



**DSQ** Technology

# 2026 Waste Management Tech Trends Report

Presented by DSQ Technology



## Executive summary

### AI In Waste Management: From Toy to Tool

2026 marks a turning point for AI in waste management. The experimentation era is over. Last year, most professionals were “trying AI.” This year, they’re asking a different question:

#### How do we make this actually work inside our business?

Across our industry, AI usage has become normal; **~73% of respondents use it weekly, and nearly 44.9% daily.** But usage does not equal transformation. What organizations want now is **AI they can rely on**, not just AI they can try.

Our research shows a clear gap between *interacting with AI* and *integrating AI*. Waste teams are comfortable prompting ChatGPT, but still struggle to turn AI into repeatable workflows, embedded automations, and measurable outcomes.

**This year’s report captures that shift.**

# What we learned

## 1. AI Use Is Mainstream, But Maturity Is Shallow.

Most teams use AI, but only 56% have implemented it meaningfully, and fewer still have built guardrails, review loops, or connected systems.

The message from respondents was consistent: “Good, helpful, but I don’t trust it blindly.”

## 2. The fastest AI wins are customer-facing workflows.

Top “help now” areas included:

- Customer communication (45.8%)
- Billing support (25.0%)
- Service request handling (22.9%)

These are throughput bottlenecks where AI can reduce response times, eliminate re-keying, and improve accuracy today.

## 3. The clearest operational pain point is still manual data entry.

The most consistent frustration across the sector? “Stop the re-keying.”

Teams are drowning in PDFs, emails, portal screenshots, and contract details that need to be entered, validated, or copied across systems. AI-powered intake and structured extraction is the #1 automation wedge.





#### 4. The next wave of AI is optimization, not just automation.

Waste professionals now expect AI to:

- Optimize routes and facility schedules
- Improve pricing and contract performance
- Power sustainability reporting
- Strengthen customer engagement
- Predict equipment failures

***This aligns with a broader tech trend:  
AI is shifting from drafting  
text → making recommendations.***

#### 5. The biggest blockers are data readiness, integration, and training/change management, not interest.

Teams want AI. But they don't feel ready for it.  
Top barriers include:

- Staff readiness & training gaps
- Trust in AI outputs
- Integration challenges
- "Shitty input data"

These reflect an industry in transition: curious, motivated, but constrained by legacy systems and inconsistent information flows.



# The Big Shift: Integrated Systems Win



Industry leaders are realizing  
that AI is only as strong as  
the systems it connects to.

Standalone prompting is over.

AI that lives outside your workflows is a toy.

AI embedded inside your tools, data, and processes becomes a tool.



The long-term competitive advantage in waste management will come from integrated AI systems that:

- Ingest data directly from operations
- Apply rules, guardrails, and constraints
- Trigger actions inside existing software
- Reduce manual decision-making
- Improve consistency, accuracy, and accountability
- *This is the beginning of AI as infrastructure for waste management.*

