

Population Health Innovations and Clinical Research

ARA1 · Evidence review for team discussion · 27 October 2026

What is supported

Medical technologies are present; population-health and clinical-research results require their own evidence.

Health employment and registered clinical participation establish an operating setting. Rural reach and local trial delivery still need site evidence. Retained industry context and the patent observations describe different populations.

Scope and boundary check

The unchanged screen finds 504 narrow and 695 broad current-CPC candidates, versus 468 and 682 at issue. These are overlapping screening counts among utility grants with Arkansas inventors dated 2015–2025, not validated area totals or uncertainty intervals.

Primary-document examples

- [US10206651B2](#): Ultrasound/Doppler processing selects a measurement region and gate to calculate cardiac output. A health-measurement technology example; it does not establish population-health outcomes, a clinical trial or a ready care-delivery team.
- [US10004538B2](#): A pivoting, locking surgical instrument manipulates spinal constructs. General medical-device activity is broader than the proposed rural referral or clinical-research application.
- [US8991400B2](#): A shaped curable support is positioned beneath a patient's spine for emergency transport. Shows an emergency-care device subject, without evidence about service access, patient outcomes or deployment.

Decision to take next

Choose a provider-defined service or clinical question and verify its cohort, team and permitted data.

Confidence and remaining checks

Source identities, event dates, input hashes and the reviewed technical passages are checked. Area-wide membership remains provisional. Patent ownership, current team readiness, facility/data access, partner demand and commercial outcomes require separate evidence. Low patent counts do not disqualify an area.

Review method: abstract and first independent claim for three purposefully/hash-selected documents per area. This is a bounded analytical review, not a statistical accuracy estimate, external expert sign-off or legal opinion. The seven growth areas and proposed commitments remain in place.

Power Electronics, Advanced Packaging, and Grid Management Systems

ARA2 · Evidence review for team discussion · 27 October 2026

What is supported

The reviewed power modules support a narrow device/package case. General electrical classes include unrelated applications.

The selected power-hardware employment base is small and contracted while its US counterpart grew. Energy-system change supplies test questions rather than a measured electronics market. Retained industry context and the patent observations describe different populations.

Scope and boundary check

The unchanged screen finds 284 narrow and 323 broad current-CPC candidates, versus 187 and 252 at issue. These are overlapping screening counts among utility grants with Arkansas inventors dated 2015–2025, not validated area totals or uncertainty intervals.

Primary-document examples

- [US10784235B2](#): A compact power module combines silicon-carbide dies, terminals and a power substrate with specified electrical operation. A concrete power-module example. Claimed specifications are not independently demonstrated performance or commercial qualification.
- [US10064501B2](#): A replaceable cosmetic-display shelf uses mechanical mounting features and can include powered lighting. A power-related classification on a shop fixture does not establish advanced power-electronics or packaging capability.
- [US12446180B2](#): A multilayer power module uses opposing current paths and terminal/substrate arrangements to reduce impedance and switching losses. Supports a device/package subject match; availability of staff, fabrication and qualification services remains a separate question.

Decision to take next

Agree a device/package specification, reference design and host-confirmed test access before a qualification study.

Confidence and remaining checks

Source identities, event dates, input hashes and the reviewed technical passages are checked. Area-wide membership remains provisional. Patent ownership, current team readiness, facility/data access, partner demand and commercial outcomes require separate evidence. Low patent counts do not disqualify an area.

Review method: abstract and first independent claim for three purposefully/hash-selected documents per area. This is a bounded analytical review, not a statistical accuracy estimate, external expert sign-off or legal opinion. The seven growth areas and proposed commitments remain in place.

Next Generation Transportation and Logistics Systems

ARA3 · Evidence review for team discussion · 27 October 2026

What is supported

Delivery and navigation inventions connect transport with retail and autonomy; the screen also captures store and inspection systems.

Freight, support and warehousing have a substantial base. Net employment changed little; trucking declined while warehousing grew. Retained industry context and the patent observations describe different populations.

Scope and boundary check

The unchanged screen finds 86 narrow and 418 broad current-CPC candidates, versus 71 and 398 at issue. These are overlapping screening counts among utility grants with Arkansas inventors dated 2015–2025, not validated area totals or uncertainty intervals.

