

Driving Innovation in Cities

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Innovation. What is it, really?

It's a buzzword. It's en vogue. It's **not** just fancy new tech. Innovation is not only about new inventions, it's about translating that invention or idea into a good or service that creates value for the customer.

Innovation is the management of all the activities involved in the process of idea generation, technology development, manufacturing, and implementing of a new (or improved) product or process (Trott, 2012).

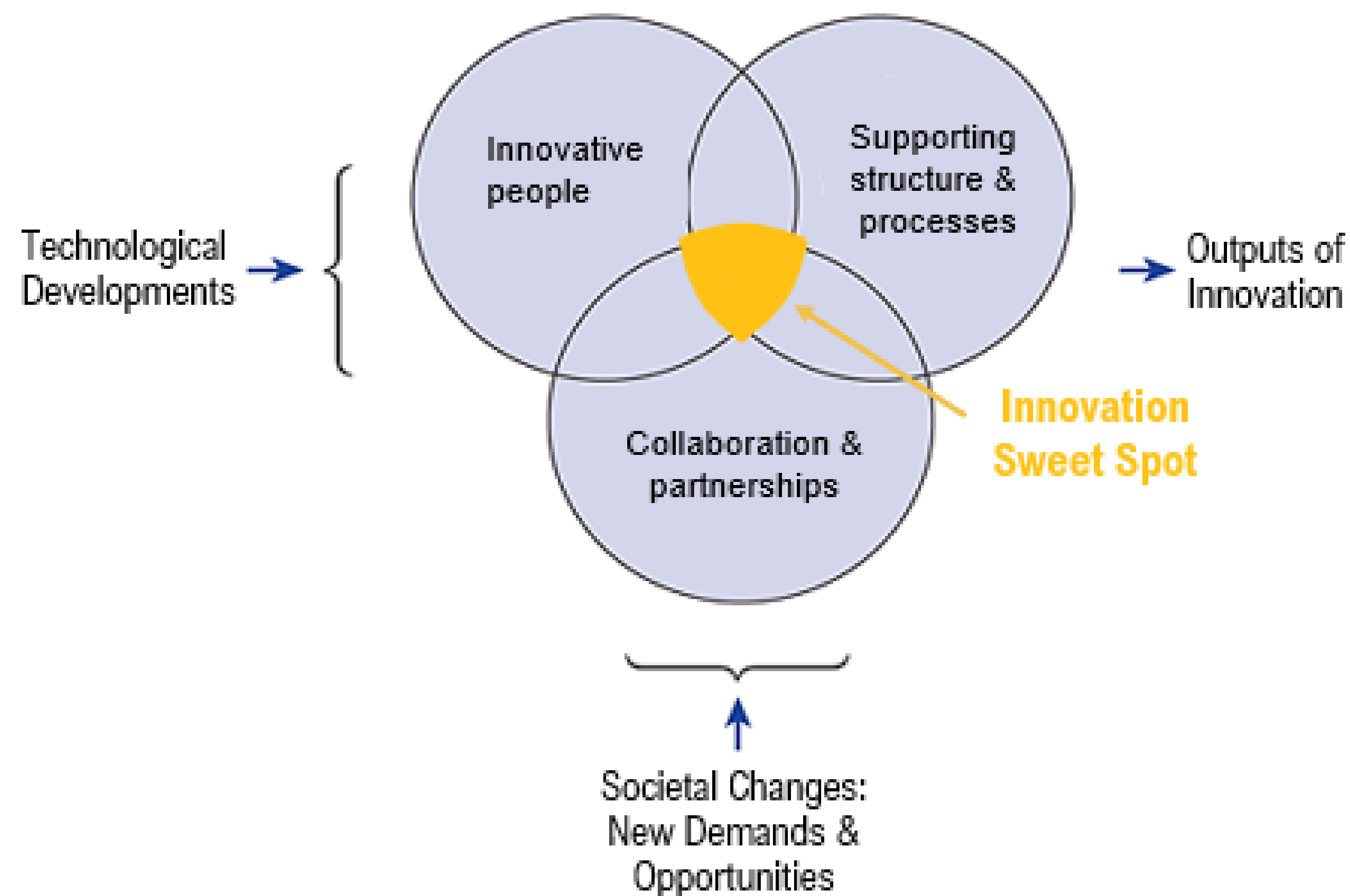
In government, the term innovation has been further defined as a learning process in which governments attempt to meet specific societal challenges which can be solved by developing and implementing:

- New services,
- Technologies,
- Organisational structures,
- Management approaches,
- Governance processes, and
- Policy concepts (Bekkers, 2011).