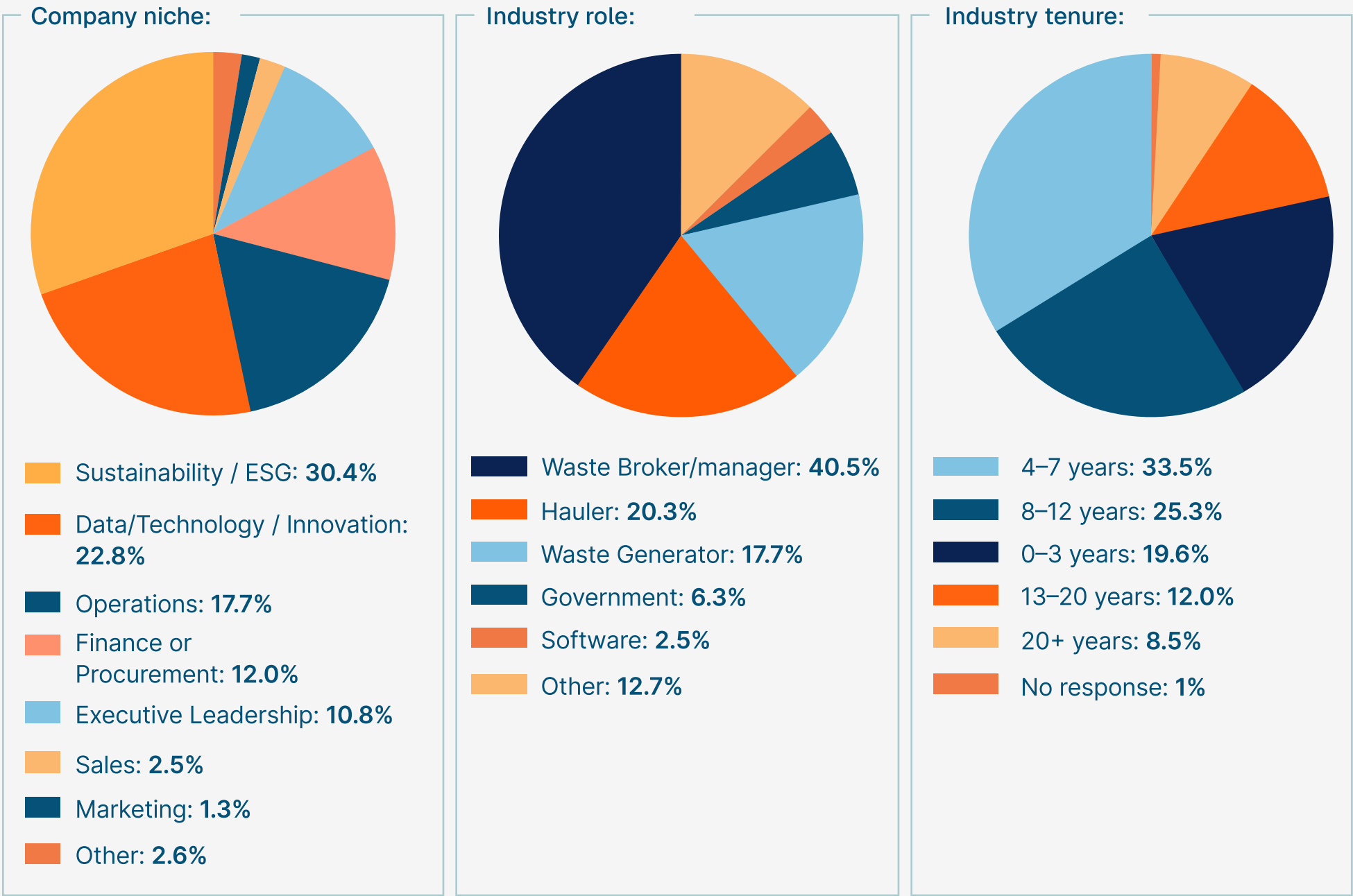
## What Leaders Should Do Next

1. Standardize AI usage and workflows across teams
2. Fix data bottlenecks—classification, accuracy, accessibility
3. Integrate AI into core systems, not as a side app
4. Train teams on AI literacy + review habits
5. Prepare for job redesign (exception handling, Q&A)

Organizations that treat AI as a tool, not a toy, will pull ahead fastest.

# Research method

The 2026 waste management technology trends report is based on the 776 users who landed on the survey for waste management professionals, conducted in November-December 2025. The survey was shared through email, social media, and referrals. The survey was written with input from DSQ Technology employees and from multiple AI sources for content suggestions to make the survey more valuable. The respondents represent a spectrum of industry professionals, spanning many roles and tenures within the industry. Here is a snapshot of the survey respondents' professional stats:





# 1. The state of Adoption: “AI is Normal Now.”

**AI usage is high, but organizational readiness is not.**

The survey shows a clear shift: AI is no longer experimental. It is part of daily life for most respondents. But there is a meaningful gap between personal usage and organizational adoption, especially in an industry where technology systems are historically fragmented and unevenly adopted.

**The waste sector finds itself in a unique moment: AI usage is normal, but integrated AI operations are not.**

## Usage frequency

AI has entered everyday workflows, at least on a personal level.

Survey respondents report strong habitual use of AI tools:

- **83.3% (40/48) use AI weekly+**
- **39.6% (19/48) use AI daily**

**~73% of respondents use AI weekly or more**

Meanwhile, in the workplace, the balance moves to a more conservative spot

- **56.3% say they're actively using AI**
- **16.7% have no current plans**

**In other words:**

**AI is common behavior, but not yet common infrastructure.**

This is a crucial distinction.

Individuals are fluent with AI; they prompt, summarize, draft, brainstorm, and research with comfort. But that fluency does **not** translate into organizational impact unless systems evolve around it.

Most waste organizations still rely on:

- Older dispatch and billing systems
- Manual data entry
- PDF and email-driven workflows
- Locker-room knowledge instead of centralized data
- Equipment tracking done outside software
- Limited integration between tools

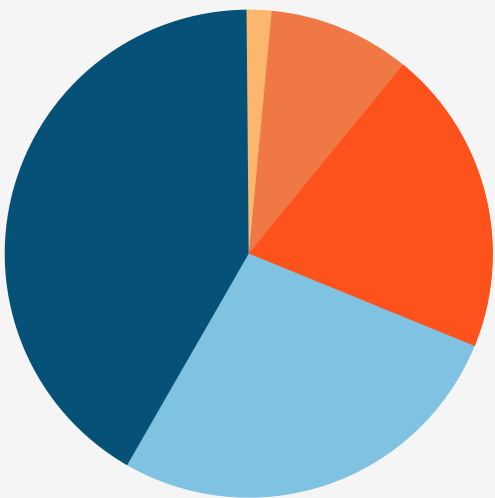
**“Excited but cautious... overall good but needs validation, I don’t trust it blindly.”**

This means people are using AI, **but their systems aren’t ready to use AI with them.**

# Adoption Stage/Maturity

Most organizations are interested in exploring, but still immature in implementation.

Survey responses show AI usage as:



- Actively using: 38.6%
- Testing multiple tools: 25.3%
- Early exploring: 19.0%
- No current plans: 8.9%
- Forbidden: 1.3%

This places nearly 64% of organizations in a “use + evaluate” zone, signaling curiosity, but not maturity.

This will be a core tension for 2026: High personal adoption meets low organizational readiness.

People are becoming more sophisticated AI users on their own time, but their companies lack:

- Integrated workflows
- Guardrails
- Clear policies
- Shared tools
- Connected data systems

This misalignment is more pronounced in the waste industry than in most sectors, because:

- Tech adoption varies widely from company to company
- Many orgs rely on legacy systems built a decade ago

- Operational processes differ dramatically by market
- Much of the industry still runs on email, PDFs, portals, and spreadsheets

In other words: AI usage is high, but AI infrastructure is low.

