	-17.1%	0.9
Other Support Services	2,327	2,440	4.9%	48,813	50,372	3.2%	2.2
Entertainment							
Performing Arts Companies	3,903	3,633	-6.9%	122,112	116,330	-4.7%	1.4
Spectator Sports	3,483	2,759	-20.8%	135,891	137,960	1.5%	0.9
Promoters of Arts and Sports	2,491	2,860	14.8%	79,869	129,018	61.5%	1.0
Museums, Historical Sites, etc.	9,130	9,562	4.7%	201,593	233,759	16.0%	1.9
Traveler Accommodation	39,734	40,980	3.1%	1,737,610	1,880,064	8.2%	1.0
Leisure and Business Travel Cluster (BLT)	**87,086**	**85,919**	**-1.3%**	**3,392,249**	**3,530,452**	**4.1%**	**1.1**

Business and Leisure Travel (BLT) – Location Quotient

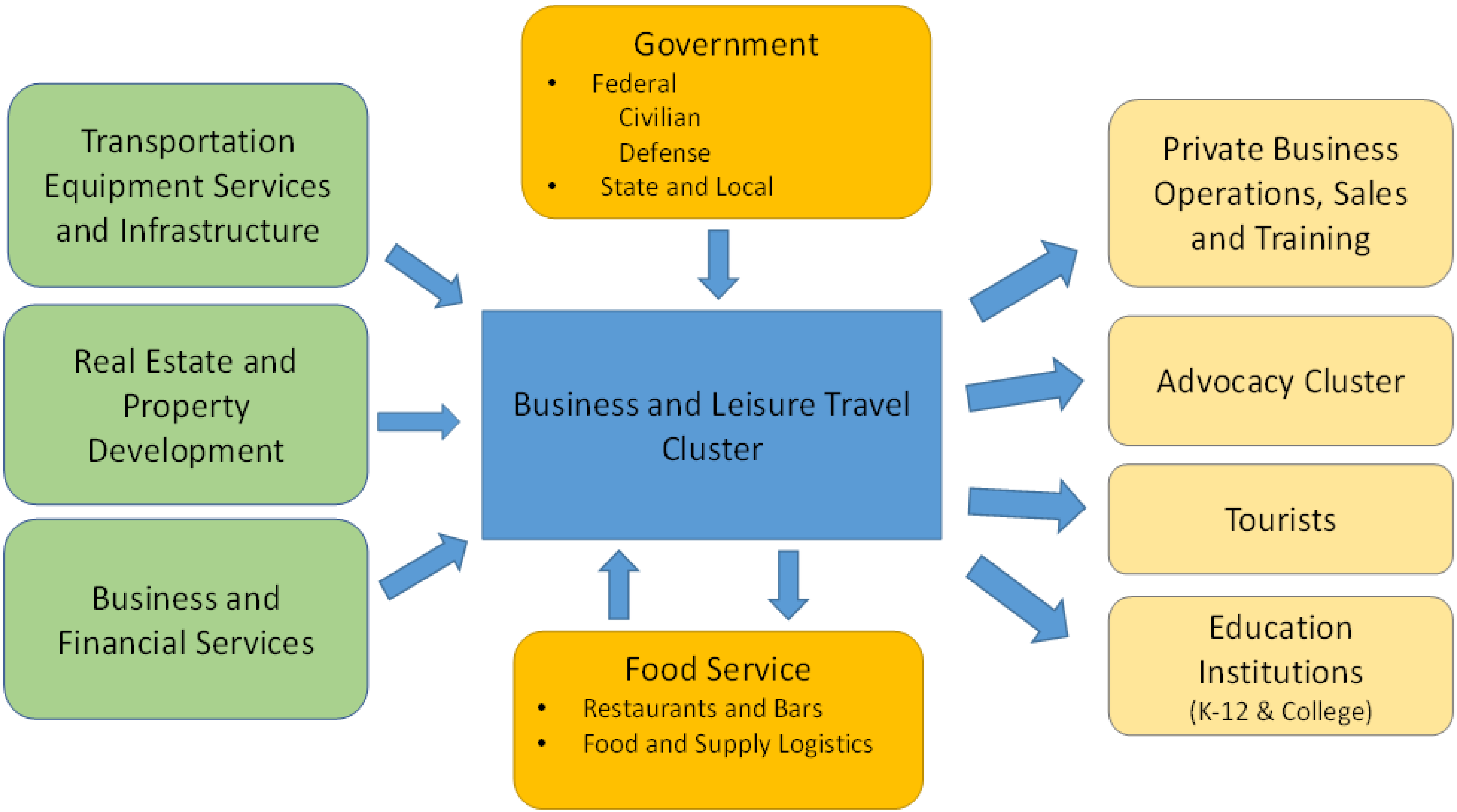


Business and Leisure Travel (BLT) – Employment Index

Growth of the Business and Leisure Travel Cluster, WMA vs. USA. Index = 100 in 2003