So, we've established that innovation is a process, and being a process, lots of dynamics and factors come into play.

Trott (2017) outlined the internal capabilities and external inputs as being key factors that enable innovation.

The Innovation Sweet Spot



Technological developments, such as microprocessors, GPS, or more recently, Artificial Intelligence, nanotechnology, 5G, and blockchain have and will continue to completely reshape how cities, and services work. If we look at the services provided by Council and companies broadly, it is *incredibly* difficult

to think of a single organisation that doesn't rely on one of these developments. New technology is evolving rapidly and will soon become as ubiquitous and embedded into society as their predecessors. These technological developments provide external inputs to enable city innovation.

Societal changes in the form of new demands and opportunities shape what innovation is explored. For example, the rise in demand for the sharing economy has reshaped entire industries – transportation and accommodation. Rapid urbanization, a globally aging population, and increasing migration will require new services, introduce new demands and opportunities for innovation. As society changes, it will create new areas of growth for innovation.

Looking within the organisation, there are three factors critical to enabling innovation – **innovative individuals, a structure and processes** that support these innovative individuals, and **external linkages, networks of collaboration and partnerships** that draw on knowledge and resources. It's at the intersection of these three enablers that innovation thrives.

So that's the theory, a bit dull, I know... The big question becomes: how do we apply this theory in practice to drive innovation in our cities?

The Drivers of Innovation

Observing boundary-pushing cities across the world, we've seen the theory be actualized in three core practices.

1. Room to Take Risks

Innovation inherently comes with risks. By definition, it's about doing new things. This becomes a significant barrier for innovation in risk-averse government environments. In fact, more than half public sector employees (53 percent) perceived that there were barriers to achieving an innovative culture in the workplace (Australian Public Service Commission, 2011), with three of the top barriers being unwillingness to take risks, disapproval of ideas, and resistance to change.

To address this, leading cities are allowing room to take risks. We typically see this as an innovation unit, team or even company that supports R&D, experimentation, agile piloting and most importantly, room for risks and failure.

2. Partnerships & Collaboration

As discussed, innovation requires both internal and external factors.

Organisations rely on external inputs in the form of technological developments (products, services, specialist knowledge and skills), and societal demands and opportunities (ideas and community needs). Tapping into these requires a network of partnerships and collaboration. While there are many models to do so - the quadruple helix model, innovation networks, and fellowships – having some form of collaboration across government, industry, academia, and citizen creates an environment most conducive to supporting innovation.

3. Real World Testing

Whether this be in the form of pilots, testbeds, or “living laboratories”, real world testing is crucial to understanding the sociocultural responses to the implementation of new technology and/or processes. It is incredibly important to acknowledge that tech does not work in isolation. It has far reaching impacts that we're often unaware of, until we test it.

A Tale of Two Cities

These innovation drivers have been foundational components of many forward-thinking cities. But each city has their unique approach to bringing these drivers to life. We'll be exploring two cities – Boston and Dublin - and how they drive innovation.



The City of Boston - Mayor's Office of New Urban Mechanics

Boston Mayor's Office of New Urban Mechanics (MONUM) describes themselves as a 'civic innovation lab', using private sector innovation models to promote more effective government. They partner with entrepreneurs and tech companies to crowdsource, build, pilot, and scale projects for the City of Boston (mdhellauer, 2015).

So what have they achieved?

They've piloted tens of projects across different departments and City areas – streets, housing, education, play, 'third spaces', civic research and digital trust. They've piloted a tiny urban house roadshow, curbside parking for rideshare services, various parklets, opened City buildings as classrooms, and live tracking and display of cycleway users. Let's deep dive into two pilots.