And that infrastructure gap is where the next wave of progress will happen.



# AI Use ≠ AI Integration

The 2026 Tech Trends Survey shows strong adoption at the individual level, yet organizations do not feel ready to rely on AI for mission-critical workflows.

That distinction matters:

Using AI personally

fast, flexible, no guardrails, no data dependencies

great for drafting, brainstorming, copy, first-pass work

Using AI operationally

must connect to systems, rules, data, audit trails, and measurable outcomes

requires integration, governance, trust, and clean information flows

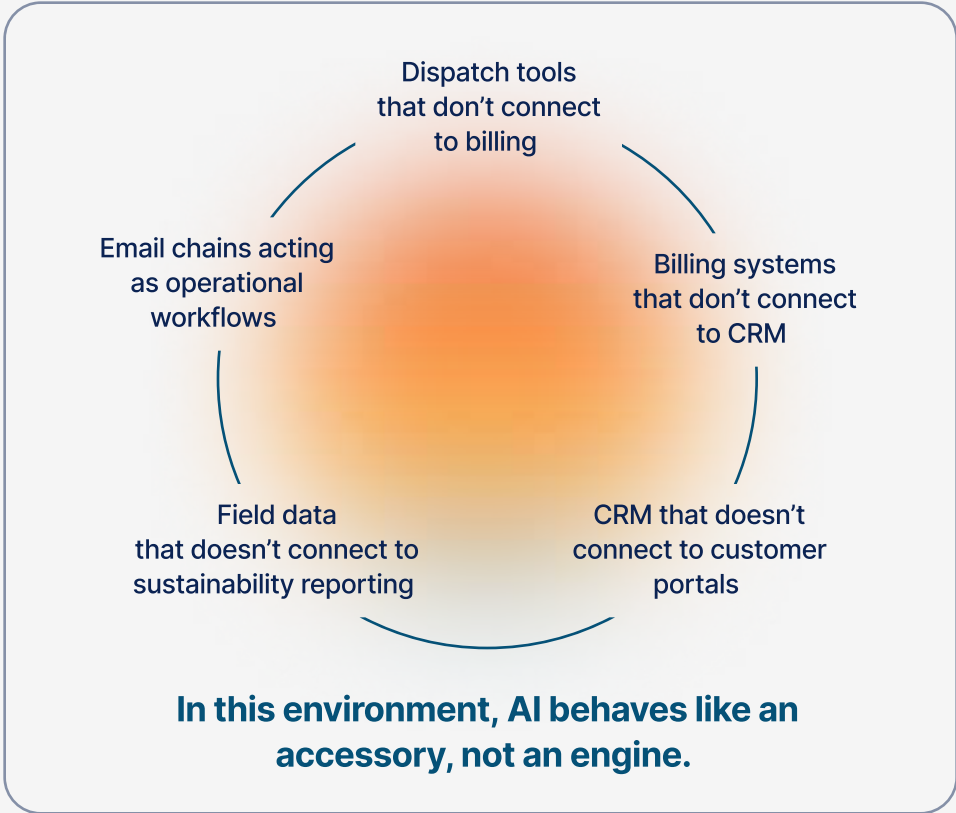
This gap explains the sector’s biggest blockers:

- Data readiness
- Integration challenges
- Inconsistent workflows
- Lack of trust
- Skill gaps

The waste industry should move from occasional prompting to system-embedded AI.  
The former is a **toy**. The latter becomes a **tool**.

## The DSQ Angle

The waste ecosystem has some of the largest fragmentation in technology use of any essential services industry. Even within the same company, it is common to see:





## To unlock real value, AI must be embedded directly into:

- Invoicing
- Dispatch
- Billing reconciliation
- Customer communication loops
- Equipment + compactor monitoring
- Contract and pricing workflows
- Sustainability reporting systems

High usage shows interest.  
Low integration shows opportunity.

This is what sets the stage for the next section: **which tools are becoming the default, and why integrated platforms matter.**

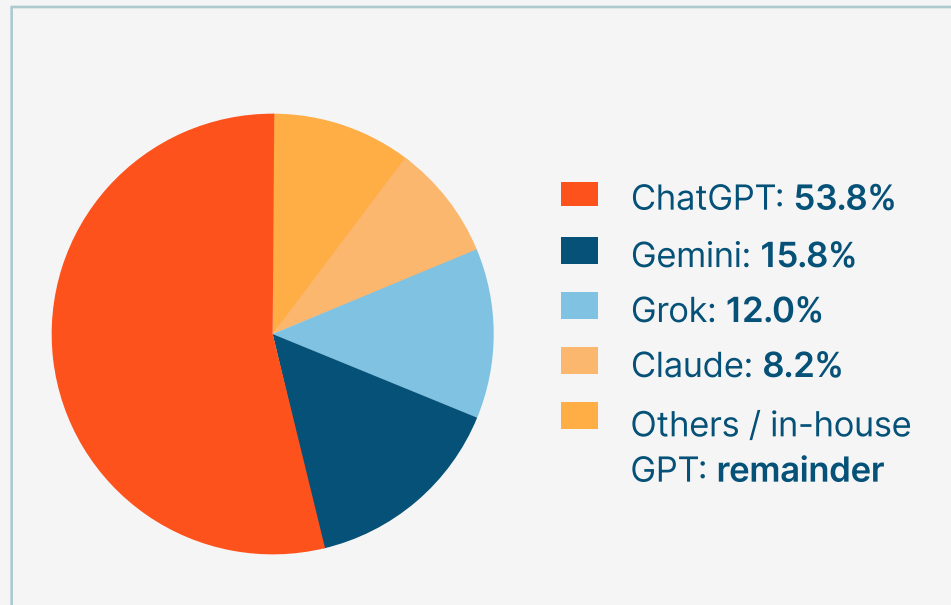


## 2. Tooling Landscape: Consolidation Around a Default

One tool is becoming the default, but true value comes from integration, not choice.