Business and Leisure Travel (BLT) – Cluster Ecosystem



The Seven Clusters Forecast

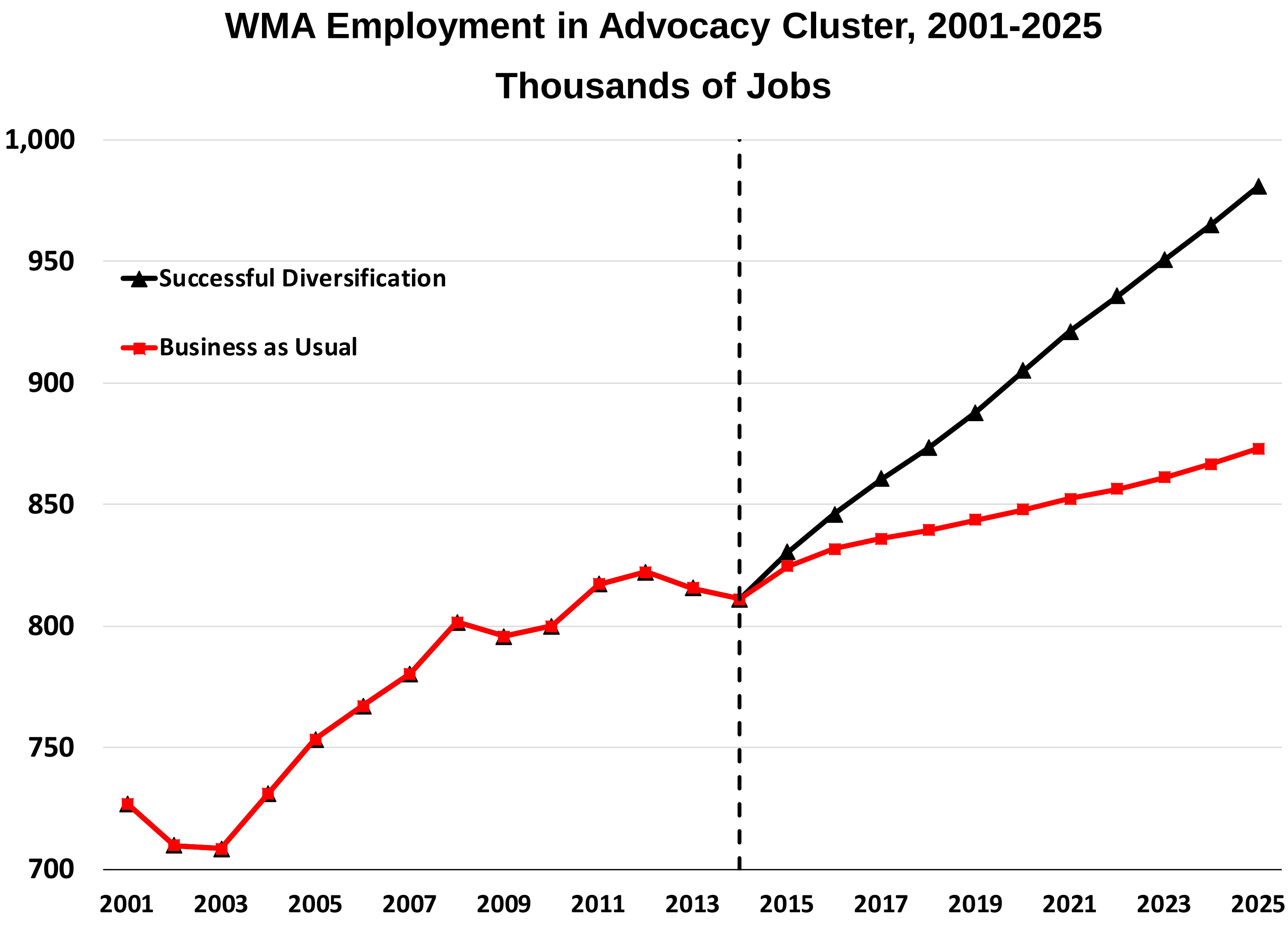
- In examining the future for the seven WMA clusters through 2025, we generated two employment scenarios for each of the key clusters and then for the WMA as a whole.
  - “Successful Diversification” - The first scenario assumes that each cluster reduces dependence on federal spending and successfully diversifies into other markets.
  - “Business as Usual” - The second scenario assumes that the clusters are not able to find sources of growth beyond the federal government.

