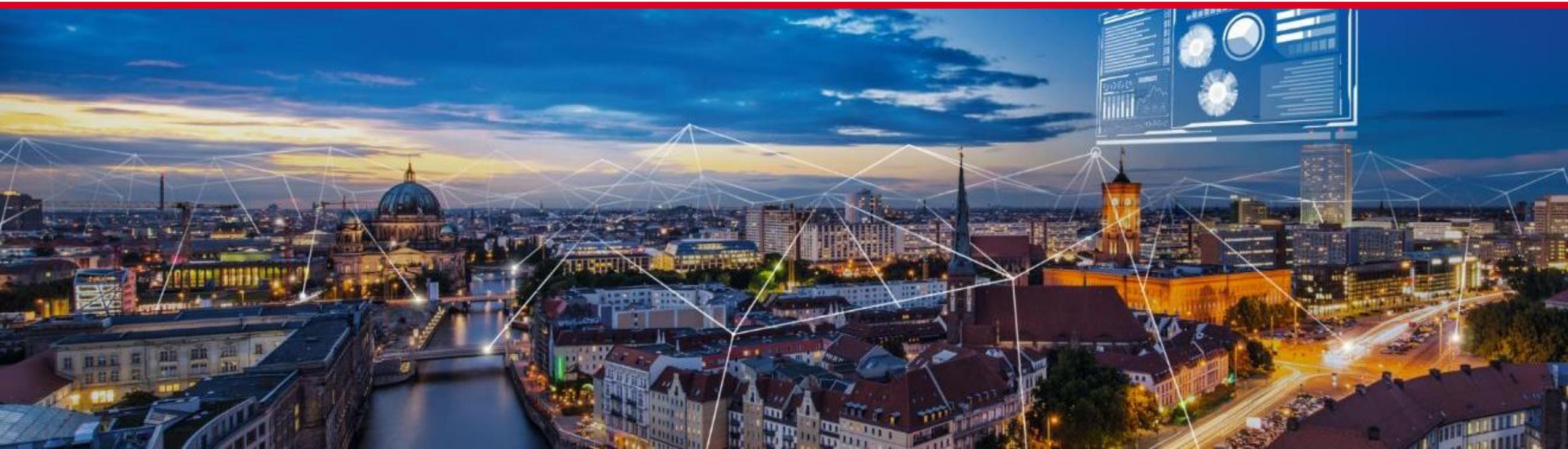# Innovation & AI in the Highways Sector

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Craig Mitchell
APSE – 20 March 2025

Confidential

Introduction

Craig Mitchell – Regional Sales Manager (Scotland)

Innovation and AI in the highways sector

- An insight into the future of municipal vehicles

- How technology and AI are changing operations

- A look to the future

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Economic Macro Factors

UK Government push for AI adoption

PM plans to 'unleash AI' across UK to boost growth – 12th January 2025

UK government reveals masterplan to "unleash AI" and make it a world leader – 13th January 2025

There will be a need for local councils to follow suit and find ways to support AI innovation and cost savings throughout their organisations.

- UK's AI assurance market set to grow six-fold by 2035 unlocking more than £6.5 billion
- New support for businesses unveiled to help develop and use trustworthy AI products and services
- UK AI Safety Institute signs new agreement with Singapore, deepening international AI safety collaboration

- AI to drive the Plan for Change, helping turbocharge growth and boost living standards
- public sector to spend less time doing admin and more time delivering the services working people rely on
- dedicated AI Growth Zones to speed up planning for AI infrastructure
- £14 billion and 13,250 jobs committed by private leading tech firms following AI Action Plan

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The local impact

Many councils already dipping into this space

Derby City Council

- First council in the UK to embrace sophisticated phone-based AI as digital front door

- AI assistants, Darcie and Ali, successfully answered over 500,000 resident queries across channels

- Resolving 43% of queries, diverting them from human advisors, doubling the expected performance

- Expanding the use of AI - projecting £12.25m in savings through council-wide AI transformation roadmap

- Targeting 54 use cases including Adult and Children's Services, Customer Service and Debt Management

Source: https://www.ics.ai/ai-transformation-for-local-government

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The local impact

Many councils already dipping into this space

Talking AI in Aberdeen

From refuse collection to school terms and council tax, Aberdeen City Council is now using Large Language Models (LLMs) and generative AI to provide 24/7 round-the-clock query support – answering twice as many questions as before. With the chatbot's efficiency continuing to improve even further, Andy MacDonald, Executive Director of Corporate Services at Aberdeen City Council shares his insights and advice on generative AI adoption in the world of local government.

