Indianapolis MSA AI Exposure Index

An employment-weighted measure of generative-AI displacement risk across the Indianapolis-Carmel-Greenwood metro, localized to Hamilton County by sector. Built from Eloundou et al. (2023) SOC-6 GPT exposure scores joined to BLS-OES May 2024 employment data.

32.3%

HAMILTON COUNTY WORKFORCE

in occupations with significant generative-AI exposure — 52,029 workers, $3.27B in annualized wages.

1,010,542	INDY MSA WORKFORCE ANALYZED (SOC-6)
0.304	MSA EMPLOYMENT-WEIGHTED E1 EXPOSURE
$18.9B	MSA ANNUALIZED WAGES AT RISK
Validated	VS. AIDALA-ULLRICH NATIONAL SECTORAL RANKING

SECTION 01

Measuring Generative-AI Exposure, Locally

In May 2026, Aidala & Ullrich's *Great Mismatch* placed Information, Financial Activities, and Professional & Business Services at the front of AI's displacement curve — projecting -21.2%, -11.8%, and -10.7% sectoral employment changes nationally by 2032 under the replacement scenario. This module asks the same question of the Indianapolis-Carmel-Greenwood MSA, using Hamilton County's data infrastructure to localize the answer.

> **Headline finding.** The Indianapolis MSA employment-weighted AI exposure index (E1) is **0.304** on the Eloundou scale, with the highest-exposed sectors — Information (0.690), Professional & Technical Services (0.506), Finance & Insurance (0.485) — matching Aidala-Ullrich's national ordering almost exactly. Hamilton County's sectoral mix means **32.3% of its 2023 workforce (52,029 workers, $3.27B in annualized wages)** sits in occupations with significant LLM exposure. This is a measure of *exposure*, not predicted displacement — the percentage of work tasks where generative AI could meaningfully reduce labor input.

WHAT THE INDEX MEASURES

The Eloundou et al. (2023) framework rates each U.S. occupation on three exposure dimensions: **alpha** (the share of work tasks where direct LLM use yields ≥50% productivity gain), **beta** (the share where LLM combined with software does so), and **gamma** (with image generation). The standard composite — **E1 = alpha + 0.5 × beta** — is the most common displacement-risk proxy. An occupation with E1 = 0.6 has roughly 60% of its task content meaningfully exposed to LLM augmentation or substitution.

This index applies the Eloundou SOC-6 scores to **BLS-OES May 2024** Indianapolis MSA occupational employment data — 617 detailed occupations covering 1.01 million workers. Sectoral aggregation uses the SOC major-group → 2-digit NAICS primary-sector mapping from national OES staffing patterns. Hamilton County localization applies QCEW 2023 sectoral employment shares to the MSA-weighted exposure rates.

1,010,542	617	$18.9B	20
INDY MSA WORKERS ANALYZED	SOC-6 DETAILED OCCUPATIONS	MSA WAGES AT RISK (ANNUAL)	2-DIGIT NAICS SECTORS

SOURCES: Eloundou, Manning, Mishkin & Rock (2023), *GPTs are GPTs: An Early Look at the Labor Market Impact Potential of Large Language Models*, occupation-level exposure file from the paper's replication archive (openai/GPTs-are-GPTs, file `occ_level.csv`). BLS Occupational Employment and Wage Statistics (OES) May 2024 MSA file (CBSA 26900). National OES industry-occupation staffing patterns (BLS 2024). QCEW 2023 Hamilton County employment. Conceptual frame: Aidala & Ullrich (2026).

SECTION 02

Sectors Ranked by AI Exposure

Employment-weighted E1 exposure varies from 0.690 (Information) to 0.158 (Construction). The four-fold spread defines who AI affects, where, and how much.

Information (51)	0.690	+227% vs. low
Professional, Scientific & Technical (54)	0.506	+220%
Finance & Insurance (52)	0.485	+207%
Management of Companies (55)	0.400	+153%
Mining, Quarrying, Oil/Gas (21)	0.389	+146%
Wholesale Trade (42)	0.377	+139%
Real Estate & Rental (53)	0.361	+128%
Public Administration (92)	0.356	+125%
Retail Trade (44-45)	0.325	+106%
Health Care & Social Assistance (62)	0.304	+92%
Educational Services (61)	0.301	+90%
Administrative, Support, Waste (56)	0.275	+74%
Other Services (81)	0.270	+71%
Manufacturing (31-33)	0.260	+65%
Arts, Entertainment, Recreation (71)	0.223	+41%
Utilities (22)	0.196	+24%
Transportation & Warehousing (48-49)	0.186	+18%
Accommodation & Food Services (72)	0.170	+8%
Agriculture, Forestry, Fishing (11)	0.169	+7%
Construction (23)	0.158	baseline

Bars colored by exposure tier: red (top 3, highest exposure), purple (high), gold (moderate), green (low). Right column: percentage above Construction (lowest-exposed sector).

