STATE AND REGIONAL ECONOMIC INTEL FORUM

AI CHANGING LANDSCAPE FOR TALENT AND PRODUCTIVITY

Wednesday, April 17, 2024 | 11 a.m. - 1 p.m.
St. Norbert College - Bemis Center

St. Norbert College Center for Business & Economic Analysis

new north

Associated Bank

new DIGITAL alliance

Welcome

Wednesday, April 17, 2024 | 11 a.m. - 1 p.m. St. Norbert College - Bemis Center

AGENDA

11:00 a.m. **Start of Program – Networking**

11:30 a.m. **Plated Lunch Served**

11:45 a.m. **Welcome – Event Corporate Sponsor**
Erik Swan, Senior Vice President, Associated Bank

11:50 a.m. **State and New North Region Economic Report**
John Koskinen, Chief Economist, WI Department of Revenue

12:05 p.m. **New North Regional Innovation Perspective**
Kim Smith, Ph.D., Associate Professor, Associate Director of SNC Center for Business & Economic Analysis (CBEA)
Matt Scheele, SNC CBEA Student Fellow
Elena Leroy, SNC CBEA Student Fellow

12:35 p.m. **Regional AI Deployment**
Jeff Lang, Vice President of Innovative Technology, U.S. Venture

12:55 p.m. **Closing Remarks**

Wednesday, April 17, 2024 | 11 a.m. – 1 p.m. St. Norbert College – Bemis Center

State and New North Region Economic Report

New North Wisconsin Intel Forum

St. Norbert College

April 17, 2024

Today's Themes

- Wisconsin's improved competitiveness puts the state in a solid position in the soft landing for the U.S. Economy.

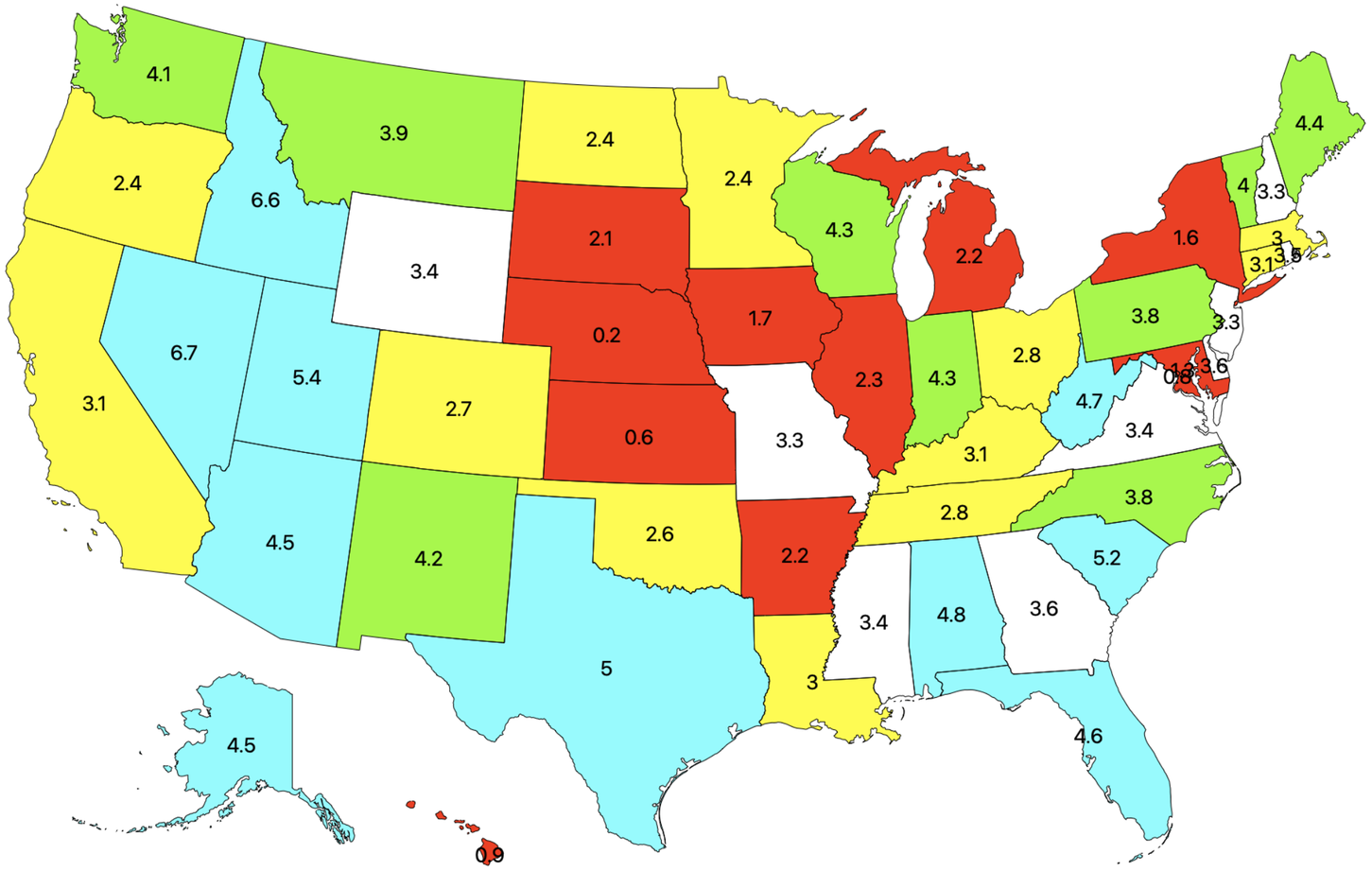
- The New North counties provide a focal point of Wisconsin's improved competitiveness.

- Wisconsin firms more likely to use AI to boost productivity of existing information technology and staff and unlikely to change employment.

Wisconsin Real GDP Up +4.3% 2023 Q4

U.S. Average: 3.4%

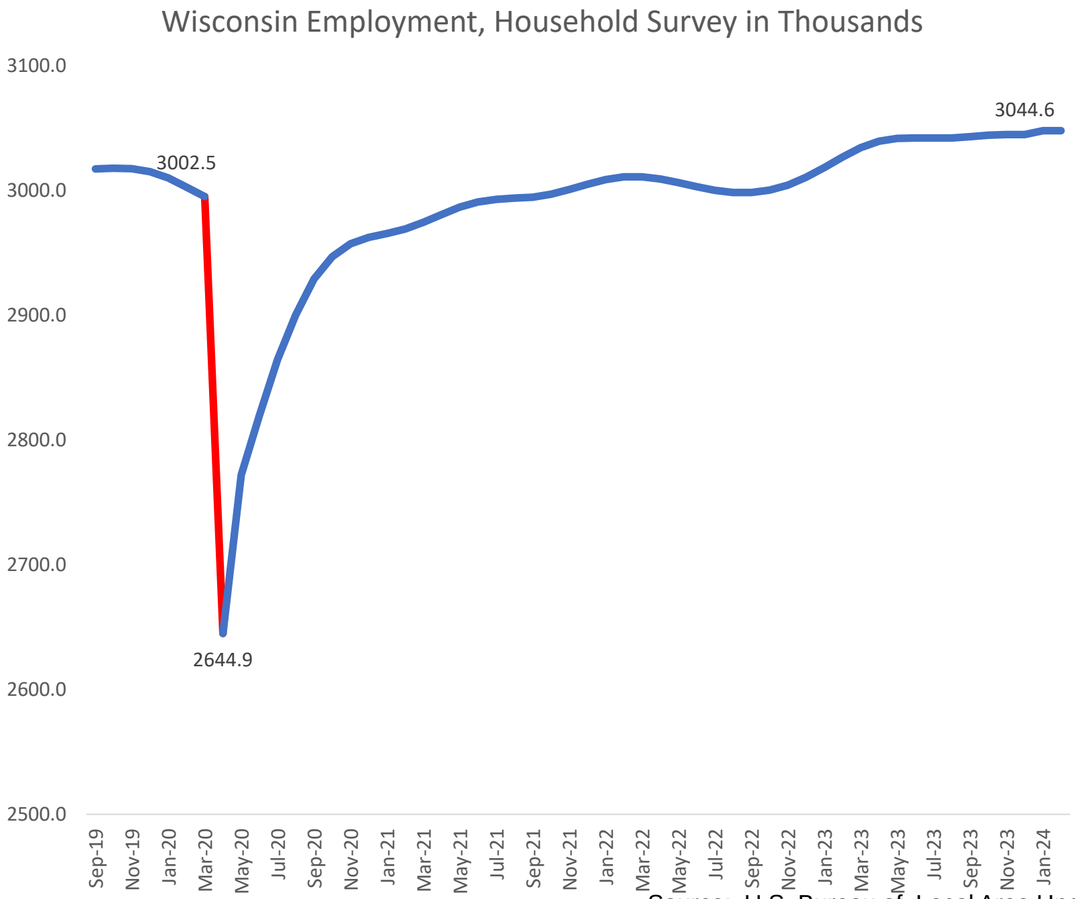
Percent Change At Annual Rates in Real GDP
2023 Q4 Over 2023 Q3

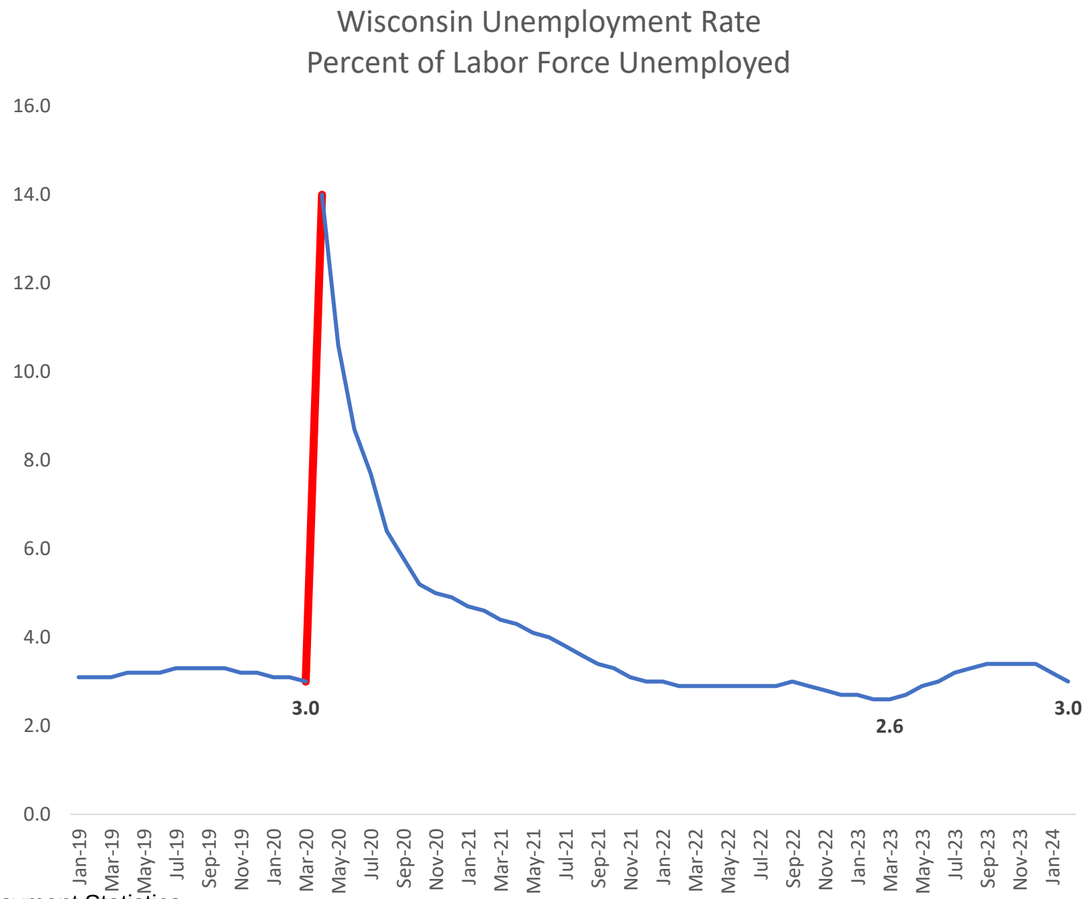


Source: U.S. Bureau of Economic Analysis, Regional Accounts, March 29, 2024

Labor Markets

By Household Survey,
Unemployment Rate Still Near Record Lows
February 2024 Employment Up 21,000 Over February 2023

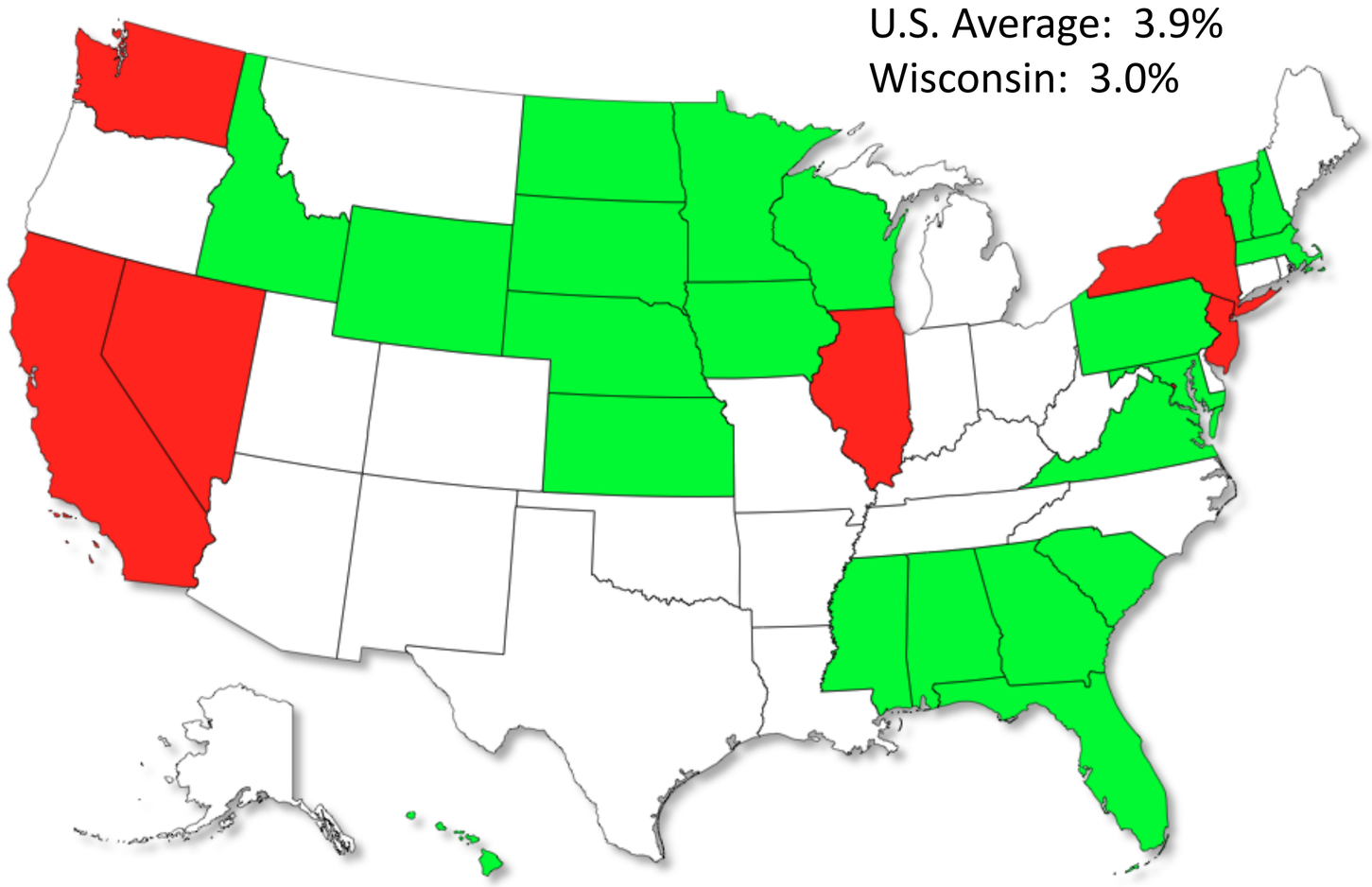




Source: U.S. Bureau of, Local Area Unemployment Statistics
Last Month Plotted: February 2024

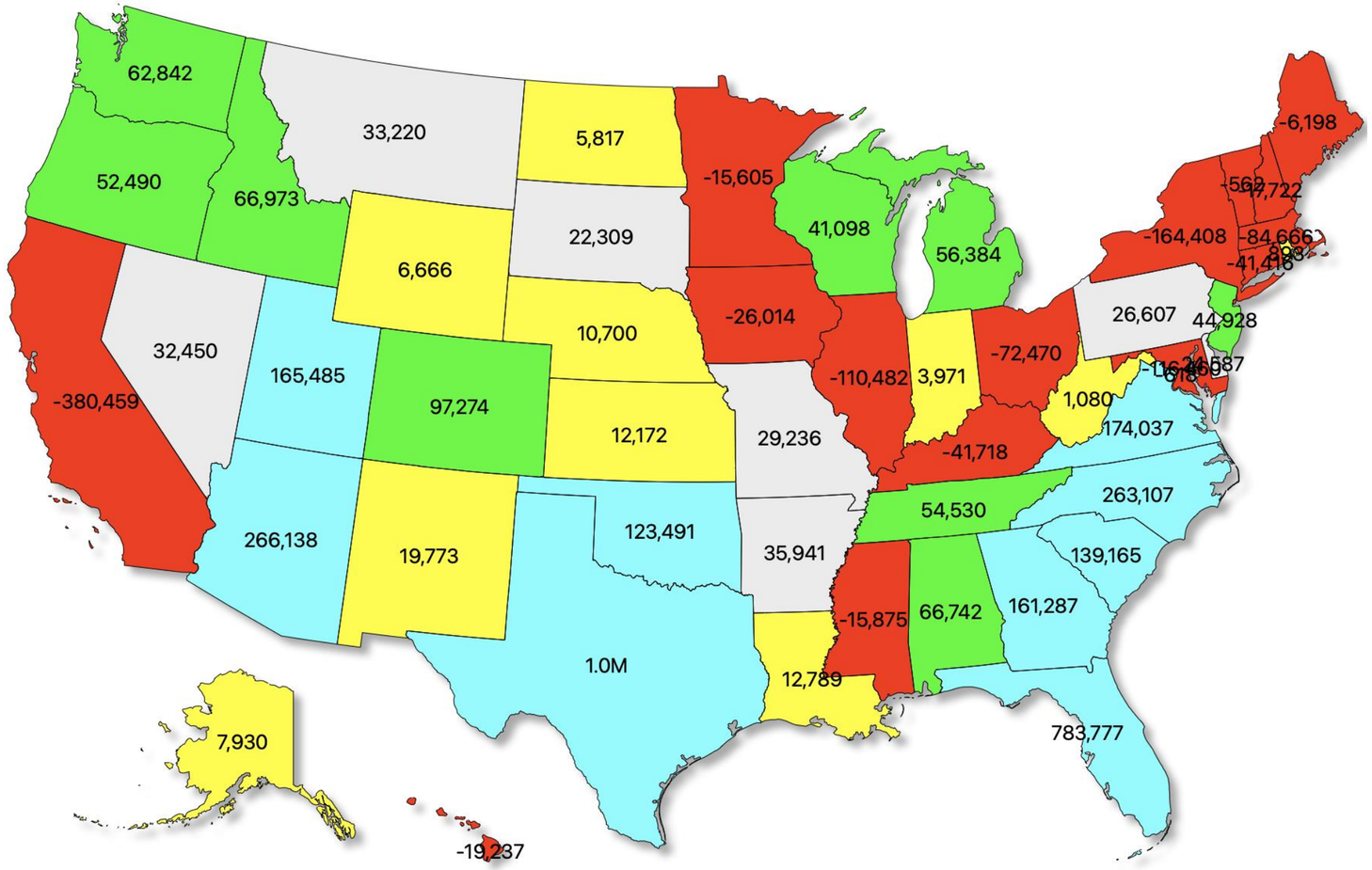
Wisconsin Among States with an Unemployment Rate Significantly Below U.S. Average

February 2024 Unemployment Rates

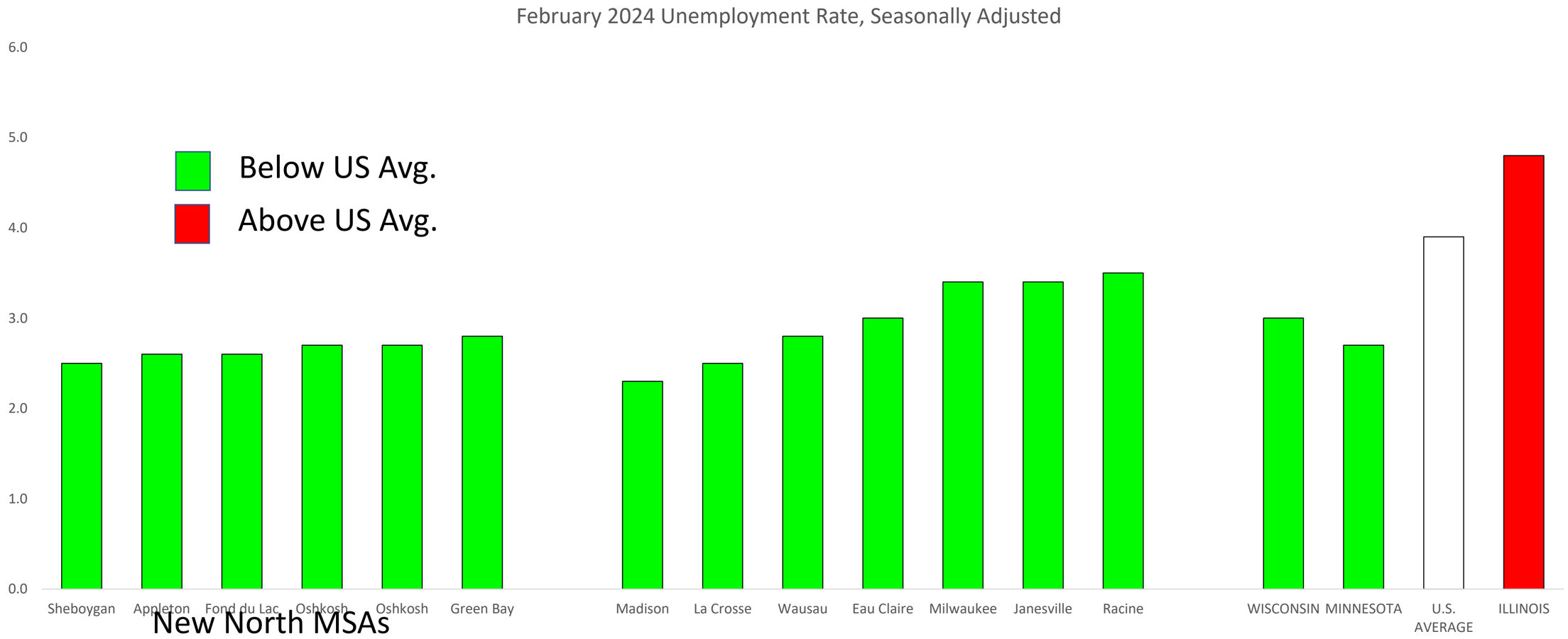


Multiple States Behind Pre-Pandemic Employment Levels

Change in Employment, Household Series, Dec. 2023 Less Jan. 2020

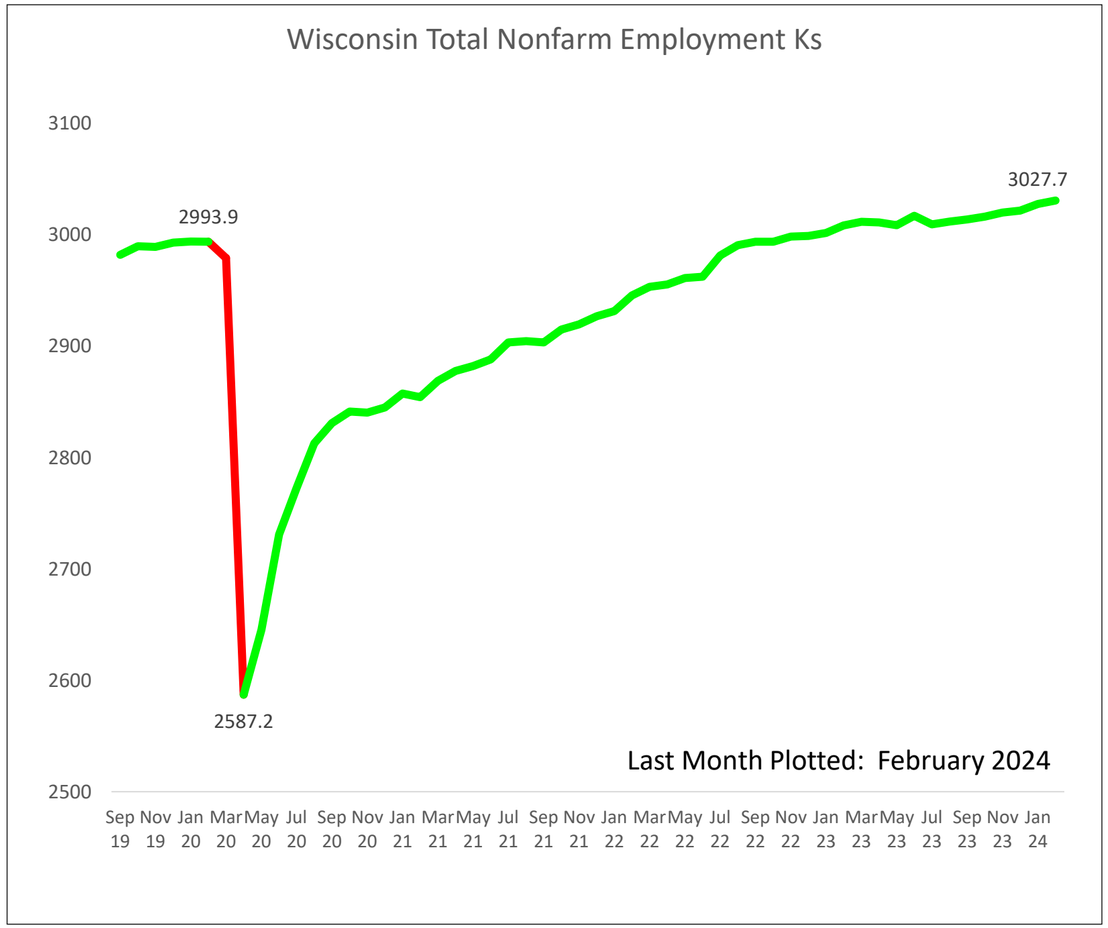


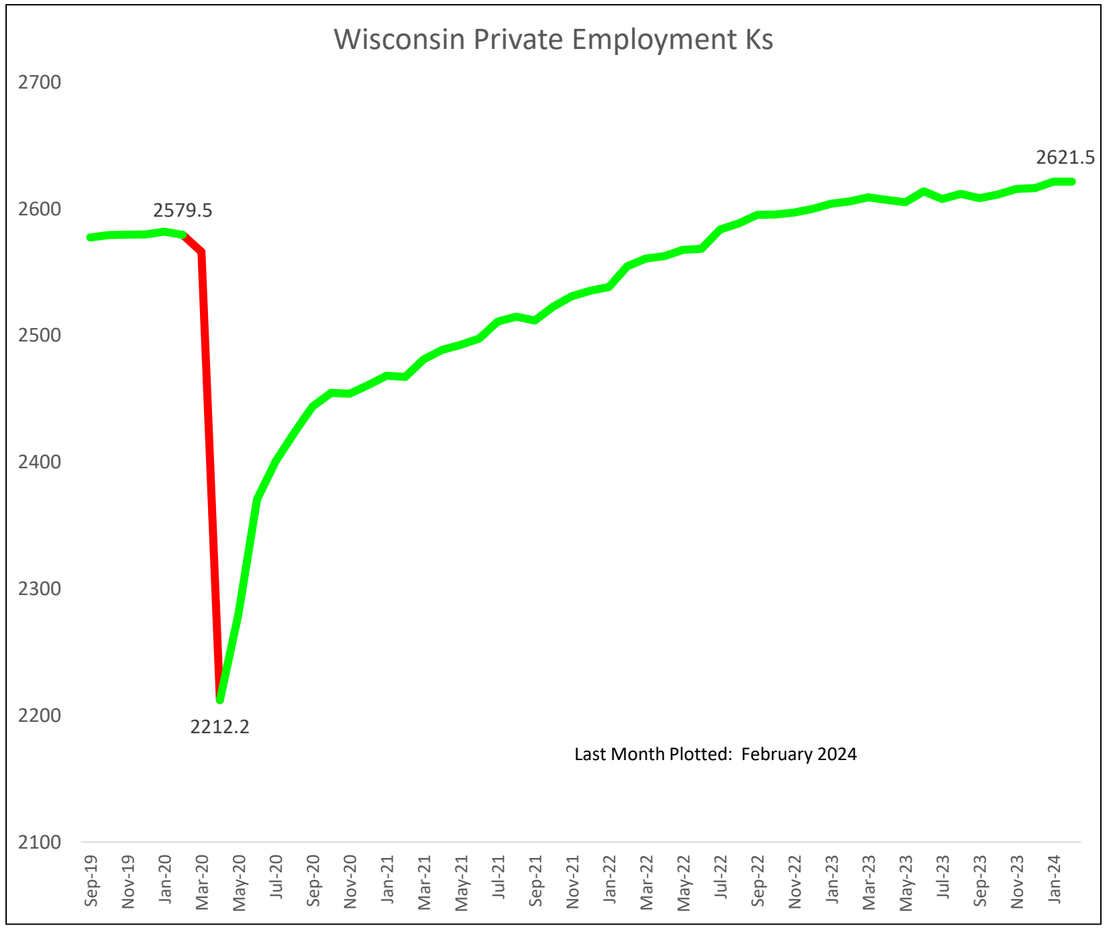
New North MSA Unemployment Rates Under 3.0%



Wisconsin Employment Record High February 2024

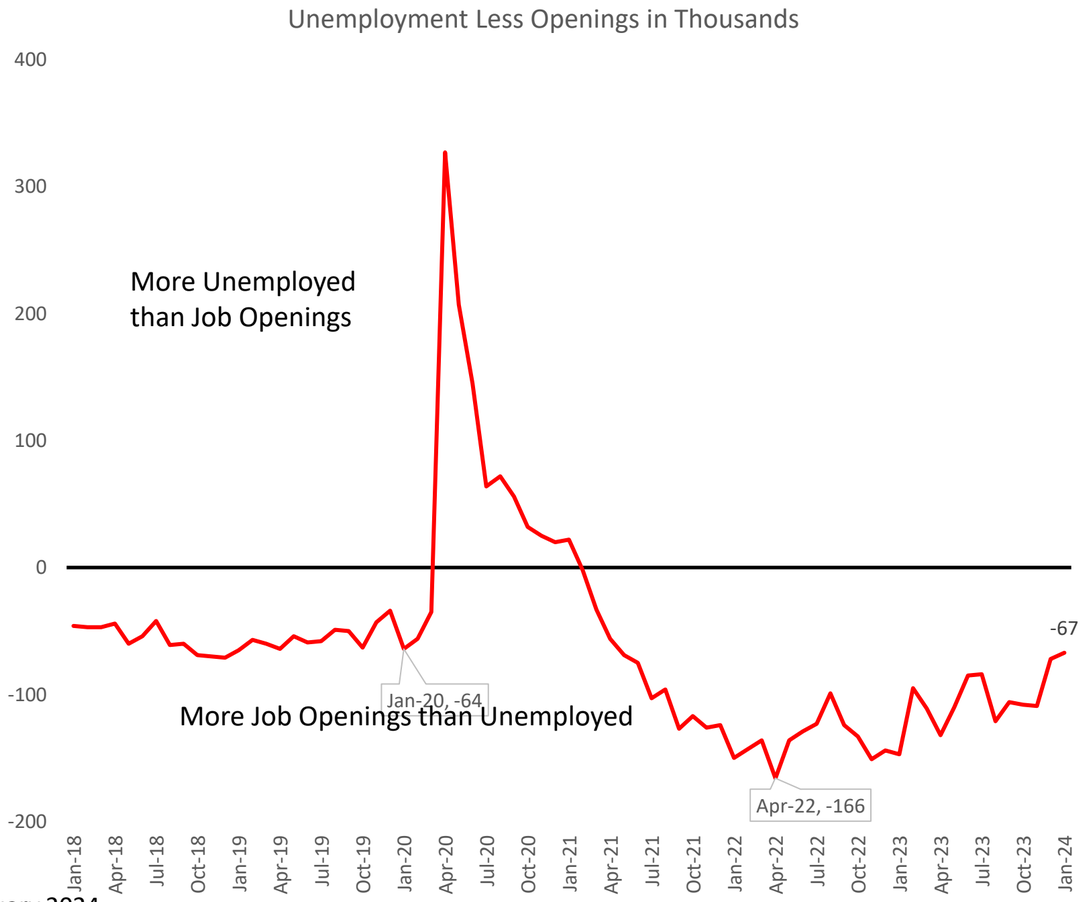
Establishment Survey: Wisconsin Recovered 443,000 Jobs Since April 2020





Source: U.S. Bureau of Labor Statistics, Data Retrieved March 26, 2024

Wisconsin Job Openings:
Labor Shortage Gradually Easing



Last Month Plotted, January 2024

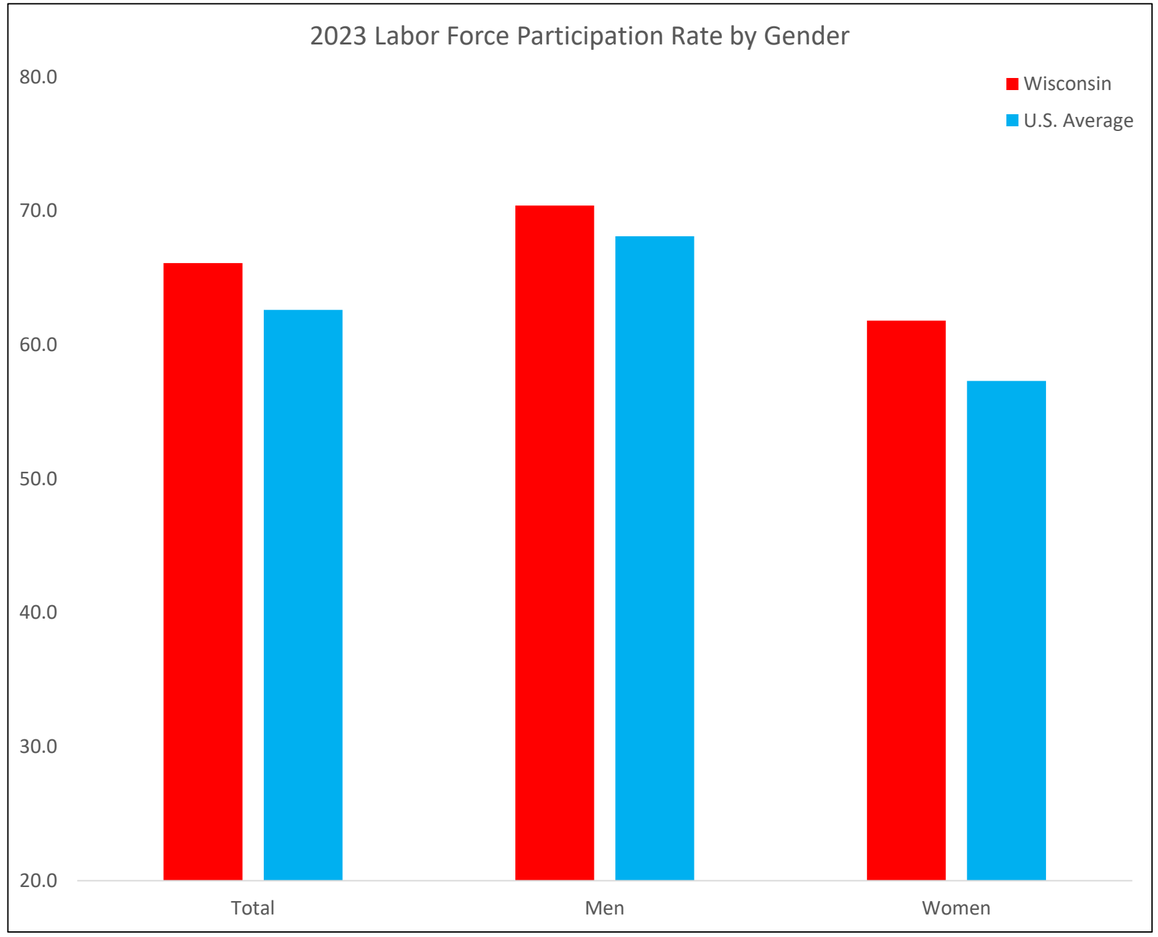
Source: U.S. Bureau of Labor Statistics, Job Openings and Labor Turnover Survey and Local Area Unemployment Statistics