The survey makes it clear that people are using a variety of AI tools, but **one tool dominates**. This reflects a broader trend in the AI ecosystem: most users gravitate toward a single “everyday assistant,” while a long tail of tools fight for specialized use cases.

But in waste management, choosing a tool is only step one. **Connecting that tool to your workflow is what actually creates value.**



This distribution mirrors what’s happening across the industry: a “default assistant” emerges by habit and familiarity, not necessarily deep integration.

People choose what’s easy, accessible, and known.

**Familiar ≠ Ideal**

This is an important distinction for operators and leaders to understand. Choosing ChatGPT (or any LLM) as your default tool does not mean your organization is using AI effectively. It simply means individuals have adopted it for their own work. The tool choice is not the competitive advantage.

How that tool plugs into your systems is.

What this implies

### 1. Standardization reduces friction.

Having a “primary assistant” means teams can share workflows, prompts, training, and best practices instead of scattering knowledge across tools.

### 2. Second-tier tools appear once needs become specialized.

For example:

- Data-heavy teams may prefer waste tools.
- Field-support teams may prefer tools integrated with mobile workflows.
- Internal teams may rely on in-house LLMs linked to company data.

This diversification is healthy and expected, as organizations move from experimentation to targeted deployment.



### 3. The real differentiator is integration.

Waste management has a deeply system-dependent operational model. Until an AI tool connects to the different verticals of the waste business, it cannot act as anything more than a standalone helper.

**This is the difference between AI as a toy vs. AI as a tool.**

**“Choosing a tool isn’t a strategy.”**

Even though over half of the respondents default to the same LLM, this does not yet represent a strategic shift.

The strategic shift comes from:

- Standardizing workflows
- Building internal playbooks
- Setting data rules

- Adding quality checks
- Integrating AI into your core systems
- Reducing re-keying and manual copy/paste
- Creating consistent review loops.

The waste industry’s next maturity jump will not come from choosing “the best model”; it will come from connecting that model to the work.

Introducing another disconnected AI tool adds convenience but not transformation.

To get real lift, waste companies will need: AI built into the platforms they already use. Not AI that floats above them.





# 3. Why People Want To Use AI: Customer-Facing Throughput Is the First Big Win



AI's most immediate value in the waste sector comes from improving customer-facing throughput. These are the tasks that happen most often, require the most back-and-forth, and create the biggest drag on teams. The survey clearly shows that operators aren't looking for futuristic automation; they want help with the everyday workflows that shape customer experience.

- **45.8%** — Customer communication
- **25.0%** — Customer billing
- **22.9%** — Service requests

**"AI helps me automate the simple things I do repeatedly..."**

## Why Throughput Workflows Dominate Near-Term Value

These are the workflows with the perfect mix of:

- **high volume** (they happen all day)
- **predictable structure** (AI handles them well)

- **real customer impact** (faster service = happier customers)
- **operational cost** (every unnecessary touch adds labor)

AI doesn't need deep integrations or complex models to improve these areas. It simply needs access to the text, documents, and requests teams already manage by hand.

**"If you automate most of the time-consuming processes, it allows us to spend more time on issues important to the growth of the business."**

## The Early ROI Pattern: AI Speeds Up the Start of the Work

Across communication, billing, and service requests, AI excels at:

- interpreting
- drafting
- summarizing
- extracting
- categorizing

These are the steps that usually slow teams down. When AI accelerates the opening moves, humans can focus on decision-making, escalation handling, and customer relationship quality. This is why throughput, not prediction, is the sector's first major AI win.

## Core Takeaway

AI isn't transforming the waste industry by doing dramatic new things.

It's transforming the waste industry by **removing friction from the work everyone already does**, especially the customer-facing work that defines the pace of operations.

This is the most practical and powerful expression of **toy → tool** in the near term.

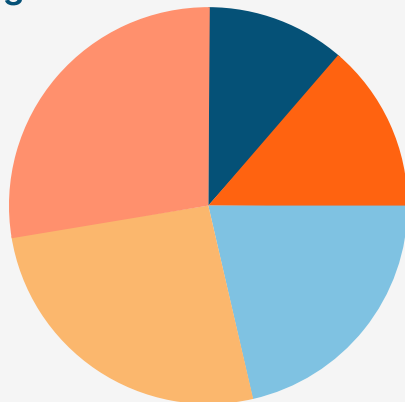
# 4. What's Slowing Adoption: The Real Bottlenecks

## Interest isn't the issue. Readiness is.

The survey reveals strong enthusiasm for AI, but that enthusiasm runs into some very real structural barriers once organizations attempt to implement AI at scale. These barriers are not theoretical; they reflect the day-to-day realities of waste operations: messy data, disconnected systems, inconsistent processes, and wide variation in technology maturity. **The result? AI is widely used but not widely trusted.**