The Seven Clusters Forecast

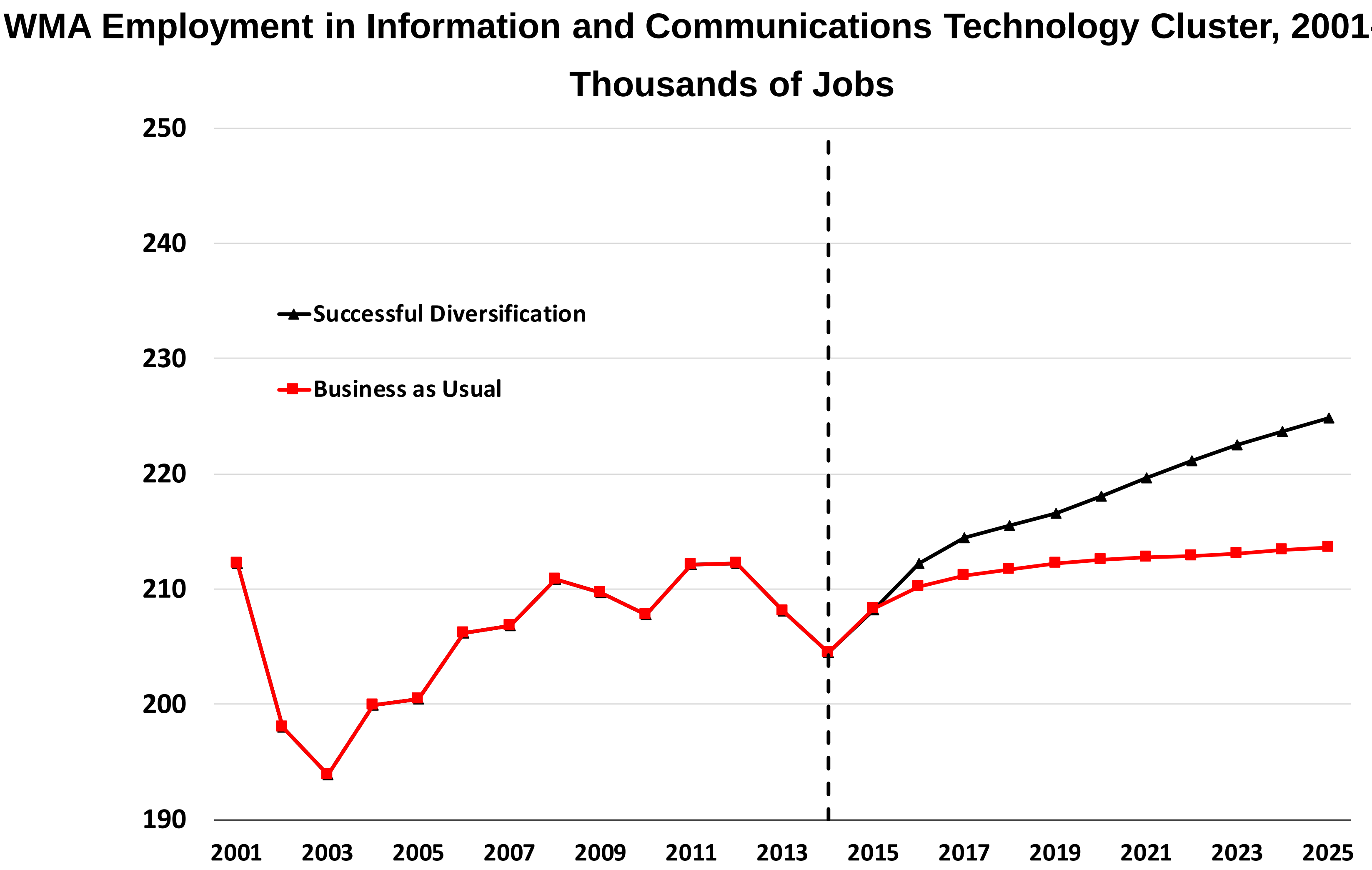
Forecasts for Job Growth in the Seven Clusters and WMA, 2014 – 2025

Cluster		History 2014 Jobs	History 2003-14 Growth	Washington Metro Area Successful Diversification 2025 Jobs	Washington Metro Area Successful Diversification 2014-25 Growth	Business as Ususal 2025 Jobs	Business as Ususal 2014-25 Growth
Advocacy	ADV	115,731	19.0%	138,868	20.0%	122,303	5.7%
Information Communications Technology	ICT	204,489	5.5%	224,872	10.0%	213,621	4.5%
Science and Security Technology	SST	123,785	19.0%	147,104	18.8%	135,707	9.6%
Biological and Health Technology	BHT	55,396	25.1%	67,929	22.6%	58,388	5.4%
Business and Financial Services	BFS	190,128	39.0%	269,053	41.5%	218,851	15.1%
Media and Information	MAI	35,745	-20.1%	41,667	16.6%	36,292	1.5%
Business and Leisure Travel	BLT	85,919	-1.3%	91,512	6.5%	87,807	2.2%
Total of Seven Clusters	**TOT**	**811,193**	**14.6%**	**981,005**	**20.9%**	**872,969**	**7.6%**
Washington Metro Area	**WMA**	**2,973,337**	**9.3%**	**3,402,570**	**14.4%**	**3,092,270**	**4.0%**
United States	**USA**	**152,077,125**	**5.1%**	**166,505,562**	**9.5%**	**166,505,562**	**9.5%**