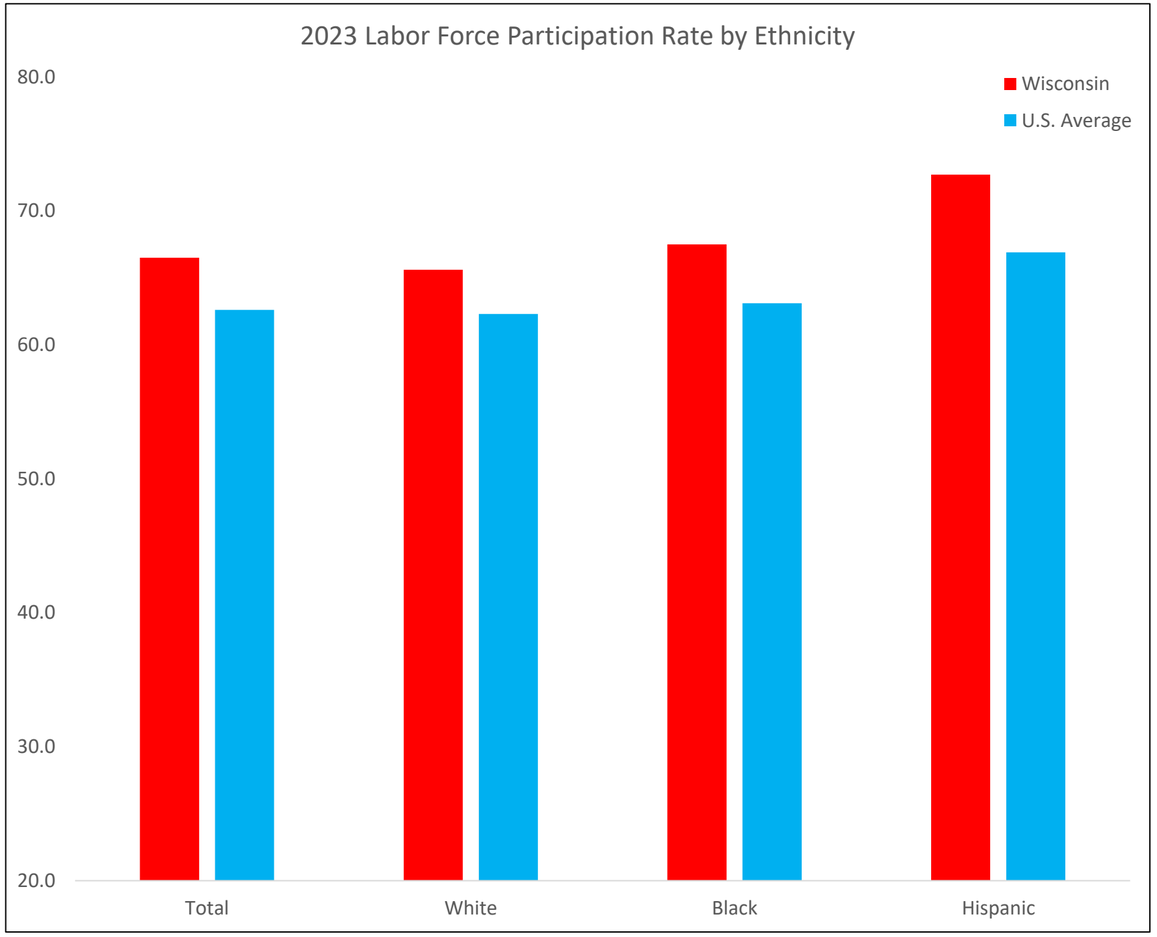
Labor Force

Wisconsin More Engaged in the Workforce than the U.S. as a whole

Updates from 2023 Current Population Survey

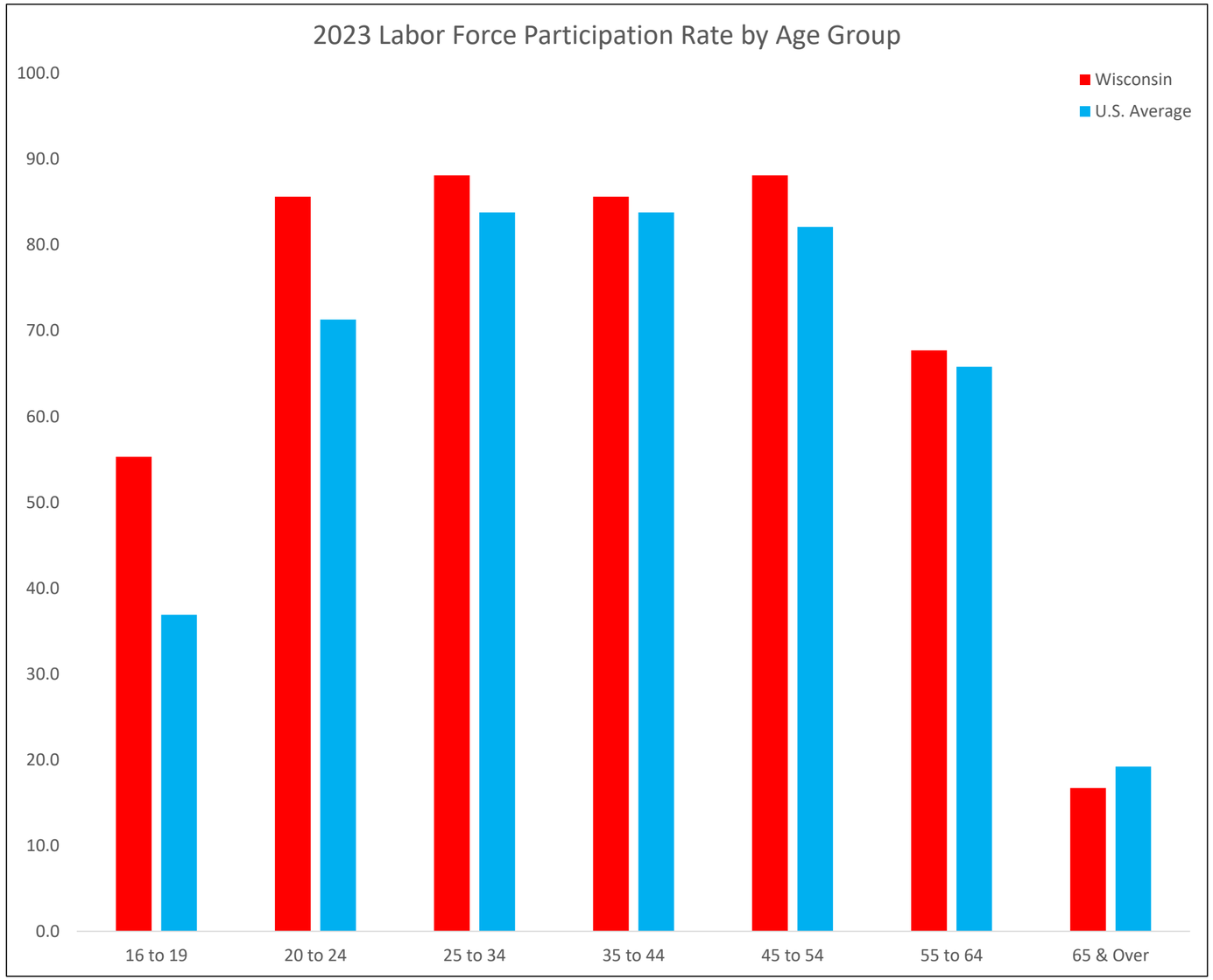
Wisconsin Workers More Engaged than the U.S. Average by Gender or Ethnicity





Source: U.S. Bureau of Labor Statistics

Wisconsin Workers More Engaged than the U.S. for Nearly Every Age Group

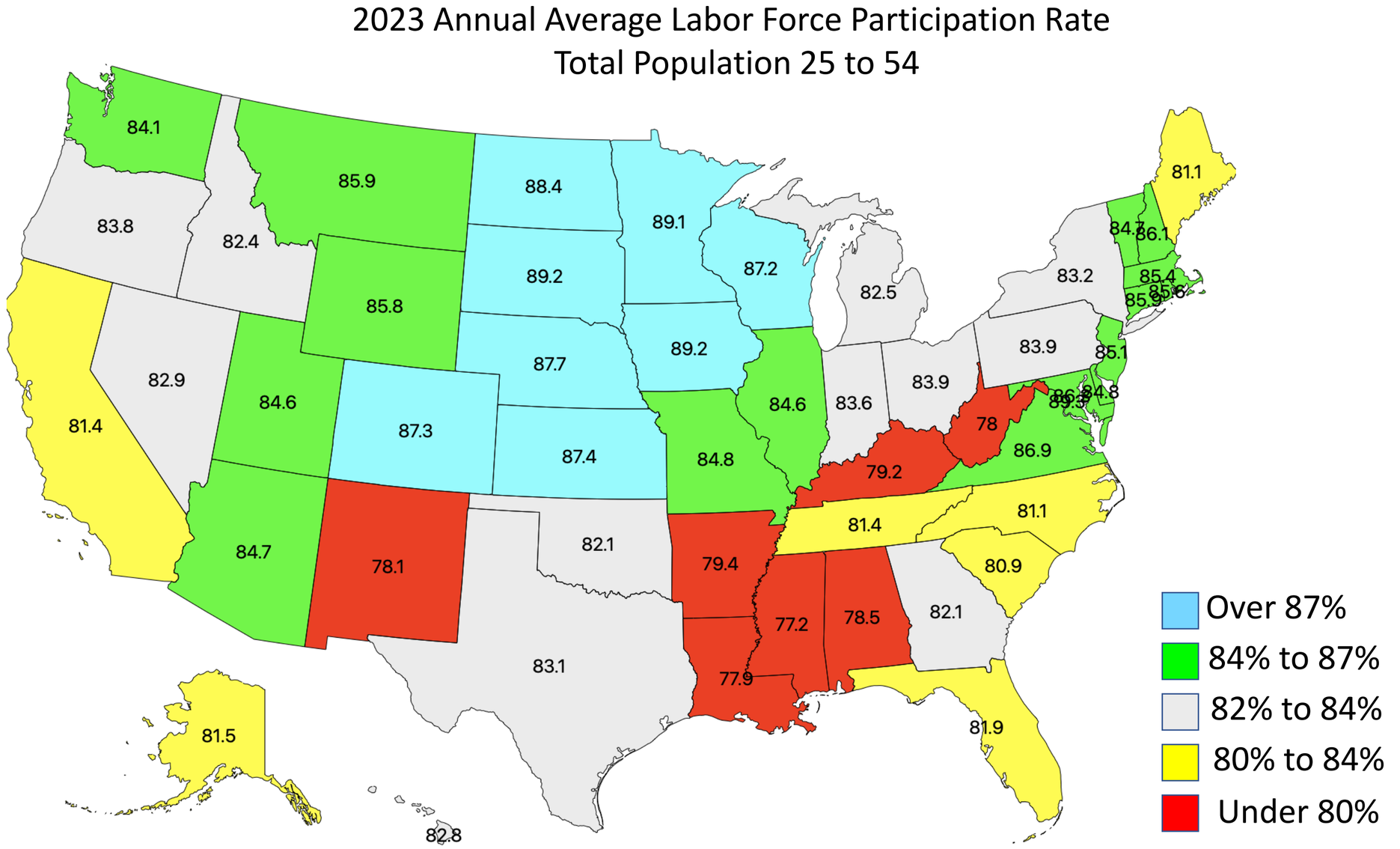


Source: U.S. Bureau of Labor Statistics, Expanded State Employment Status Demographic Data, 2023, Published January 24, 2024

For Prime Working Age Population,

Wisconsin has the 8th Highest Labor Force Participation Rate

U.S. Average 83.3%



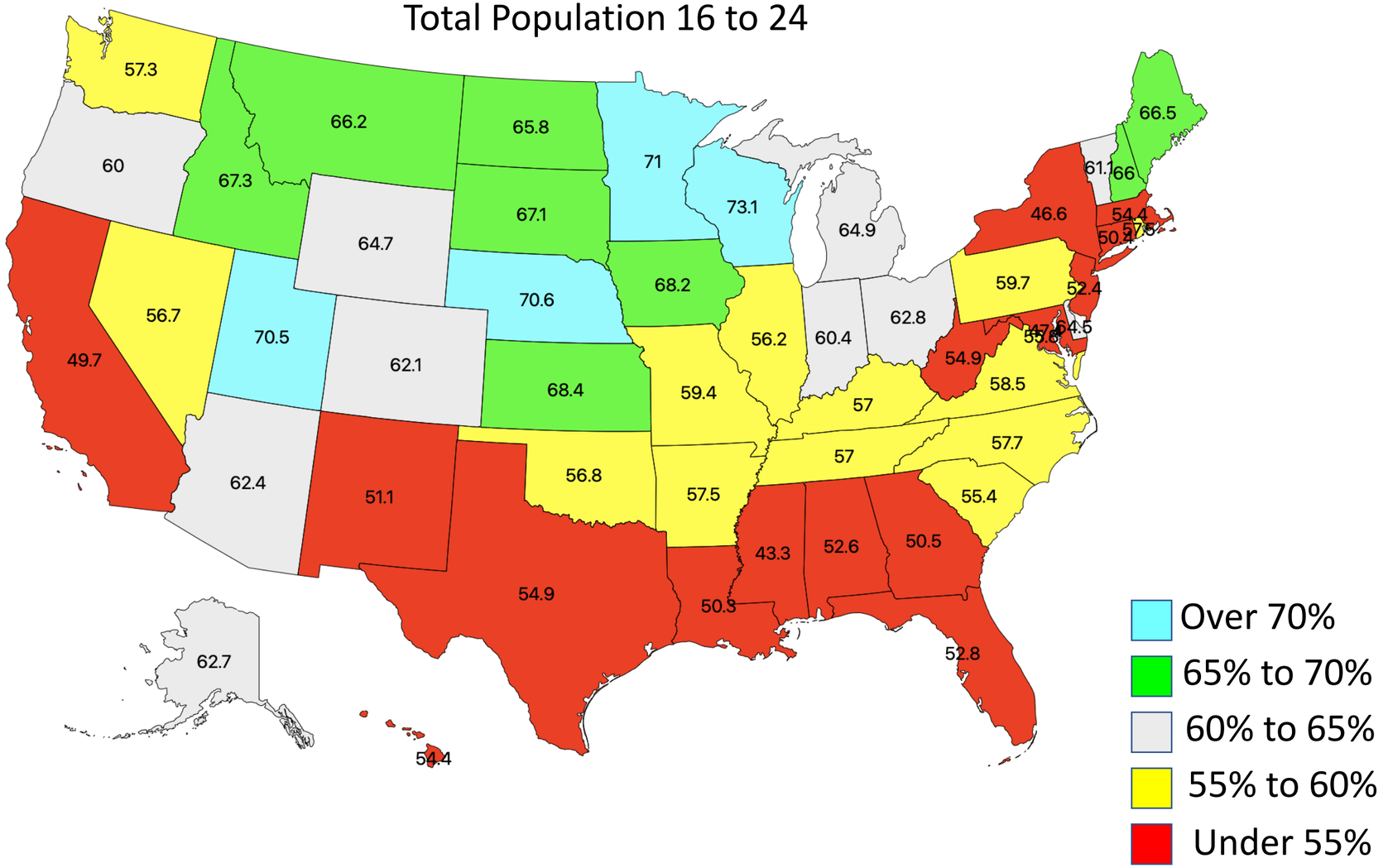
Source: U.S. Bureau of Labor Statistics, Expanded State Employment Status Demographic Data, 2023, Published January 24, 2024

Wisconsin is The Top State

For Youth Labor Force Participation

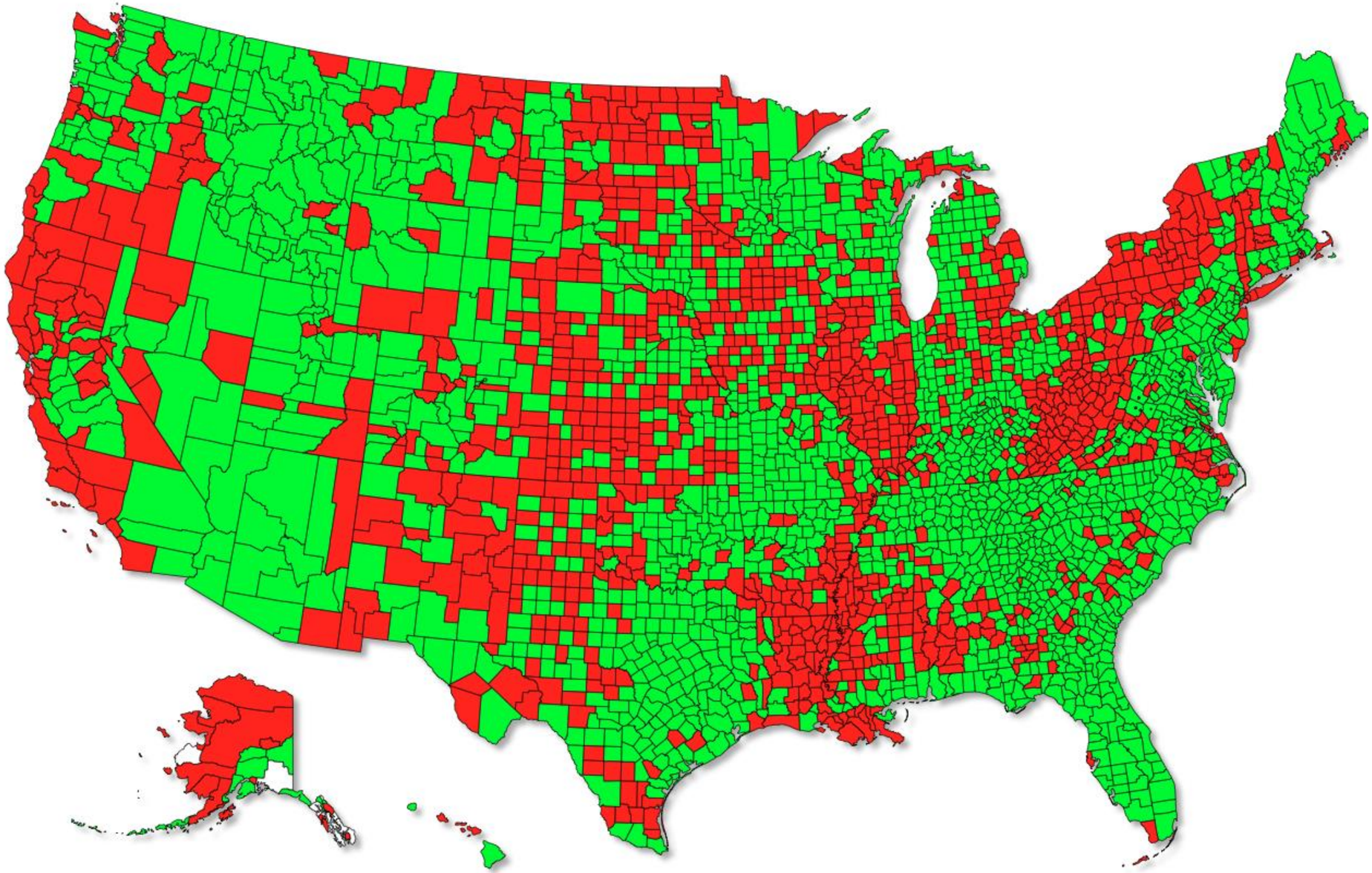
U.S. Average 56.3%

2023 Annual Average Labor Force Participation Rate
Total Population 16 to 24



Source: U.S. Bureau of Labor Statistics, Expanded State Employment Status Demographic Data, 2023, Published January 24, 2024

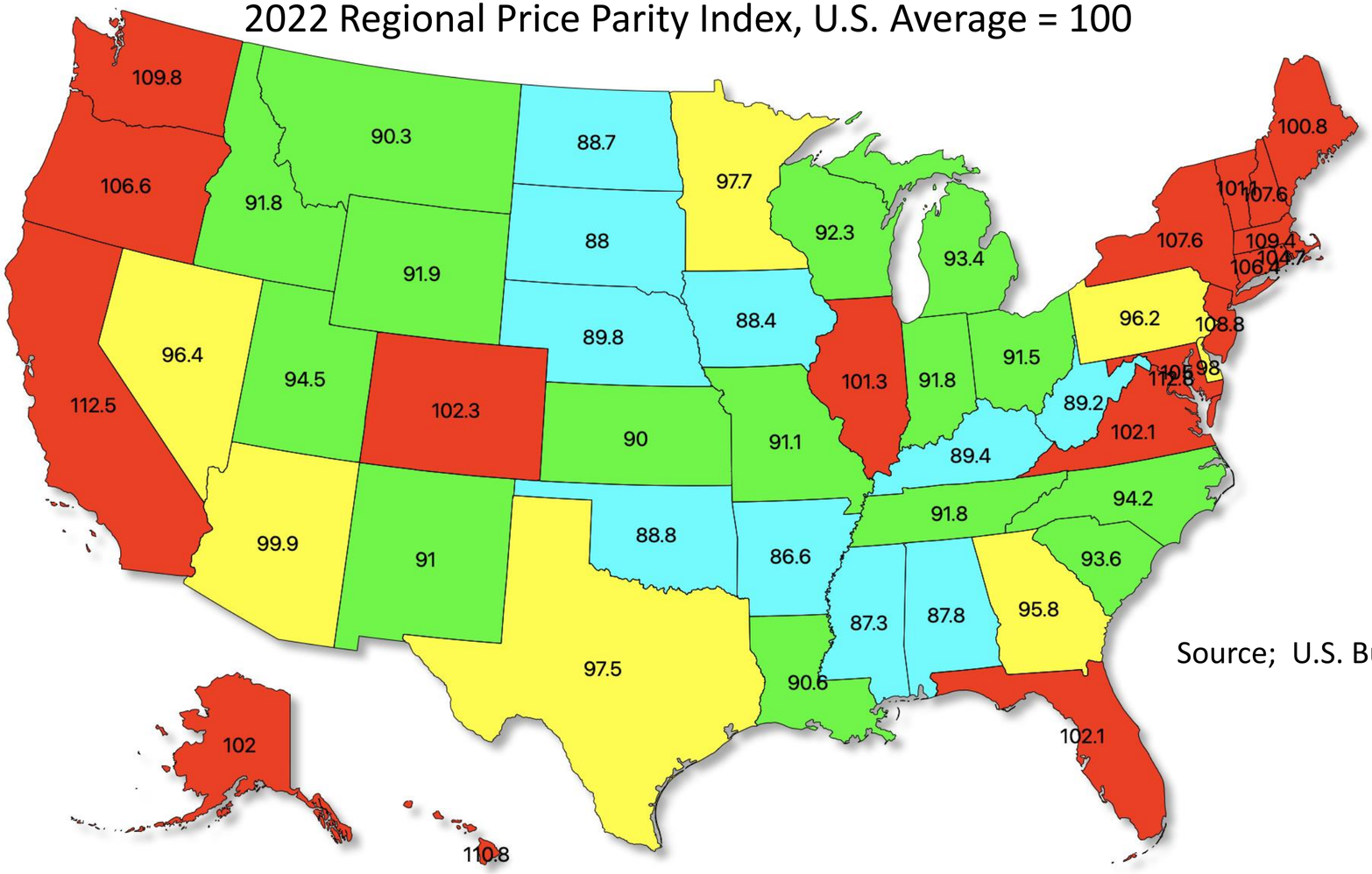
Most Wisconsin Counties Gaining Population



Cost of Living and Housing

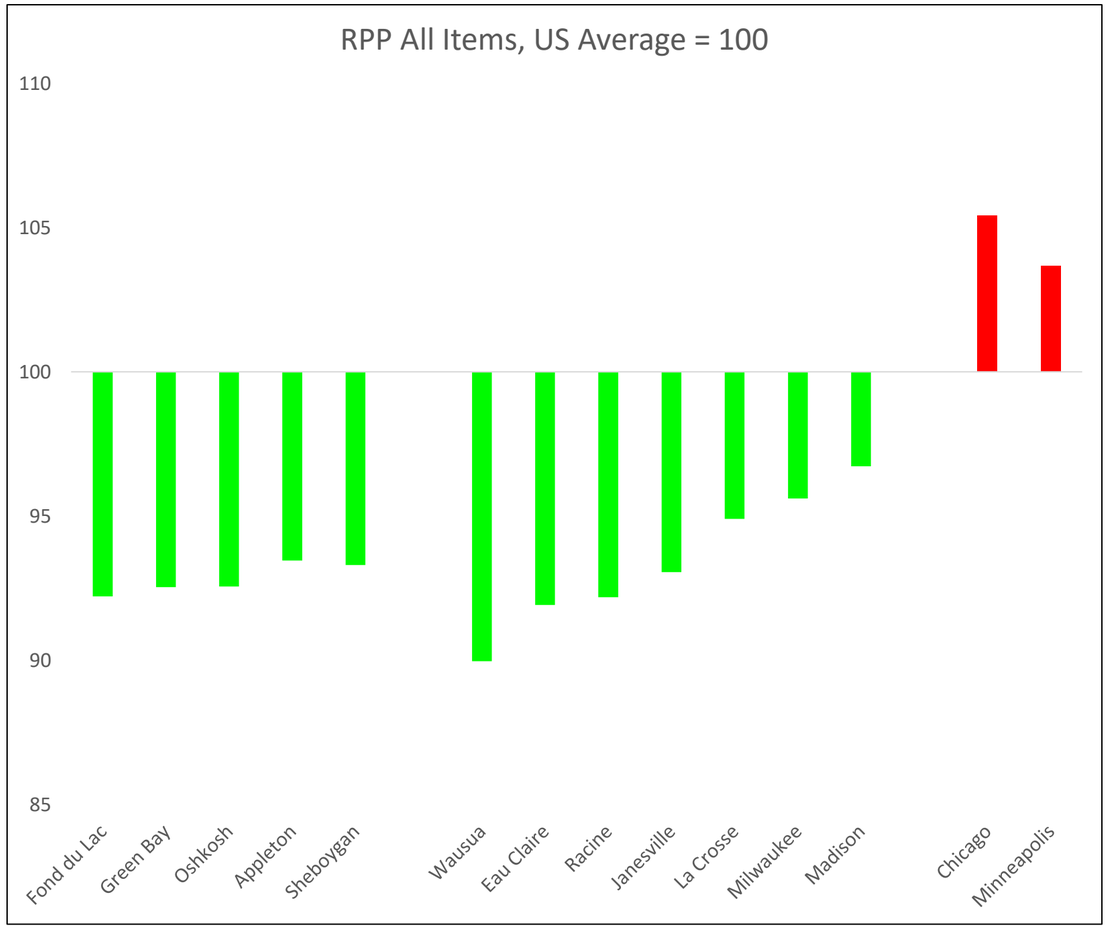
Wisconsin's Cost of Living Below U.S. Average

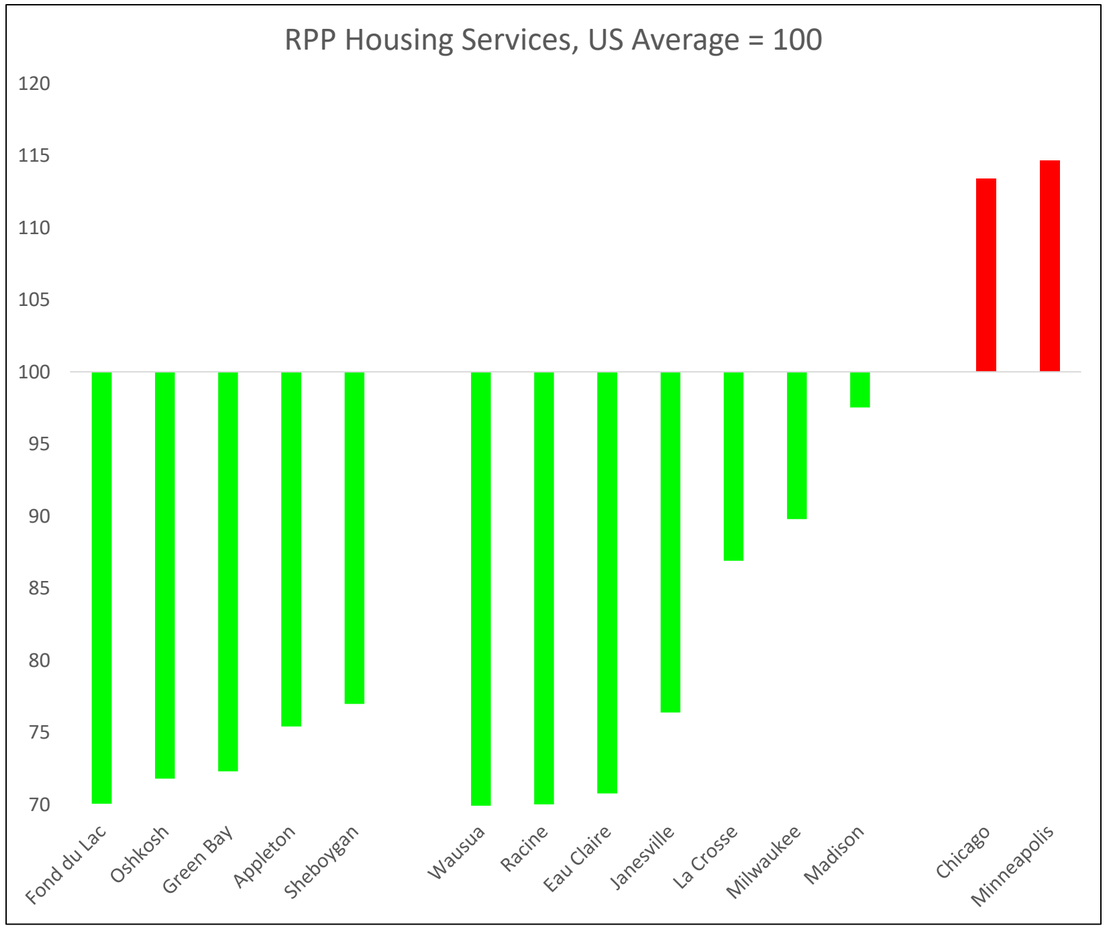
2022 Regional Price Parity Index, U.S. Average = 100



Source; U.S. Bureau of Economic Analysis

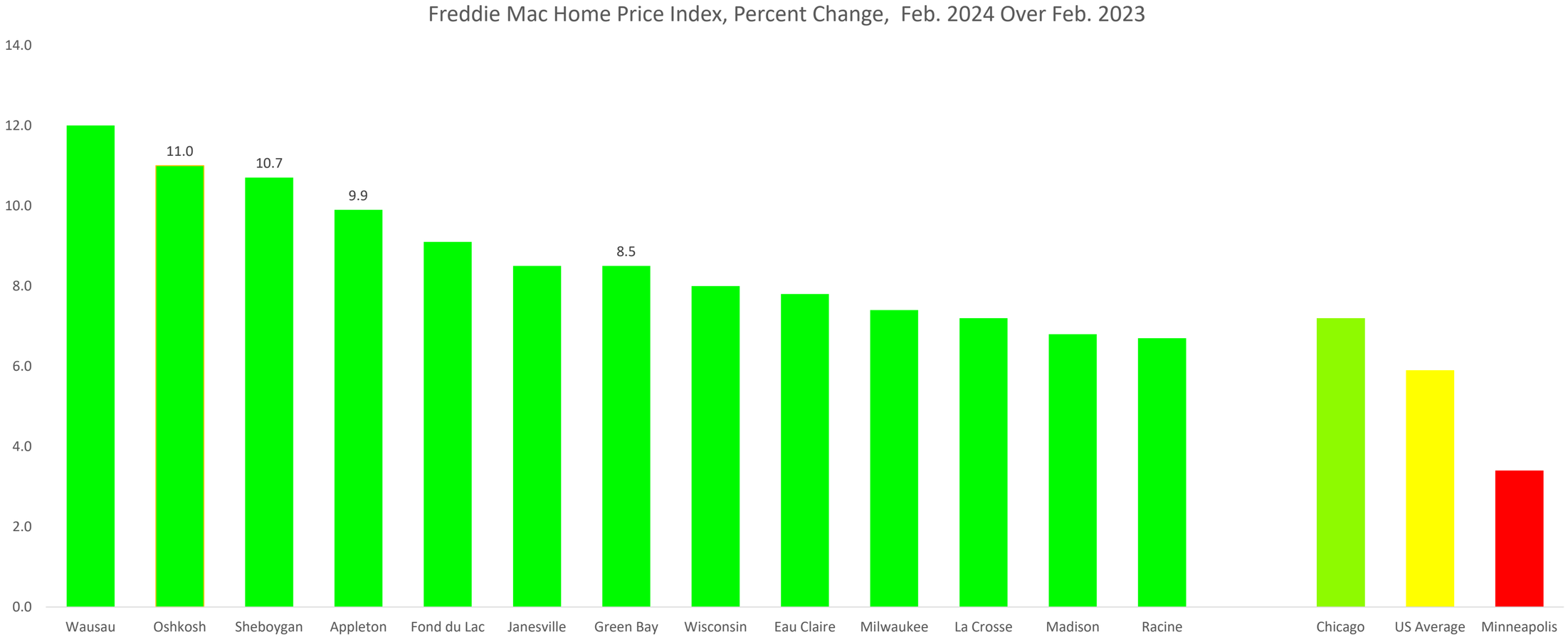
Every Wisconsin MSA Has Below Average Cost of Living





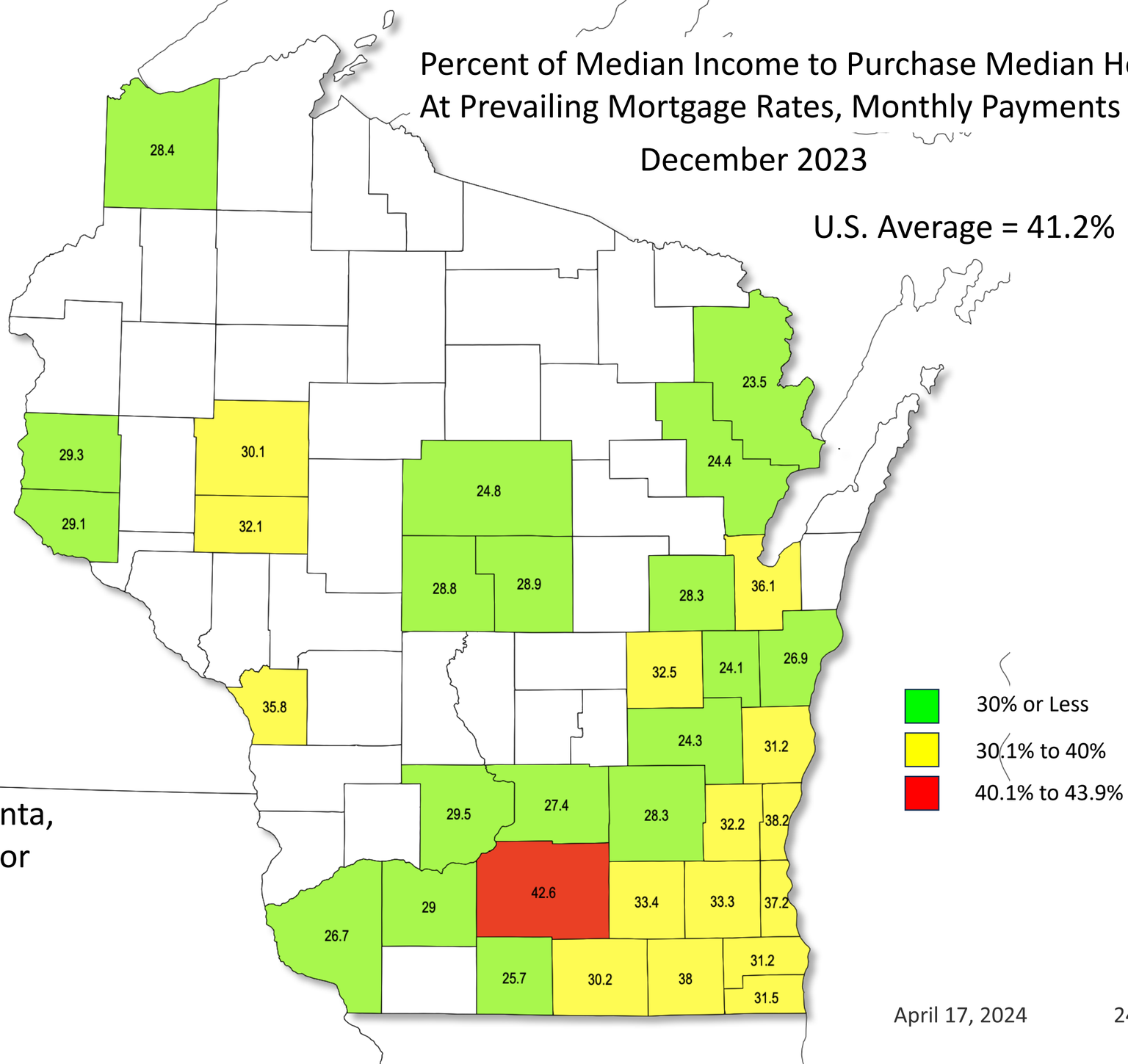
Home Prices In Every Wisconsin Metro Area Increasing Faster than U.S. Average