## What's Blocking AI Adoption Today

Respondents identified the following top barriers to implementing AI:



## These numbers point to three major friction sources:

**1. Data readiness:** The waste sector's achilles' heel  
Nearly one-quarter of respondents cite poor data or inaccessible information as a blocker. This is unsurprising in a sector where:

- PDFs act as source systems
- Portals lack exportability
- Customer systems don't match hauler systems
- Contract terms are inconsistently formatted
- Billing is multi-layered and exception-heavy
- Workflows rely heavily on email threads, phone calls, and Post-It notes
- Service logs and notes vary by operator

AI cannot make reliable decisions if foundational data is incomplete, inaccurate, or poorly structured. This is why the dominant respondent sentiment on data was simply: "Shitty input data."

## 2. People + training: AI skills don't yet match AI usage

Despite high personal AI use, many employees are uncertain how to use AI in the context of their actual job. This includes gaps in:

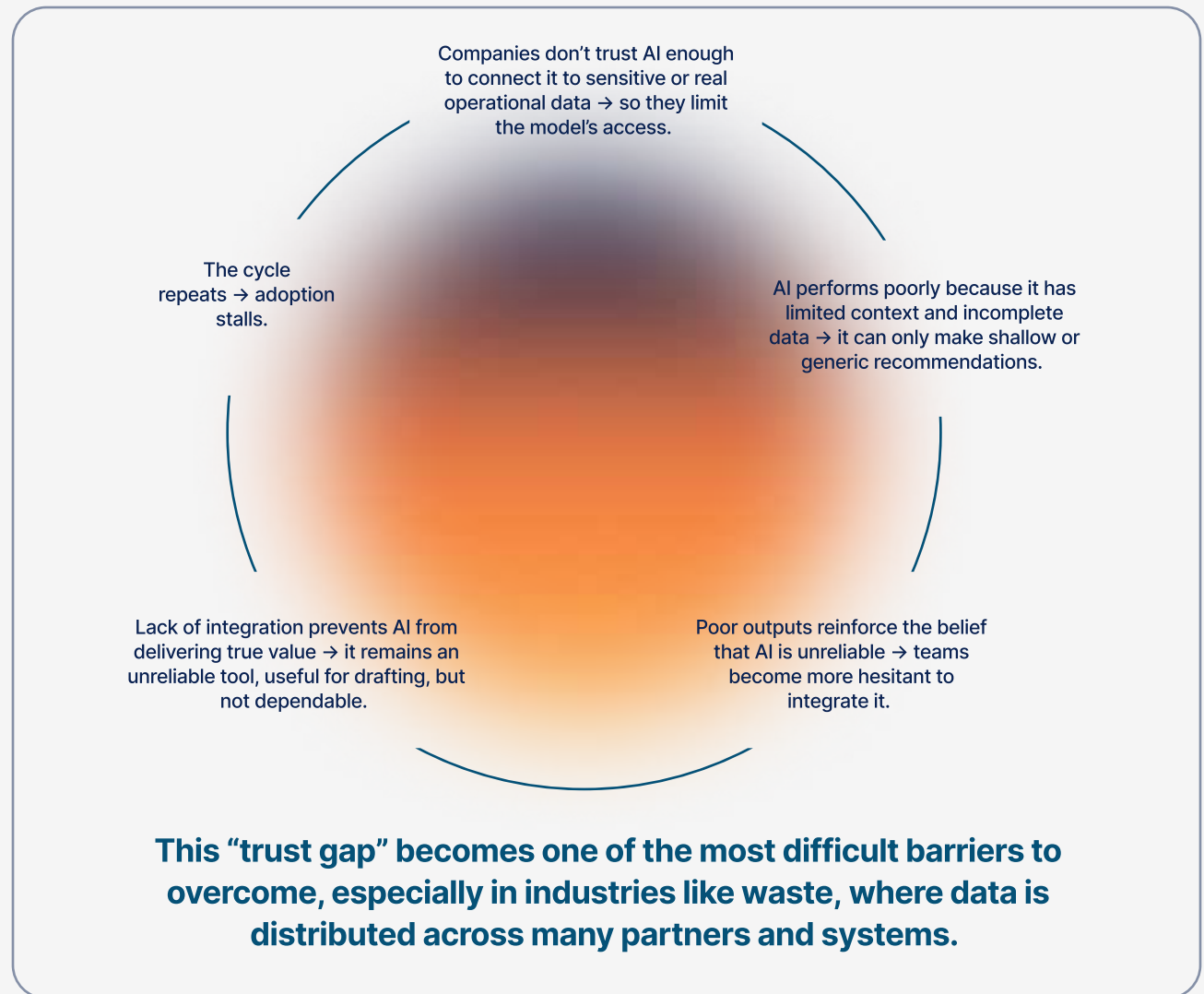
- Drafting vs. operational accuracy
- When to rely on AI vs. when to override
- How to validate AI outputs
- Safe-use practices
- Building repeatable workflows

Without upskilling, AI appears risky even if individuals use it daily.