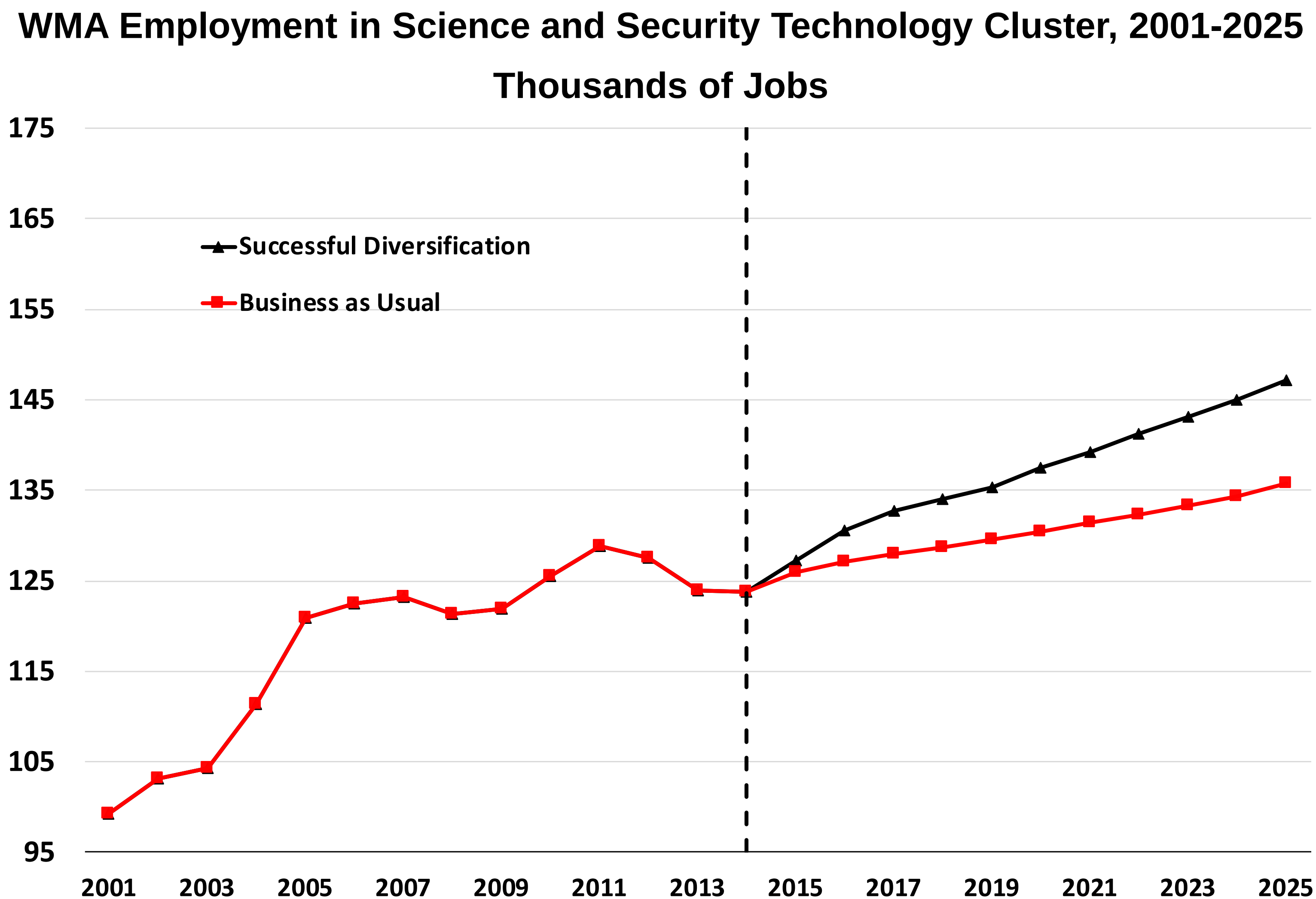
Forecast of WMA Employment – Advocacy Cluster