New North MSAs Also Faster than State Average



Housing Affordability

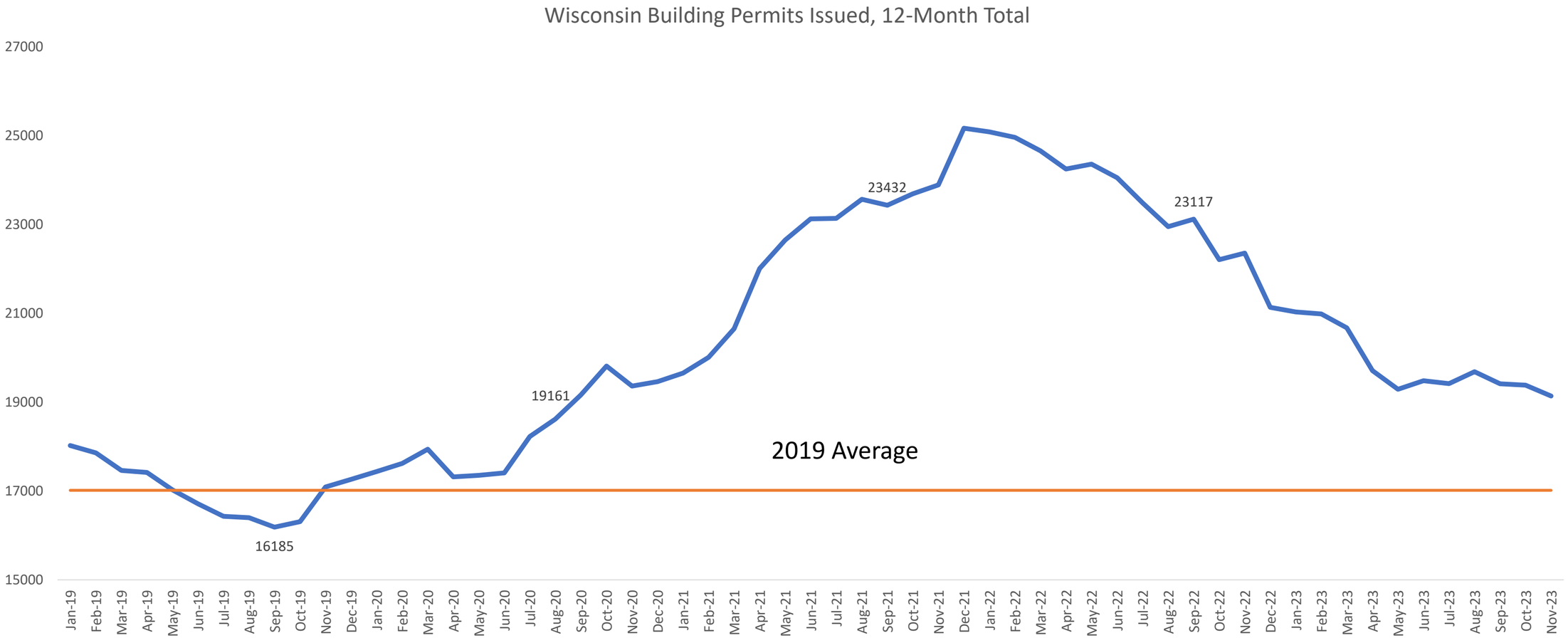
Most WI Markets More Affordable than U.S. Average



Source: Federal Reserve Bank of Atlanta, Home Ownership Affordability Monitor

Housing: Wisconsin Housing Construction

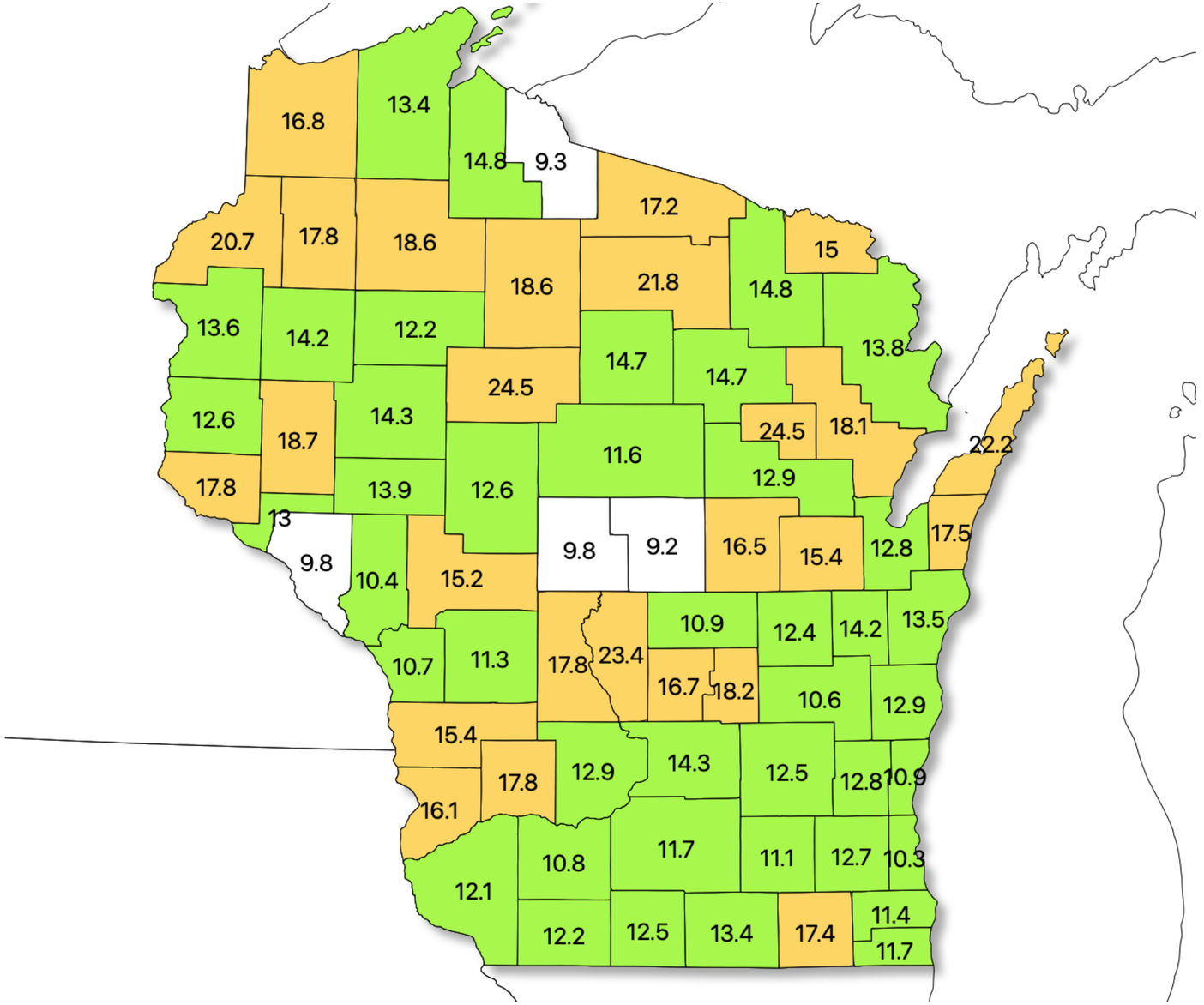
Retreating from Recent Highs But Ahead of Pre-Pandemic Levels



Source: U.S. Bureau of the Census, Building Permits Survey, Author Tabulation. Last Month Plotted November 2023

Strong Gain in Property Values Across the State

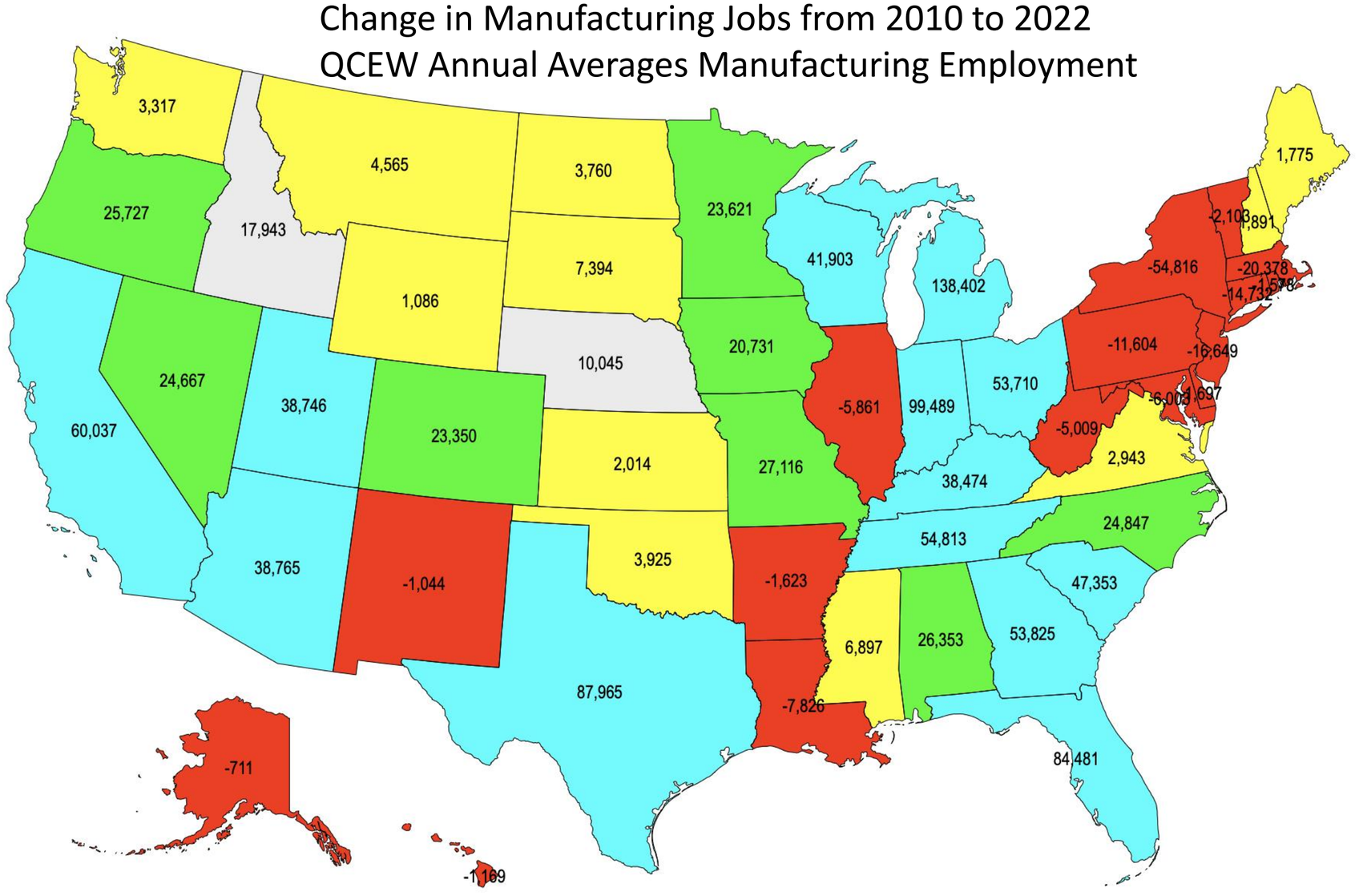
Percent Change in Total Property Value, Jan. 2023 over Jan. 2022



Wisconsin Manufacturing

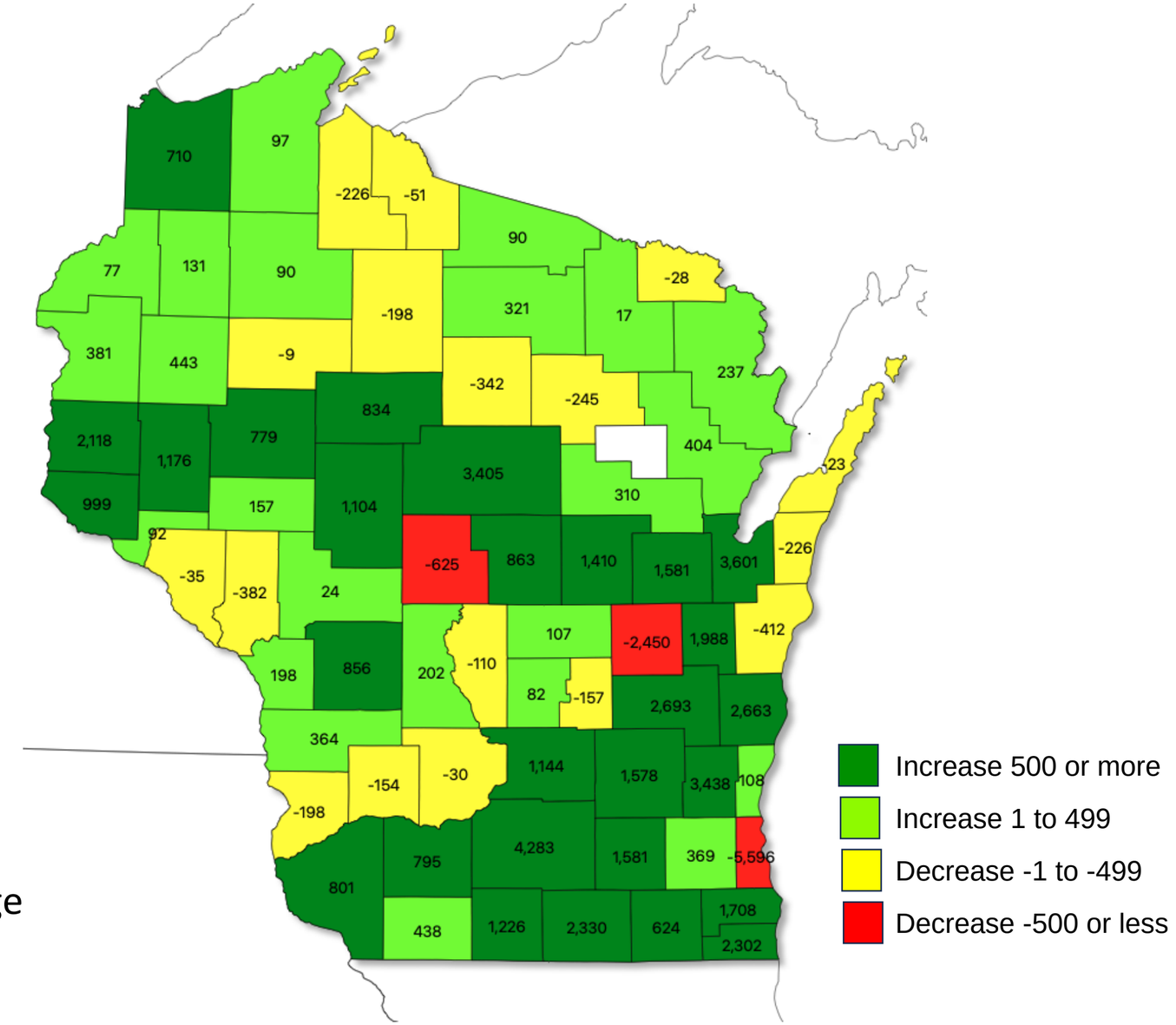
Geographic Trends in U.S. Manufacturing

- Northeast de-industrializing
- Midwest re-industrializing
- Southeast expanding industrialization
- Western states adding manufacturing



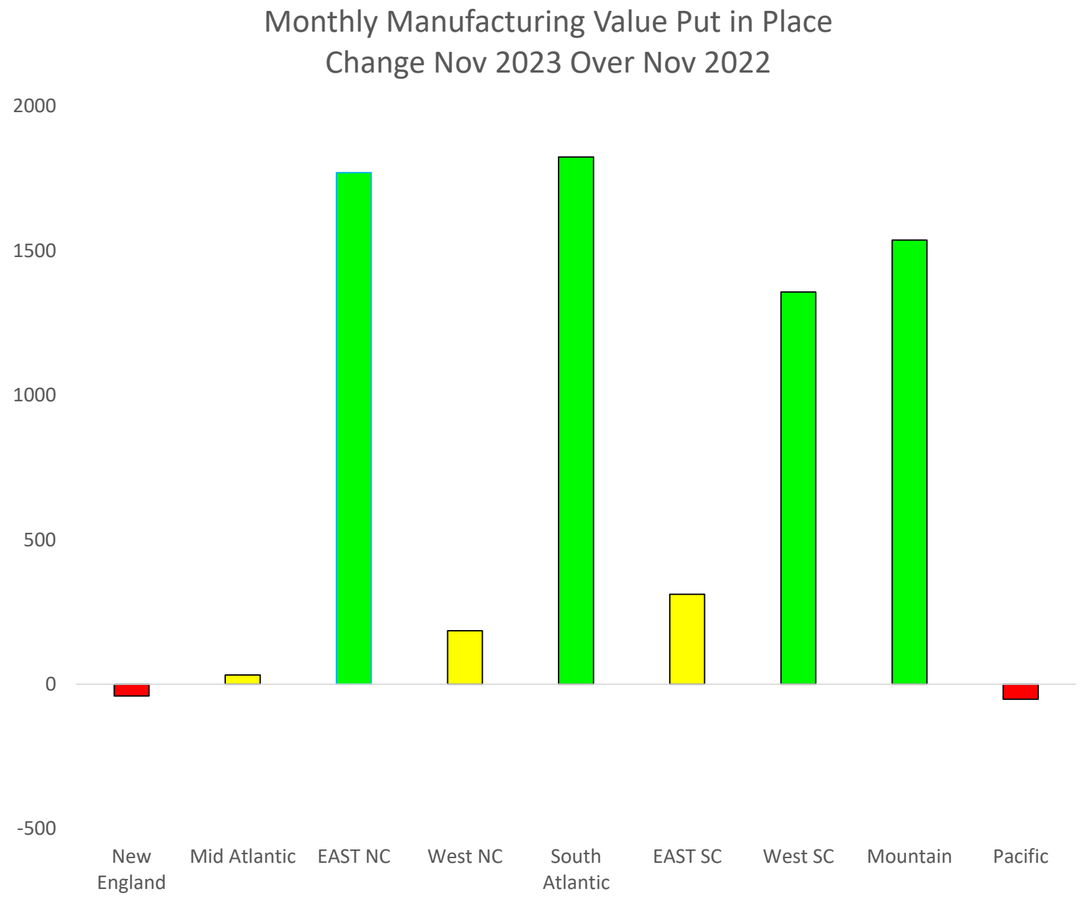
Manufacturing Job Gains Throughout Much of the State

Change in Manufacturing Employment 2010 to 2022

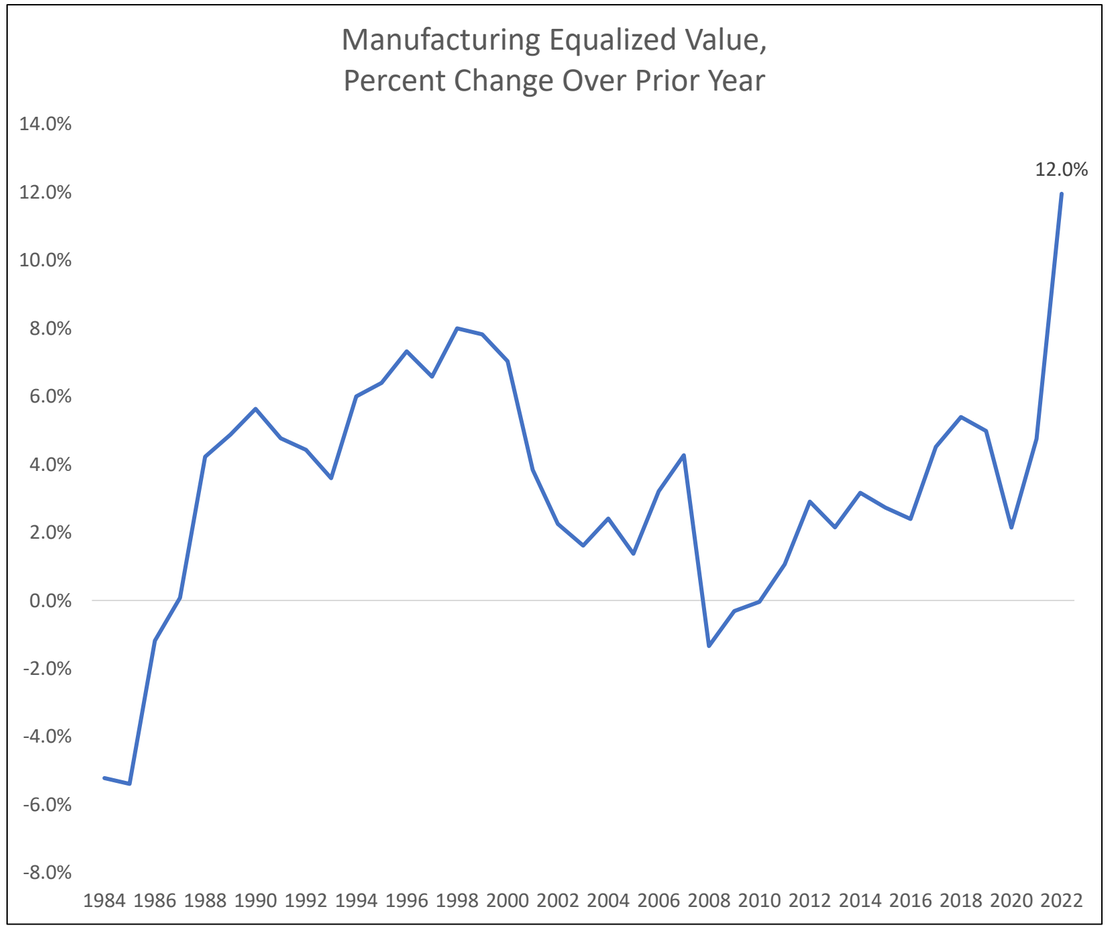


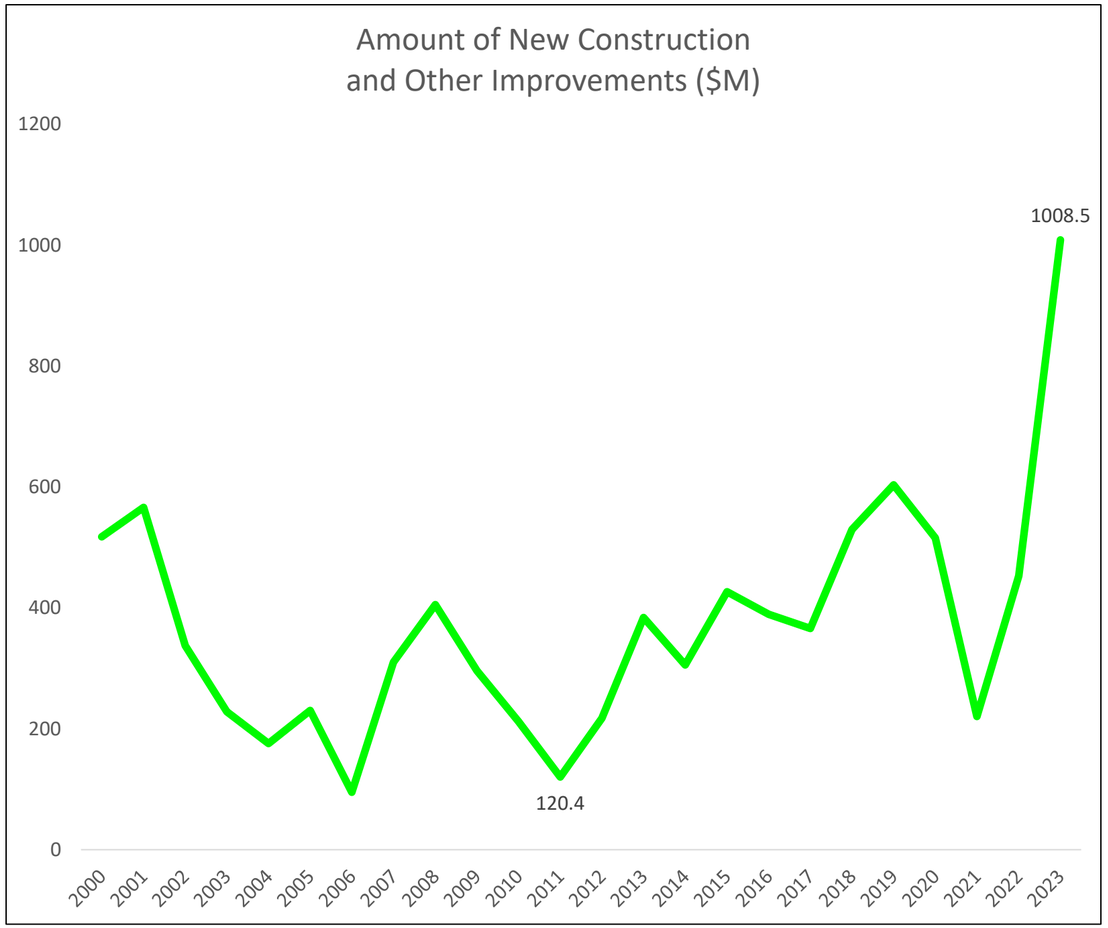
Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages, Annual Average

Substantial Variance for Increase In Manufacturing Value Put In Place by Region



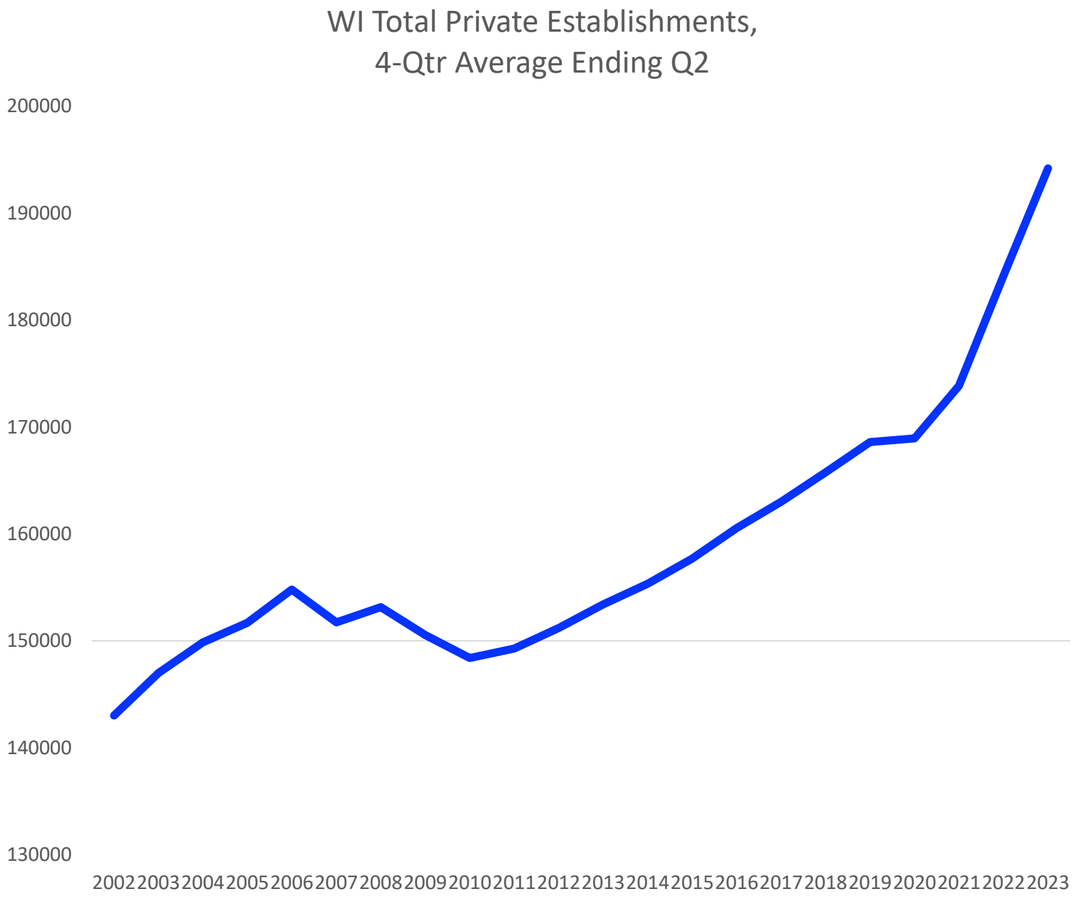
Strongest Increase in Wisconsin Manufacturing Property Values in 40 Years

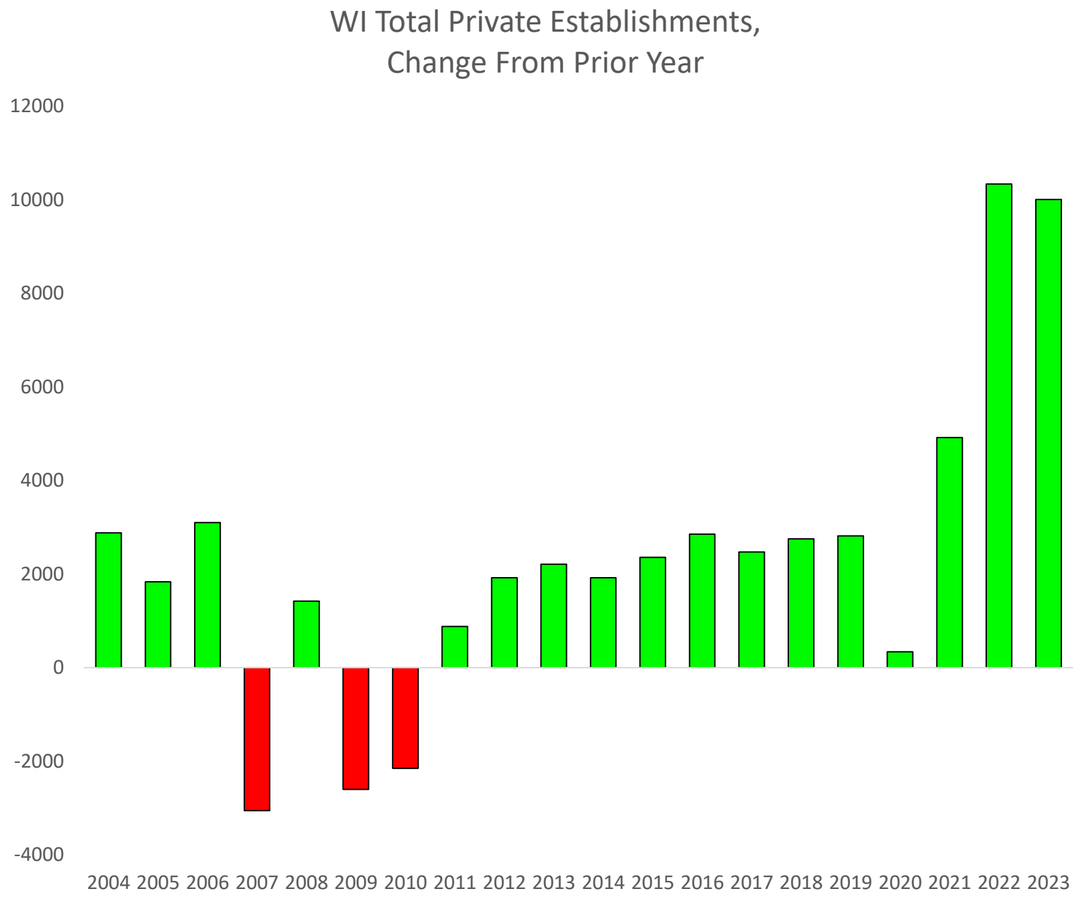




Wisconsin Entrepreneurship

Wisconsin Total Number of Businesses Rose Sharply in 2021, 2022, and 2023

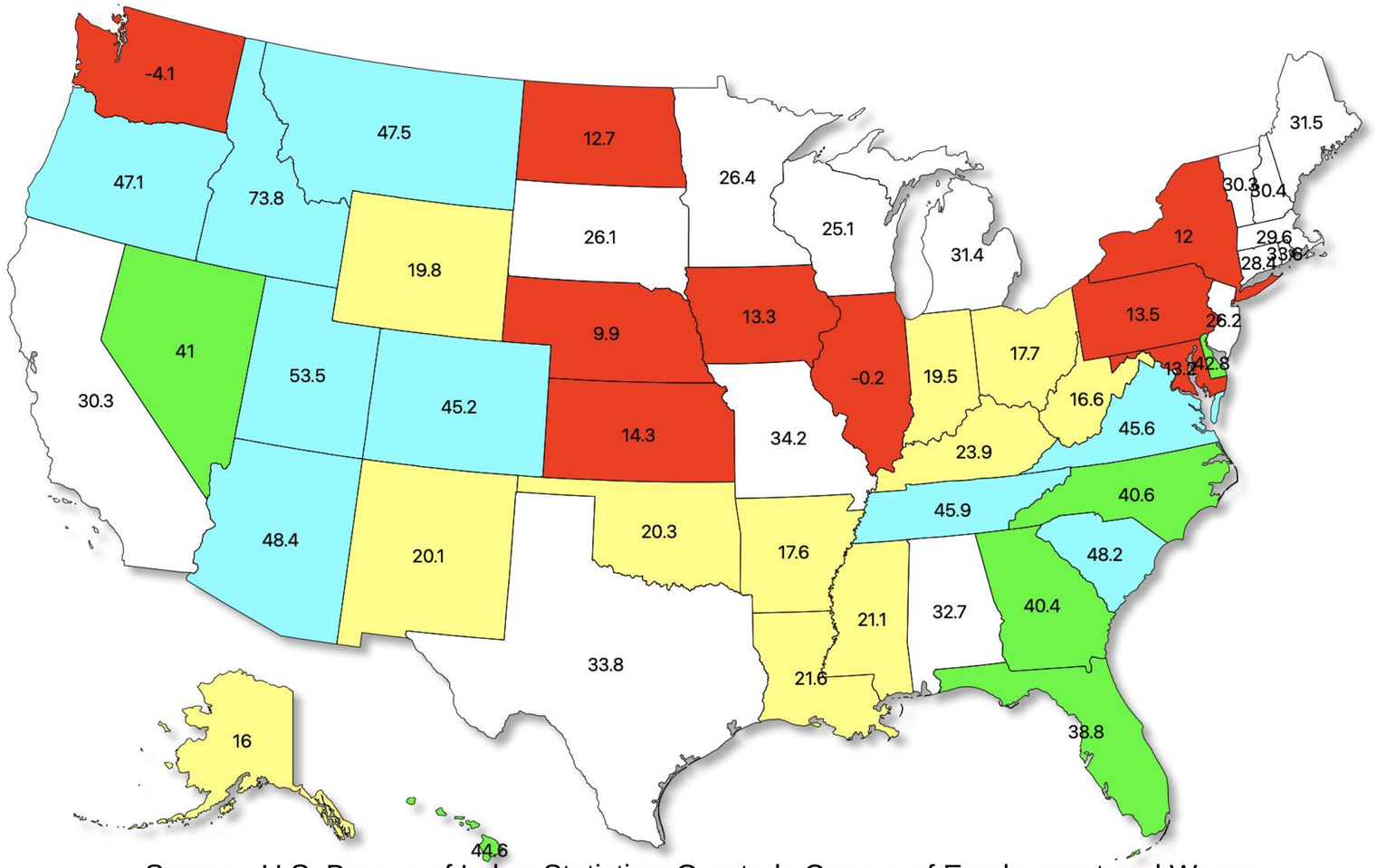




Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, Data Retrieved January 21, 2024