Image: TippaPatt / Shutterstock.com.
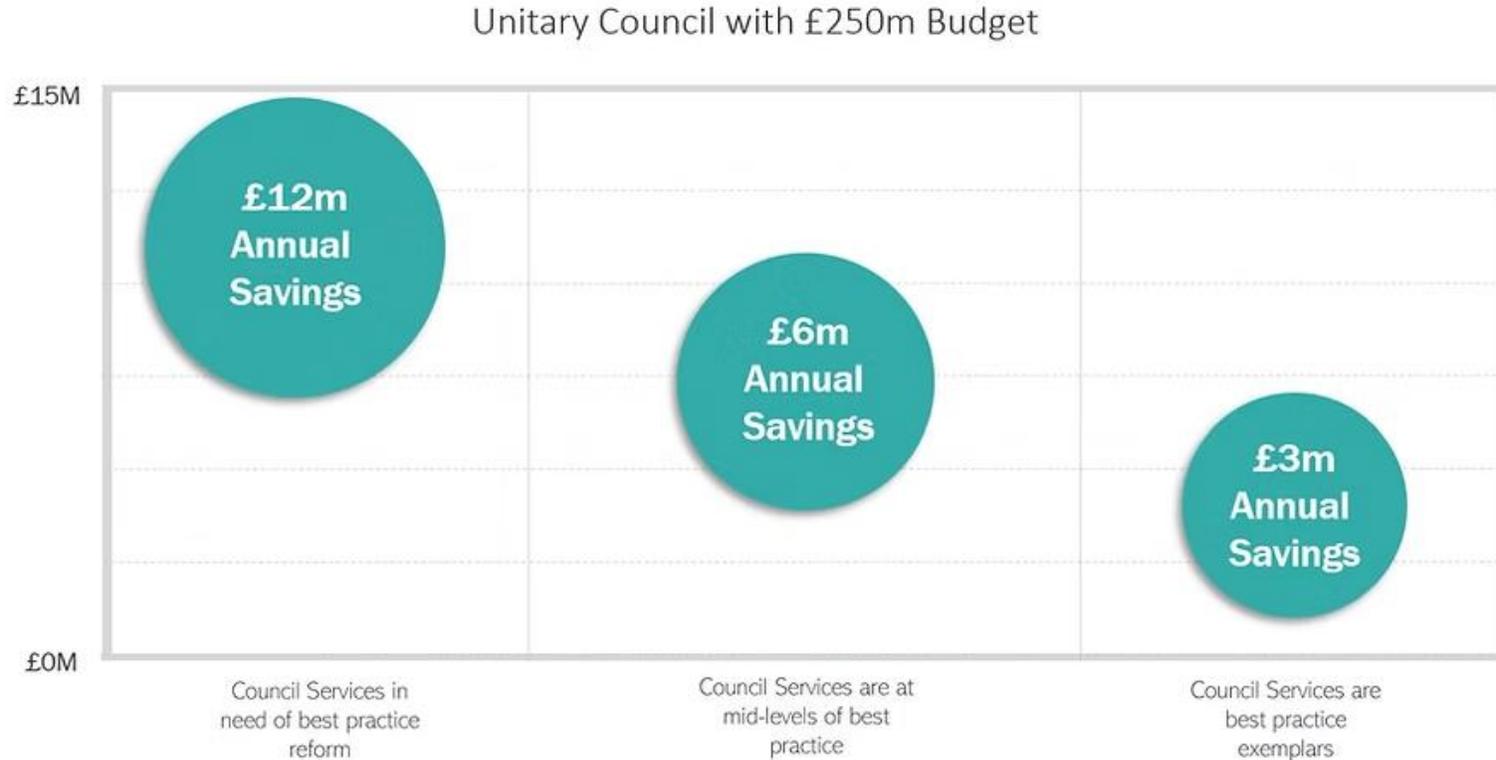
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The local impact

Many councils already dipping into this space

- Chatbots are the obvious first step into this AI space
  - This solution is now moving towards a more mature/proven position

- Other areas are seeing opportunities and looking into the AI space for cost and resource saving solutions

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Potential Savings with AI Transformation

Examples of market solutions tailored for councils suggest there could be substantial fiscal benefits, with potential annual savings of up to £12 million for mid-sized authorities.