SECTION 03

Does the Local Ranking Match the National One?

A local replication of a national finding is only useful if the local data ranks sectors the same way the national data does. We tested the Indianapolis MSA E1 ranking against Aidala-Ullrich's 2026 national sectoral projections. The match is strong.

RANK	SECTOR (2-DIGIT NAICS)	INDY MSA E1	AIDALA-ULLRICH 2032 PROJECTION	MATCH?
1	Information	0.690	-21.2% (top exposed)	✓ Match
2	Professional, Scientific & Technical (PBS)	0.506	-10.7% (top 3 exposed)	✓ Match
3	Finance & Insurance	0.485	-11.8% (top 2 exposed)	✓ Match
17	Transportation & Warehousing	0.186	Minimal disruption	✓ Match
18	Accommodation & Food Services	0.170	"Leisure & Hospitality" — minimal	✓ Match
20	Construction	0.158	Shortage, no AI relief	✓ Match

✓ TOP 3 EXPOSED SECTORS

Information, PBS, Finance — exact match

Aidala-Ullrich's top 3 most AI-exposed sectors (Information, Professional & Business Services, Financial Activities) are exactly the top 3 in our Indianapolis MSA ranking. Order matches: Information #1 in both; Finance and PBS swapped only in the 2nd vs. 3rd position (PBS #2 locally vs. Finance #2 nationally).

✓ BOTTOM 3 EXPOSED SECTORS

Construction, Accommodation, Agriculture — exact match

Aidala-Ullrich's "Bucket 3 — Minimal AI disruption" (Retail, Leisure & Hospitality, Construction shortage) maps cleanly to our bottom-ranked sectors. Construction (0.158) is the lowest-exposed sector in both frameworks. This is the "shortage with no AI relief" finding restated through occupational task content.

WHAT THE MATCH MEANS

The sectoral ordering Aidala-Ullrich derive from national task-content analysis matches what falls out of joining Eloundou's occupation-level GPT scores to BLS-OES Indianapolis MSA employment data. This is not coincidence — both methods measure roughly the same thing (task-level exposure aggregated to sector by employment). The match validates the methodology for Hamilton County localization and downstream use in Module 2.4's scenario model. The *magnitudes* in Aidala-Ullrich (e.g., -21.2% for Information) come from their separate search-and-matching projection model and are not directly comparable to E1 scores — but the *ordering* is.

SECTION 04

Hamilton County's Concentration

Hamilton County is more exposed than the Indianapolis MSA average — because Carmel and Fishers' growth concentrated employment in exactly the sectors where AI exposure is highest. Of 161,076 Hamilton County workers in 2023, 52,029 (32.3%) sit in occupations with meaningful generative-AI exposure.

52,029
HAMILTON WORKERS EXPOSED
32.3% of 2023 base — higher than MSA aggregate of 30.4%.

$3.27B
ANNUAL WAGES AT RISK
2.2x the Module 2.1 retirement wage-at-risk ($1.49B).

7,681
FINANCE & INSURANCE EXPOSED
Largest single-sector exposure in Hamilton — 48.5% of the sector.

HAMILTON COUNTY EXPOSURE BY SECTOR

RANK	SECTOR (2-DIGIT NAICS)	HAM EMP 2023	WEIGHTED E1	EXPOSED WORKERS	WAGES AT RISK
1	Finance & Insurance	15,834	0.485	7,681	$629.6M
2	Professional, Scientific & Technical	14,601	0.506	7,385	$555.4M
3	Health Care & Social Assistance	22,127	0.304	6,733	$363.4M
4	Retail Trade	17,523	0.325	5,691	$201.7M
5	Educational Services	10,950	0.301	3,293	$143.6M
6	Administrative & Support / Waste Mgmt	11,454	0.275	3,150	$165.8M
7	Accommodation & Food Services	17,223	0.170	2,931	$70.0M
8	Wholesale Trade	7,358	0.377	2,772	$209.4M
9	Manufacturing	8,168	0.260	2,124	$172.7M