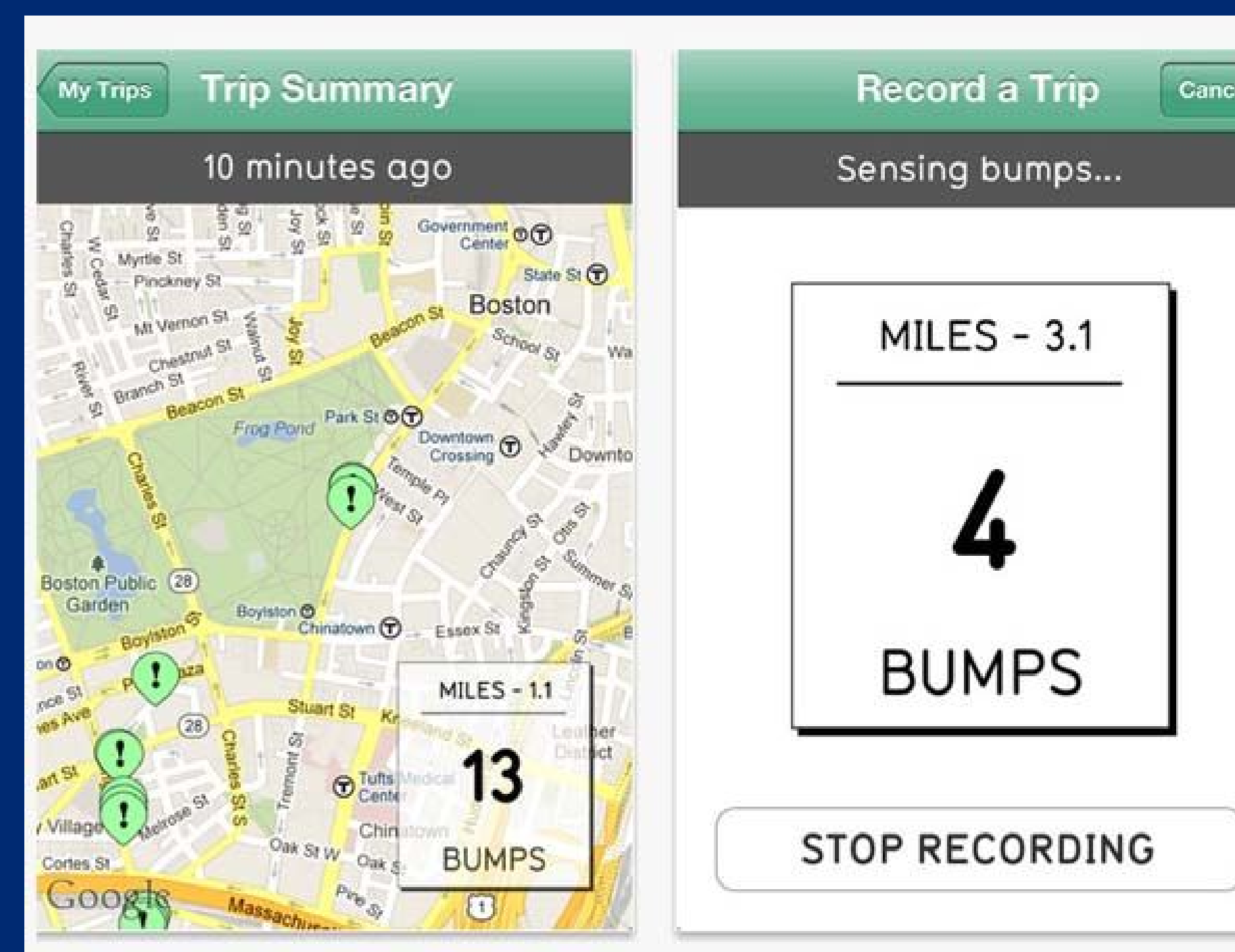
Intergenerational Homeshare Pilot



MONUM paired elderly community members who had spare rooms with graduate university students looking to rent. Why? Because 90% of older homeowners wanted to stay in their homes but were socially isolated, had declining incomes, or couldn't maintain their homes. The pilot saw 80 people apply, with 89% of whom recommending the program and many guests saving \$100-150 in rent by helping hosts with tasks.

Due to the success of the pilot, the program is being scaled with their website growing at speed. Check it out [here](#).

Street Bump



In 2012, Boston, via MONUM, was one of the first cities to explore alternative methods for data collection of asset and road conditions. They did so with an app called Street Bump which had built-in sensors to collect data on road issues.