Unitary Council with £250m Budget

£15M

£12m Annual Savings

£6m Annual Savings

£3m Annual Savings

£0M

Council Services in need of best practice reform

Council Services are at mid-levels of best practice

Council Services are best practice exemplars

Effectiveness of current council services delivery

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Some examples of how Bucher Municipal are innovating within this space

Advanced Driver Assist Systems

The Next Step in Operator Comfort & Urban Safety

- Introduction to Advanced Driver Assist Systems (ADAS): "Elevating operator experience and urban safety."

  - Features:

    - Real-time assistive technologies for obstacle navigation in urban environments.

    - Comfort-enhancing tools that reduce operator stress and cognitive load.

    - Seamlessly integrated for uninterrupted performance.

  - Benefits:

    - **Safety**: Lower risk of accidents and pedestrian incidents.

    - **Comfort**: Reduced stress, increased operator well-being.

    - **Efficiency**: Improved precision, fewer mistakes, better cleaning outcomes.

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V20 / V20e - Driver Focus

Safety & damage reduction - SafeSweep

Real time vehicle and third brush protection system
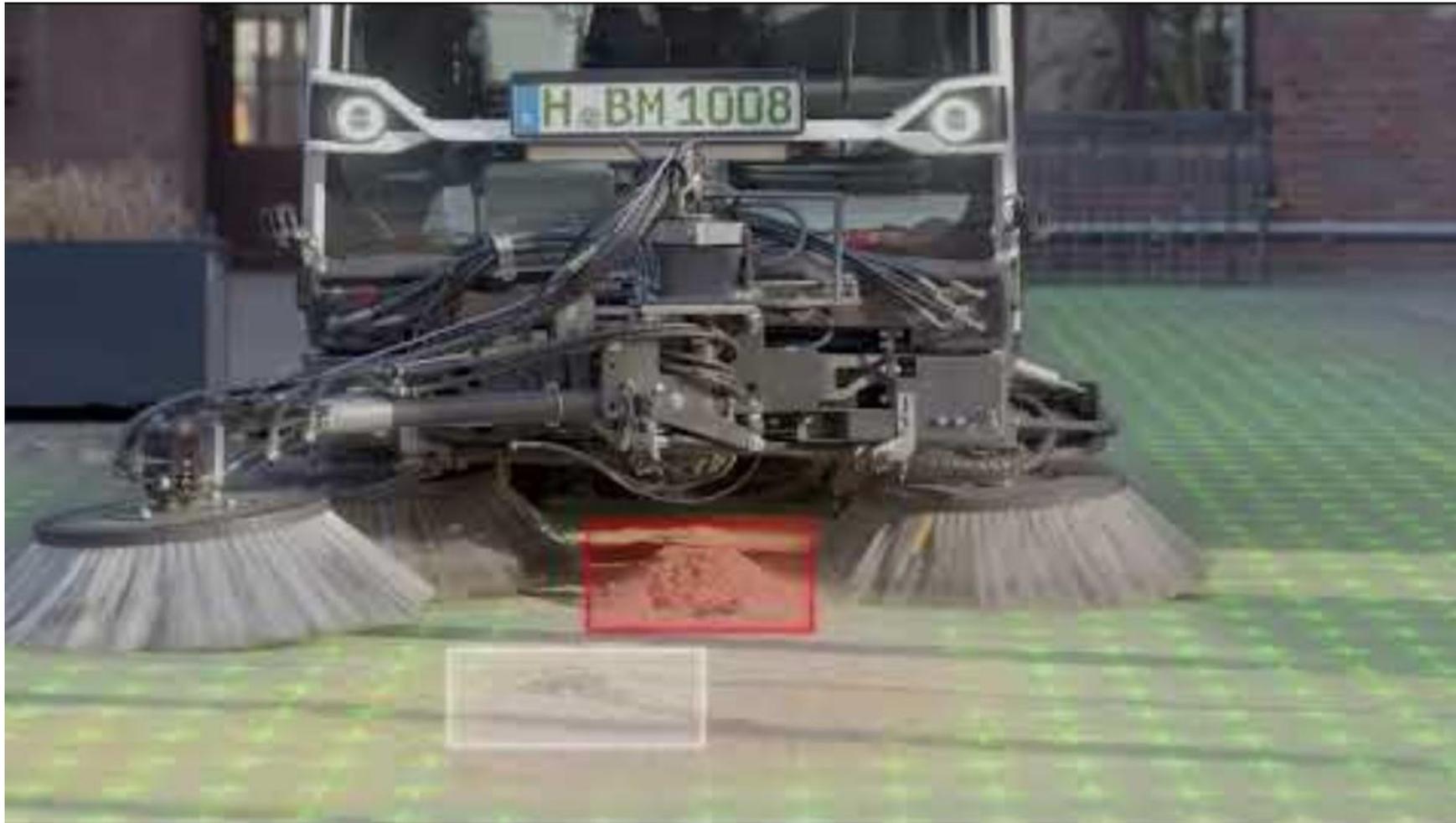
SafeSweep