Primary-document examples

- [US10081437B2](#): A drone-delivery method checks item, range and relative transport costs, then changes propulsion when flight conditions change. Relevant to delivery and retail logistics, with overlap between transport and supply chains; it is not a measured freight-network benefit.
- [US10130232B2](#): Sensors, motorized units and a controller bring an available shopping container to a customer. A mobility/automation subject inside a store should not be counted as evidence of long-haul freight or a carrier's data access.
- [US11720104B2](#): A UAV performs adaptive image-based scans of structures to assess property characteristics. Autonomous navigation is a transferable method, but this described use is property inspection rather than freight delivery.

Decision to take next

Choose a carrier/shipper decision and verify trip data, service constraints and a comparable route cohort.

Confidence and remaining checks

Source identities, event dates, input hashes and the reviewed technical passages are checked. Area-wide membership remains provisional. Patent ownership, current team readiness, facility/data access, partner demand and commercial outcomes require separate evidence. Low patent counts do not disqualify an area.

Review method: abstract and first independent claim for three purposefully/hash-selected documents per area. This is a bounded analytical review, not a statistical accuracy estimate, external expert sign-off or legal opinion. The seven growth areas and proposed commitments remain in place.

Materials Engineering Applications

ARA4 · Evidence review for team discussion · 27 October 2026

What is supported

Materials work crosses application boundaries. Polymer function can be missed by the narrow screen, while a drug carrier can be included.

Material-producing industries are specialized and modestly expanding in the narrow basket. The broader boundary has a lower concentration and a slower growth rate. Retained industry context and the patent observations describe different populations.

Scope and boundary check

The unchanged screen finds 93 narrow and 134 broad current-CPC candidates, versus 88 and 127 at issue. These are overlapping screening counts among utility grants with Arkansas inventors dated 2015–2025, not validated area totals or uncertainty intervals.

Primary-document examples

- [US10064870B2](#): A chitosan/methylcellulose sol-gel forms a physical barrier for a veterinary mammary application. Materials function can appear under medical/veterinary classifications outside the narrow materials prefixes; the use overlaps animal health.
- [US10137111B2](#): An oral veterinary drug paste combines two active agents in a polyethylene-glycol base. A polymer ingredient can trigger a materials classification without making the core application a materials-engineering project.
- [US11542567B2](#): Thin steel strip is characterized by high-friction hot rolling, surface structure and specified composition and mechanical properties. A concrete materials/process example; claimed properties and operational scrap savings need independent tests.

Decision to take next

Name a material and product specification, then verify the laboratory/process comparison and operating user.

Confidence and remaining checks

Source identities, event dates, input hashes and the reviewed technical passages are checked. Area-wide membership remains provisional. Patent ownership, current team readiness, facility/data access, partner demand and commercial outcomes require separate evidence. Low patent counts do not disqualify an area.

Review method: abstract and first independent claim for three purposefully/hash-selected documents per area. This is a bounded analytical review, not a statistical accuracy estimate, external expert sign-off or legal opinion. The seven growth areas and proposed commitments remain in place.

Precision Agriculture

ARA5 · Evidence review for team discussion · 27 October 2026

What is supported

Field sensing is a credible technical lead; general agriculture also includes plant varieties and ordinary traction equipment.

Farm and irrigation coverage makes precision-agriculture questions material. Farm counts fell while irrigated acreage remained extensive; covered-job proxies omit much farm work. Retained industry context and the patent observations describe different populations.

Scope and boundary check

The unchanged screen finds 395 narrow and 812 broad current-CPC candidates, versus 381 and 772 at issue. These are overlapping screening counts among utility grants with Arkansas inventors dated 2015–2025, not validated area totals or uncertainty intervals.

Primary-document examples

- [US10908080B2](#): A field soil-analysis system combines laser wavelengths, optical detection and signal processing for soil observation. Relevant sensing may sit in measurement classes outside A01. Agronomic value and irrigation decisions need field validation.
- [US10010038B2](#): The document defines a soybean variety and associated plants, parts and seed. Plant-breeding invention is agricultural activity but cannot stand in for precision sensing, irrigation decisions or measured field efficiency.
- [US10744818B1](#): A hub-mounted traction-bar arrangement improves traction for a light off-road vehicle. A general agricultural/equipment class can contain lawnmower-type mechanisms, without precision sensing or data-driven agronomy.

Decision to take next

Choose a field decision, crop/season, calibrated measurements and grower access before testing input efficiency.