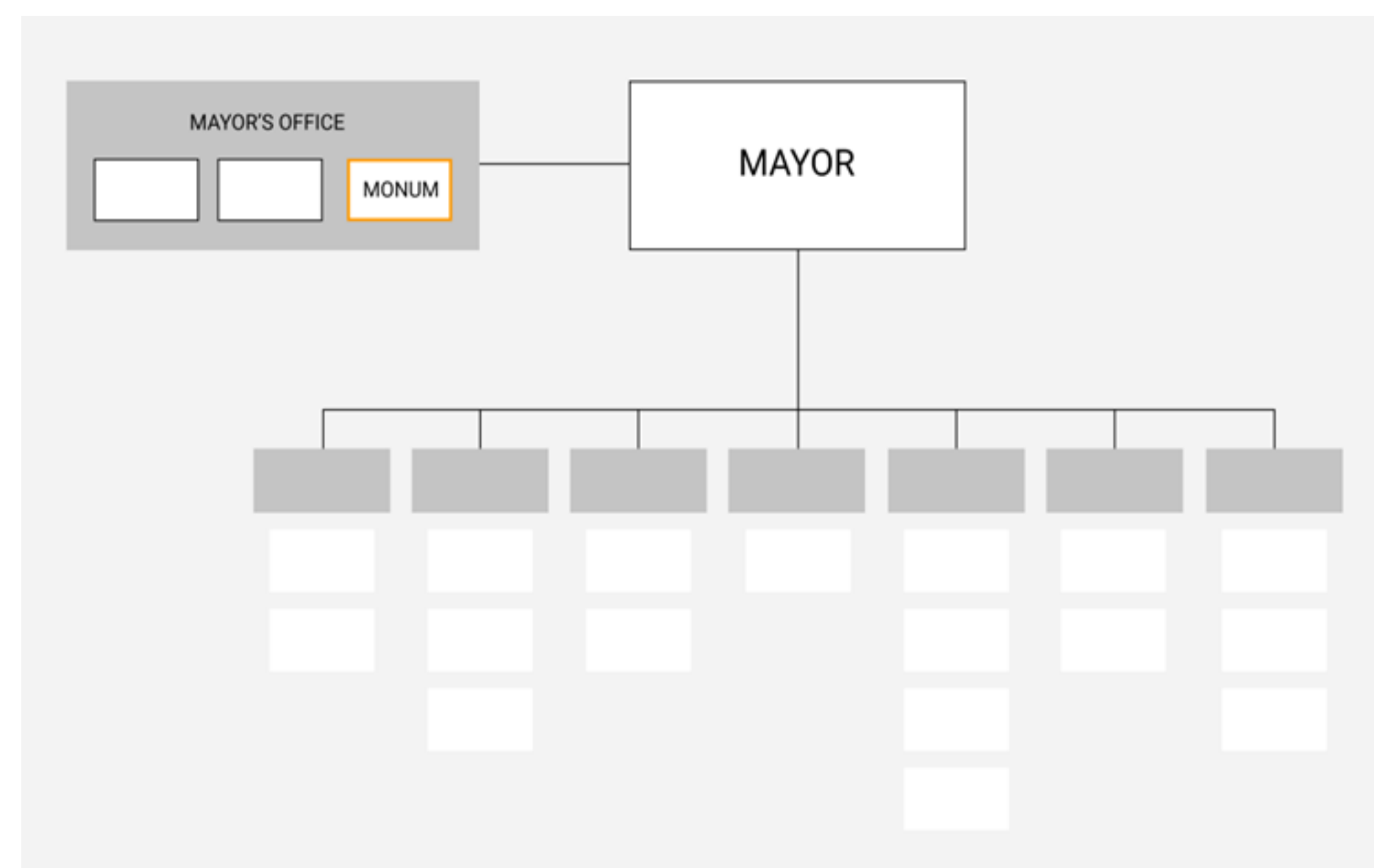
The app successfully detected road issues and found that sunk manhole covers were actually **four times** as much of a problem as potholes. This then allowed the City to **fix 1250** of the worst manhole covers.

How have **MONUM** done it?

A unique organizational structure, small-scale experimentation and willingness to take risks is central to MONUM's approach.