## 3. System integration + trustworthiness:

AI is still floating above the work, and companies don't fully trust it with their data. A major barrier revealed by the survey is the difficulty of integrating AI into existing systems. But beneath that challenge lies a deeper issue:

**Companies do not fully trust AI vendors or AI models to handle sensitive operational data.**



**AI cannot produce high-quality operational insight if the organization cannot (or will not) provide high-quality operational data.**

And organizations cannot provide high-quality operational data if they do not trust the AI provider's security, privacy, or reliability. This dynamic is why integrated systems, not standalone tools, represent the future. Trusted platforms, governed workflows, and permissioned data access are what breaks the loop.



## What Will Block Adoption Next

Survey respondents identified the following as the biggest upcoming hurdles at AI adoption:

- 25.3% — staff readiness/skill gaps
- 20.3% — control over sensitive data
- 18.4% — lack of trust in AI outputs

Even as technology improves, human confidence becomes a determining factor.

If the current cycle of adoption has been characterized by curiosity, the next cycle will be defined by:

Can we trust this tool? ***And can we control what it does with our information?***

This aligns directly with emerging research showing that AI becomes truly reliable only when embedded in structured, auditable, rules-based systems—not when used freeform.

Trust is built through:

- Audit trails
- Guardrails
- Consistent performance
- Human-in-the-loop review
- Transparent data flows
- Domain-specific constraints

**Early stage = “Can we use it?”**

**→ later stage = “Can we trust it?”**

## Organizations are moving through two phases of AI maturity:

### Adoption barriers

“Can we use this at all?” Blocked by:

- Training shortages
- Broken data
- System fragmentation
- Unclear ROI

“Can we rely on this?” Blocked by:

- Uncertainty about output accuracy
- Fear of exposing sensitive information
- Unclear governance frameworks
- Lack of standardized review workflows

### Trust barriers

The survey shows that the waste industry is now straddling these phases, high usage, but fragile trust.

## The DSQ Angle: Why These Bottlenecks Hit Harder Here

The waste ecosystem has structural conditions that amplify AI barriers:

### 1. Multi-party data handling

Generators, brokers, haulers, municipalities, and equipment providers all use different systems, and none of them talk to each other seamlessly.

This increases data inconsistency and reduces AI reliability.

### 2. High document volume + low standardization

Contracts, bills, service notes, regulatory filings; every document looks different.

AI must deal with “real-world documents,” not forms.

### 3. Legacy systems with limited AI integration paths

Many waste platforms were not built for automation, let alone AI.

Without APIs or structured data access, AI remains disconnected.

### 4. Operational variability across markets

Route planning in Pittsburgh is not route planning in Wichita.

Rules vary.

Pricing varies.

Service level expectations vary.

**AI must adapt to context, not just text. AI adoption is not slowed by lack of interest, it's slowed by lack of infrastructure.**

**Interest is high. Usage is high. Demand is high. But infrastructure is not.**

**Until organizations:**

- Clean their data,
- Connect their systems,
- Define guardrails,
- Establish review processes, and
- Train their teams,

AI will remain helpful but inconsistent, useful, but not dependable.

**In short: AI will not scale until it is integrated. And this is the defining work of the next 24 months.**



# 5. The Next 24 Months: Automation + Role Re-Bundling

**Most teams expect meaningful automation, not total transformation, and a shift in how work is structured.**

The survey shows that waste professionals are preparing for AI to meaningfully reshape their work, but not through large-scale replacement. Instead, respondents anticipate a rebalancing of tasks: fewer repetitive touches, more exception-handling, more orchestration, and more oversight. This is exactly what happens when AI moves from **toy** → **tool**. **Not replacement but rebundling.**

**Expected Percentage of Tasks Automated** - Respondents estimate the percentage of their workday that will be AI-assisted by 2026:

- 30.4% — expect 11–25% of work to be automated
- 33.5% — expect 26–50% of work to be automated
- Lower-frequency but notable responses include those predicting 51–75% or more.

The majority of respondents fall into the moderate automation range. This indicates a sector expecting meaningful, not extreme change.

**What this means in practice:**

- AI handles drafting, summarization, routing suggestions, initial triage, and pattern recognition.
- Humans still handle context, exceptions, customer interactions, compliance nuances, and judgment-heavy decisions.

**Waste organizations clearly do not believe in the “AI will do everything” narrative. They do believe in AI accelerating everything humans already do.**

## **Workforce Impact Expectations**

When asked how AI and automation will impact their workforce over the next three years, respondents selected:

- 28.5% — shift focus of existing roles
- 25.3% — reduce headcount through efficiency
- 19.6% — create new roles
- Additional responses indicate enabling “would-be-nice” tasks previously deprioritized.

**The most common expectation is role shift, not full job replacement.**

**This aligns with what the industry is already experiencing:**

### **1. Tasks will change faster than titles.**

Roles will shift from executing tasks to quality control. Customer-facing reps shift from writing emails → validating AI-drafted ones. Billing staff shift from entering data → reviewing exceptions. Operations coordinators shift from dispatching → managing automated routing suggestions.

2. Efficiency gains do compress headcount in some cases, but mostly through natural attrition and reallocation, not sudden cuts.

### The DSQ Angle: The Real Automation Opportunities

#### 1. Customer communication & ticketing

AI can:

- Draft most of replies
- Classify tickets
- Route them by type or urgency
- Identify missing information
- Propose solutions based on past patterns

Humans remain in the loop for:

- Tone
- Exceptions
- Escalations
- Complex service issues

#### 2. Billing + exception handling

AI identifies anomalies and fills predictable fields.  
Humans validate edge cases and handle disputes.