Wisconsin Competitive in Growth in Number of Businesses

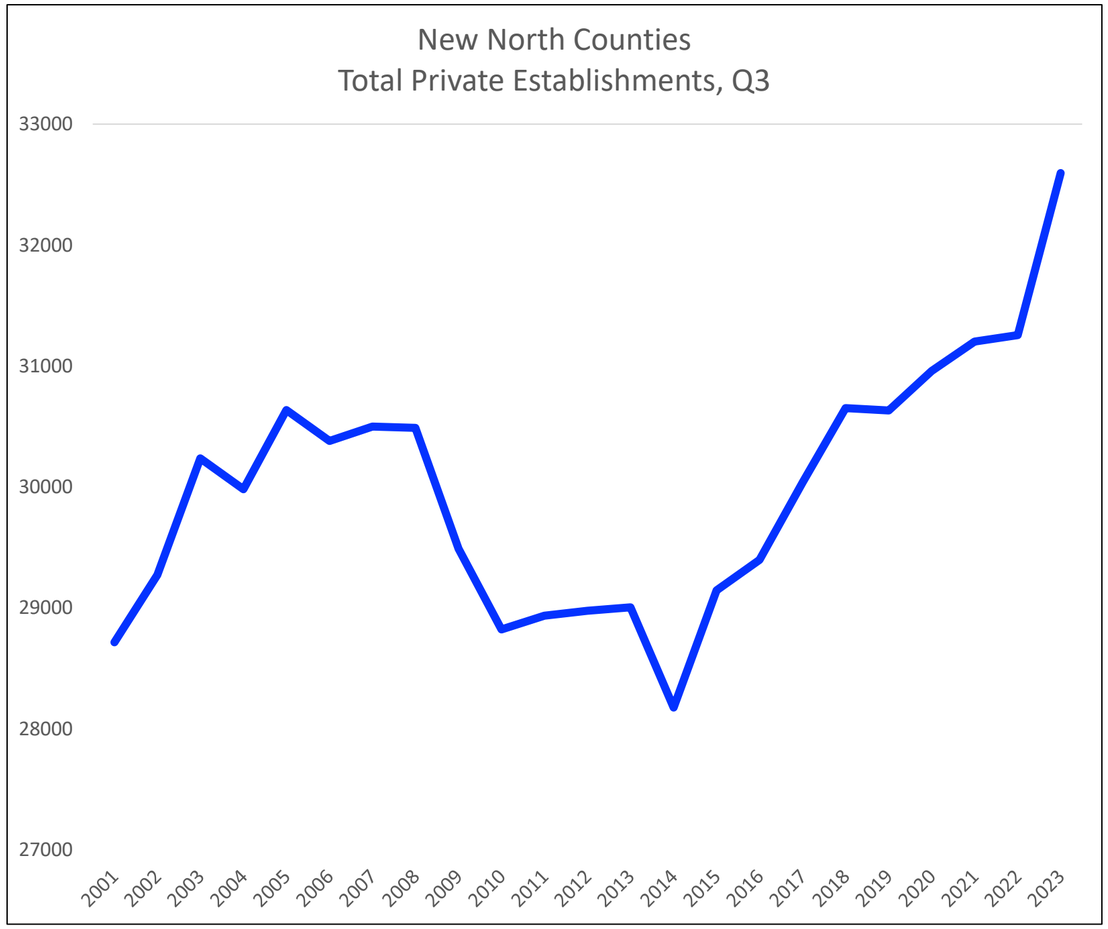
Percent Change in Private Establishments,
Four Quarter Average Ending 2nd Qtr, 2023 over 2014

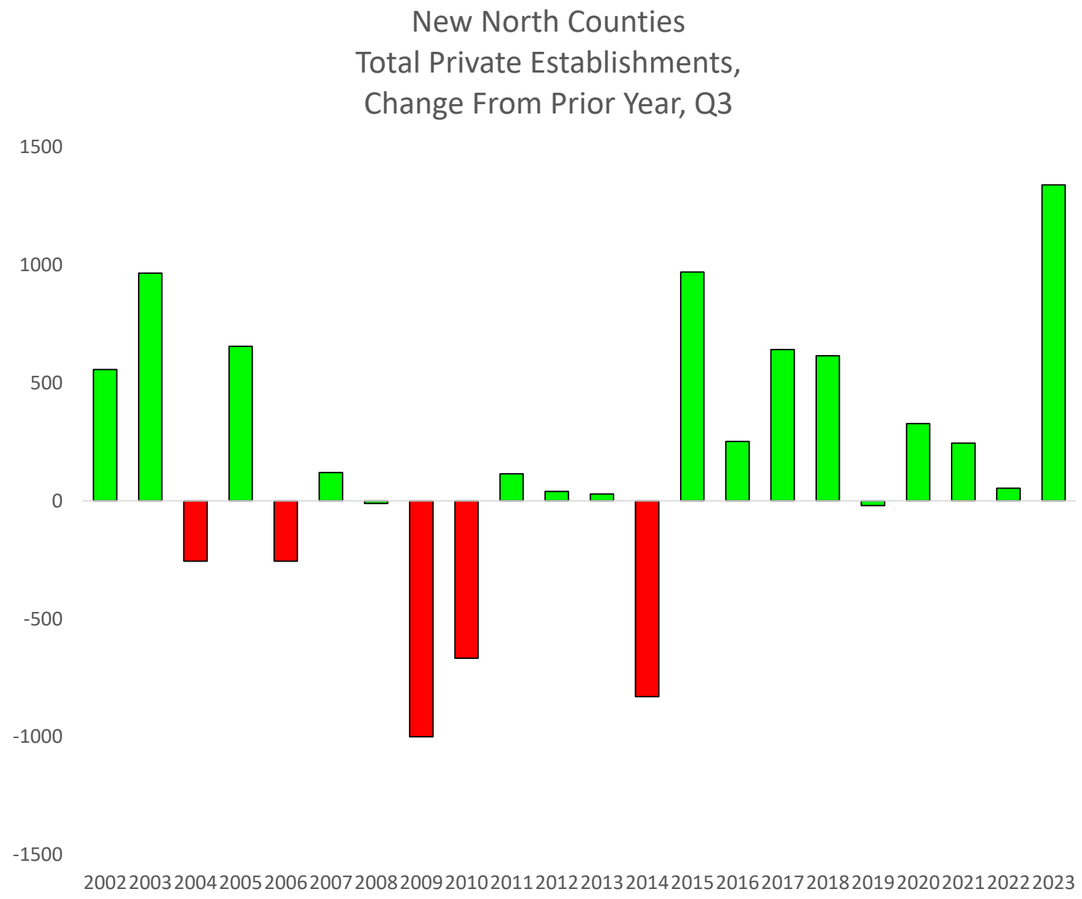


- Over 45%
- 35% to 45%
- 25% to 35%
- 15% to 25%
- Under 15%

Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages
Data Retrieved January 25, 2024

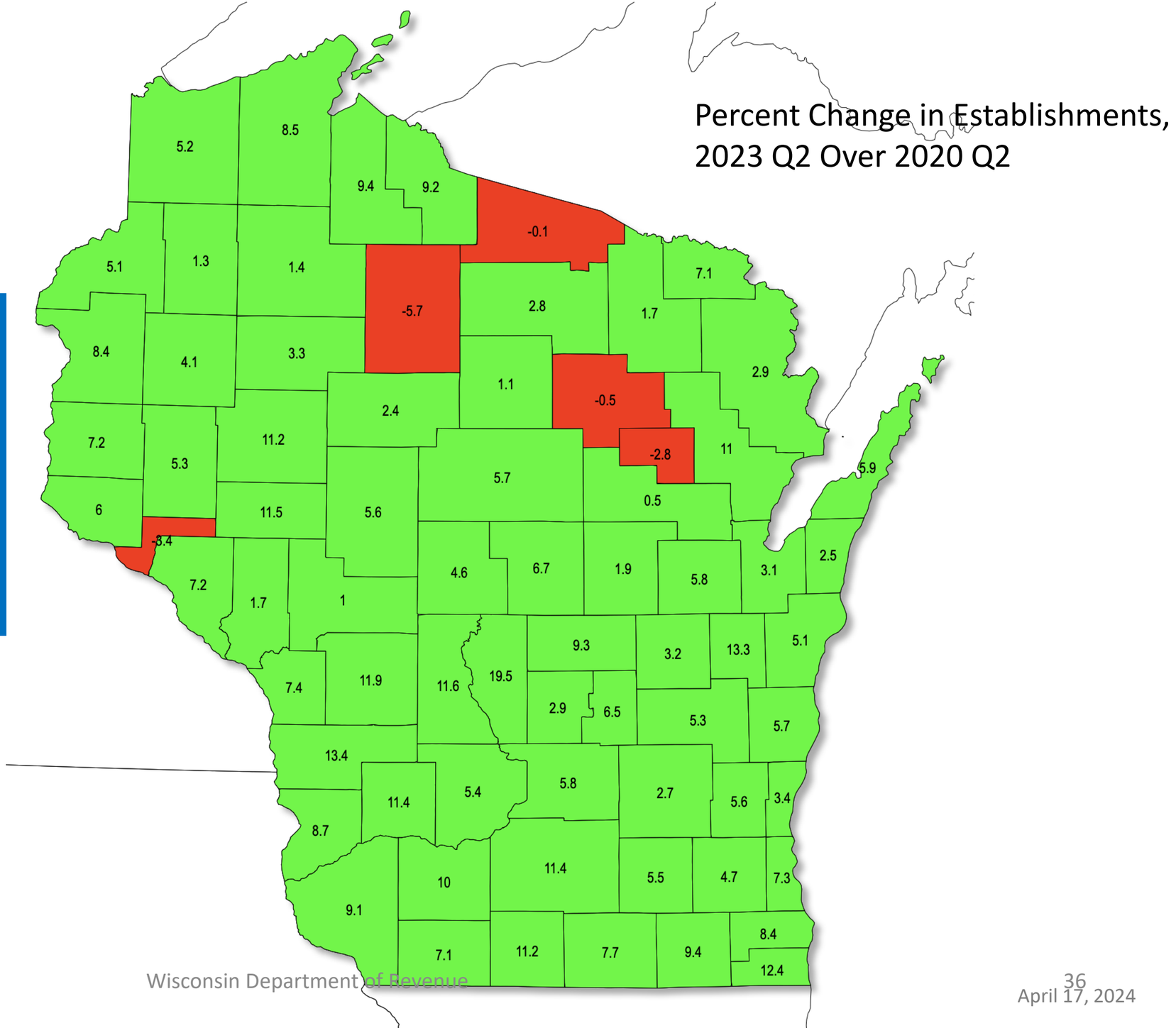
New North Total Number of Businesses Rose Sharply Since 2014





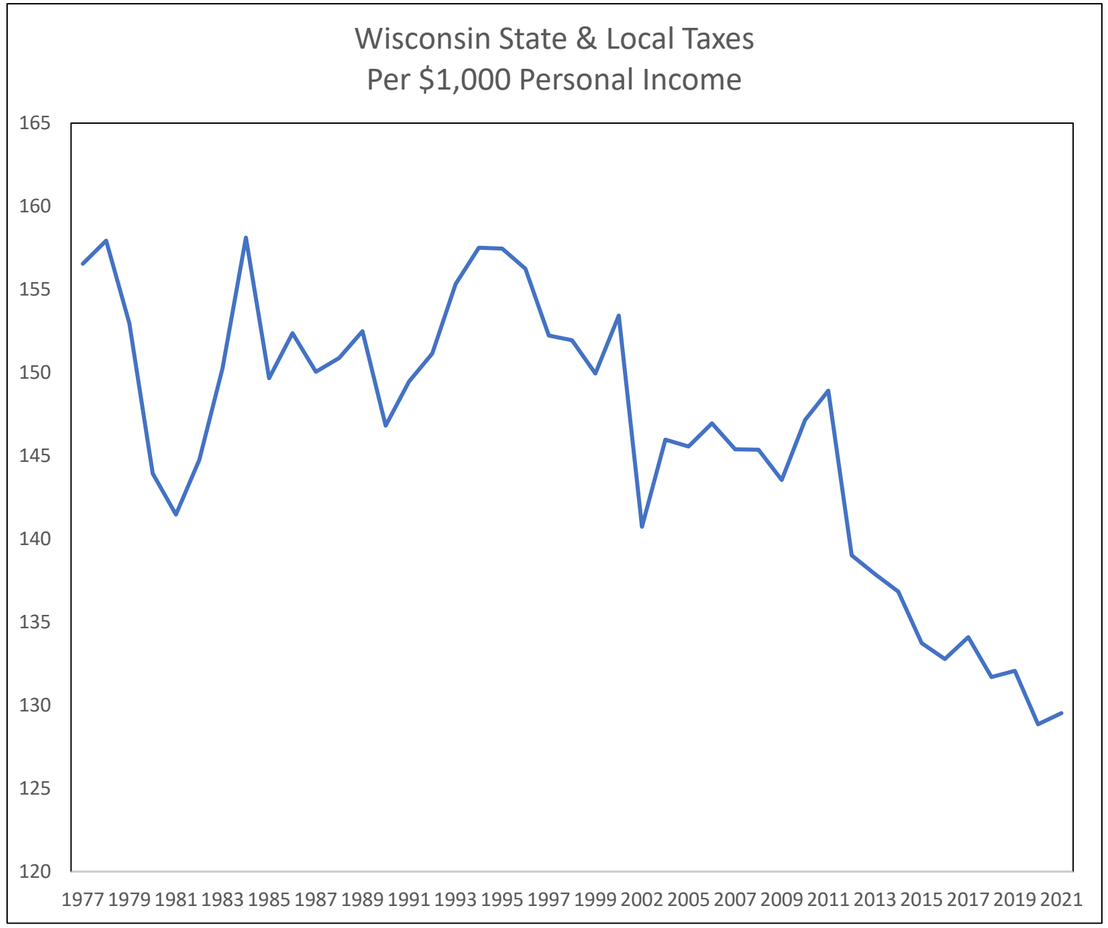
Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, Data Retrieved April 15, 2024

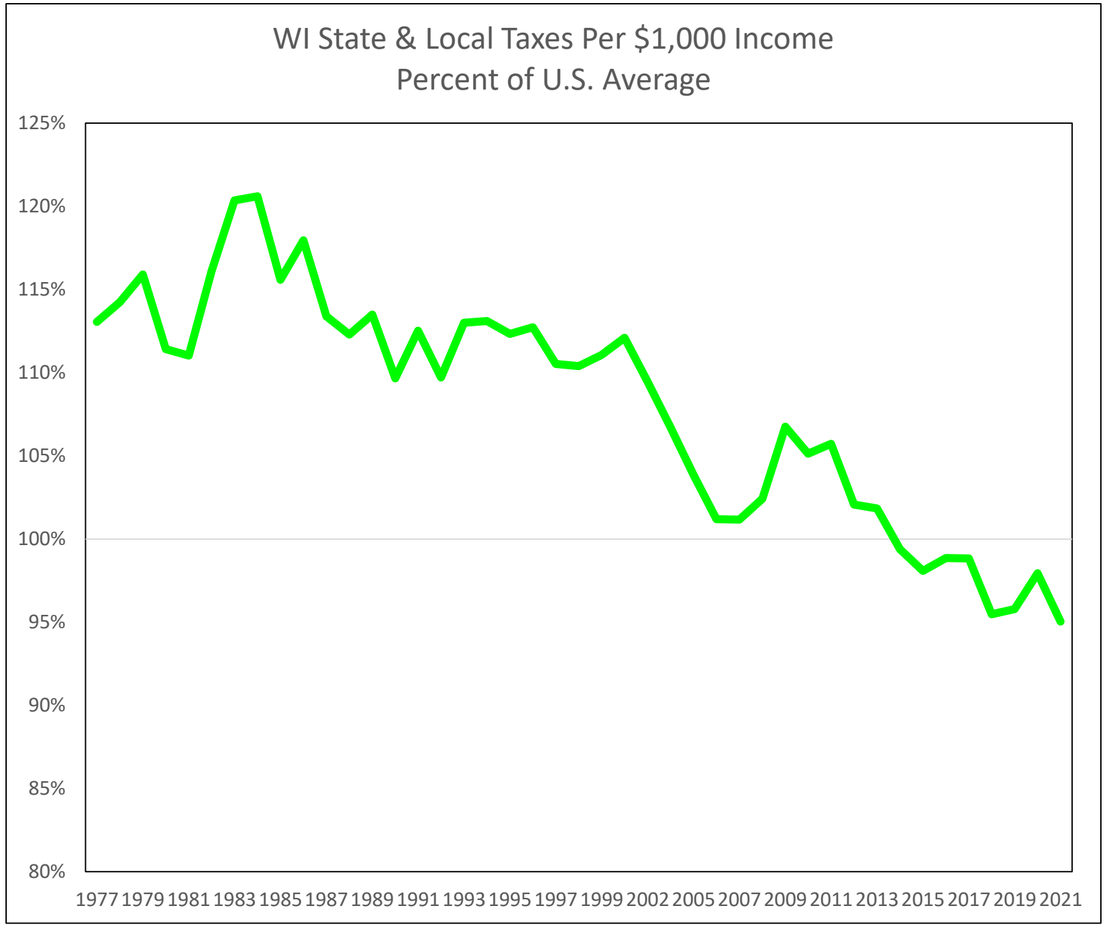
Strong Growth in Entrepreneurship for Most of the State



State & Local Tax Burden

Wisconsin Has Significantly Reduced Its State and Local Tax Burden





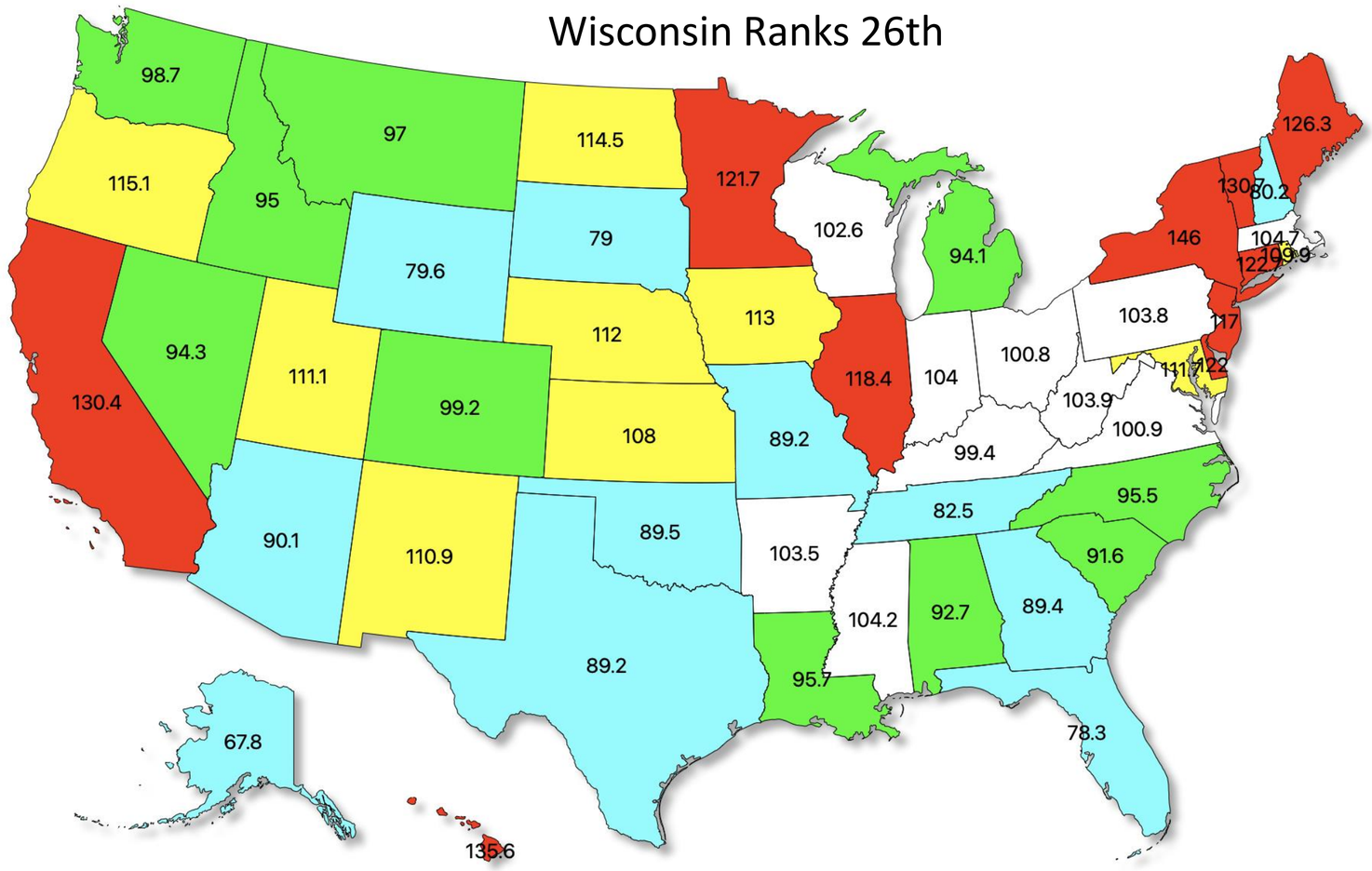
DOR Data Visualization: State & Local Tax Burden

Wisconsin Tax Burden Below U.S. Average

U.S. Average $107.3

State & Local Taxes Per $1,000 Personal Income, FY2021

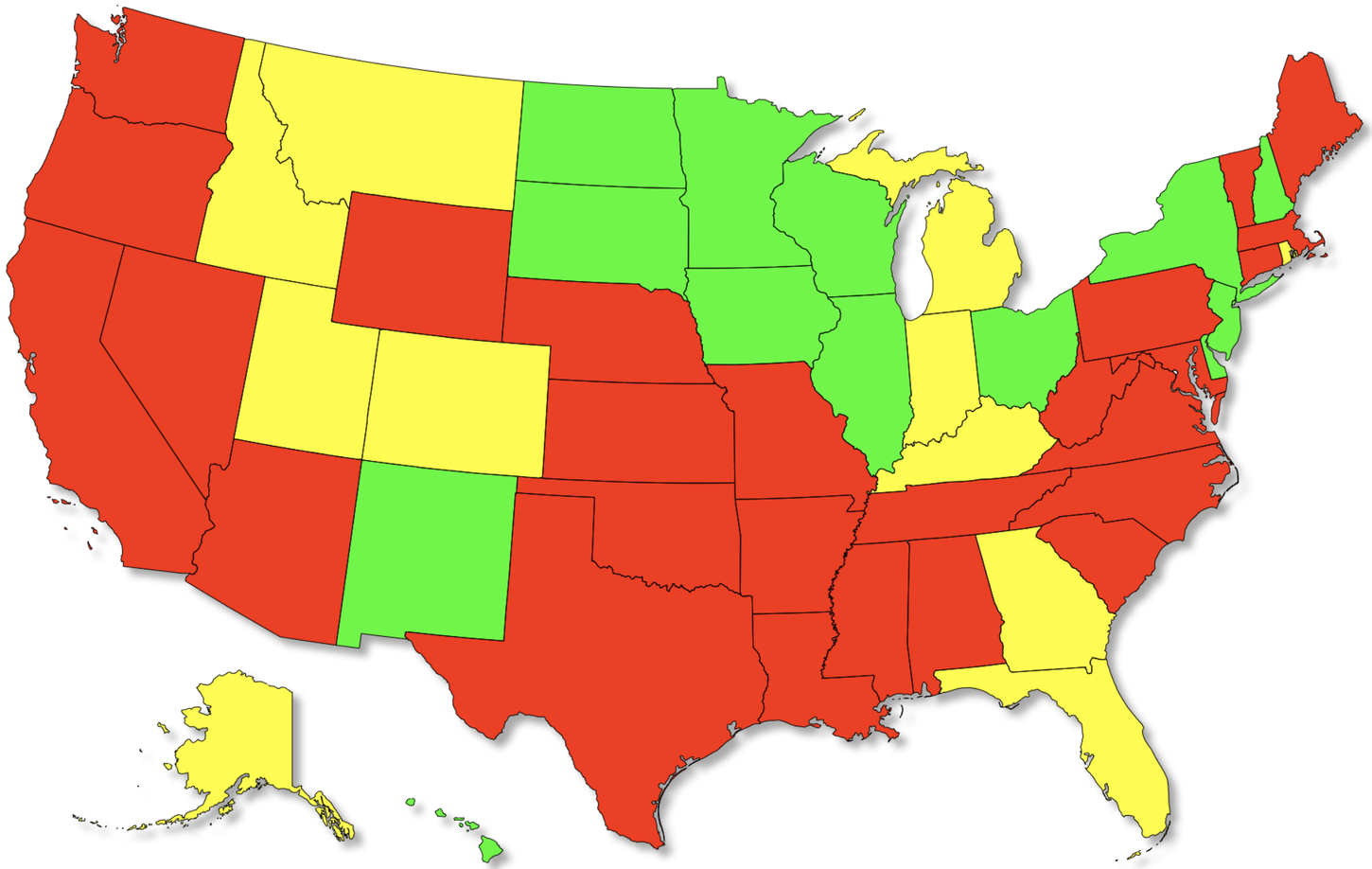
Wisconsin Ranks 26th



[DOR Data Visualization: State & Local Tax Burden]

Wisconsin Joins States with Full Tax Exemption for Business Personal Property

2024 State Tax Treatment of Business Personal Property



Exempt

De Minimus Exemption

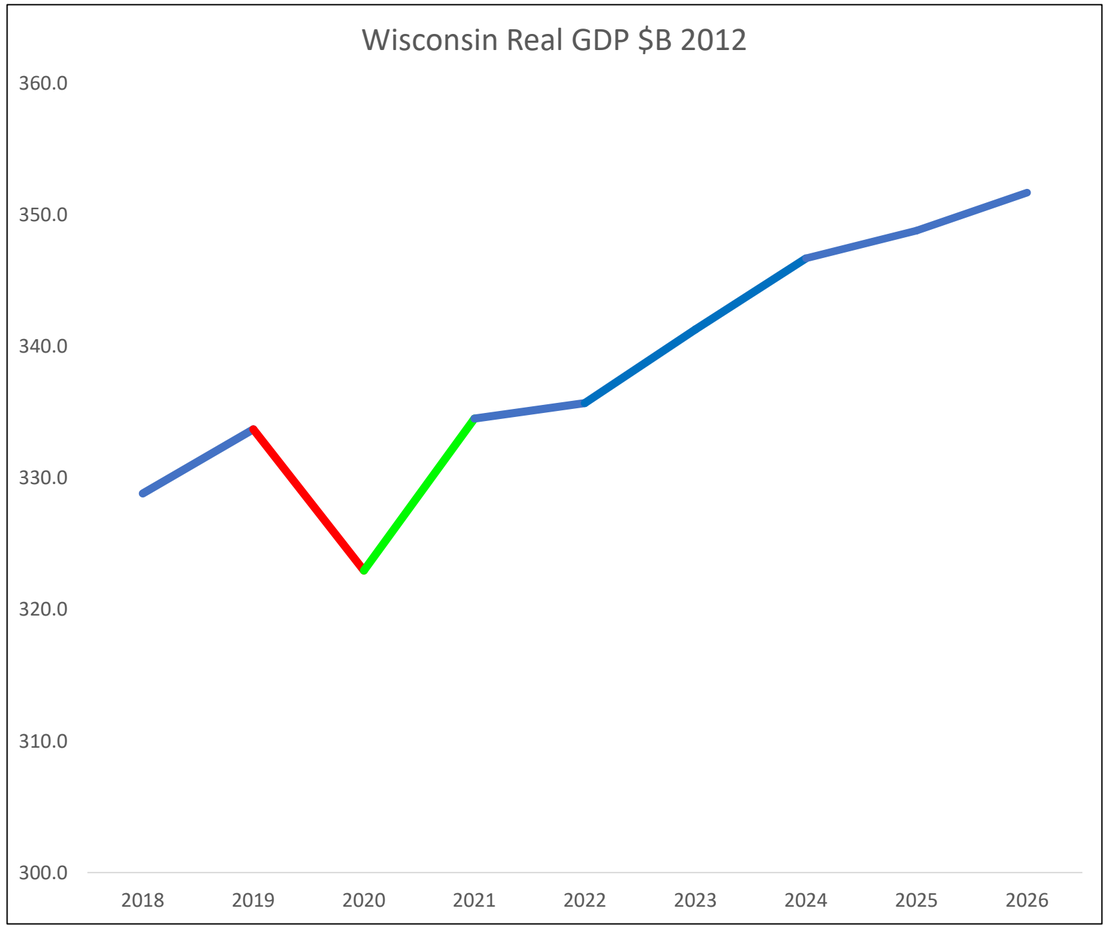
Fully Taxable

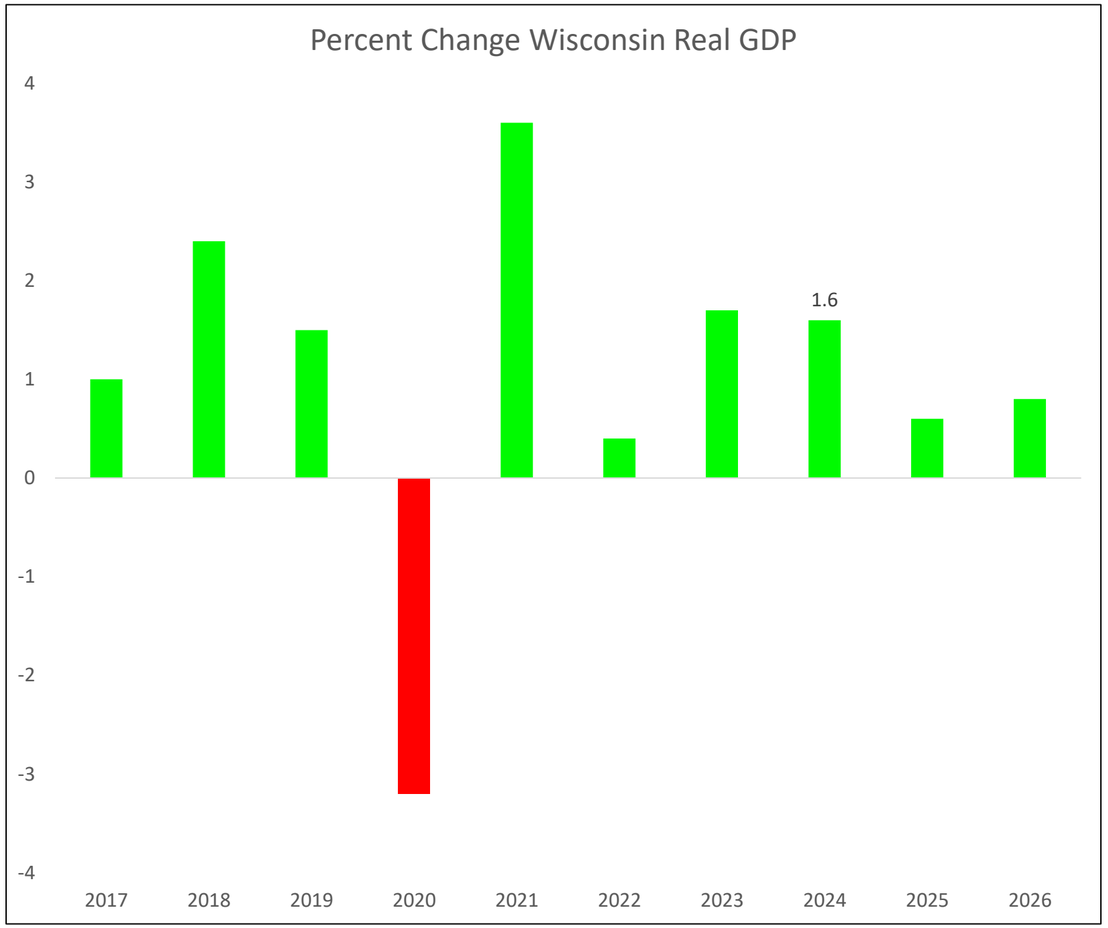
Source: National Tax Foundation, December 7, 2024

Wisconsin and New North Outlook

https://www.revenue.wi.gov/Pages/Report/WI-Economic-Outlook.aspx

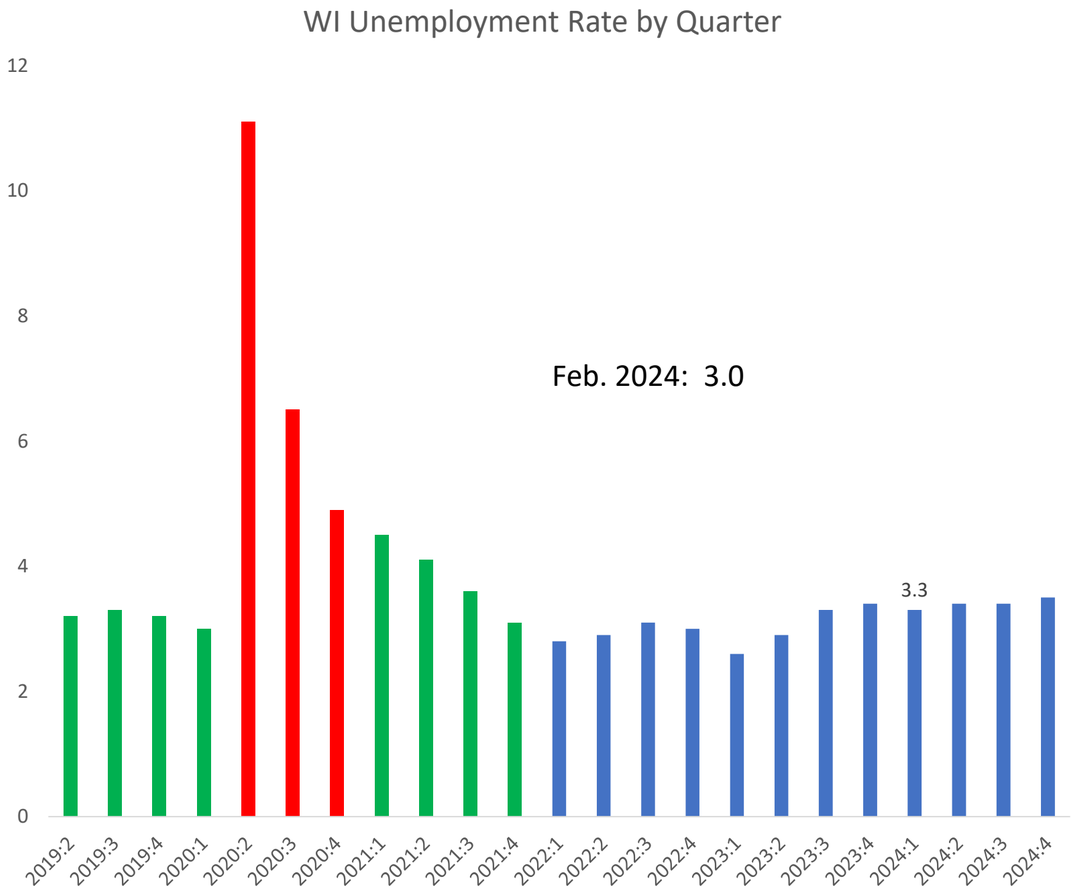
Wisconsin Outlook
Growth Moderates in 2023 and 2024