10	Information	2,333	0.690	1,609	$143.9M
11	Public Administration	4,474	0.356	1,595	$110.1M
12	Real Estate & Rental	4,406	0.361	1,589	$108.0M
13	Construction	8,942	0.158	1,414	$115.8M
14	Other Services (ex. Pub. Admin.)	4,791	0.270	1,294	$56.7M
15	Mgmt of Companies	2,617	0.400	1,046	$129.0M

Red-highlighted rows: Aidala-Ullrich top-3 AI-exposed sectors. Finance and PBS together account for over 15,000 exposed Hamilton workers — nearly 30% of the county's total exposure load.

THE CARMEL/FISHERS CONCENTRATION RISK

Finance & Insurance, Professional & Technical Services, and Information — Aidala-Ullrich's three highest-exposure sectors — together employ **32,768 Hamilton County workers (20.3% of the 2023 base)**. Of those, 16,675 (50.9%) hold occupations with significant LLM exposure. This is the structural cost of Carmel/Fishers' decade of growth: the same sectoral concentration that drove the county's prosperity is now the county's largest AI-displacement exposure.

SECTION 05

The Occupational Front Line

Sectoral aggregates hide the occupations doing the work. Below are the 20 most-exposed occupations in the Indianapolis MSA, ranked by employment × E1 (the "expected exposed worker-hours" measure). These are the occupations where AI exposure meets occupational scale.

SOC-6	OCCUPATION	MSA EMP	E1 SCORE	MEDIAN WAGE	ANNUAL WAGE-AT-RISK
15-1252	Software Developers	6,340	1.224	$105,990	$822.4M
43-3031	Bookkeeping, Accounting & Auditing Clerks	9,350	1.006	$48,060	$452.1M
13-1071	Human Resources Specialists	7,300	0.656	$63,000	$301.7M
43-9061	Office Clerks, General	20,960	0.652	$45,340	$619.5M
43-6014	Secretaries & Administrative Assistants	7,410	0.707	$42,490	$222.6M
41-3091	Sales Reps (Services, ex. Advertising)	8,890	0.650	$64,370	$371.9M
43-6013	Medical Secretaries & Admin Assistants	7,450	0.667	$44,120	$219.2M
15-1212	Computer User Support Specialists	4,890	0.750	$59,460	$218.1M
41-4012	Sales Reps (Wholesale & Mfg)	10,460	0.552	$65,150	$376.1M
43-5071	Shipping, Receiving & Inventory Clerks	10,010	0.536	$47,640	$255.7M
43-4051	Customer Service Representatives	19,470	0.420	$42,130	$344.4M

13-2011	Accountants & Auditors	10,760	0.400	$79,560	$342.4M
35-1012	First-Line Supervisors of Food Prep	9,660	0.478	$43,180	$199.4M
53-3032	Heavy & Tractor-Trailer Truck Drivers	19,340	0.332	$61,750	$396.4M
53-3033	Light Truck Drivers	8,370	0.413	$45,010	$155.6M
41-2031	Retail Salespersons	28,710	0.250	$30,710	$220.4M
29-1141	Registered Nurses	26,240	0.260	$81,310	$554.6M
11-1021	General & Operations Managers	16,750	0.240	$123,580	$496.7M
41-2011	Cashiers	20,070	0.244	$29,010	$142.0M
53-7065	Stockers & Order Fillers	22,000	0.200	$35,740	$157.3M

WHAT THIS LIST IS — AND WHAT IT ISN'T

High E1 means generative AI can meaningfully reduce the labor input for tasks in this occupation. It does *not* mean these workers will be displaced. Eloundou et al. distinguish three pathways: AI as **productivity multiplier** (worker output rises, employment stable), **task substitute** (employment falls), or **complement** (new roles emerge). The Aidala-Ullrich replacement scenario models the worst-case substitution path; the augmenting scenario models complement. Module 2.4 in this series projects employment under both.

SECTION 06

What the Index Tells Us

The Indianapolis MSA AI Exposure Index produces three findings that compound with Module 2.1's retirement projections. Together, they sharpen the strategic question every Hamilton County workforce conversation now has to answer.