#### 3. Scheduling & operational optimization

AI assists with:

- Capacity recommendations
- Route balancing
- Timing adjustments
- Forecasting demand spikes

Dispatchers still manage the realities AI can't yet see (weather, traffic, local quirks).

#### 4. Sustainability & compliance reporting

AI handles first-pass data aggregation. Humans ensure compliance, context, and interpretation.

**The next 24 months will be defined by rebundling, not replacement**

The survey makes clear that AI's greatest near-term impact is **task-level**, not **role-level**. As workflows modernize and systems integrate, tasks will increasingly fall into two buckets:

#### Tasks AI does:

- Extract
- Summarize
- Draft
- Classify
- Suggest
- Detect patterns
- Surface anomalies

#### Tasks humans do:

- Validate
- Decide
- Escalate
- Interpret nuance
- Manage relationships
- Handle exceptions

**This is the emerging operational model:**

**AI automates the “first half;” people own the “last mile.”**

When companies build integrated systems, not standalone tools, this shift becomes not just possible, but compounding.

# 6. What Leaders Should Do Next: A Practical Roadmap for AI in Waste Management

**AI is no longer a question of interest; it's a question of readiness. The survey shows strong enthusiasm, clear early-value opportunities, and equally clear structural barriers.**

The organizations that succeed from here won't be the ones experimenting the most. They'll be the ones **implementing the best**. The path forward unfolds in three phases: quick wins that build momentum, foundational work that builds trust, and next-wave bets that unlock strategic advantage.

## 1) Quick Wins (0–90DAYS):

Accelerate the work customers notice most. The strongest near-term AI value lives in customer-facing throughput: communication, billing, and service requests. These workflows are repetitive enough for AI to assist immediately and important enough to show measurable improvement within weeks. In the first 90 days, organizations should focus on:

- **AI-assisted customer communication**  
Let AI triage inbound messages, summarize long threads, and draft first responses. Teams remain in the loop, but the work moves faster.
- **Request intake automation**  
Convert emails, portal notices, and forms into structured tickets without re-keying.
- **Billing support automation**  
Use AI to classify charges, surface anomalies, and prepare customer-facing explanations. ...

## The hack:

These steps reduce operational drag, improve response times, and establish confidence that AI can be helpful, safe, and consistent. This is how the transition from toy → tool begins.

## 2) Foundation (30–180 DAYS):

Build the systems, data, and trust AI needs to scale. Quick wins prove the concept. The next stage ensures AI is reliable enough for broader use.

This is where the waste sector must confront its long-standing bottlenecks: inconsistent data, fragmented systems, and uneven processes.

To build a durable foundation, organizations should:

- **Improve data quality at the source**  
Align fields, clean up inputs, reduce manual variations, and define source-of-truth systems.
- **Introduce a trust layer**  
Implement review workflows, confidence flags, audit trails, and escalation paths so teams know when to trust AI and when to intervene.
- **Enable the workforce**  
Create role-based playbooks, training modules, and safe-use guidelines, so employees understand not just how to use AI, but when and why.

**The hack:** This is where AI shifts from “a helpful assistant in a browser tab” to “a dependable part of the workflow.” Without this foundation, organizations remain stuck in experimental mode.

### 3) Next-Wave Bets (180+ DAYS)

Move from task automation to decision support and system optimization. Once data is reliable, workflows are structured, and trust is established, AI can begin to influence more complex operational and strategic decisions.

The next phase includes:

- **Scheduling optimization pilots**  
Use operational patterns to predict haul needs, reduce unnecessary trips, and smooth route loads.
- **Pricing and contract optimization**  
Identify margin opportunities, uncover inefficiencies, and model improvements that impact profitability.
- **Sustainability analytics & automated reporting**  
Turn raw operational inputs into ESG-ready insights with minimal human effort.

**The hack:** This is where AI becomes predictive rather than reactive, a step-change in how waste organizations plan, price, and execute their work.

### Putting It All Together

The survey shows that the industry is ready for AI in principle, but limited in practice by data readiness, integration gaps, and trust.

This roadmap resolves those barriers in sequence:

**Quick wins deliver momentum. Foundations deliver reliability. Next-wave bets deliver competitive advantage.**

Organizations that advance through these phases will move fastest toward a future where AI is not an experiment, but an integrated part of the operational spine of the waste industry.

### Turning automation into infrastructure for waste management

The future of AI in waste isn't about more tools; it's about systems that work together. DSQ Technology builds the connective tissue. Across this report, a clear theme has emerged: **AI only becomes valuable when it's integrated, trusted, and tied to real operational data.**

Waste teams don't need another disconnected AI tab; they need automation tools that live inside their workflows, understand their data, and support the decisions that define daily operations. **That's what DSQ Technology builds.**