Confidence and remaining checks

Source identities, event dates, input hashes and the reviewed technical passages are checked. Area-wide membership remains provisional. Patent ownership, current team readiness, facility/data access, partner demand and commercial outcomes require separate evidence. Low patent counts do not disqualify an area.

Review method: abstract and first independent claim for three purposefully/hash-selected documents per area. This is a bounded analytical review, not a statistical accuracy estimate, external expert sign-off or legal opinion. The seven growth areas and proposed commitments remain in place.

Food Production and Integrative Health

ARA6 · Evidence review for team discussion · 27 October 2026

What is supported

Food-processing and monitoring subjects support a practical process test. Therapeutic chemistry cannot substitute for food or health outcomes.

Food manufacturing combines a large employment base, strong concentration and positive recent growth. Growth is slower than its national comparator, so breadth and productivity deserve attention. Retained industry context and the patent observations describe different populations.

Scope and boundary check

The unchanged screen finds 109 narrow and 360 broad current-CPC candidates, versus 99 and 359 at issue. These are overlapping screening counts among utility grants with Arkansas inventors dated 2015–2025, not validated area totals or uncertainty intervals.

Primary-document examples

- [US10244769B2](#): A meat-cutting method divides a pork loin into defined longitudinal portions and smaller cuts. A food-processing subject, without evidence of reduced rejected batches, commercial adoption or health benefit.
- [US10071087B2](#): The document concerns chemical compounds directed at senescent cells. A food-related classification is insufficient to infer food-process relevance or integrative-health efficacy; those need distinct application and outcome evidence.
- [US9289001B1](#): Sensors, monitoring software and controls support antimicrobial application equipment and trigger responses to operating conditions. A concrete process-control lead; actual sanitation or batch-quality benefit requires validated assays and a controlled operating comparison.

Decision to take next

Ask a processor to define the product/process, assay, operating constraint and decision a test would change.

Confidence and remaining checks

Source identities, event dates, input hashes and the reviewed technical passages are checked. Area-wide membership remains provisional. Patent ownership, current team readiness, facility/data access, partner demand and commercial outcomes require separate evidence. Low patent counts do not disqualify an area.

Review method: abstract and first independent claim for three purposefully/hash-selected documents per area. This is a bounded analytical review, not a statistical accuracy estimate, external expert sign-off or legal opinion. The seven growth areas and proposed commitments remain in place.

Supply Chain, Retail, and Consumer Analytics

ARA7 · Evidence review for team discussion · 27 October 2026

What is supported

Retail ordering and checkout systems support an industrial application discussion. Generic business computing is broader than this area.

Disclosed wholesale and warehousing components show substantial application hosts. The latest wholesale parent is suppressed; retail employment is large but nearly flat. Retained industry context and the patent observations describe different populations.

Scope and boundary check

The unchanged screen finds 998 narrow and 1,070 broad current-CPC candidates, versus 926 and 1,000 at issue. These are overlapping screening counts among utility grants with Arkansas inventors dated 2015–2025, not validated area totals or uncertainty intervals.

Primary-document examples

- [US10028599B2](#): A checkout station coordinates input/output conveyors, sensors, scanning and payment terminals. Shows retail systems invention, without establishing a forecasting method, a university partnership or willingness to share store data.
- [US10001973B2](#): A project-testing system estimates resource/cost work units and reports changes during testing phases. The general business-computing prefix extends beyond retail, consumer analytics and supply-chain operations.
- [US12100387B2](#): An ordering interface uses speech tokens, learned features, product classifiers and purchase history to identify requested products. A concrete retail analytics subject. Its 2024 grant is outside the historical AI overlay ending in 2023 and cannot be treated as a match to that older model.

Decision to take next

Ask a retailer/distributor to define an ordering decision, usable item/location data and a frozen comparator.

Confidence and remaining checks

Source identities, event dates, input hashes and the reviewed technical passages are checked. Area-wide membership remains provisional. Patent ownership, current team readiness, facility/data access, partner demand and commercial outcomes require separate evidence. Low patent counts do not disqualify an area.

Review method: abstract and first independent claim for three purposefully/hash-selected documents per area. This is a bounded analytical review, not a statistical accuracy estimate, external expert sign-off or legal opinion. The seven growth areas and proposed commitments remain in place.