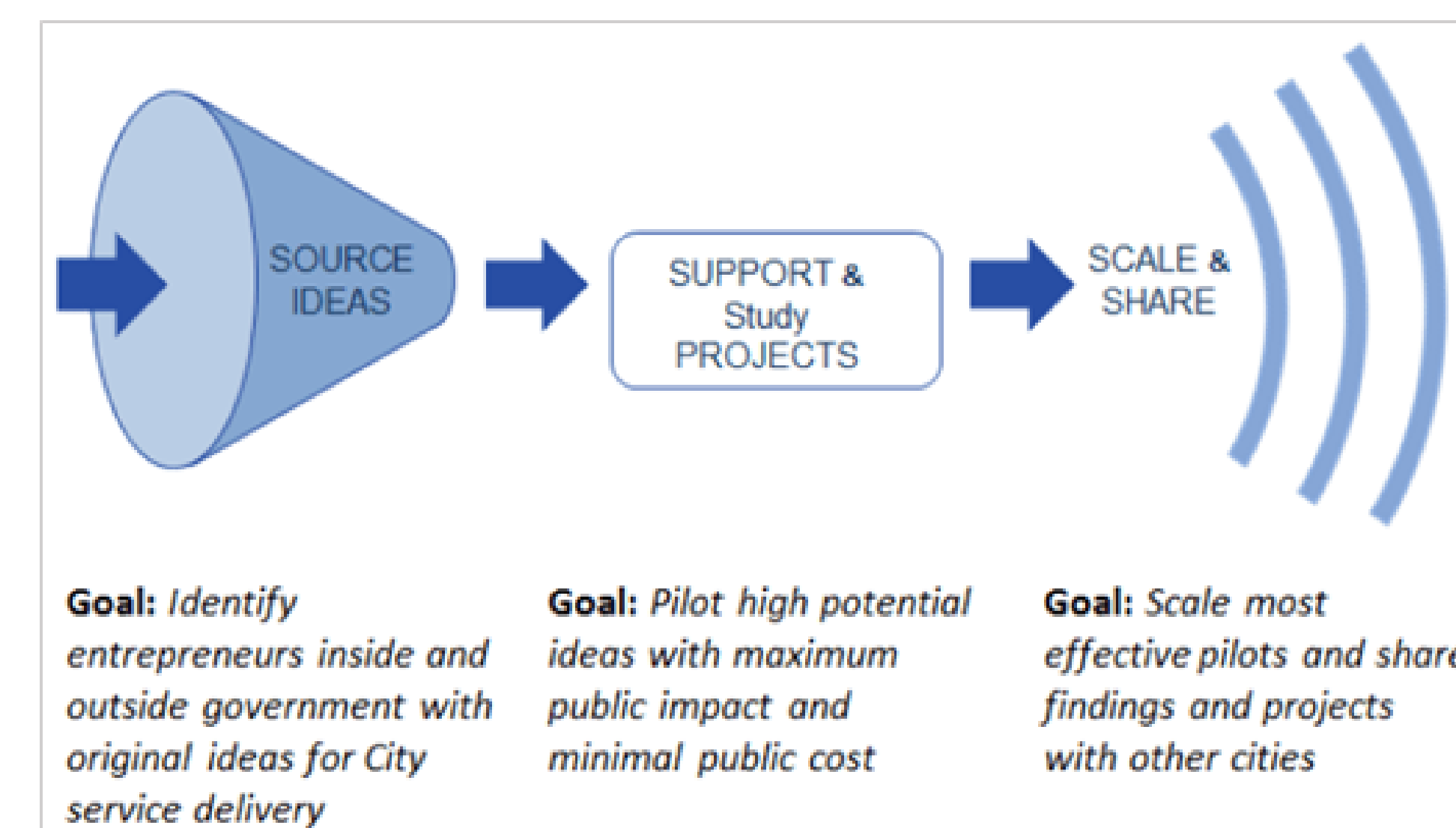
1. Room to Take Risks: by Design

Boston have a unique organizational structure where their innovation unit – MONUM, sits in the Mayor's office, outside of conventional City departments and reporting structure. This allows them to easily work across all City departments and with external partners. It also addressed the common adage at Boston City Hall being “we'll wait to explore that” according to MONUM's Co-chair, Nigel who acknowledged that everyone had day jobs, and didn't have time or resources to push in innovative directions.