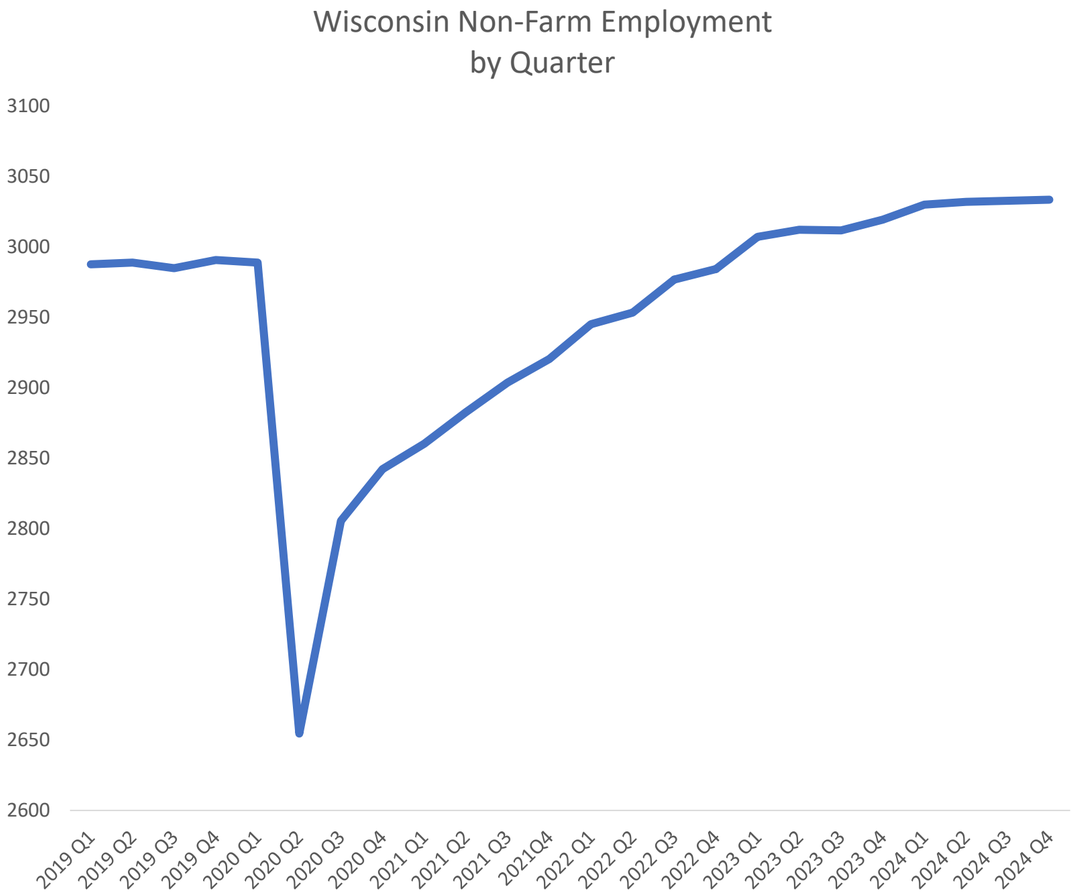


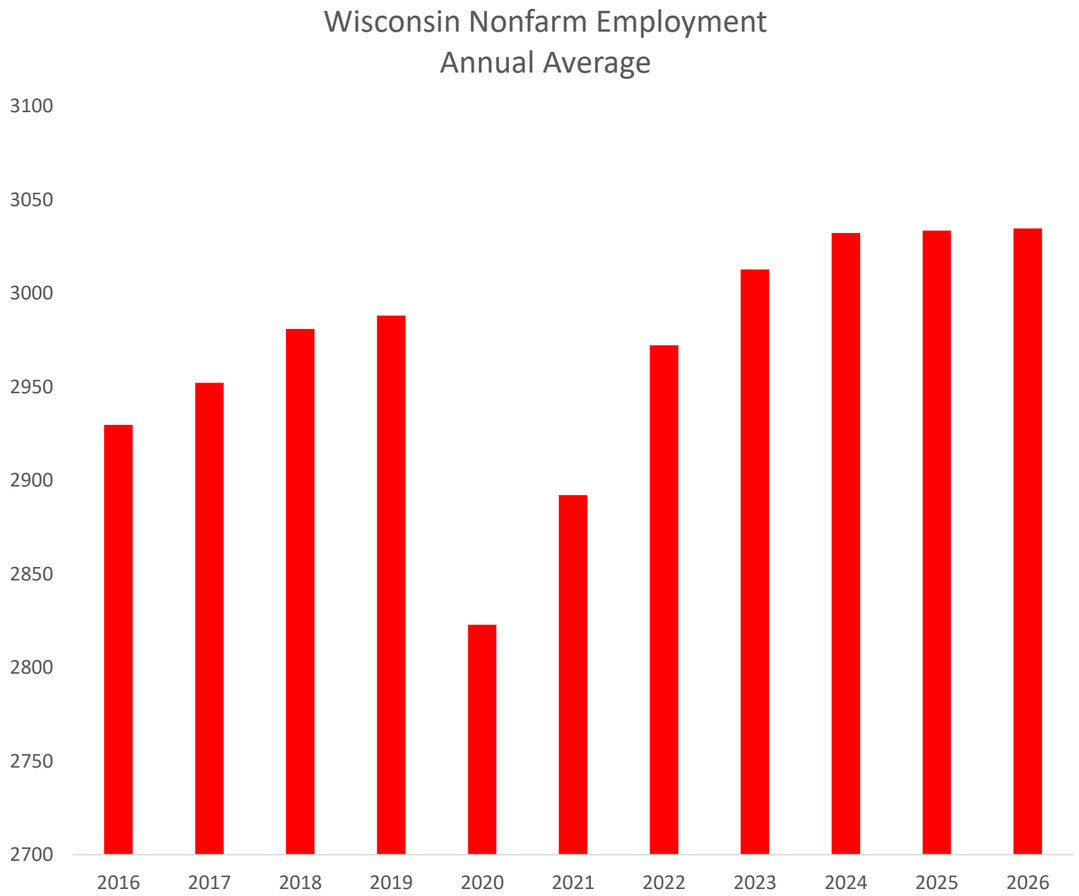
Wisconsin's Economic Outlook: Unemployment Rate

Will Stay at Near Record Lows Through 2024



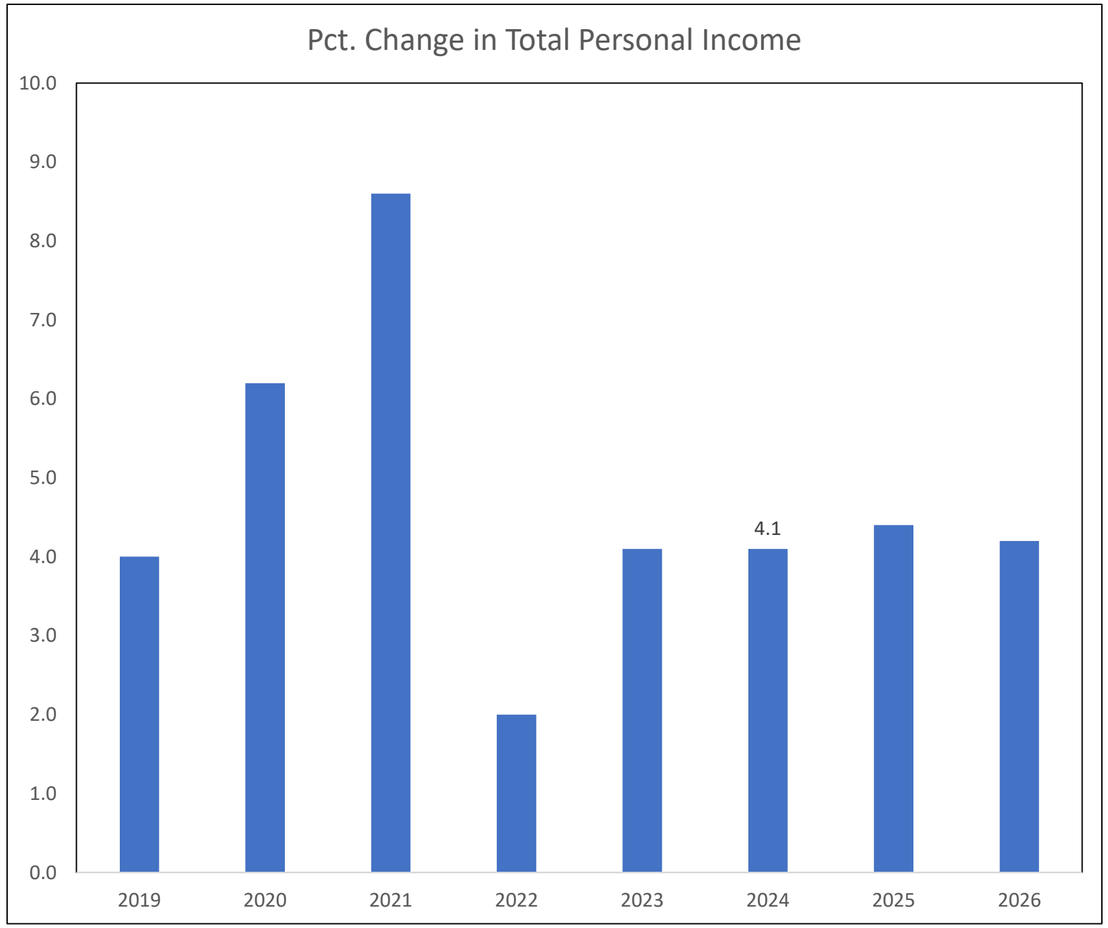
Wisconsin Non-Farm Employment, Establishment Survey
Expanding Through 2024

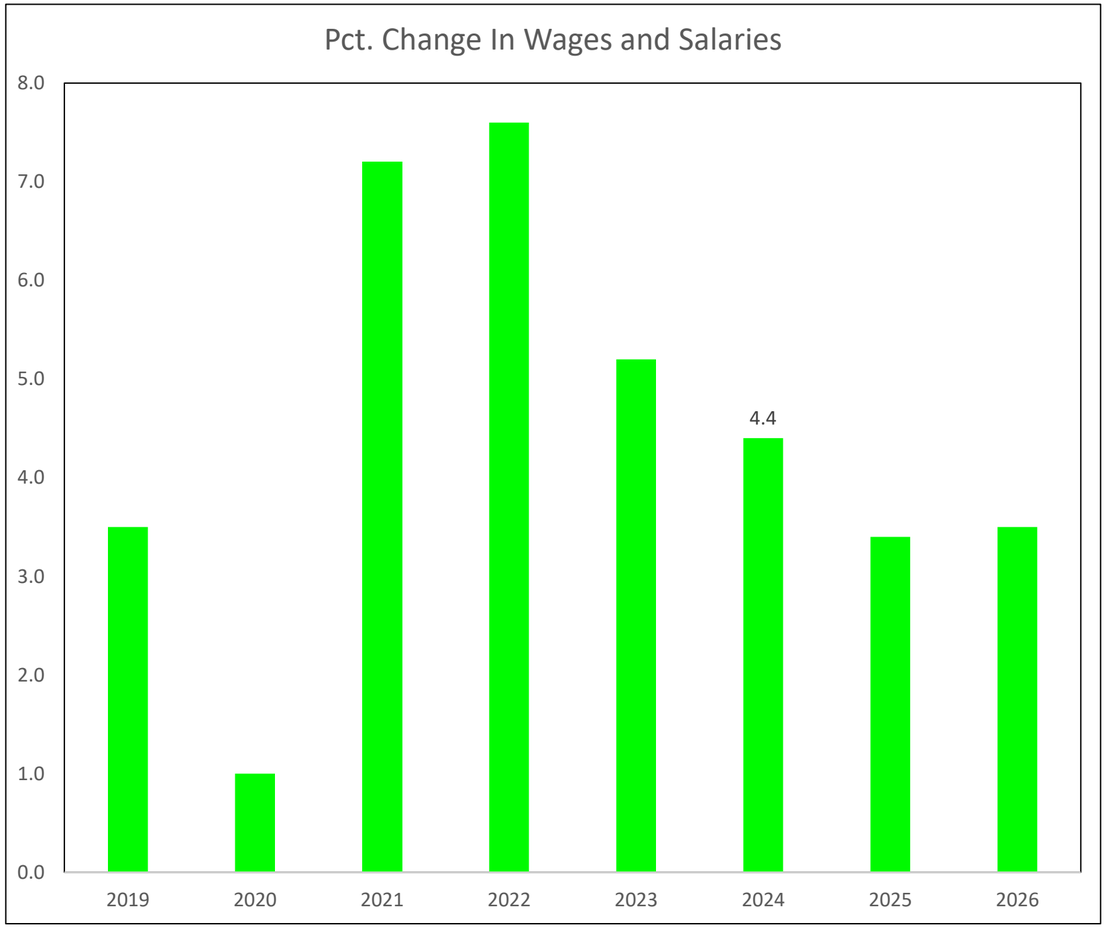




Wisconsin Economic Outlook: Personal Income

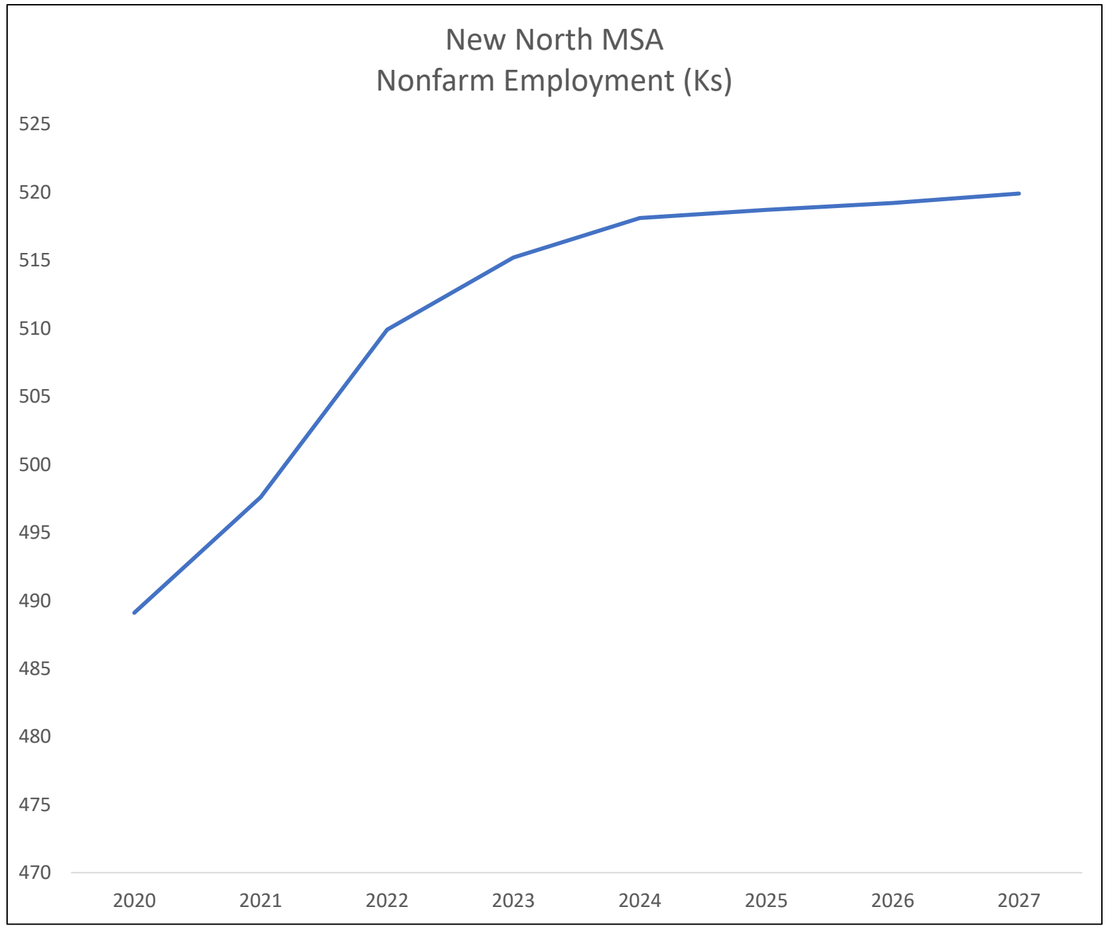
Supported by Strong Wage Growth 2021, 2022 and 2023
Wage Growth Eases in 2024 and 2025

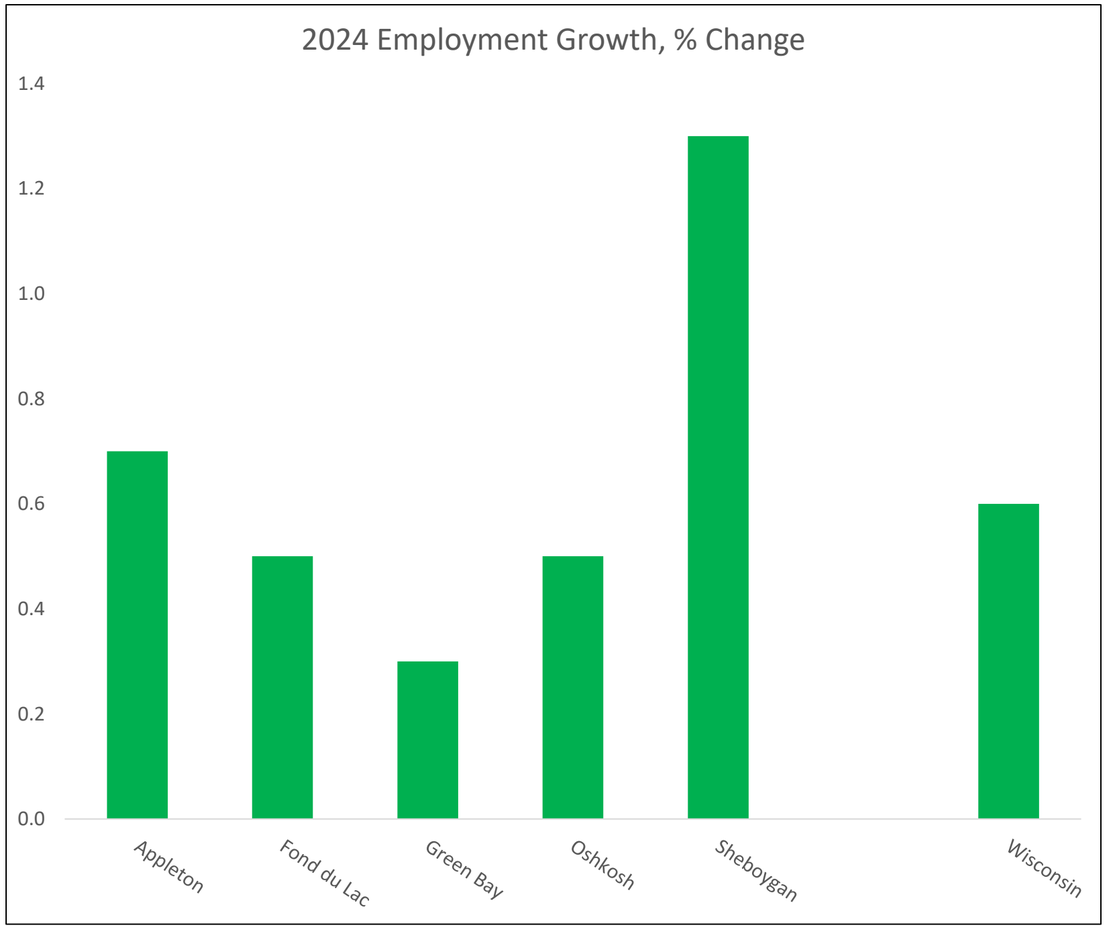




New North MSA Outlook

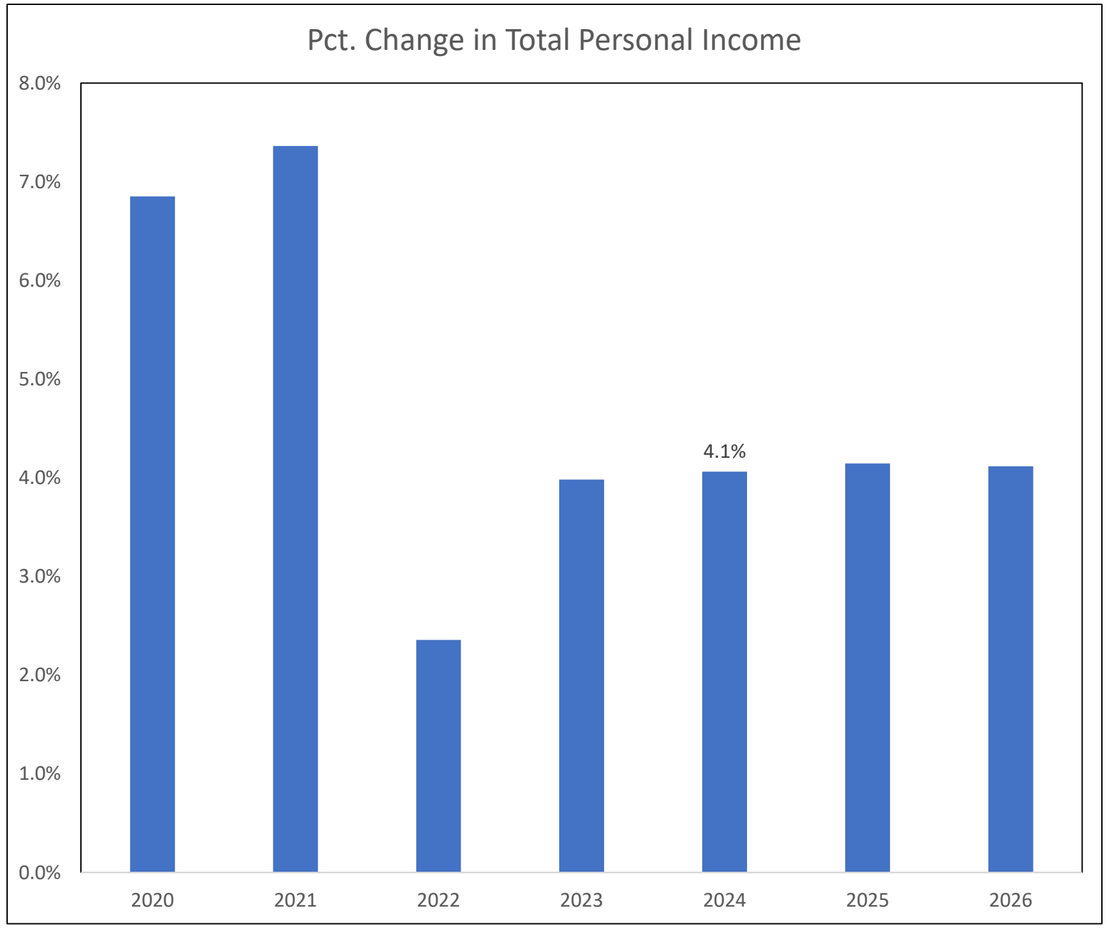
Employment Gains Continue at a Slower Pace

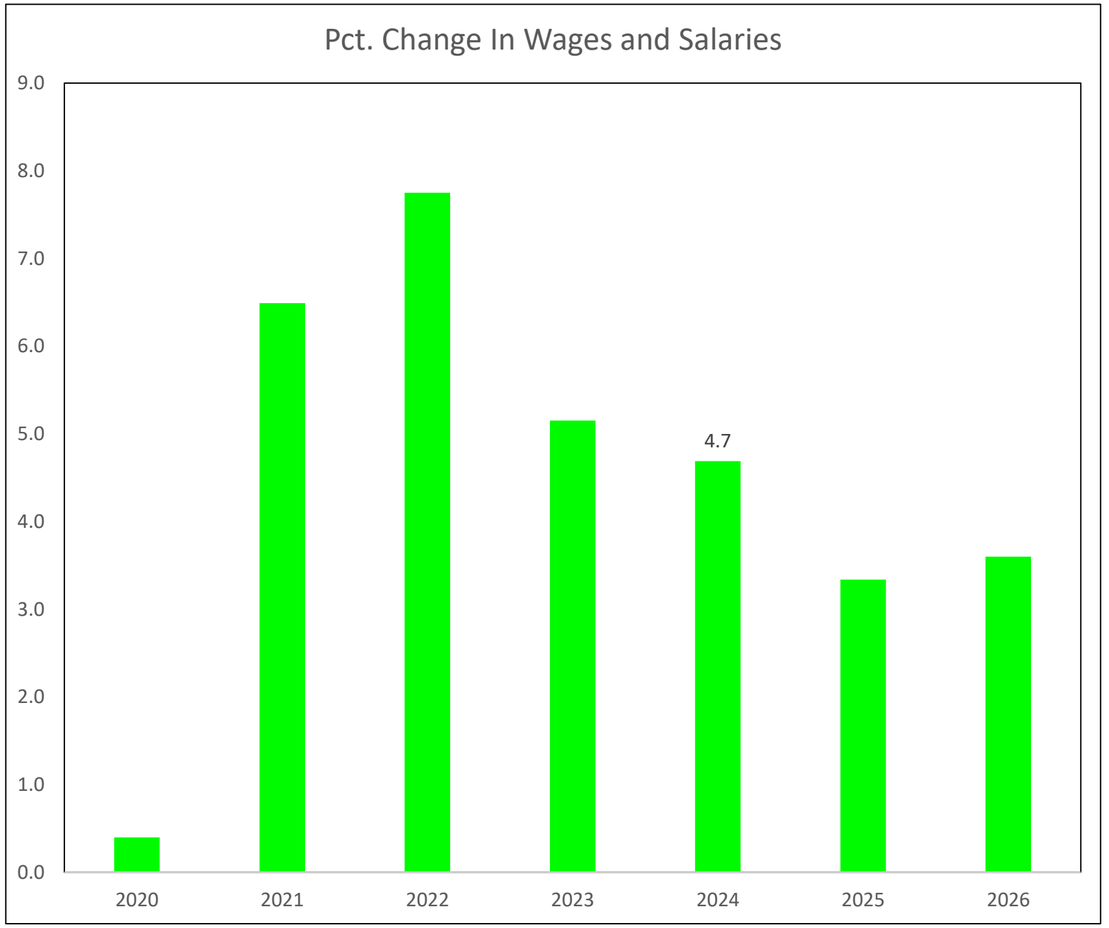




New North MSA Outlook

Wage Growth Slightly Stronger than State Average





Business Use of Artificial Intelligence in Wisconsin

Results of U.S. Census Bureau, Business Trends and Outlook Survey

Artificial Intelligence Supplement

Release Date: March 28, 2024

Researching the Green Bay Economy with Chat GPT 3.5

Screen Shots of Actual Conversations

You

From the U.S. Bureau of Labor Statistics Local Area Unemployment Statistics database download the employment series for the Green Bay WI MSA

Researching the Green Bay Economy with Chat GPT 3.5

Screen Shots of Actual Conversations

You

From the U.S. Bureau of Labor Statistics Local Area Unemployment Statistics database download the employment series for the Green Bay WI MSA

ChatGPT

As an AI language model, I don't have direct access to external databases or websites such as the U.S. Bureau of Labor Statistics (BLS). However, I can guide you on how to download the employment series for the Green Bay WI Metropolitan Statistical Area (MSA) from the BLS Local Area Unemployment Statistics (LAUS) database.

Screen Shots of Actual Conversations

You

Open the pod bay doors Hal.

Screen Shots of Actual Conversations

You

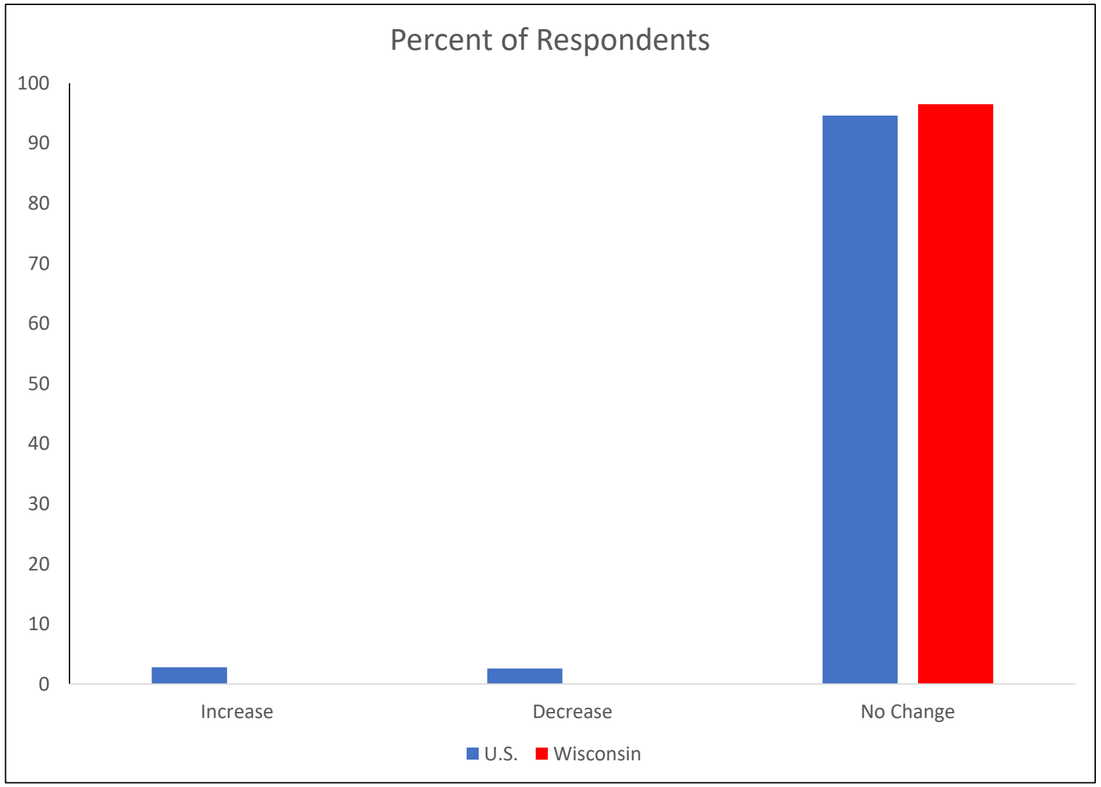
Open the pod bay doors Hal.

ChatGPT

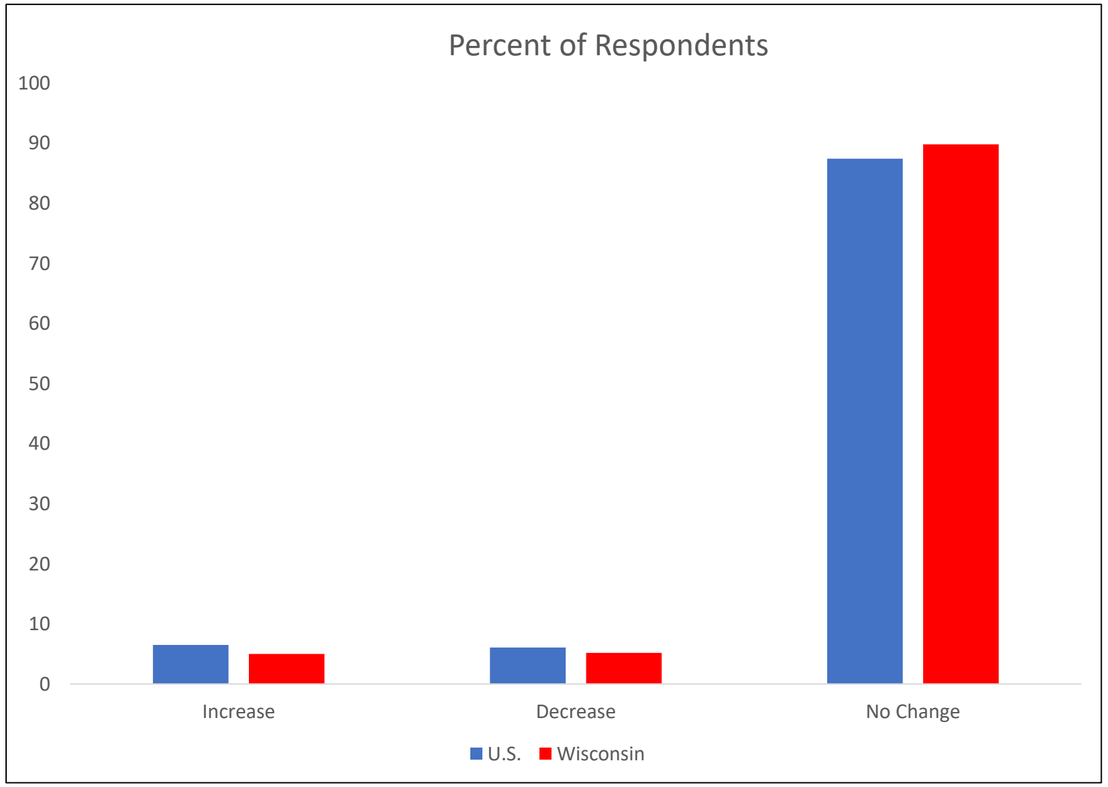
I'm sorry, Dave. I'm afraid I can't do that.