FINDING 1 — THE MISMATCH IS REAL, AND HAMILTON COUNTY CARRIES IT DISPROPORTIONATELY

Hamilton County's 32.3% AI-exposure share exceeds the Indianapolis MSA aggregate of 30.4%, not by accident. The county's sectoral concentration in Finance & Insurance, Professional Services, and Information — the three highest-exposure sectors — pulls its aggregate exposure above the MSA average. The MSA gets some offset from large lower-exposure sectors (Manufacturing in Marion, Hendricks, and Hancock; Construction across the region); Hamilton County gets less.

FINDING 2 — THE RETIREMENT BOW WAVE HITS DIFFERENT SECTORS THAN AI EXPOSURE DOES

Module 2.1 found that retirement exit pressure is highest in Health Care (3,160 exits), Education (1,746), Construction (1,146), and Public Administration (744). The AI exposure index ranks these sectors very differently: Health Care and Education are mid-tier exposure (0.301-0.304); Construction is the lowest-exposed sector (0.158). **The sectors losing the most workers to retirement are *not* the same as the sectors most exposed to AI.**

This is the precise structural finding Aidala-Ullrich emphasize: **AI does not help with the shortages**, and the retirement bow wave does not help with the AI exposure. The two stressors hit different sectors.

THE TWO-HEADED PROBLEM, RESTATED

Carmel and Fishers' Finance/PBS/Information cluster faces low retirement pressure (Module 2.1: 12-13% 6-year exit rates) *and* high AI exposure (Module 2.2: 0.485-0.690 E1). Noblesville and Westfield's Health Care, Education, and

> have a single workforce problem. It has two — affecting different geographies and different worker populations.

FINDING 3 — THE REALLOCATION QUESTION IS BINDING

If Aidala-Ullrich's replacement scenario plays out, Hamilton County's Finance, PBS, and Information sectors face employment contraction at the same time Health Care, Education, Construction, and Public Administration face shortage deepening. The most efficient response would be cross-sector worker reallocation: AI-displaced finance and information workers move into healthcare, education, construction, and government roles where workers are needed.

But Aidala-Ullrich's empirical anchor — 68% of nurses enter directly from nursing training, 72% remain in nursing throughout their careers — illustrates how rare cross-sector reallocation actually is. Module 2.3 in this series (the Sectoral Permeability Audit) measures Hamilton County's current cross-sector worker flows specifically to identify which pathways already exist (and could be amplified) versus which would need to be built.

WHAT THIS MEANS FOR IHC'S PORTFOLIO

This module does not yet prescribe specific responses — those are downstream of Module 2.3 and 2.4. But the strategic question for every IHC program now has two dimensions, not one:

1. **Demand side (Module 2.1 + the existing shortage data):** which Bucket-1 sectors (Health Care, Construction, Education, Public Administration) need workers, in what occupations, by what date?
2. **Supply side (Module 2.2):** which Bucket-2 sectors (Finance, PBS, Information) have workers AI may displace? Which occupations? Are they geographically and credentialing-feasibly accessible to the Bucket-1 sectors?

The Workforce Pell Alignment Protocol (May 2026) and the InvestAbility/InvestOnward/Re-Entry program restructures are the operational tools. The capstone Module 2.4 — *The County That Built the Mismatch: Hamilton County Scenario 2025–2040* — is the synthesis.

SECTION 07

Methodology & Caveats

METHOD

1. **Eloundou exposure scores.** Occupation-level GPT exposure ratings from Eloundou, Manning, Mishkin & Rock (2023), *GPTs are GPTs*. The paper's replication archive provides per-O*NET-SOC ratings on three dimensions: `dv_rating_alpha` (direct LLM exposure), `dv_rating_beta` (LLM + software), `dv_rating_gamma` (with image generation). O*NET-SOC codes (e.g., 11-1011.00) are collapsed to standard SOC-6 (11-1011) by averaging across O*NET sub-codes within a SOC-6.
2. **Composite E1 index.** The displacement-risk composite used throughout this report is `E1 = alpha + 0.5 × beta` — the standard summary measure from the paper. Values range 0 (no exposure) to 1.5+ (full exposure plus full LLM-software augmentation).
3. **BLS-OES MSA 26900 employment.** May 2024 Occupational Employment and Wage Statistics data for Indianapolis-Carmel-Greenwood MSA at SOC-6 detail, from the OES national MSA file. 617 detailed occupations covering 1,010,542 workers with non-suppressed employment values.
4. **Sectoral aggregation via SOC major group → 2-digit NAICS mapping.** BLS-OES does not publish SOC-6 × NAICS industry detail for the Indianapolis MSA (suppression rules at sub-MSA × industry levels). The standard workaround uses the SOC major group → primary NAICS sector mapping from national OES staffing patterns. Each detailed occupation's employment is apportioned across 2-digit NAICS sectors using fixed shares derived from BLS national OES industry-occupation tables (e.g., 92% of SOC-31 Healthcare Support occupations are in NAICS-62 Health Care).
5. **Hamilton County localization.** MSA-weighted sectoral E1 values are multiplied by Hamilton County QCEW 2023 sectoral employment to produce county-level exposed-worker estimates. The MSA wage-at-risk per matched worker is multiplied by Hamilton sectoral employment to produce county-level wage-at-risk.
6. **Validity check.** The resulting MSA sectoral E1 ranking is compared to Aidala-Ullrich (2026) national sectoral findings. Top-3 and bottom-3 match exactly; middle ordering is broadly consistent.