2. Real World Testing: Pilot to Scale

MONUM use an innovation funnel to generate and source ideas, pilot high impact solutions, and scale the most effective pilots. By piloting on a small-scale, MONUM is able to run experiments that push the envelope in service delivery, as opposed to low-risk, possibly lower impact solutions. They're able to explore a range of ideas, piloting them before launching city-wide. The focus isn't ensuring a high pilot-to-scale rate (or failure to success rate), the focus is on ensuring city-wide implementations are effective and address real problems.



3. Partnerships & Collaboration: Fellowship Program

Though MONUM collaborates with multiple partners – Boston's City departments, local tech companies and start-ups – a defining feature of its innovation-driving capability lies in the pipeline of civic entrepreneurs through its fellowship program.

MONUM has a summer and yearlong fellowship program, giving “entrepreneurs passionate about civic issues the opportunity to work in City government and create thoughtful change” (MONUM, undated). Not only did this develop a pipeline of talent, but it alleviated the pressures of limited local government resources.



City of Dublin - Smart Docklands

Smart Docklands is a 2km squared fast track smart city testbed acting as a unique platform for entrepreneurs to develop new and innovative solutions.

So, what have they achieved?

A quick glance at the statistics below indicate the district is punching well above their weight in terms of social and economic impact.

9%

Ireland's **GDP**
is generated in
Docklands

52+

Projects

44,000

People
employed

€3 billion

In private
investment by
2025

3D Data Hackathon

In 2019, Smart Docklands ran a 3D Data Hackathon which involved the release of exclusive 3D data covering Dublin's Docklands area to civic hackers. The event drew huge attention, attracting 80 competitors who aimed to deliver new solutions across: Transportation, Mobility & Environment; Urban Planning & Digital Construction; City Infrastructure & Asset Use; and Civic Engagement & Serious Gaming.

The first place concept used 3D in its augmented reality app to visualize and display planning proposals in their conception phase to citizen for engagement. This would allow for deeper engagement with citizens using a more tangible and accurate view of proposals.

The solution in second place involved an augmented reality app to help first responders locate essential services such as fire hydrants during emergencies.



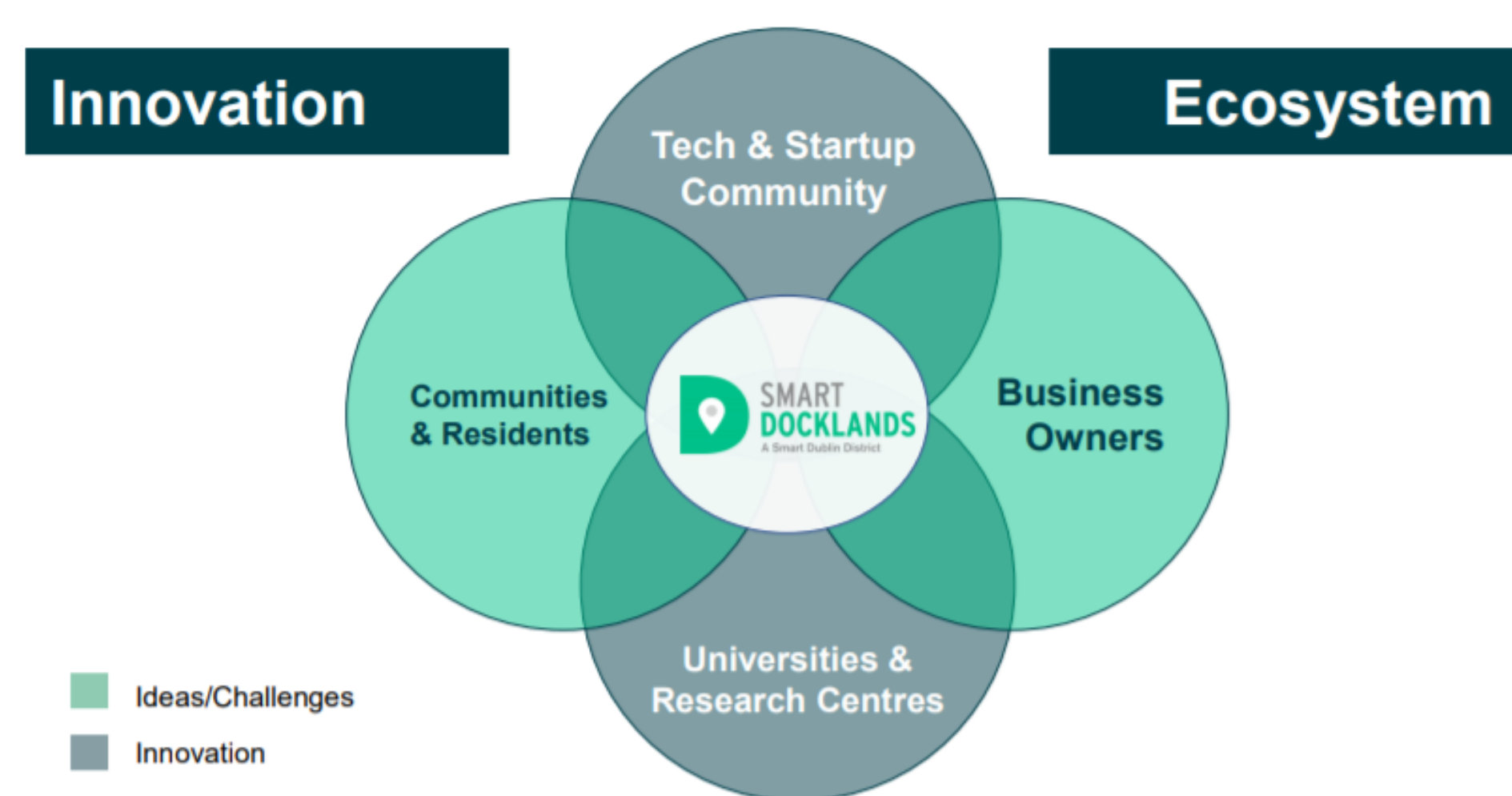
The team in third used 3D modelling to optimize energy and resource management within districts to assist with reducing carbon footprints (GovData.IE, 2019).