What is AI's Impact on Total Employment?
So Far, Not Much

Past Six Months



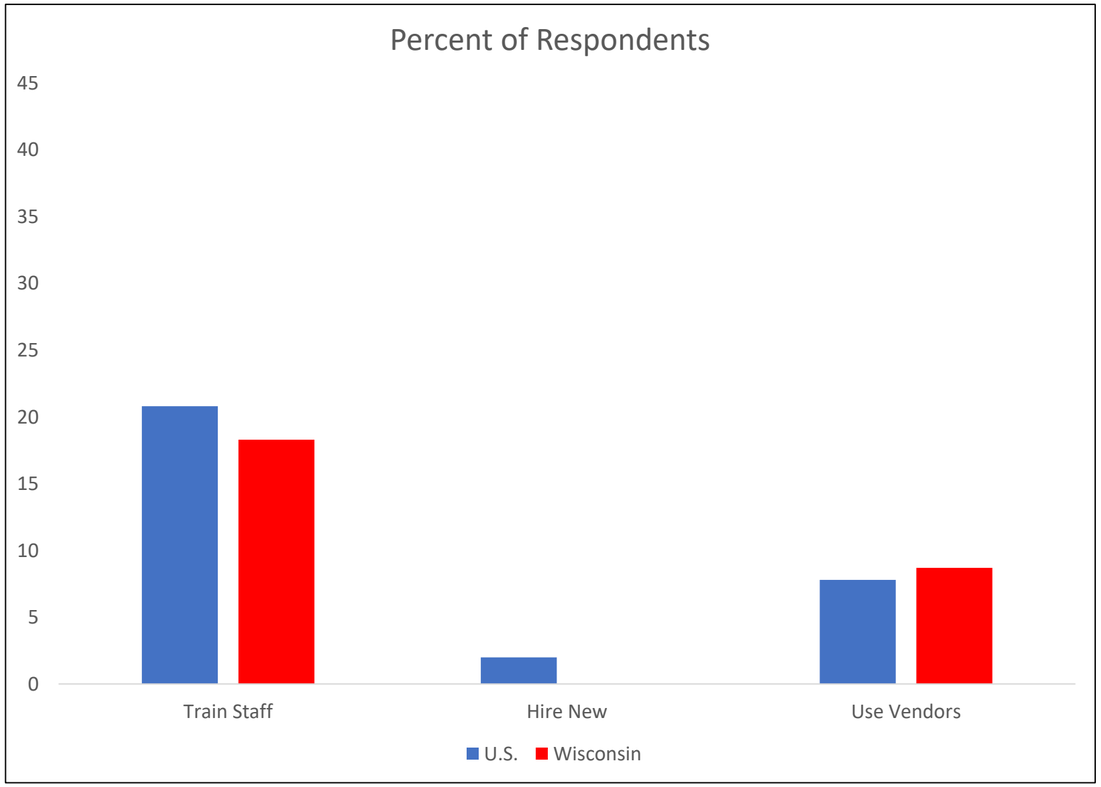
Next Six Months



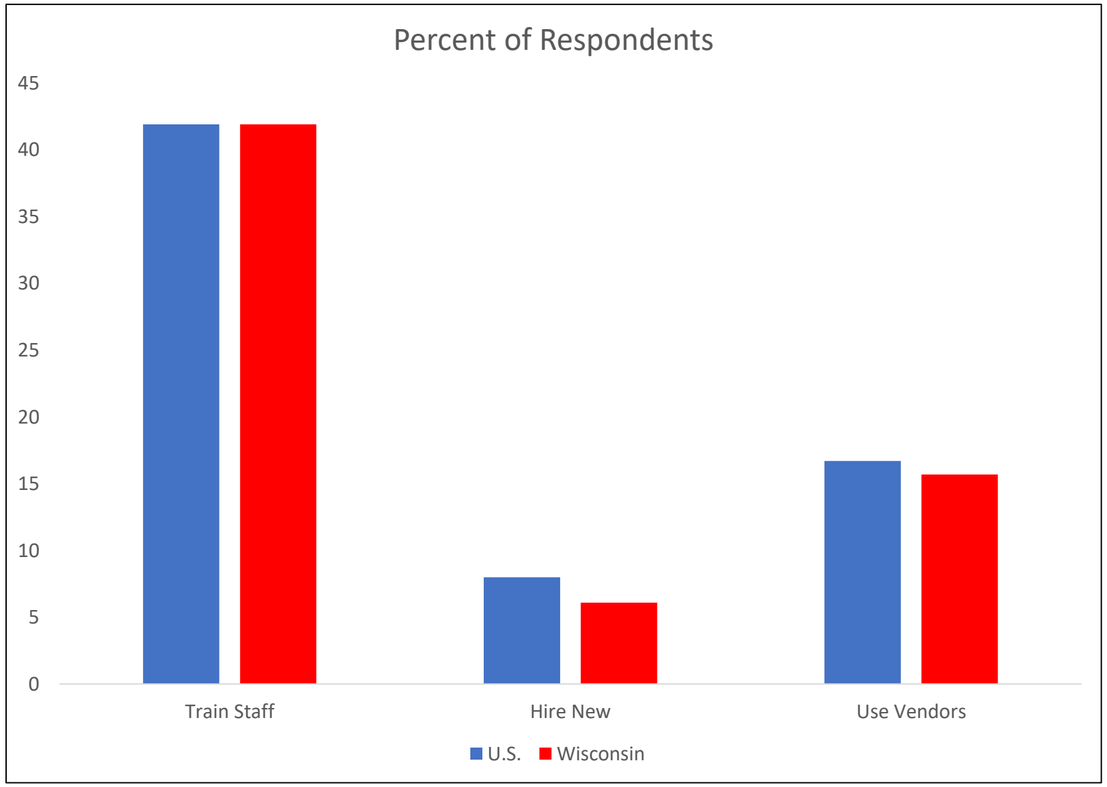
U.S. Census Bureau, Business Trends and Outlook Survey, Artificial Intelligence Supplement , Release Date: March 28, 2024

How to Implement AI:
Prefer to Train Existing Staff

Past Six Months



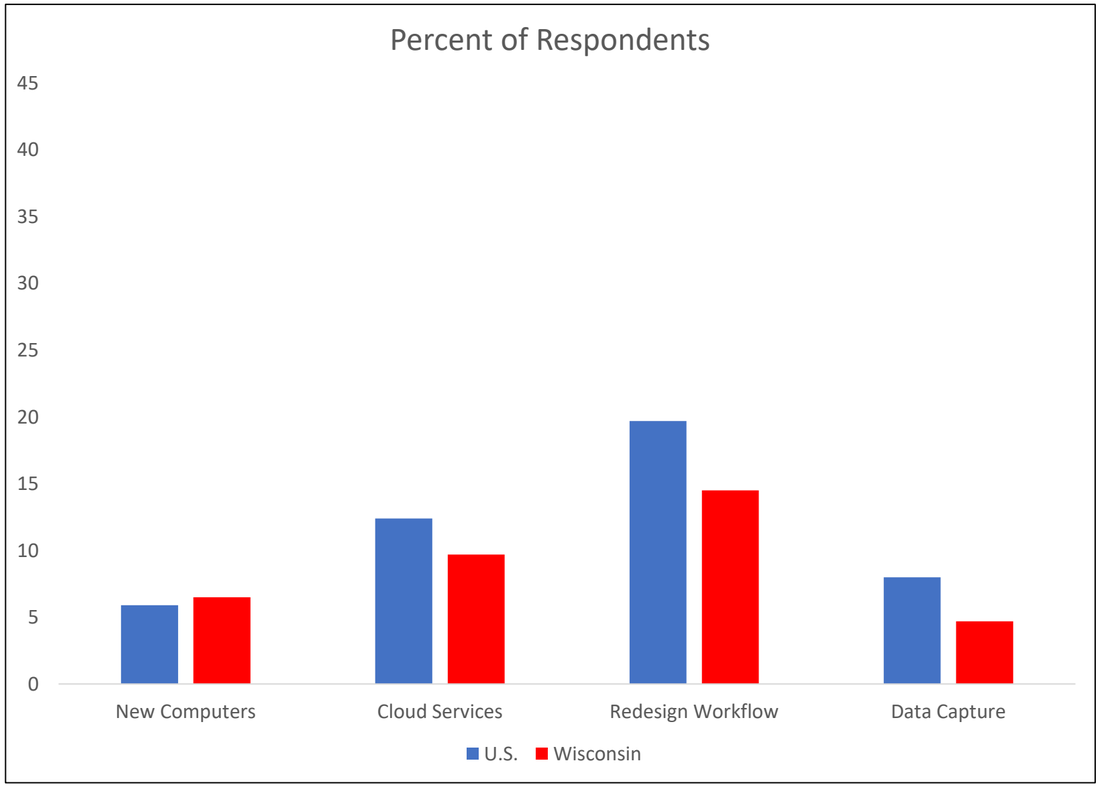
Next Six Months



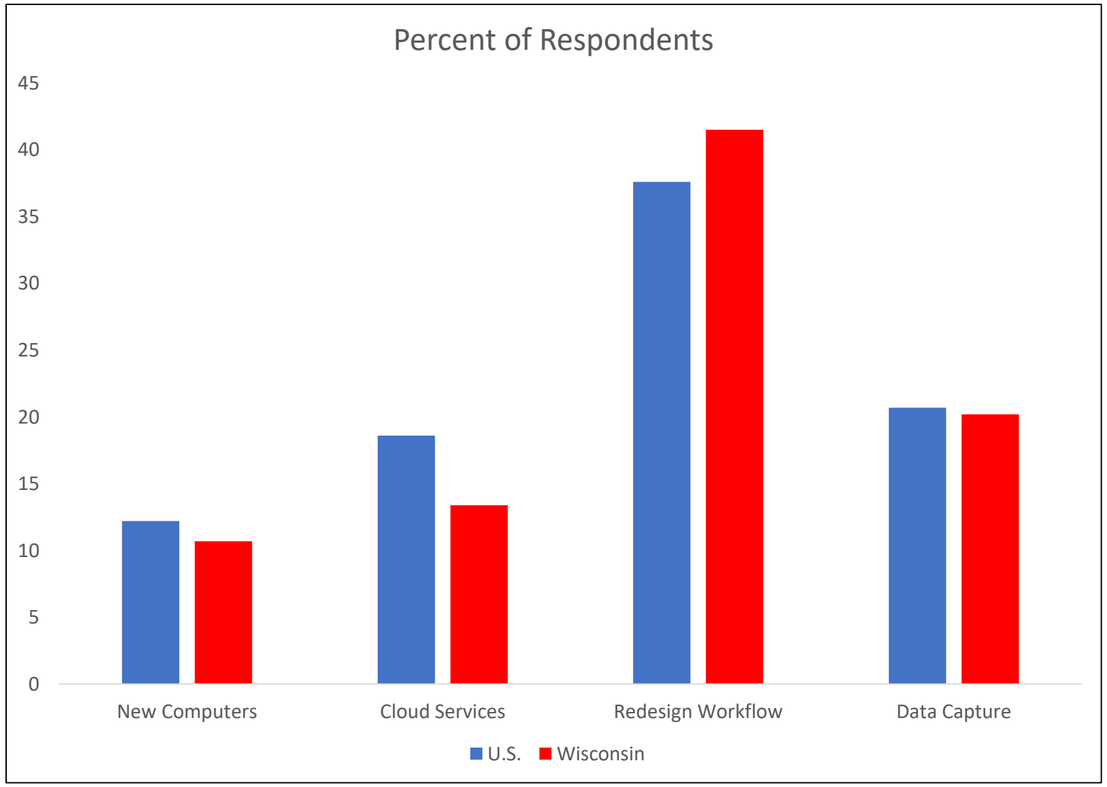
U.S. Census Bureau, Business Trends and Outlook Survey, Artificial Intelligence Supplement , Release Date: March 28, 2024

How to Implement AI:
WI Leans to Redesigning Workflow

Past Six Months



Next Six Months



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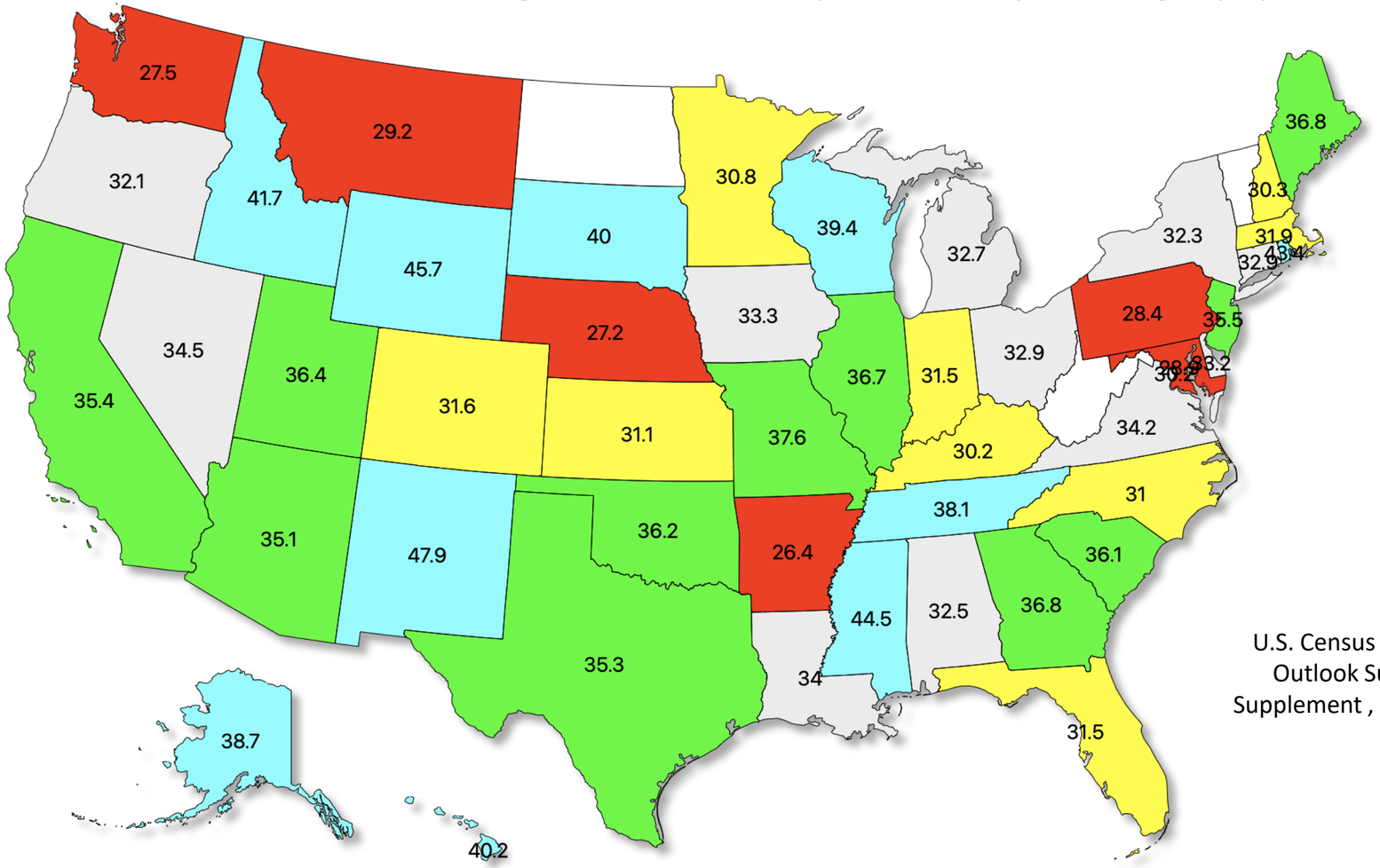
Wisconsin AI Style: Improve IT Productivity

Next Six Months: Percent of Firms Using AI to Perform Operations by Existing Equipment & Software



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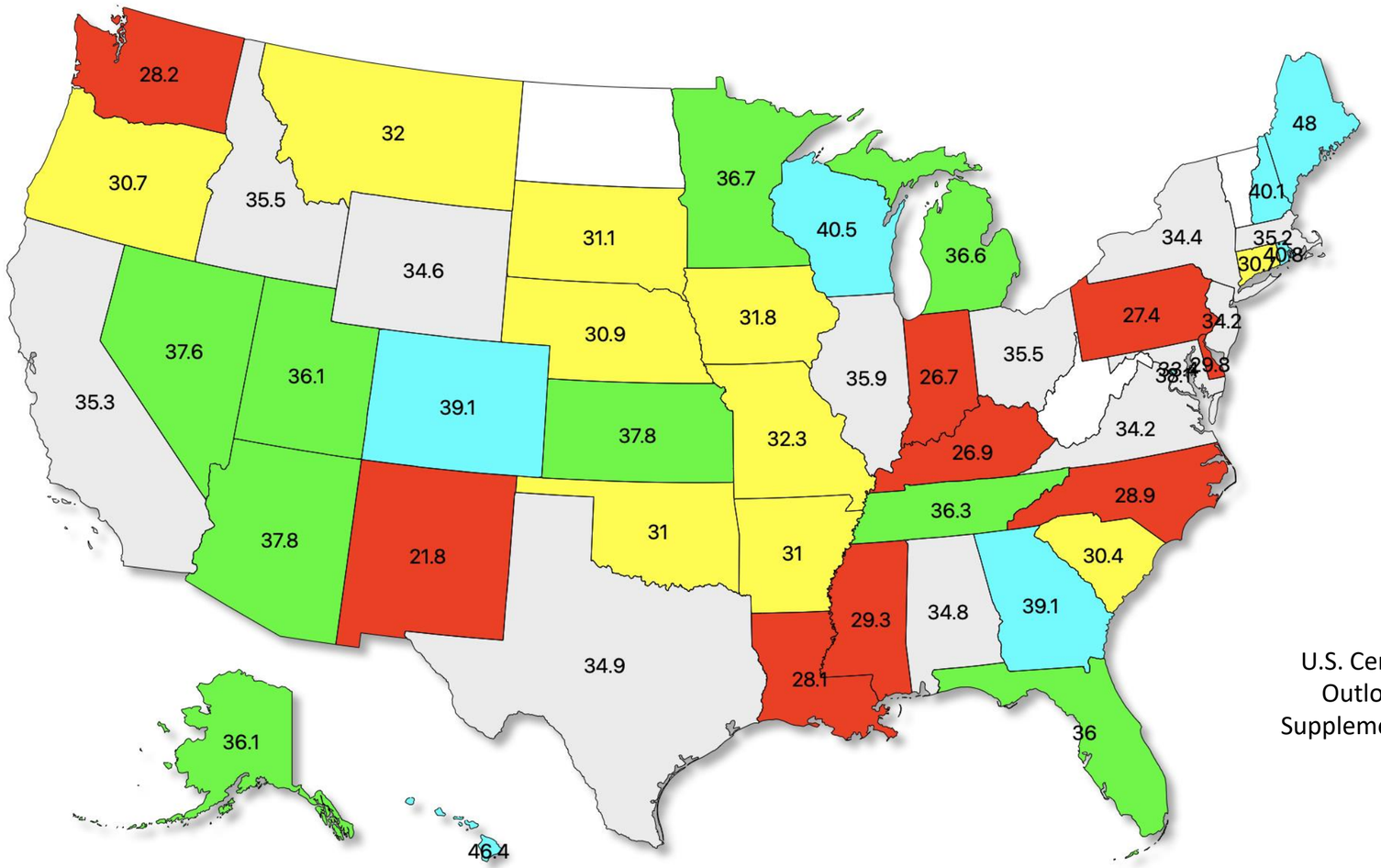
Wisconsin AI Style: Improve Labor Productivity

Next Six Months: Percent of Firms Using AI to Automate Employee Tasks



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Today’s Three Takeaways

1. Wisconsin's economy will grow at a modest pace in 2024.

2. The New North will experience similar growth but with slightly stronger growth in wage income.

3. Wisconsin firms will use AI to boost total factor productivity, not replace employment.

The New North

Generative AI: Driving Innovation & Growth in Northeast Wisconsin

St. Norbert College | Center for Business & Economic Analysis

Elena LeRoy
Research Analyst Fellow, CBEA

Matt Scheele
Research Analyst Fellow, CBEA

Kim Smith, Ph.D.
Associate Director, CBEA

Overview

Innovation

- Generative AI
- Innovation Index
- Sector Impact

Implementation

- Business Functions
- Forecast
- Communication

St. Norbert College
Center for Business & Economic Analysis

Overview

Innovation

Generative AI

Innovation Index

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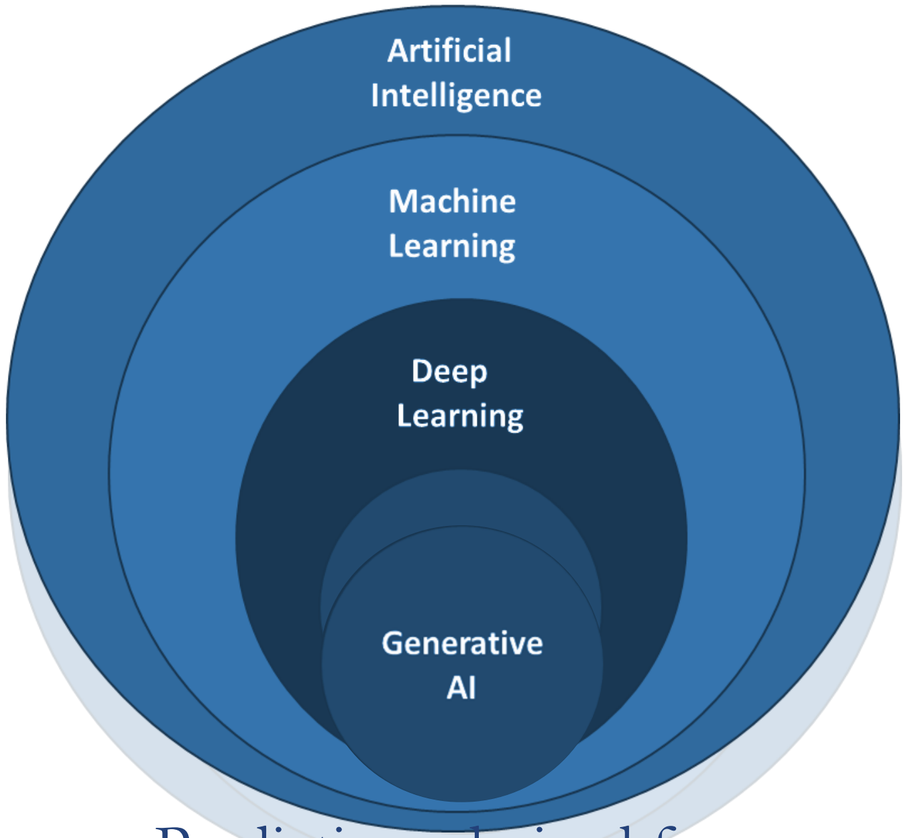
The Many Layers of AI



Predictions derived from patterns
Learns from existing data, using patterns to create new capabilities

Generation

Financing

Personalization

Animation

Design Optimization

Expediting

Copywriting

Human Mimicry

Design

Learning Patterns

Risk Management

Maintenance

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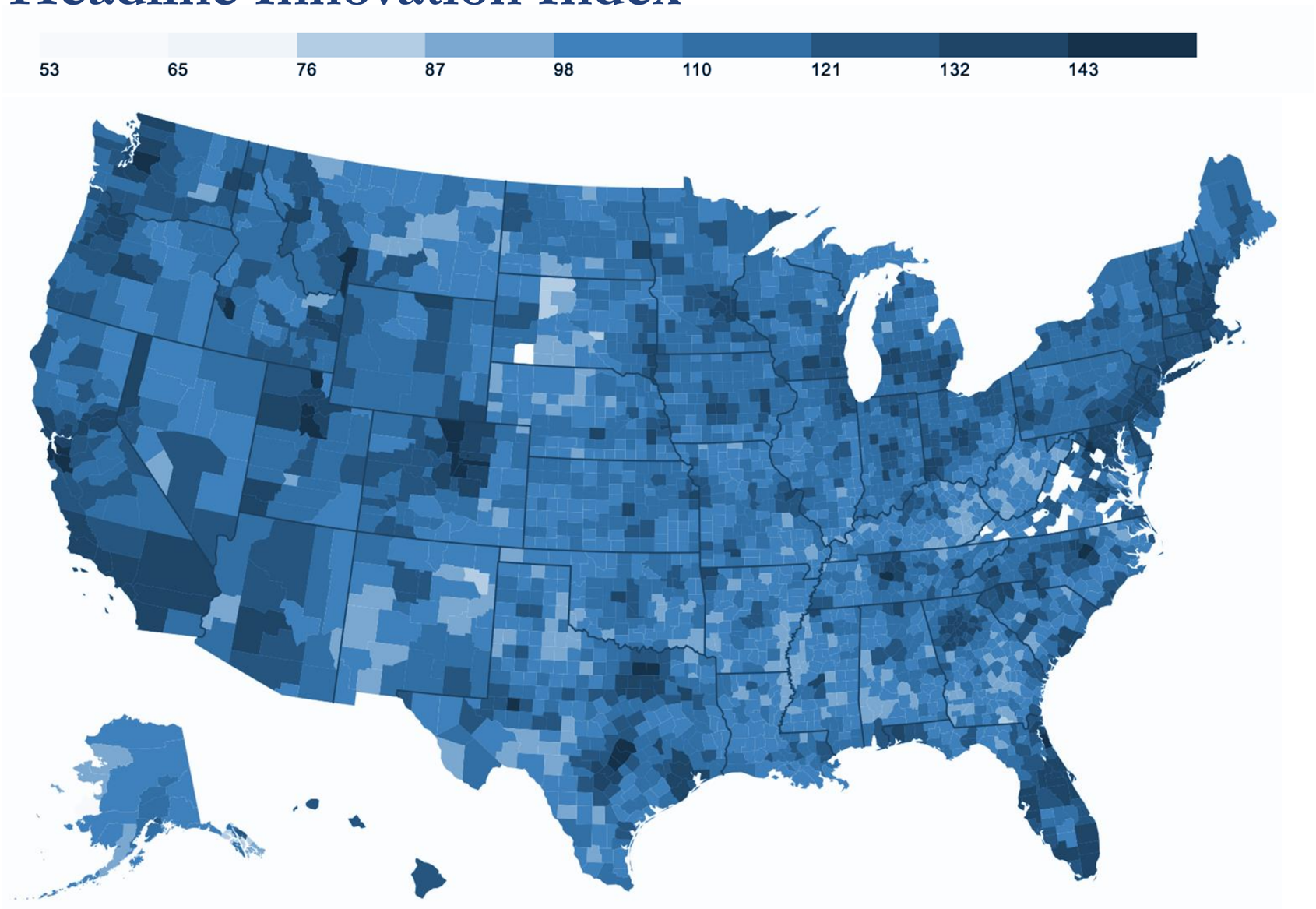
Center for Business & Economic Analysis

Headline Innovation Index

- Human capital and knowledge creation
- Business dynamics
- Business profile
- Employment and productivity
- Economic well-being

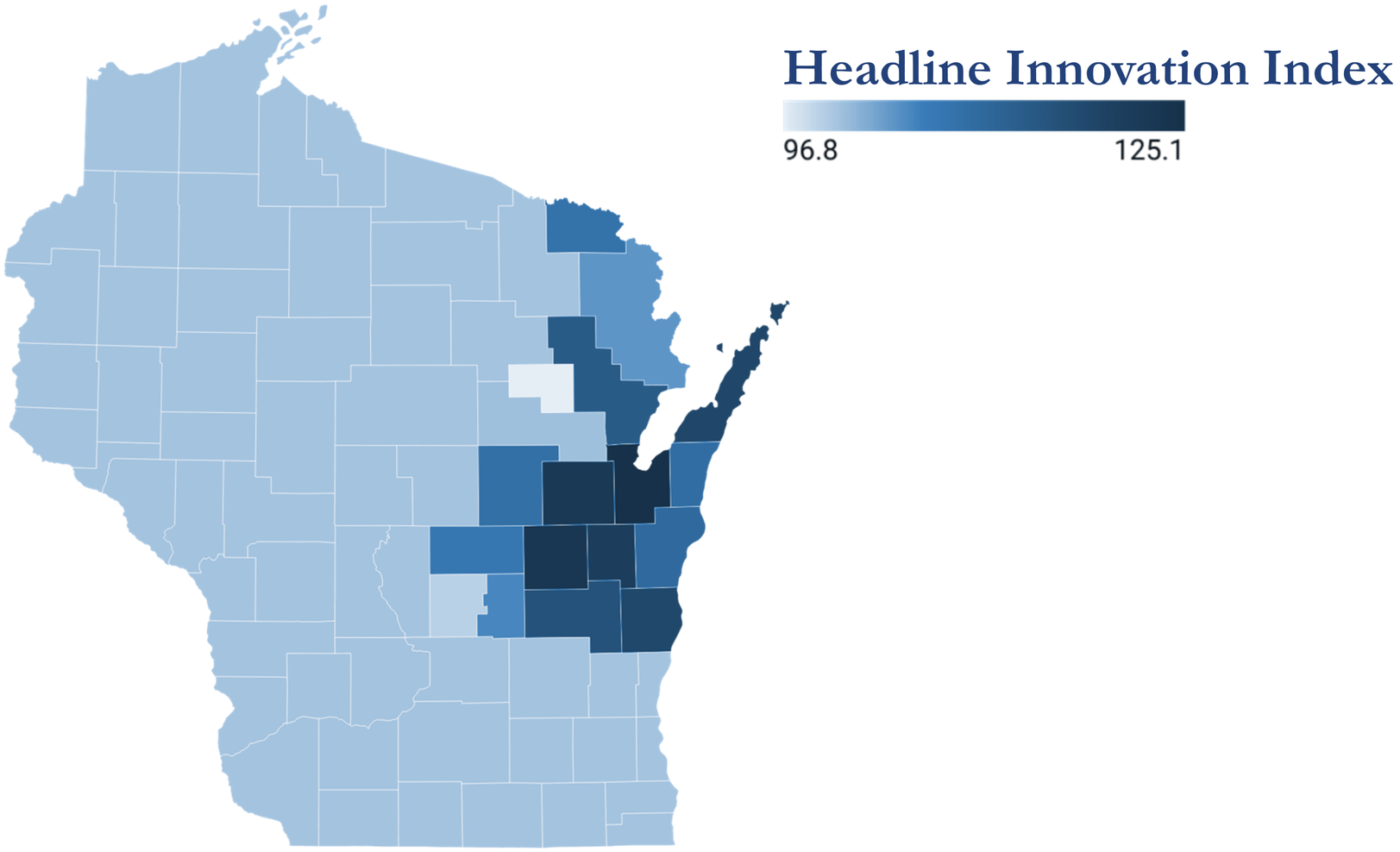
Source: StatsAmerica

Headline Innovation Index



Source: StatsAmerica

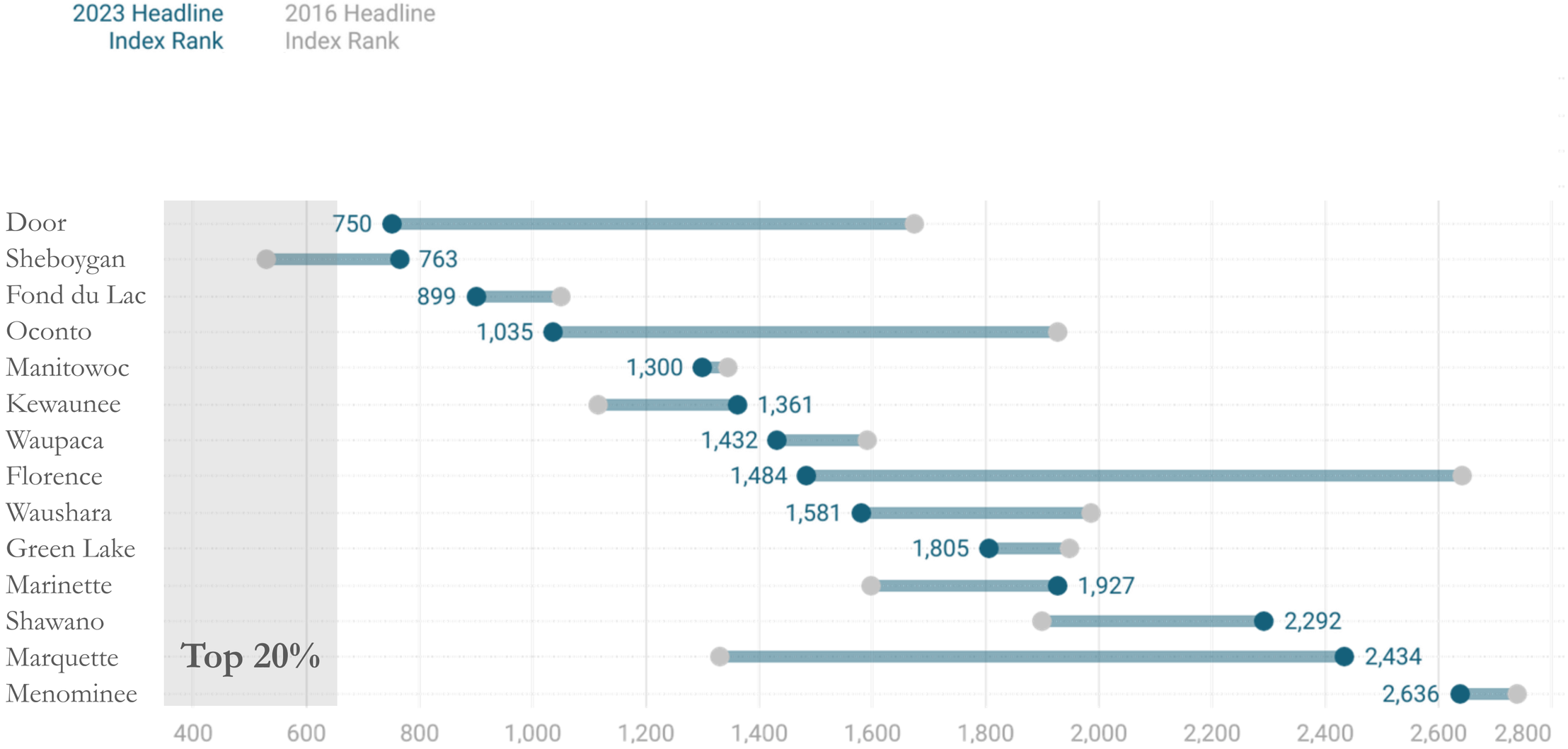
The Innovative New North Region



Source: StatsAmerica

Majority of New North Counties Moved Up in Rankings

2023 innovation index rank (blue) compared with the 2016 rank (gray) out of 3,143 US counties



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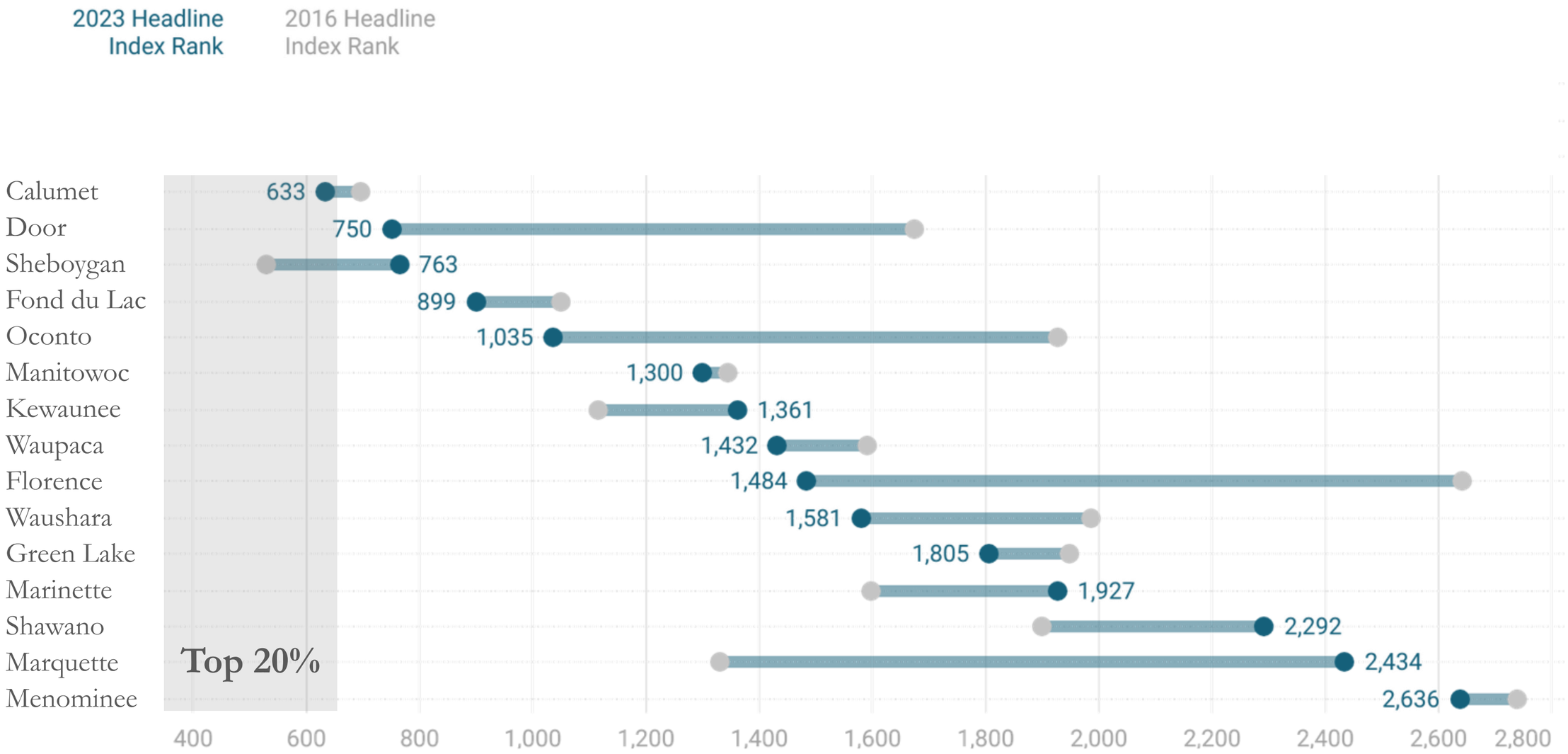