Hazard Detection

Intelligent Obstacle Detection

Minimized Risk

Reduced Vehicle Damage Costs

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V20 / V20e – Efficiency Focus

Efficient Operations – SmartPickup

SmartPickup

Debris recognition

Automatic leaf flap adjustment

Automatic fan speed adjustment

Allows driver to fully concentrate on driving and hazards

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V20 / V20e – Route Focus

A clean sweep – PathFollow

PathFollow

5 Lidar Sensors with steer by wire technology

Automatic sweeping path follow system

Automatic steering along kerbside

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Truck Mounted Sweepers

SmartCSI – Data-Driven Cleanliness & Efficiency

- Introduction to SmartCSI – Clean Street Index:

  - "An innovative tool that analyzes debris on the street in real-time, providing an objective cleanliness score."

- Introduction to SmartPickup:

  - "Recognizes debris type and location, automatically adjusting the nozzle and fan speed for optimal pickup performance."

- SmartSetup:

  - "Detects debris left behind and suggests adjustments for future operations."

- Benefits:

  - Data-Driven Insights: Provides councils with real-time cleanliness metrics.

  - Improved Cleaning: Maximizes debris pickup efficiency.

  - Optimized Resource Use: Ensures minimal waste of energy, fuel, and time.

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How does this help *you?*

Support for local councils efficiency and operations

- **Reduced training requirements**

  - Less technical operation training required

- **Accident reduction**

  - Operator only has to concentrate on environment, not the fan, nozzle etc.

- **Machine working at its optimal level for the task**

  - Revs of the fan appropriate for job

  - Reduced noise

  - Reduced fuel consumption

  - Reduced ware on parts

  - Improved emissions (through reduction in each area above)

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Another Innovation

HydroVac

Becoming a popular choice within the industry
Offers the option to use water to displace earth using high powered water and remove the debris using the suction power of the sweeper.

Reduction in risk around strikes, leading to reduced claims, litigation and costs.

Applications
Holes For Lamp Posts
Safety Barrier Repairs
Pedestrian Walkway Repairs

This machine can also do all the usual road cleansing tasks, ensuring it is multi-purpose and fit for any job.

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Useful Links

For reference and knowledge building

National AI Strategy - Policy brief | Local Government Association

Artificial Intelligence Hub | Local Government Association

AI could revolutionise local government | Local Government Chronicle (LGC)

AI Growth Zones: expression of interest - GOV.UK

Local Government | ICS.AI

AI in Local Government: Shaping the Future of Public Services | ai@cam – University of Cambridge

Talking AI in Aberdeen | LocalGov

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Thank you

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