How have Docklands done it?

1. Partnerships: The Quadruple Helix Model

Smart Docklands was founded on partnership. In 2018, the Smart Docklands project management office (PMO) was established and funded by Dublin City Council and the Science Foundation Ireland Research Centre CONNECT. This was the first instance, globally, where municipality and academia joined forces to act as the “honest broker” amongst government, tech and startup community, business, universities, and citizens.

This brokership/collaboration between the four key groups: government, academia, industry, and citizen, represents the quadruple helix model, a driver to Smart Docklands’ innovative success.



2. Real World Testing: A Fast-track Testbed

Smart Docklands is “big enough yet small enough to be the ideal location to pilot new city services & solutions”. This pilot approach addresses typical city technology deployment challenges.

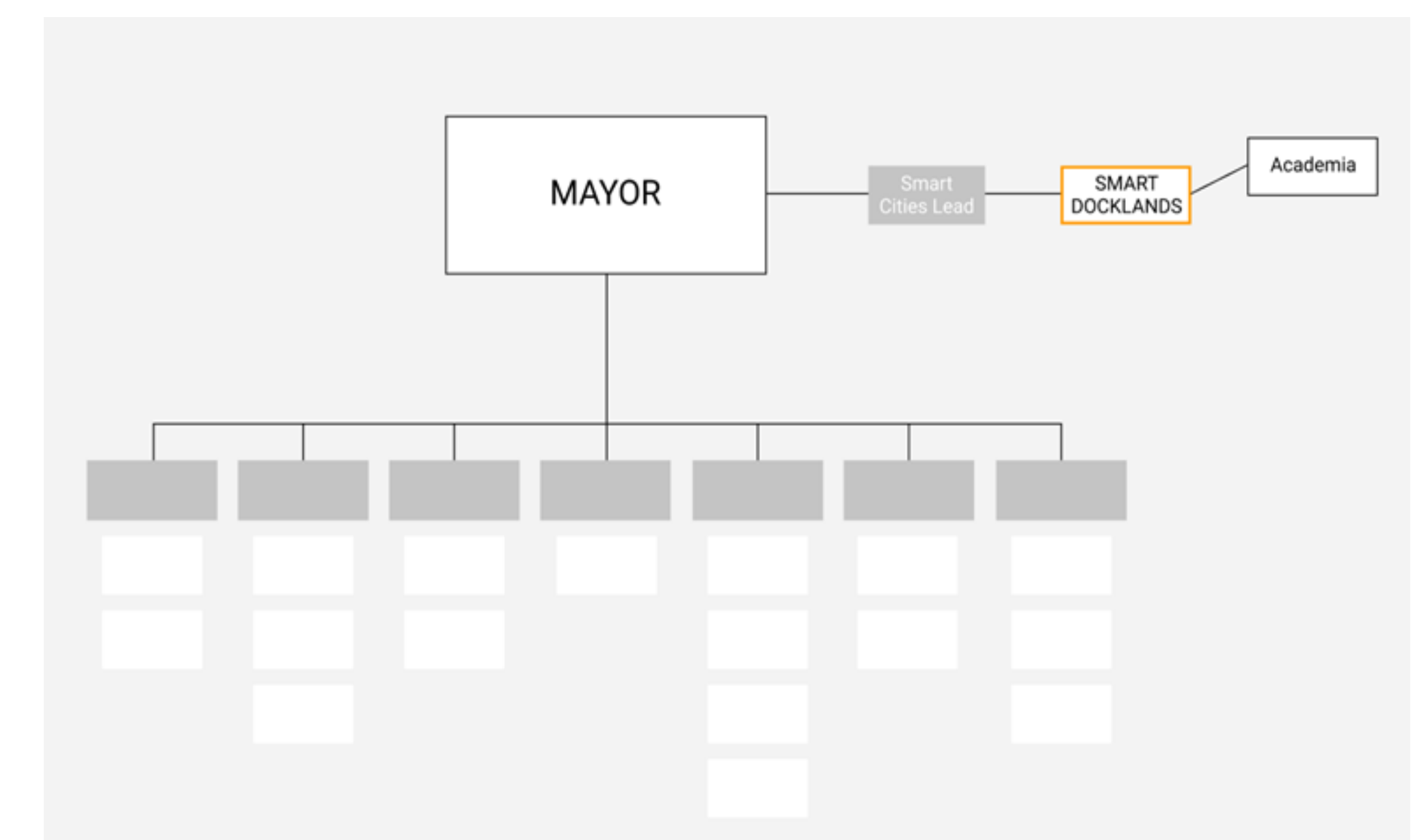
- Cities are complex and “messy”, making it hard to implement new technology.
- Test beds provide a public demonstration of success (Engels, Wentland & Pfothhauer, 2019). Dublin identified the need to change internal and public mindsets through live examples.
- The implementation of tech solutions has far-reaching impacts, beyond just the technology landscape. An innovation like WiFi didn’t just change internet connectivity, it changed how we move, work, and live more broadly. By testing technology in real world situations, we can see tangibly the impacts on society and culture, and build regulatory frameworks in tandem (Engels, Wentland & Pfothhauer, 2019).