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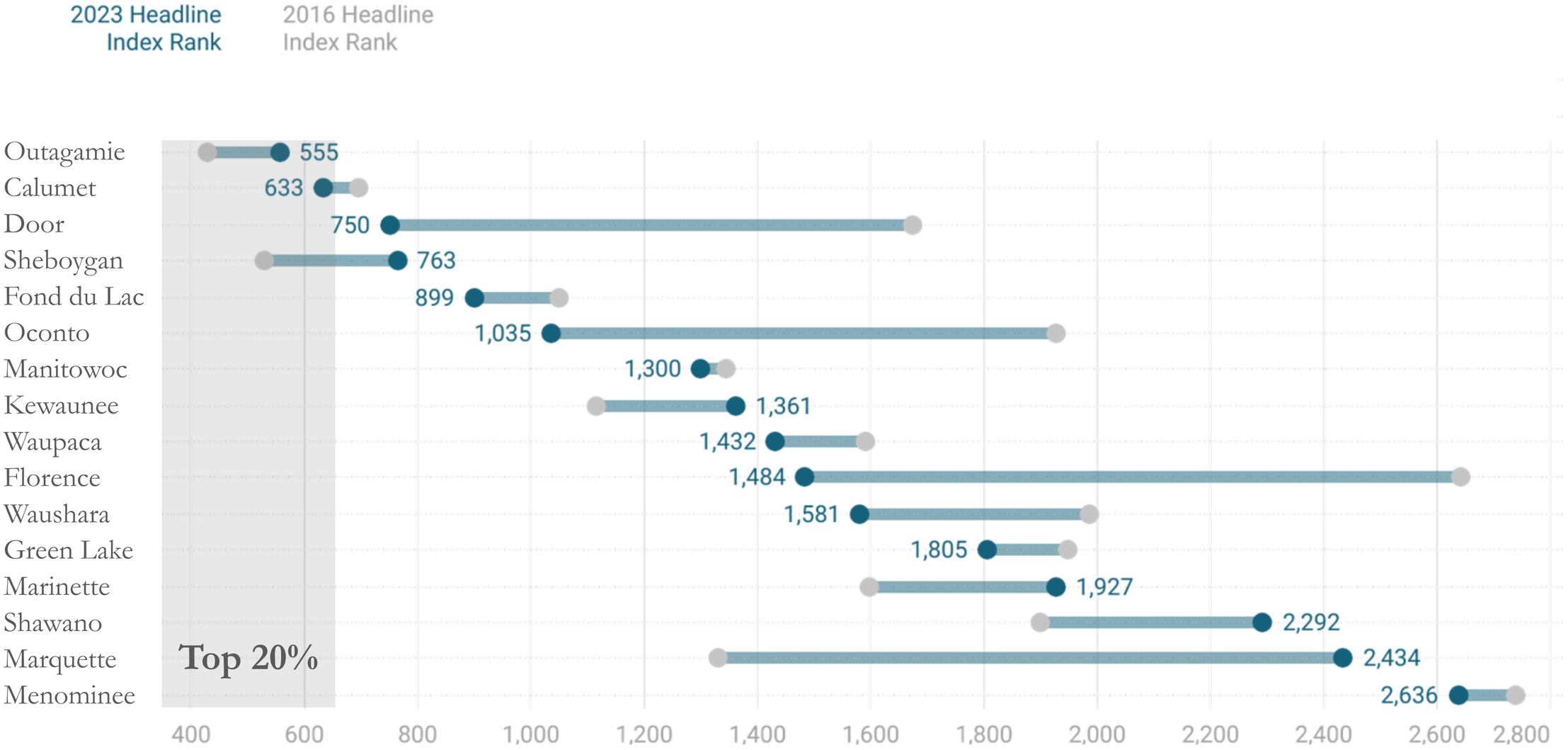

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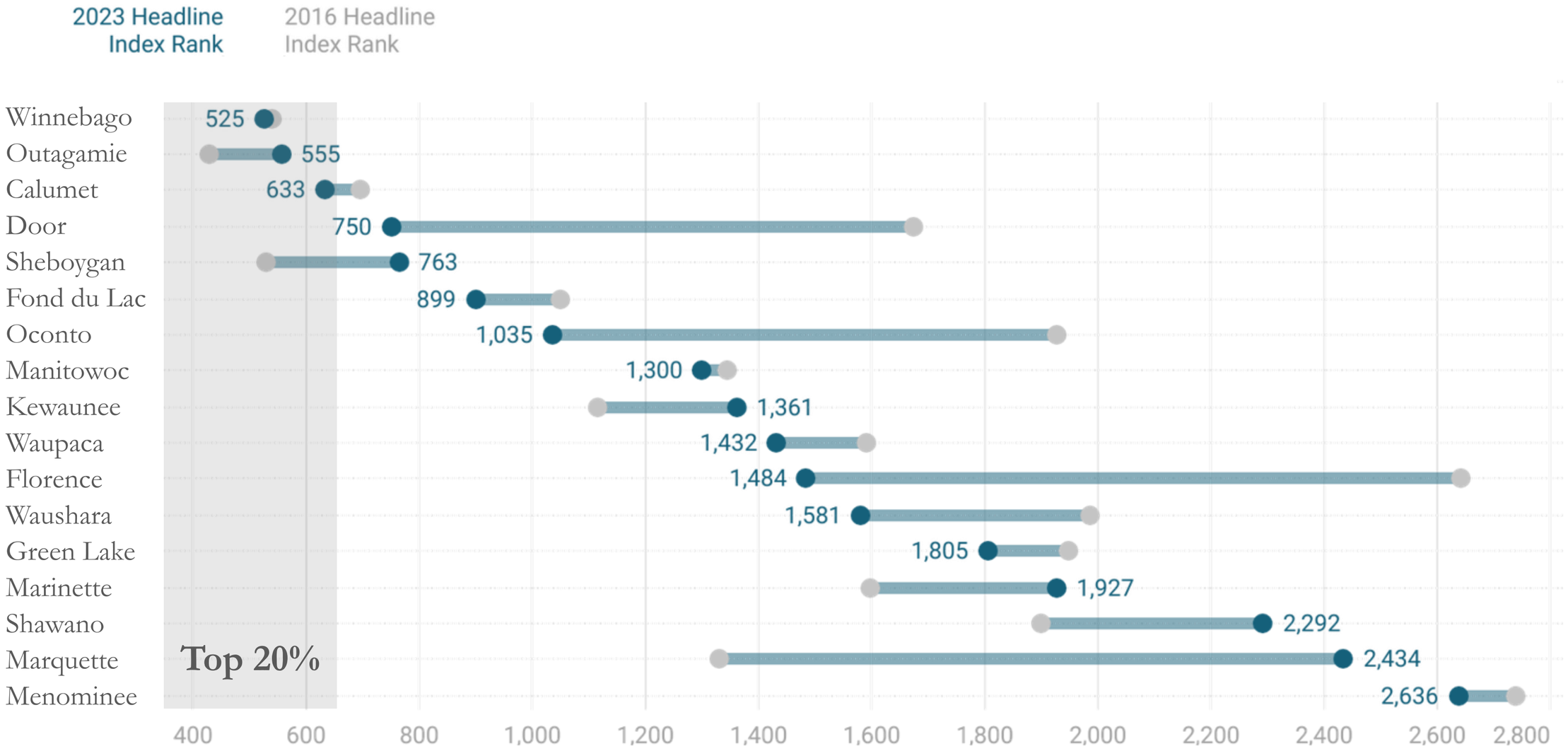

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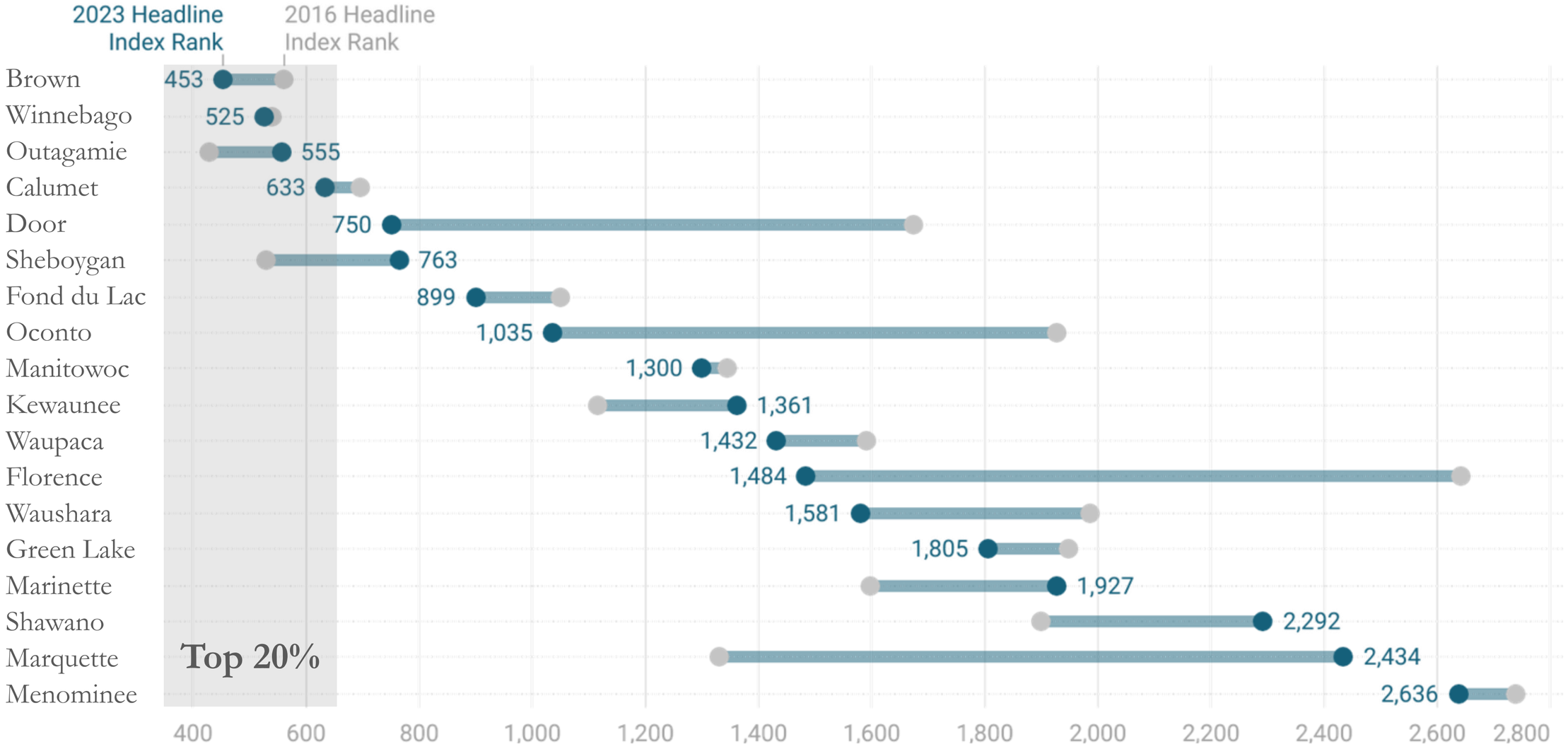

Source: StatsAmerica

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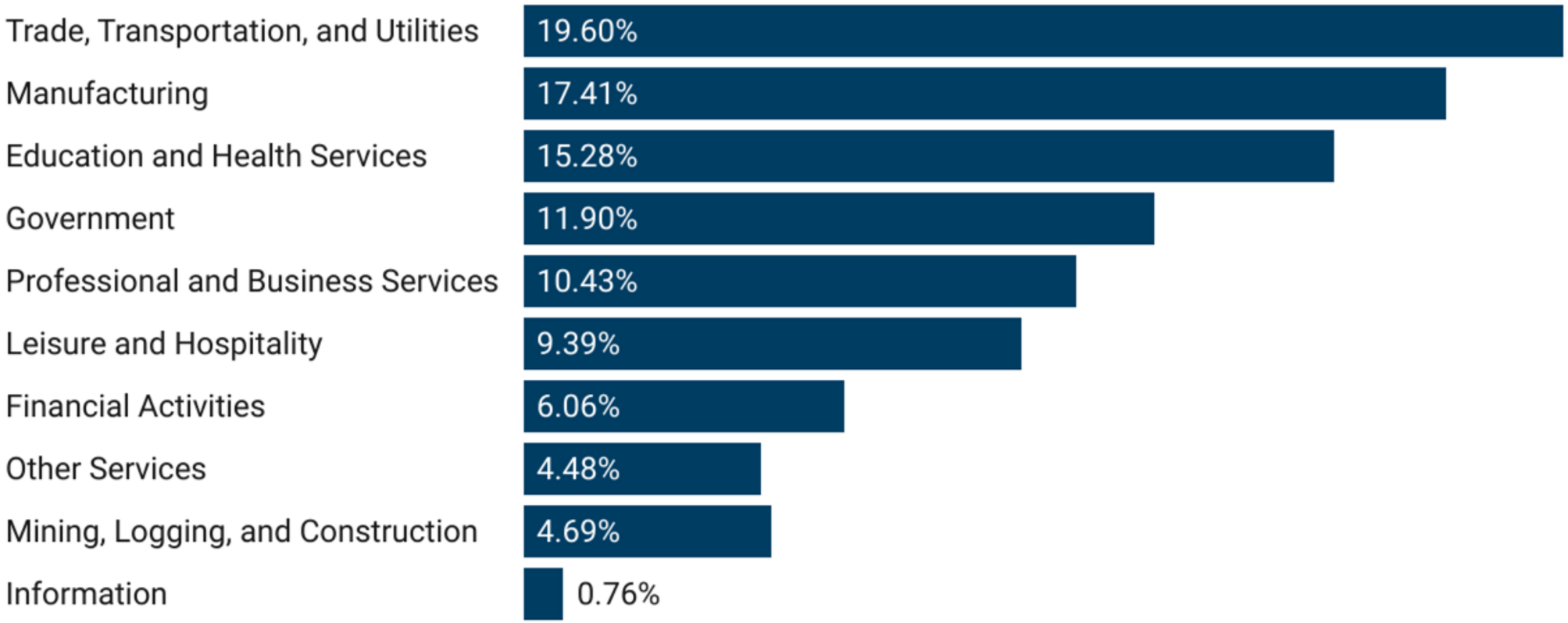
Center for Business & Economic Analysis

New North Industry Breakdown

Total Employment by Industry (%)



Source: BLS

In the New North region:

20 major occupational classifications

Hundreds of detailed occupations

Top 20 occupations are in production

Generative AI plays a supporting role in goods-producing sectors

National-Level

	Total, % of industry revenue
Administrative and professional services	0.9–1.4
Advanced electronics and semiconductors	1.3–2.3
Advanced manufacturing[3]	1.4–2.4
Agriculture	0.6–1.0
Banking	2.8–4.7
Basic materials	0.7–1.2
Chemical	0.8–1.3
Construction	0.7–1.2
Consumer packaged goods	1.4–2.3
High tech	4.8–9.3
Insurance	1.8–2.8
Media and entertainment	1.8–3.1
Pharmaceuticals and medical products	2.6–4.5
Public and social sector	0.5–0.9
Real estate	1.0–1.7
Retail[4]	1.2–1.9
Telecommunications	2.3–3.7
Travel, transport, and logistics	1.2–2.0

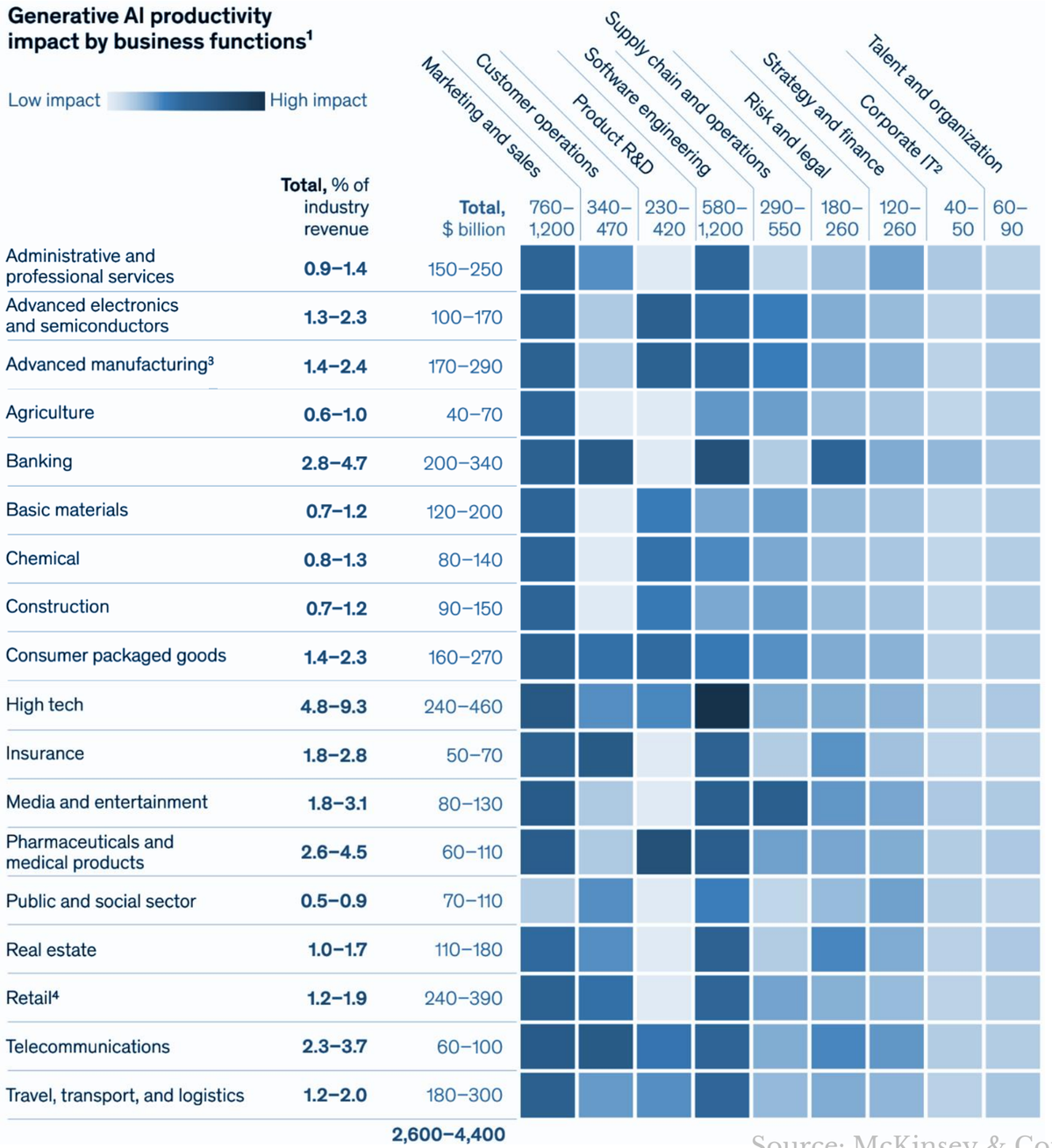
Goods-producing sectors prevalent in the New North

Source: McKinsey & Company

National-Level

Generative AI influential in…

- Marketing & sales
- Product R&D
- Customer Operations



Source: McKinsey & Company

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Benefits and Challenges of AI in an industry

Benefits:

- ↑ Productivity and efficiency
- ↑ Customer experience
- ↑ Strategic decision making
- ↓ Risk

Challenges:

- ↑ Cost
- Accuracy issues
- Biased data

New North Industry Breakdown

Trade and Transportation and Utilities

Manufacturing

Education and Health Services

Generative AI influential in…

- Marketing & Sales
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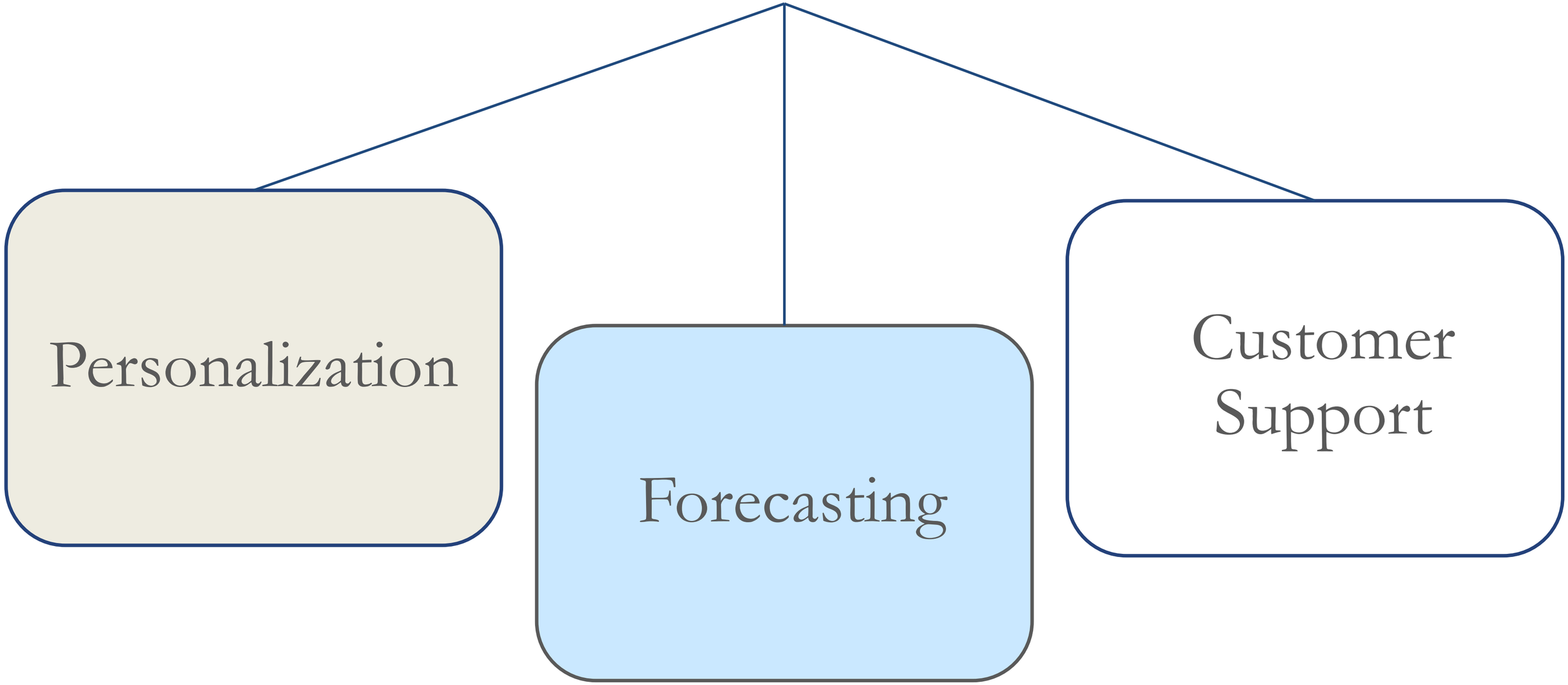
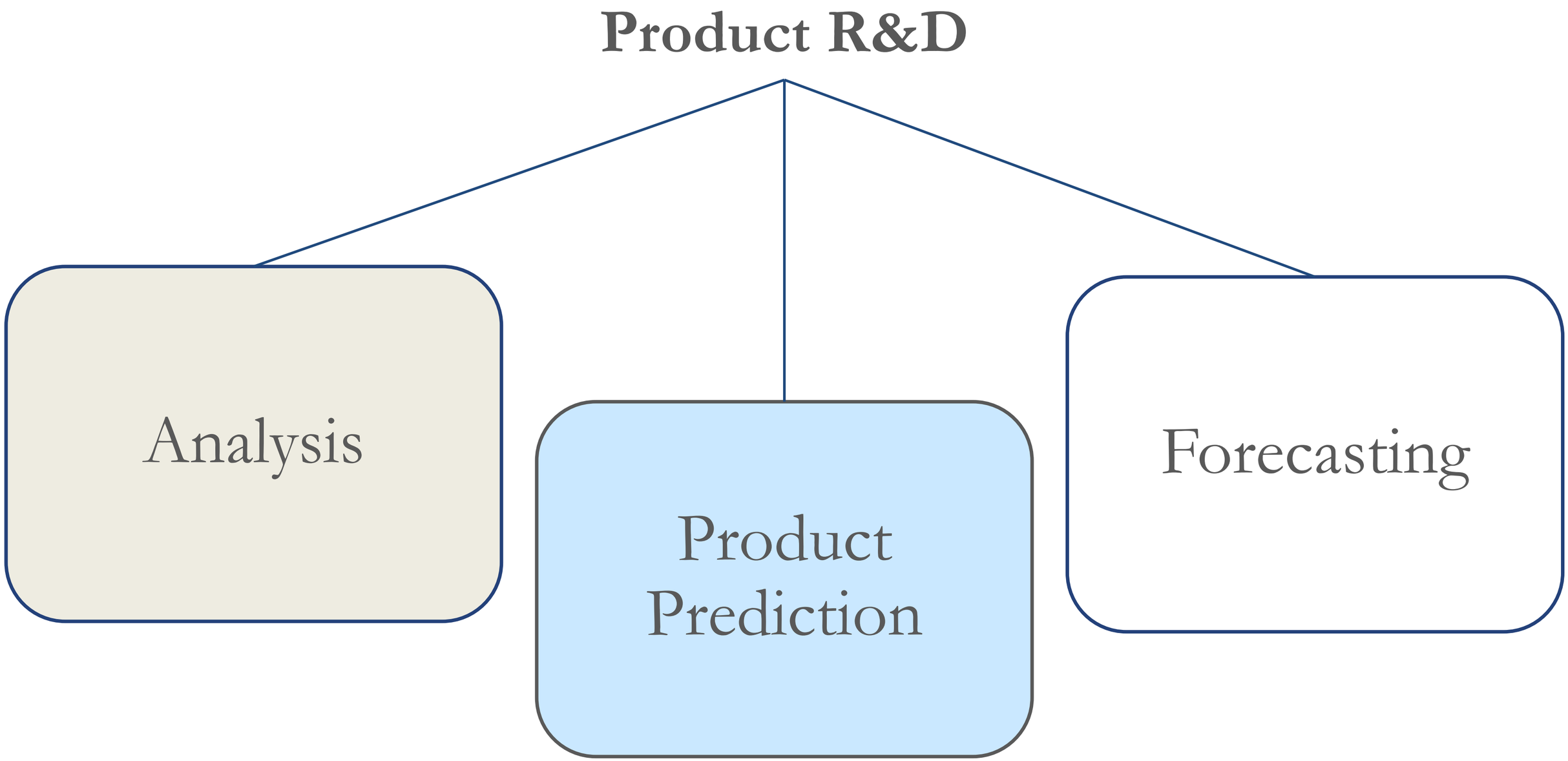
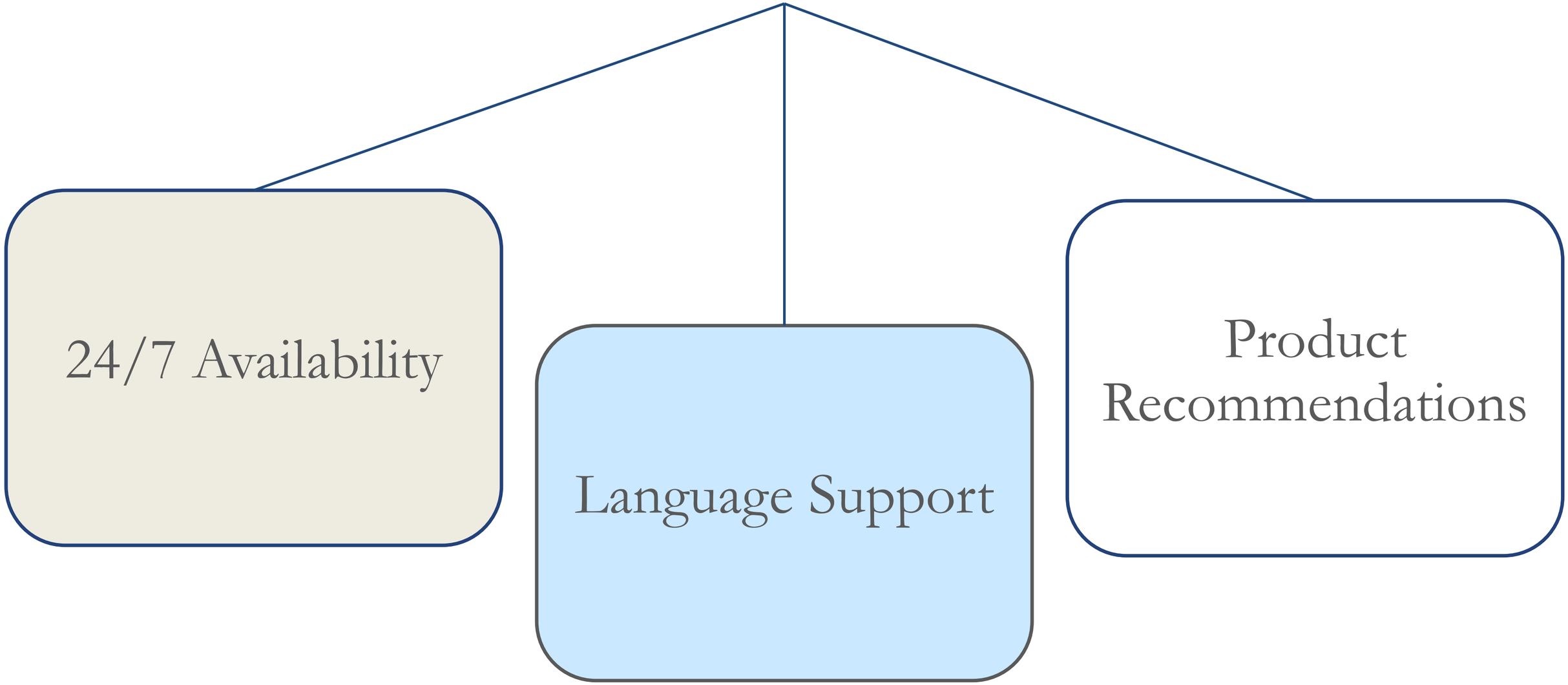
- Customer Operations

Marketing and Sales




Product R&D
Analysis
Product Prediction
Forecasting

Customer Operations



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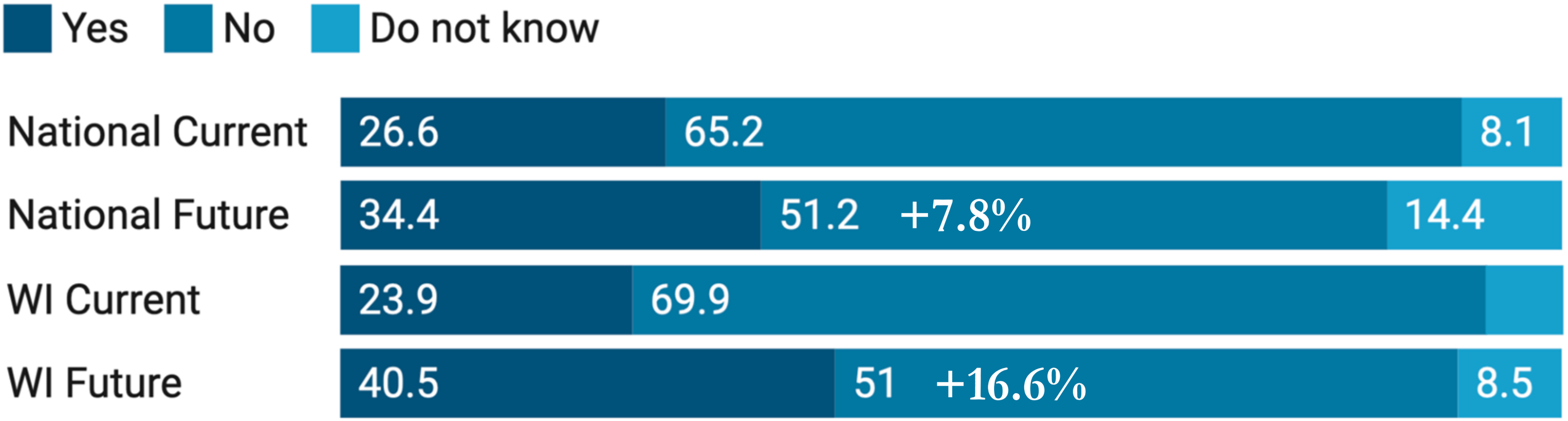
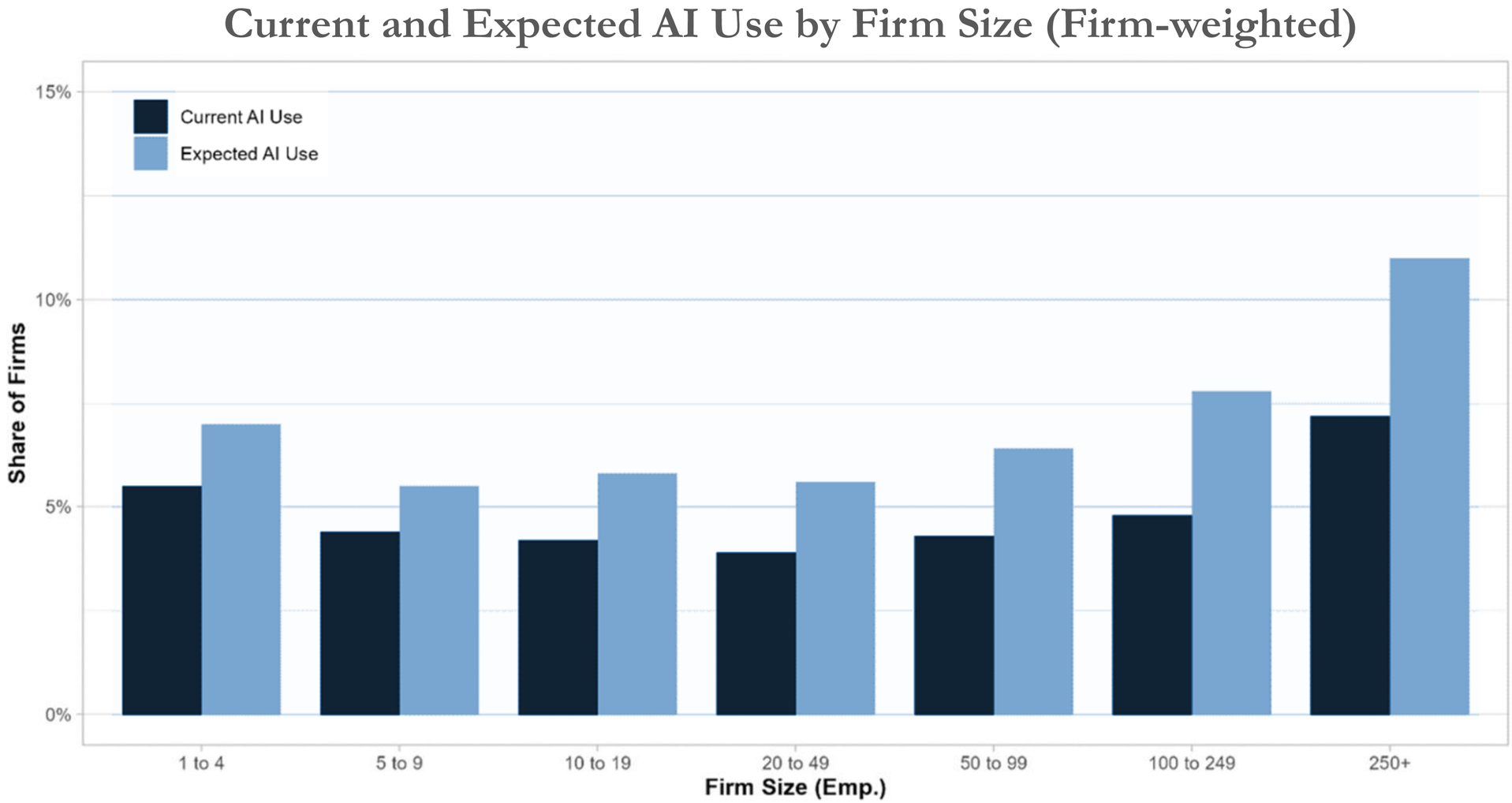
AI Usage on the Rise in Wisconsin