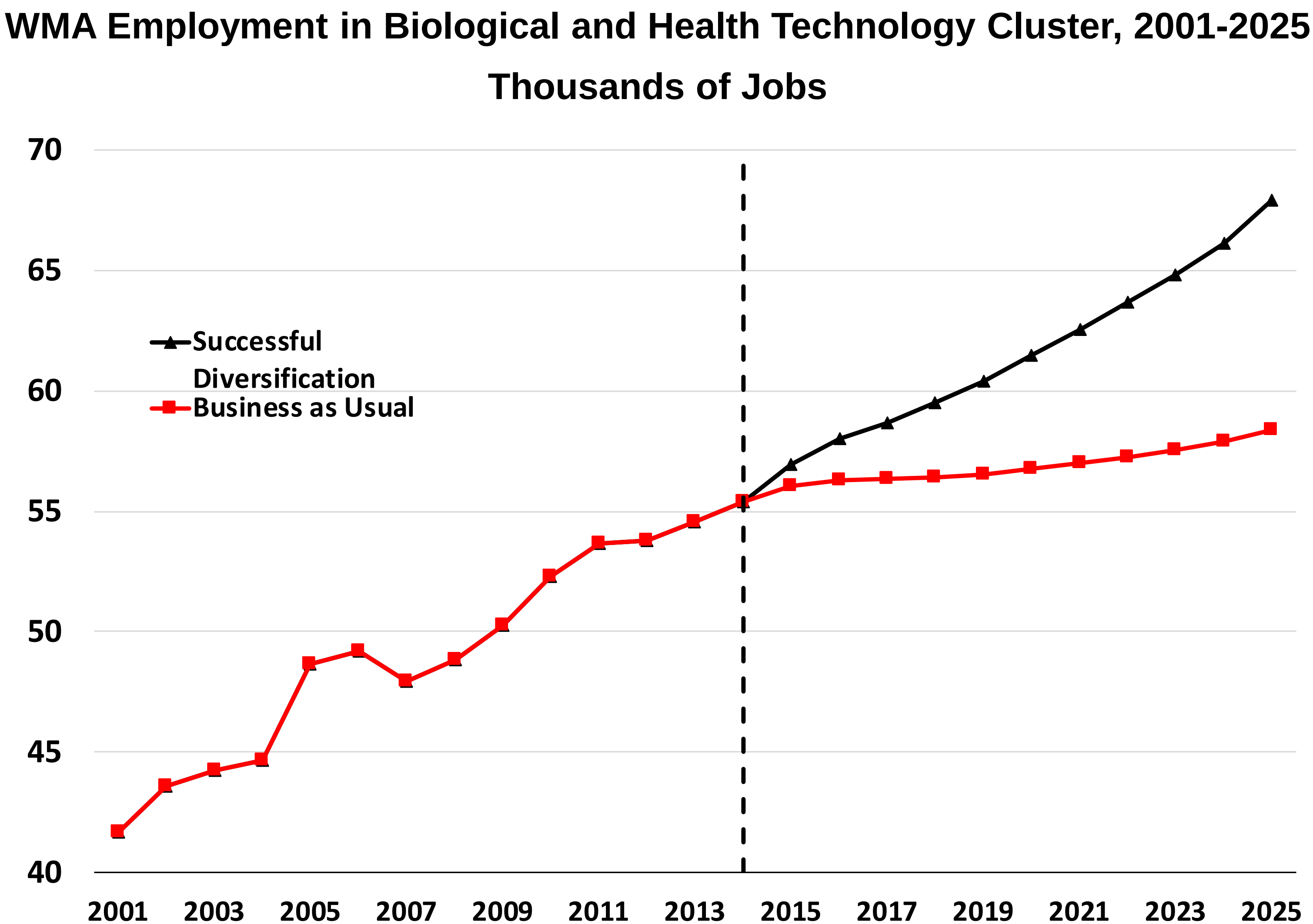
Forecast of WMA Employment –
Information and Communications Technology Cluster