### DSQ's Approach: Automation that Works Where Waste Work Happens

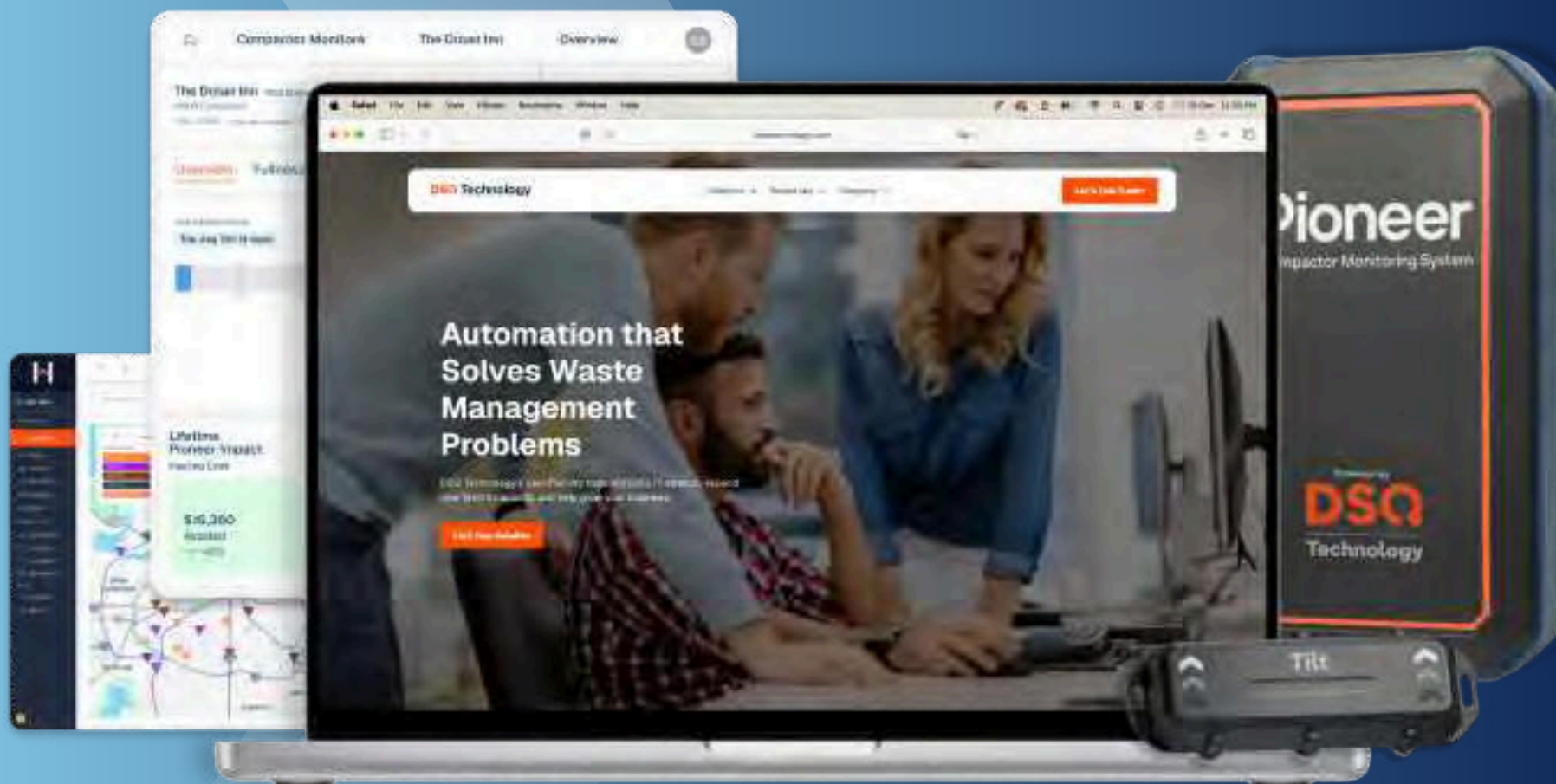
DSQ's product suite is designed specifically around the bottlenecks highlighted in the survey:

- Fragmented systems
- Poor data quality
- Re-keying and manual entry
- Billing inconsistencies
- Complex multi-party communication
- Inconsistent documentation
- Lack of interoperability





# DSQ Technology



Our solutions are built to turn messy operational realities into structured, connected, reliable data flows, the foundation required for AI to actually deliver value.

**DSQ Discovery** — Waste & invoice automation platform

**DSQ Hauler** — Roll-off / dumpster-rental dispatch + inventory + billing software

**DSQ Pioneer** — Predictive compactor monitoring & haul scheduling system

**DSQ Tilt** — Sensor-based service verification for small containers/bins

**DSQ Professional Services** — Onboarding, data onboarding, auditing, and solution-development support



## Data Notes & Considerations

- Results reflect self-reported data and may include individual interpretation of terminology such as “AI usage,” “automation,” and “integration.”
- Adoption and readiness vary widely across the waste sector, influenced by market structure, customer mix, and system maturity.
- Some responses reflect personal AI usage rather than organizational implementation, an important distinction highlighted throughout the report.
- Open-ended responses were categorized thematically; representative quotes were selected to preserve respondent voice.
- Percentages may not total 100% due to multi-select options, rounding, or optional responses.

## Limitations

- The survey sample, while diverse, may not fully represent the entire waste industry landscape.
- Results may skew toward companies and individuals more engaged with technology and operational innovation.
- Certain findings reflect early stages of AI awareness and experimentation; interpretations should be viewed within this context.

## Purpose of This Report

This report aims to provide a clear, data-driven picture of how AI is being used, where it is delivering value, what barriers remain, and how the waste sector can prepare for an integrated, AI-enabled operational future.

It is intended to guide executives, operators, technology partners, and industry stakeholders as they navigate the shift from AI experimentation → AI implementation.