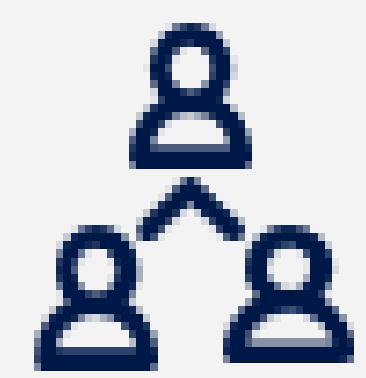
3. Room to Take Risks: Organisational Structure

Smart Docklands and MONUM have quite different organizational structures, however, both are the ‘innovation leg’ and both sit distinctly outside of BAU.

Smart Docklands is its own entity, sitting outside of the City of Dublin. The City has oversight and governance, however, by being a constituent in Dockland’s PMO.

This distinction between Docklands and the City of Dublin enables more innovative solutions to be explored without the reprimand of branded failure. It allows the City to continue to deliver great services to its citizens, while exploring new solutions for services in tandem.





Room to
take risks

+



Partnerships
&
collaboration

+



Real world
testing

=



Innovation

In summary

We know the ingredients for driving innovation – room to take risks, partnerships & collaboration, and real-world testing – and we’ve seen how three cities approach these innovation drivers.

Each approach has their benefits and pitfalls. Finding the right combination is challenging, but promises an ecosystem that drives a culture of innovation within CBCity, our Canterbury-Bankstown community, and local government more broadly.

So, what's next?

A City Future initiative supporting our mission to:
Dream, design and create the most amazing future for our City.

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