Forecast of WMA Employment – Science and Security Technology Cluster

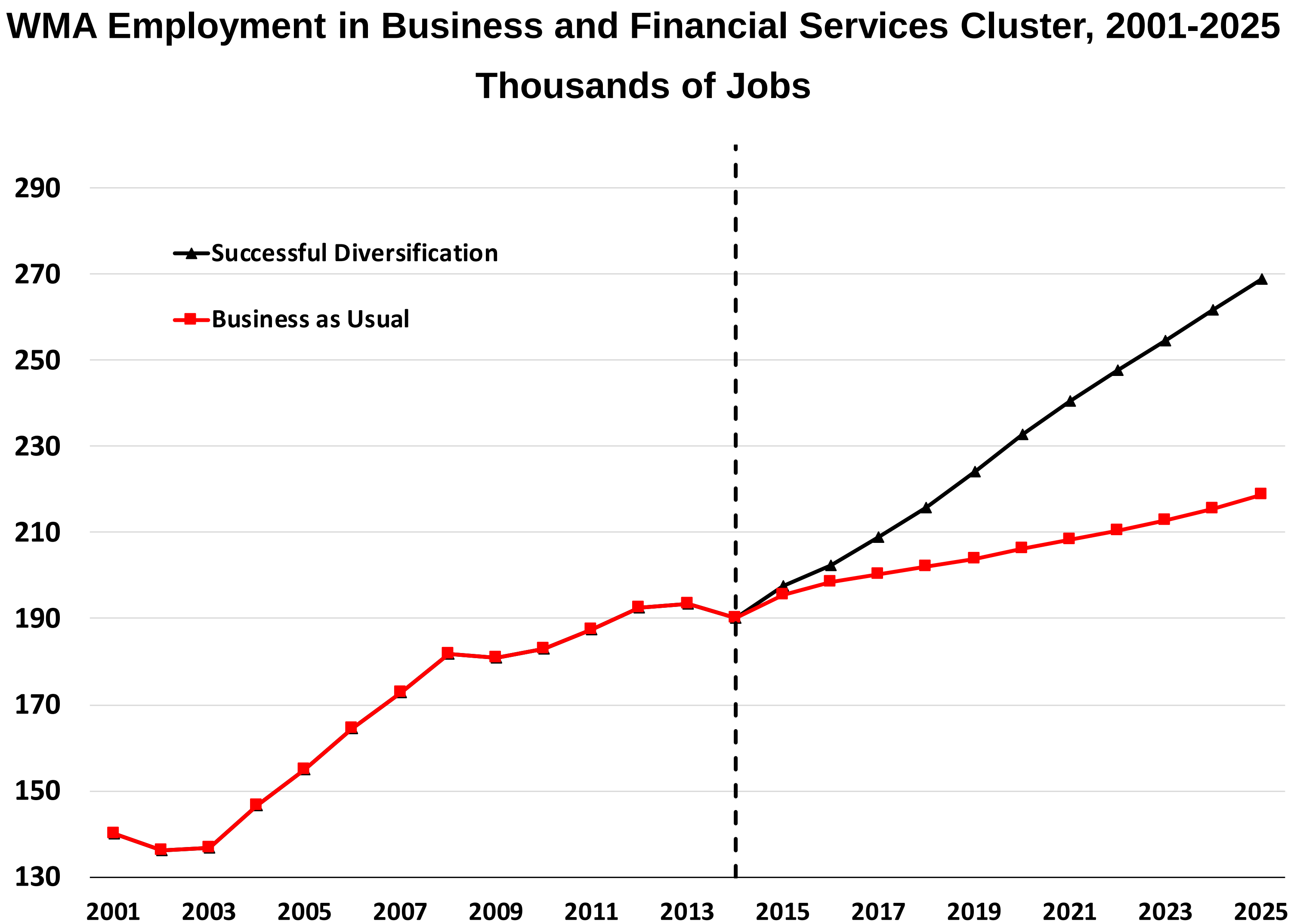


Forecast of WMA Employment – Biological and Health Technology Cluster

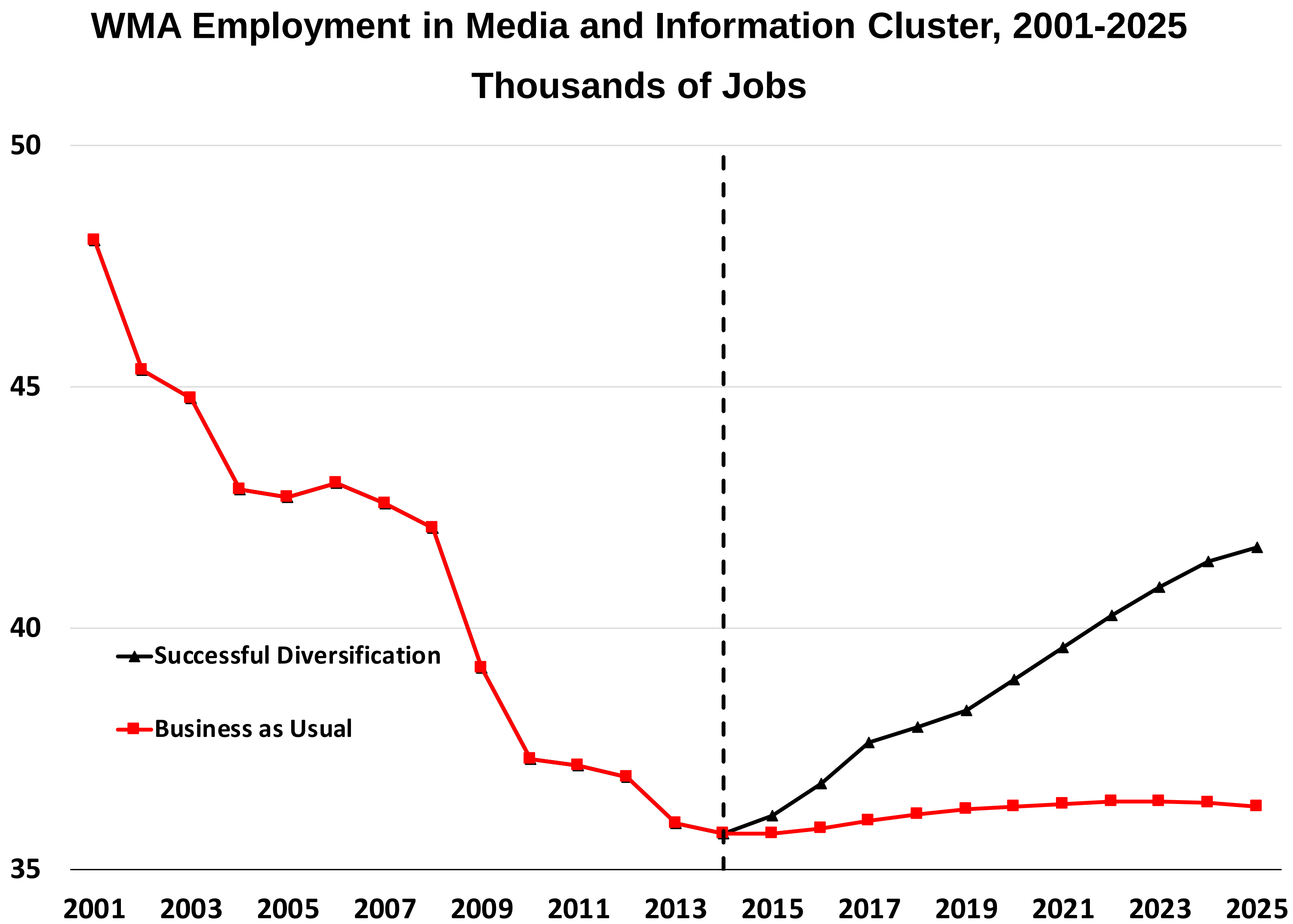


Forecast of WMA Employment – Business and Financial Services Cluster

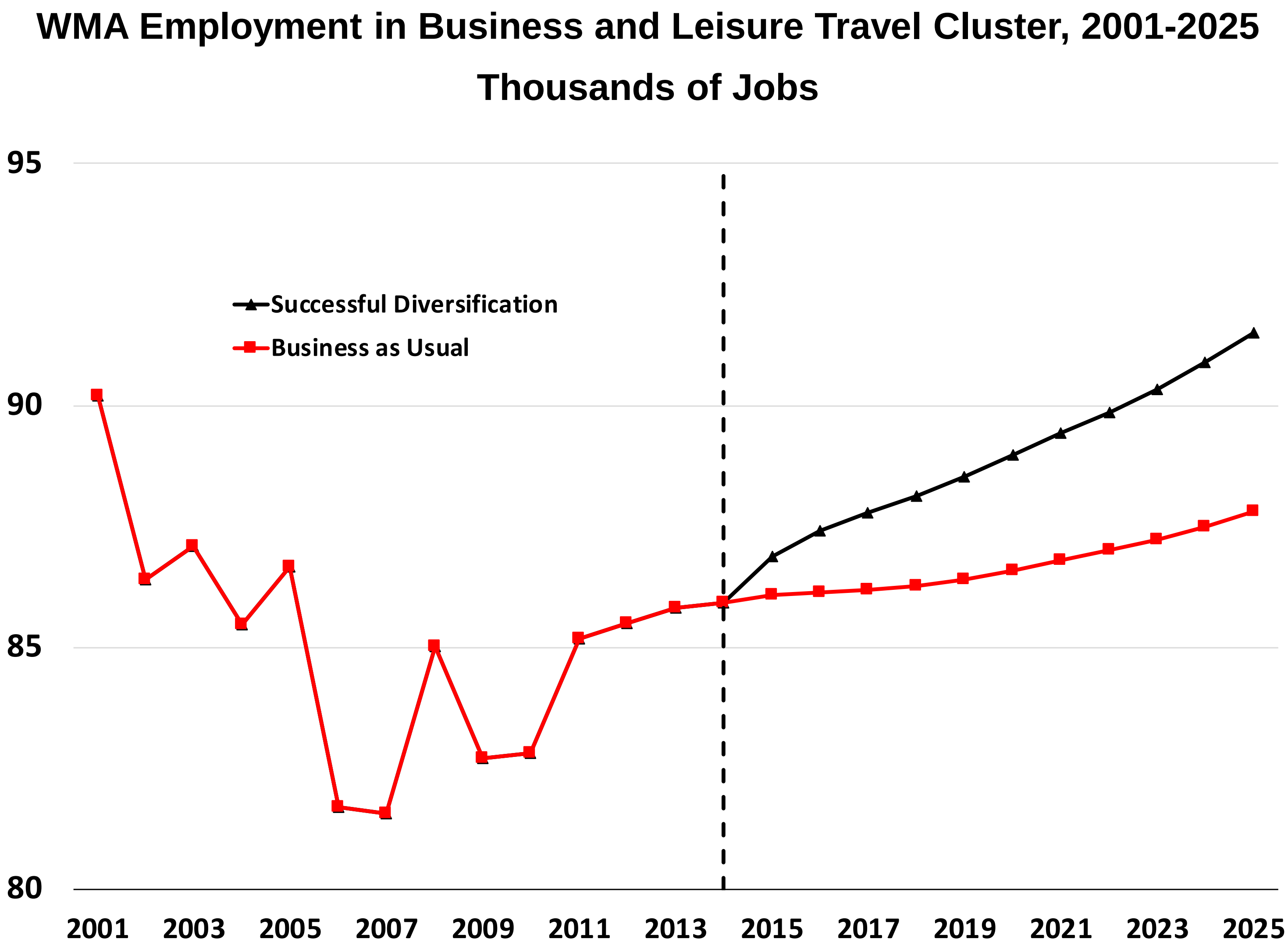
INFORUM



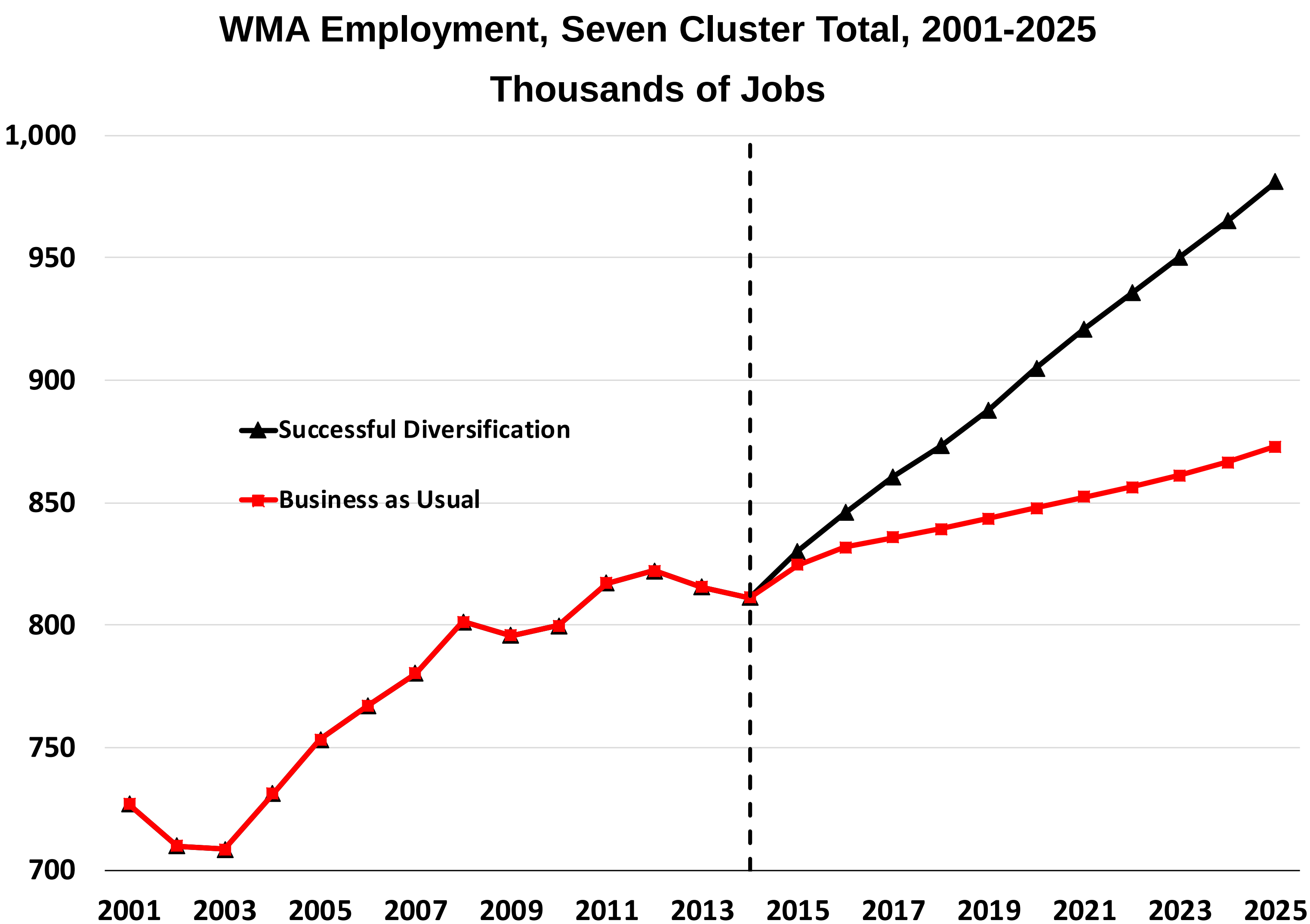
Forecast of WMA Employment – Media and Information Cluster



Forecast of WMA Employment – Business and Leisure Travel Cluster



Forecast of WMA Employment – Seven Cluster Total



Additional Links

- The 2030 Roadmap
  - *http://www.2030roadmap.com/*
- The Roadmap for the Washington Region's Future Economy
  - *http://cra.gmu.edu/pdfs/studies_reports_presentations/Roadmap_for_the_Washington_Regions_Future_Economy_123115.pdf*
- The Roadmap for the Washington Region's Economic Future: A State and Local Level Economic Development Policy Gap Analysis
  - *http://cra.gmu.edu/pdfs/studies_reports_presentations/Roadmap_State_and_Local%20Policy_Gap_Analysis_122215.pdf*
- Roadmap for the Washington Region's Economic Future: Seven Key Economic Clusters
  - *http://cra.gmu.edu/pdfs/studies_reports_presentations/Roadmap_Regional_Economic_Clusters_120215.pdf*
- Growth Opportunities and Constraints: Perspectives from CEOs and High-Ranking Executives
  - *http://cra.gmu.edu/pdfs/studies_reports_presentations/Roadmap_Survey_Report_122215.pdf*