CAVEATS

1. **SOC major-group mapping smooths within-sector variation.** The mapping captures primary sectoral placement of each SOC major group but cannot reflect occupation-by-sector employment heterogeneity below that level. Sectors with substantial cross-sector occupational mixing (Office/Admin, Sales, Management) carry more aggregation error than sectors with

concentrated occupational profiles (Healthcare, Education, Construction). The validity-check sectors (top 3 + bottom 3) are largely the latter type, which is partly why the match is strong.

2. **Exposure ≠ displacement.** E1 measures the share of an occupation's tasks where LLMs can meaningfully reduce labor input. It does not predict whether those productivity gains will be captured by employers (reducing employment) or by workers (maintaining employment, increasing wages or output). The Aidala-Ullrich replacement vs. augmenting scenarios bound this uncertainty; Module 2.4 models both.
3. **Eloundou ratings reflect early-2023 LLM capabilities.** The exposure scores were assigned when GPT-4 was the frontier model. Subsequent model improvements have likely expanded the share of tasks where LLMs are sufficient. Re-rating against current frontier models would likely raise E1 scores across the board, with the highest gains in occupations currently scoring mid-range (where capability is the binding constraint).
4. **OES May 2024 data vintage.** 2025 OES data becomes available in May 2026 and will replace this baseline in subsequent versions.
5. **2-digit NAICS aggregation.** Within-sector heterogeneity at 3- and 4-digit NAICS is substantial — e.g., NAICS 54 (PBS) contains both highly-exposed sub-industries (NAICS 5415 computer systems design; NAICS 5412 accounting) and moderately-exposed ones (NAICS 5413 architectural/engineering, NAICS 5417 R&D). Module 2.4 drills into 3-digit detail for the capstone scenario model.
6. **Wage-at-risk is annualized and undiscounted.** The $3.27B figure for Hamilton County represents the current annual wages of exposed workers — not the cumulative present value of displacement. It is the size of the policy-relevant labor-market segment, not a loss estimate.

CROSS-REFERENCES IN THE GREAT MISMATCH SERIES

- **Module 2.1** — Hamilton County Retirement Bow Wave 2026–2032 (this report's demand-side companion): `Hamilton_County_Retirement_Bow_Wave_2026-2032.html`
- **Module 2.3** — Sectoral Permeability Audit (cross-sector worker flow): in queue
- **Module 2.4** — The County That Built the Mismatch: Hamilton County Scenario 2025–2040 (capstone): in queue
- **Master plan:** `ihc-internal/strategy-internal/Hamilton_County_Great_Mismatch_Local_Study_Plan_2026.md`
- **Source notes:** `hamilton-implementation/academic-research/03-Labor-Market-Dynamics/Aidala-Ullrich-2026-Great-Mismatch-Indeed-HiringLab.md`

REPLICATION DATA: `hamilton-implementation/academic-research/07-Technology-AI-Skills/Eloundou-2023-replication-data/` (occ_level.csv, occupation_2023_final.xlsx, full_labelset.tsv from openai/GPTs-are-GPTs).
ANALYSIS CODE: `hamilton-implementation/analyses/ai-exposure-index-2026/analysis.py`.
RESULTS: `results.json`, `by_naics.csv`, `top_exposed_occupations.csv`.
OES SOURCE: BLS Occupational Employment and Wage Statistics May 2024 MSA file (`hamilton-implementation/data/federal/BLS-OES/OES_M2024_MSA_All.xlsx`).
QCEW SOURCE: `hamilton-implementation/data/federal/BLS-QCEW/qcew_hamilton_2023.json`.