AI Use in Goods-Producing Services



Source: Census Bureau

AI Investment Projected to Rise



Source: CES.Working.Papers@census.gov

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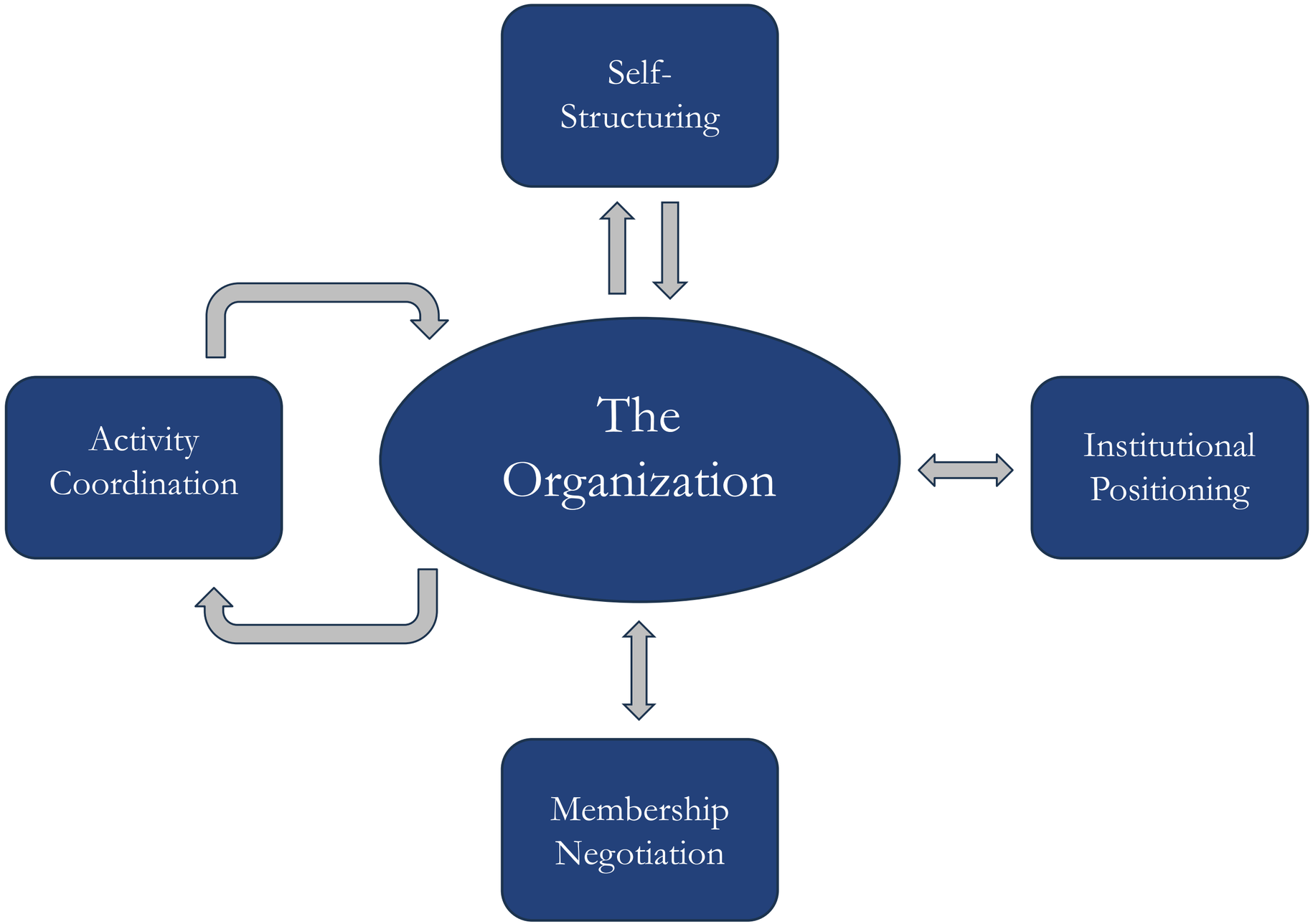
St. Norbert College
Center for Business & Economic Analysis

The Communicative Construction of Organizations (CCO)



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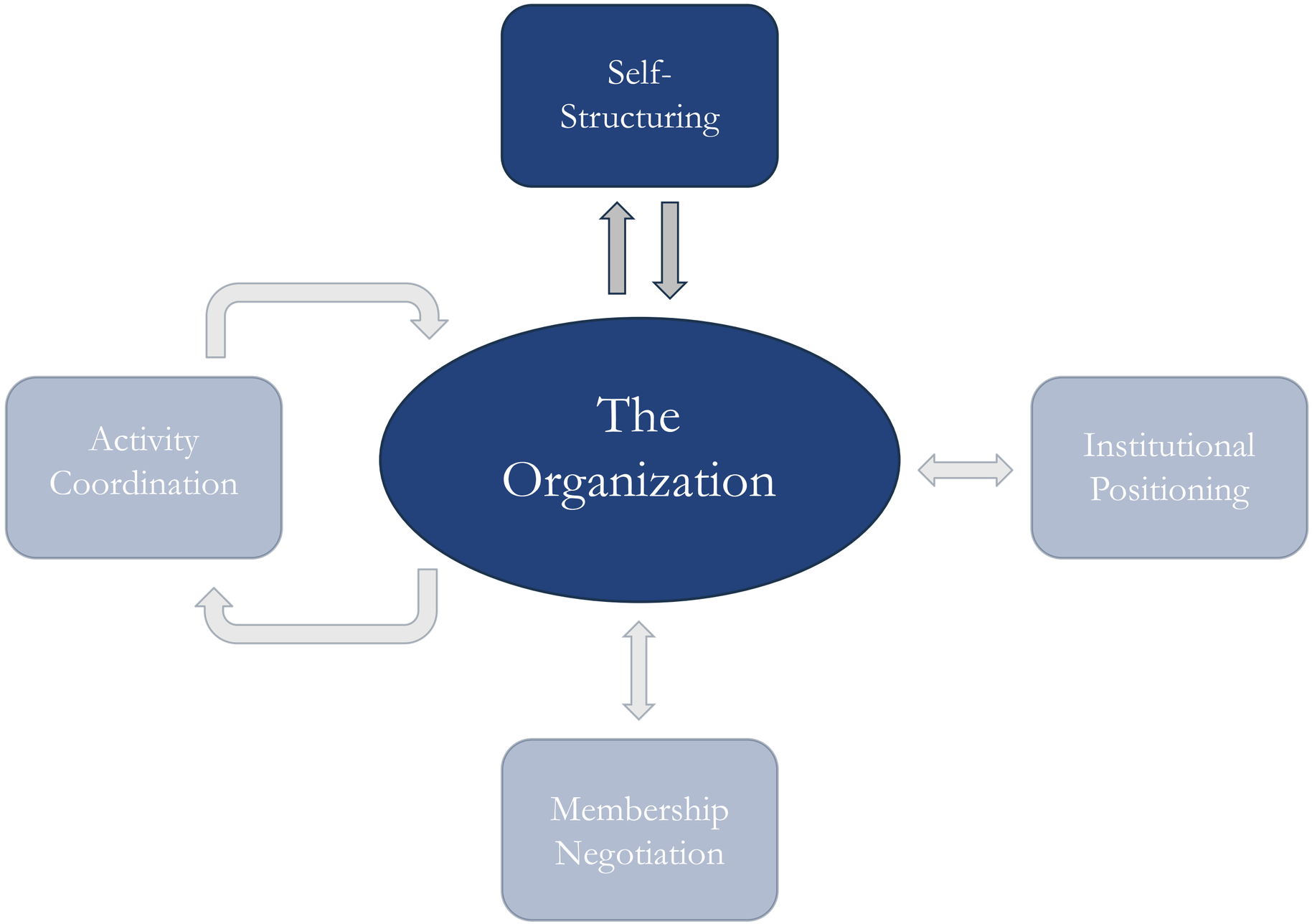

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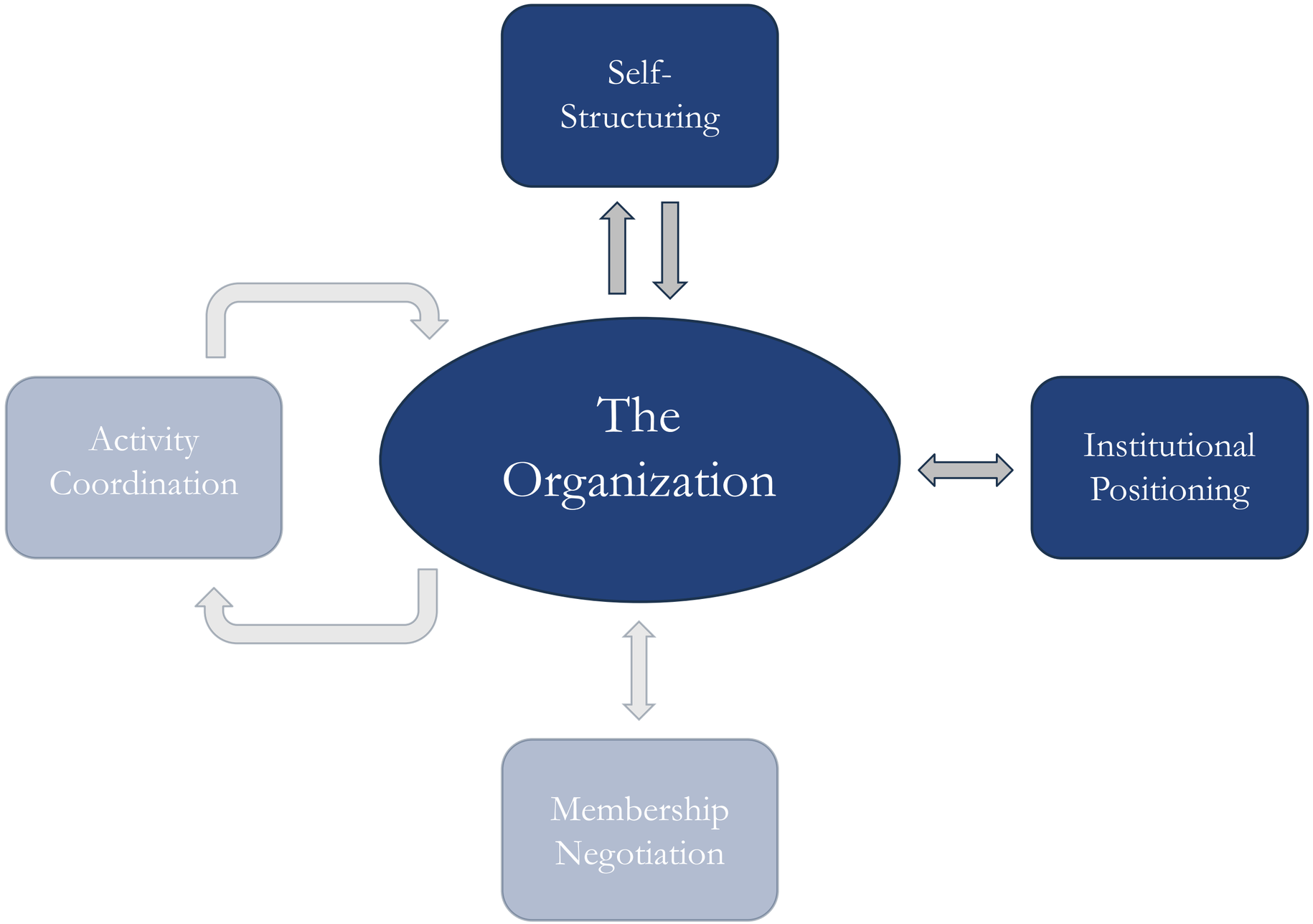

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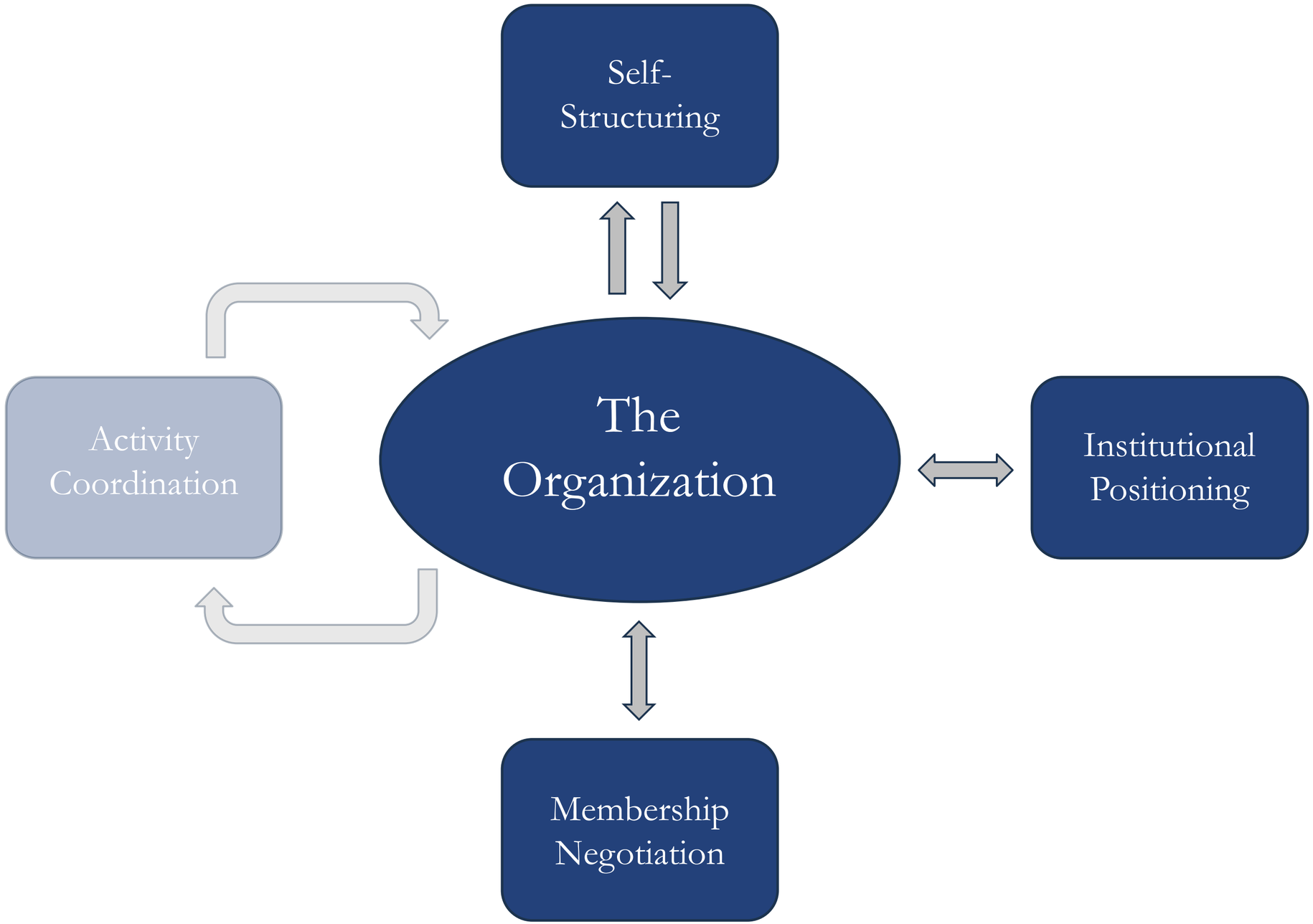

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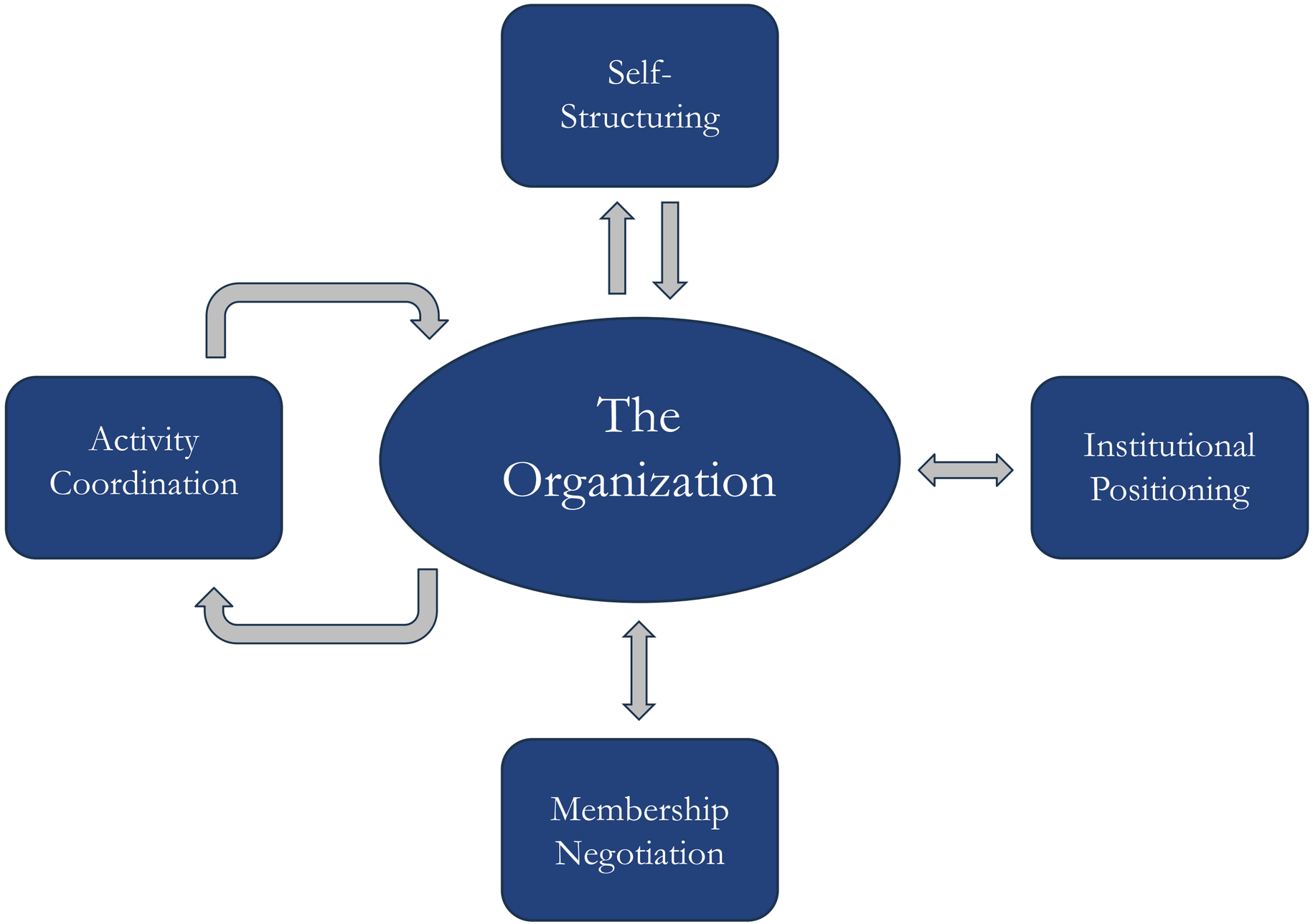

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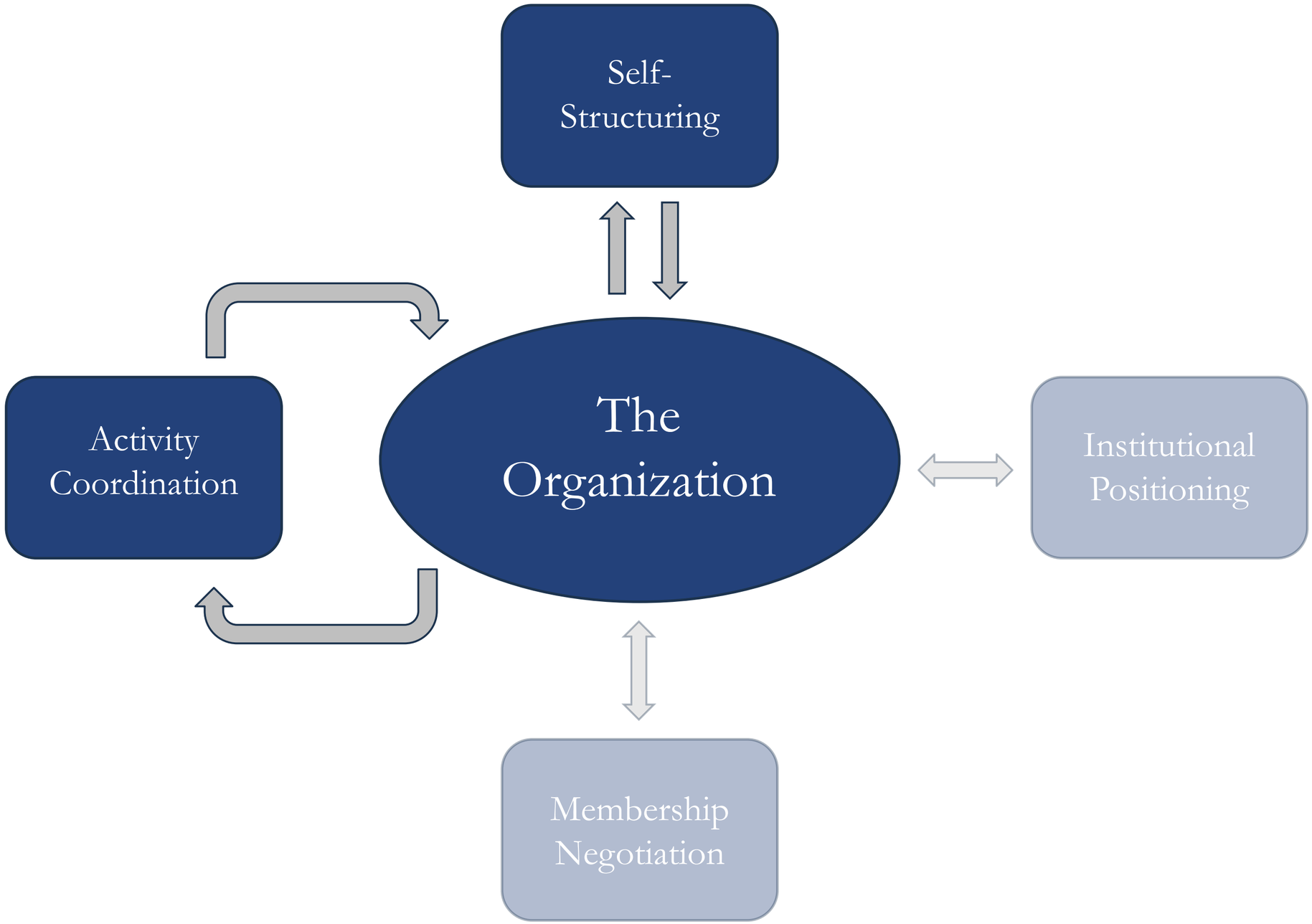

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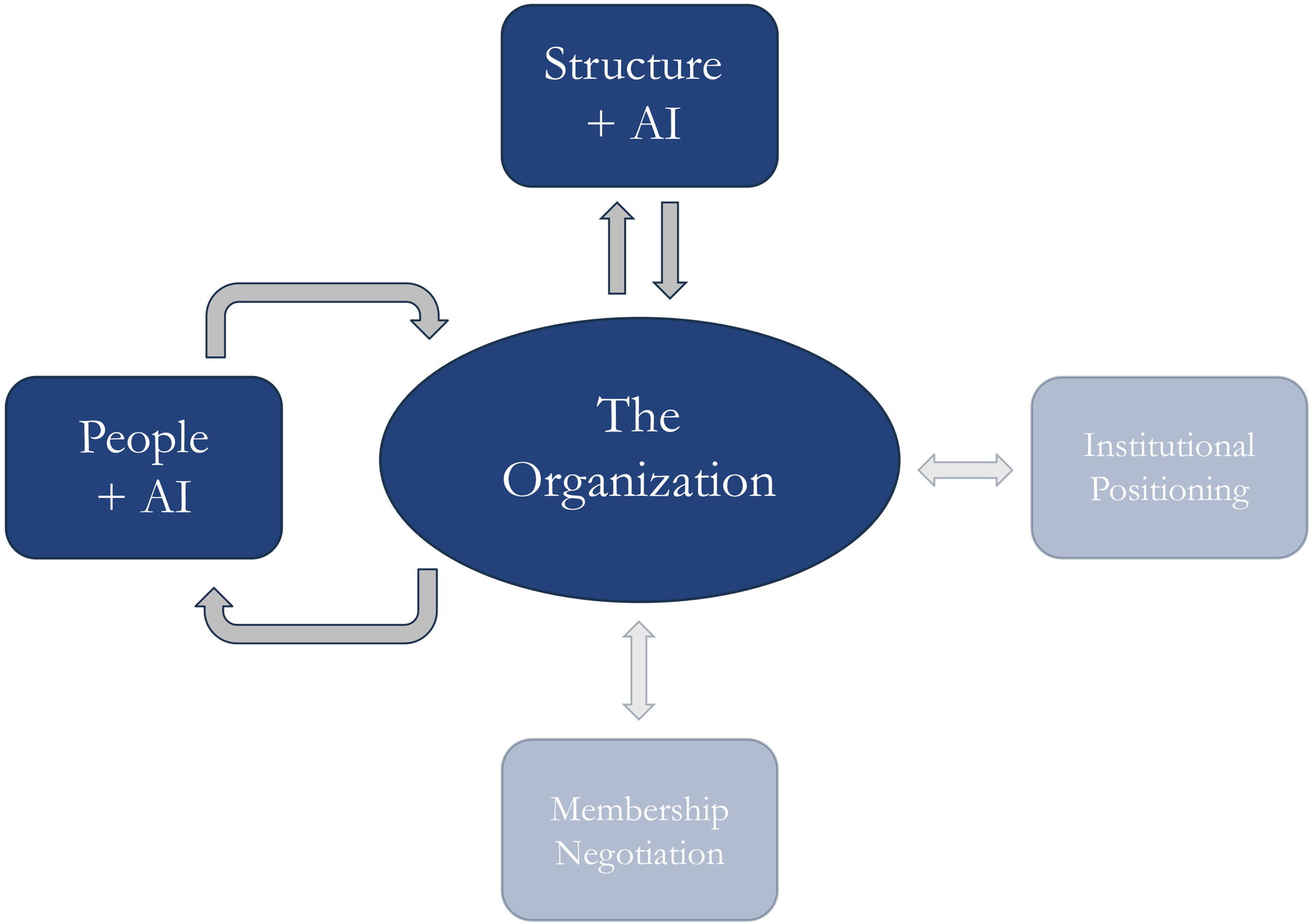

Takeaways

1 Innovation in the New North is on the rise.

2 Generative AI will impact production.

3 AI implementation is expected to increase.

4 Human + AI interaction constitutes organizations.

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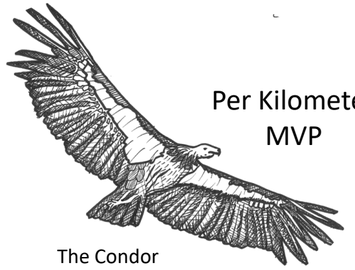
Research Analyst Fellow, CBEA

Matt Scheele
Research Analyst Fellow, CBEA

Kim Smith, Ph.D.
Associate Director, CBEA



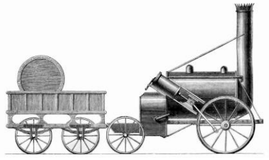
Per Kilometer
MVP

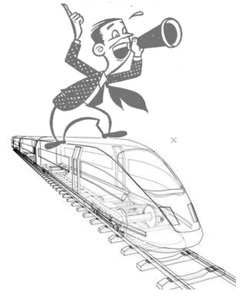
The Condor

A Bicycle for the Mind

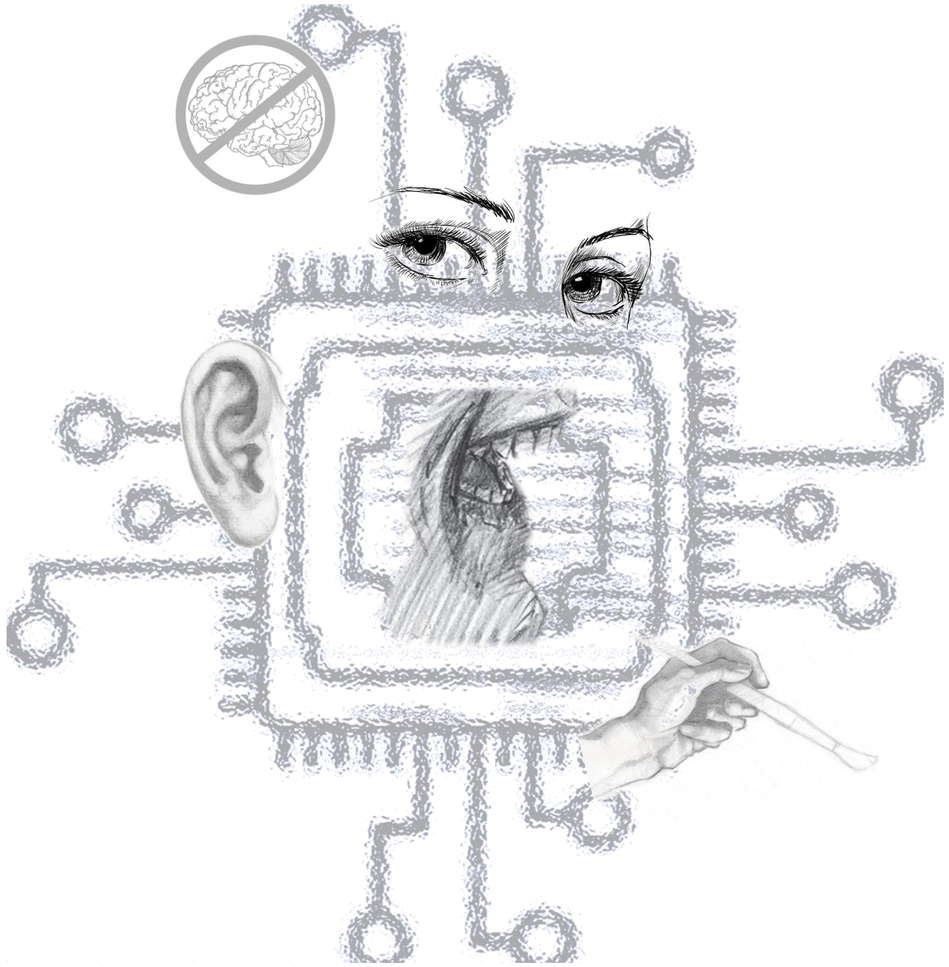
I think one of the things that really separates us from the high primates is that we're tool builders. I read a study that measured the efficiency of locomotion for various species on the planet. The condor used the least energy to move a kilometer. And, humans came in with a rather unimpressive showing, about a third of the way down the list. It was not too proud a showing for the crown of creation. So, that didn't look so good. But, then somebody at Scientific American had the insight to test the efficiency of locomotion for a man on a bicycle. And, a man on a bicycle, a human on a bicycle, blew the condor away, completely off the top of the charts.

And that's what a computer is to me. What a computer is to me is it's the most remarkable tool that we've ever come up with, and it's the equivalent of a bicycle for our minds." ~ **Steve Jobs**





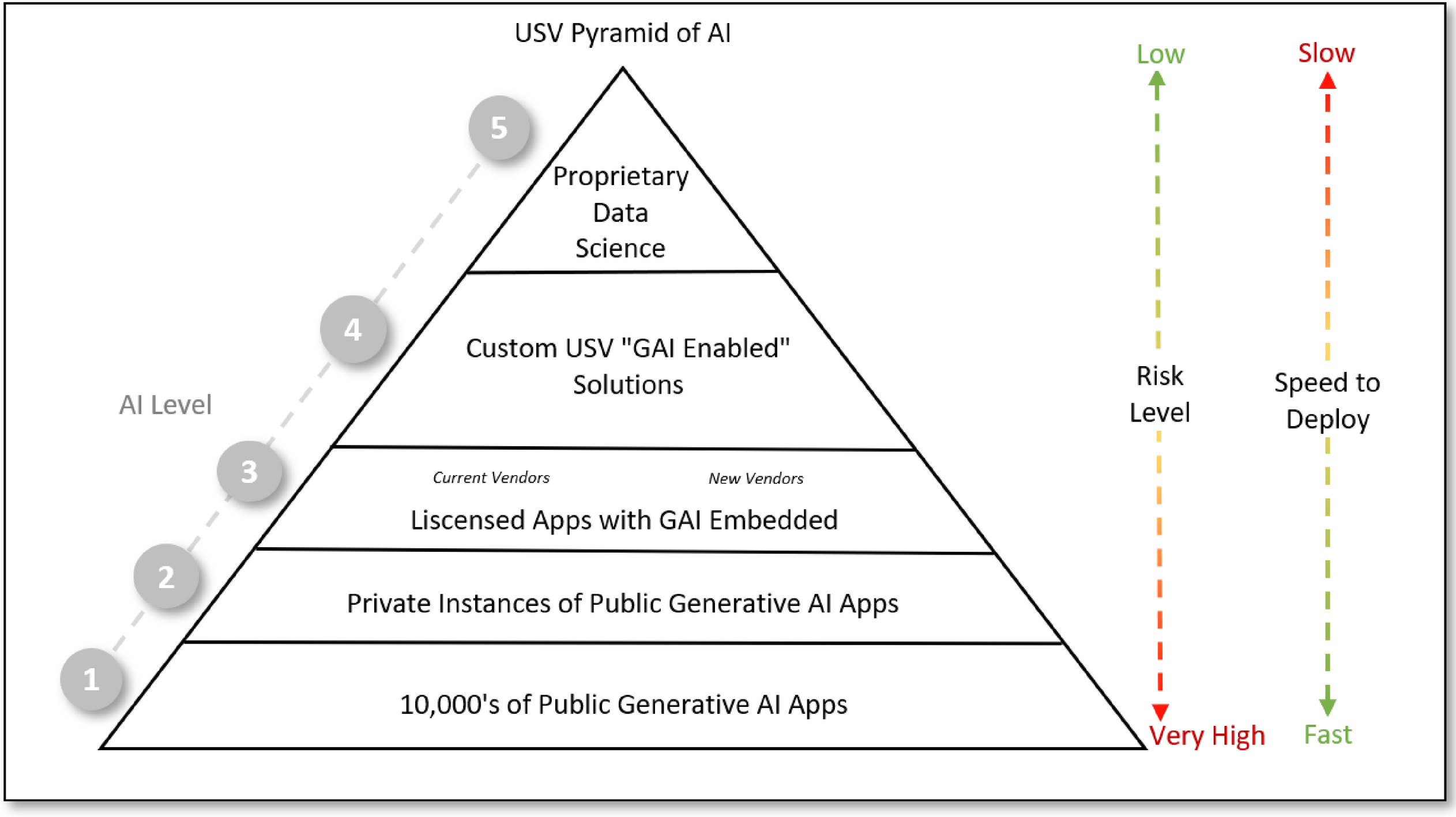
Let’s Put the Latest Innovations into Context



- Eyes & Vision (Diffusion Models)
  - Recognition of objects (live or images)
  - Synthetic Artistic Talent (Instructed, Trained, Random)
  - Massive historical context of relationships
- A Voice and Language Skills (Large Language Models)
  - Intentional or Random phraseology (S/M/L/XL/XXL)
  - Given a text string, custom vocalization (words, songs, grunts, signals)
  - Synthetic Voice Characteristics (Tone, Pitch, audio construction)
  - Massive historical context of relationships
- Hearing & Reading (Hidden Markov Models & LLMs)
  - Audio & Soundwave Capture (live or recorded)
  - Recognition, Categorization, Adaptation
  - Massive historical context of relationships
- NOT A FAKE BRAIN *(yet)*
  - GAI vs. AGI (Artificial General Intelligence)

A hurricane of Unrealistic Expectations

Humans have created the Universe’s GREATEST Copycat!


USV Pyramid of AI
5
Proprietary
Data
Science
4
Custom USV "GAI Enabled"
Solutions
AI Level
3
Current Vendors
New Vendors
Liscensed Apps with GAI Embedded
2
Private Instances of Public Generative AI Apps
1
10,000's of Public Generative AI Apps
Low
Risk
Level
Very High
Slow
Speed to
Deploy
Fast

Thank You!

Wednesday, April 17, 2024 | 11 a.m. – 1 p.m. St. Norbert College – Bemis Center