

City of Plainfield

Innovation Planning Challenge Grant

Plainfield Cabinet Meeting
May 19th, 2020

New Jersey 
Innovation Institute
An NJIT Corporation

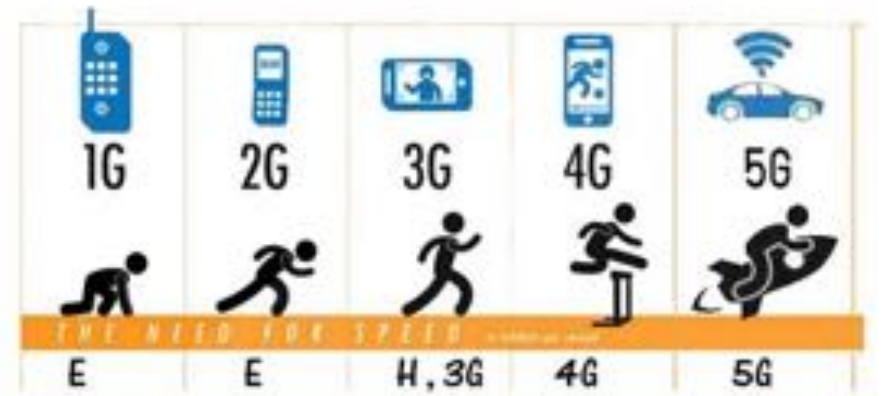
Why are we here?

The City of Plainfield awarded an **Innovation Planning Challenge Grant** from the NJ Economic Development Authority.



Primary Focus

What: "Recommend High Speed Communication Technology (HSCT) Improvements"



"Fiber and wireless speeds accelerate investment and economic development"

West End Industrial Corridor



Strong Starting Point: Existing Corridor Assets



Embedded in the top “**Super Star City**” in the U.S. – NYC-Newark-JC MSA



“Potential” for low cost electricity due to underutilized electrical infrastructure that was sized for the heavy manufacturing of the past.



Low cost, large spaces, high-floor loading with access to robust logistics resources



Existing Corridor Businesses



Historically-Significant Architecture

Why? For What?

*“Transform vacant and underutilized historically-significant architectural assets into technologically advanced workspace that can accommodate emerging innovation sectors and industries ... **while maintaining the industrial character of the corridor**”*

What's in it for Plainfield...



Diversify
the Economy



Attract
New Residents



Generate
Inclusive
Employment
Opportunities

NJII's Approach to the Objective Statement...



"If you build it, they will come."



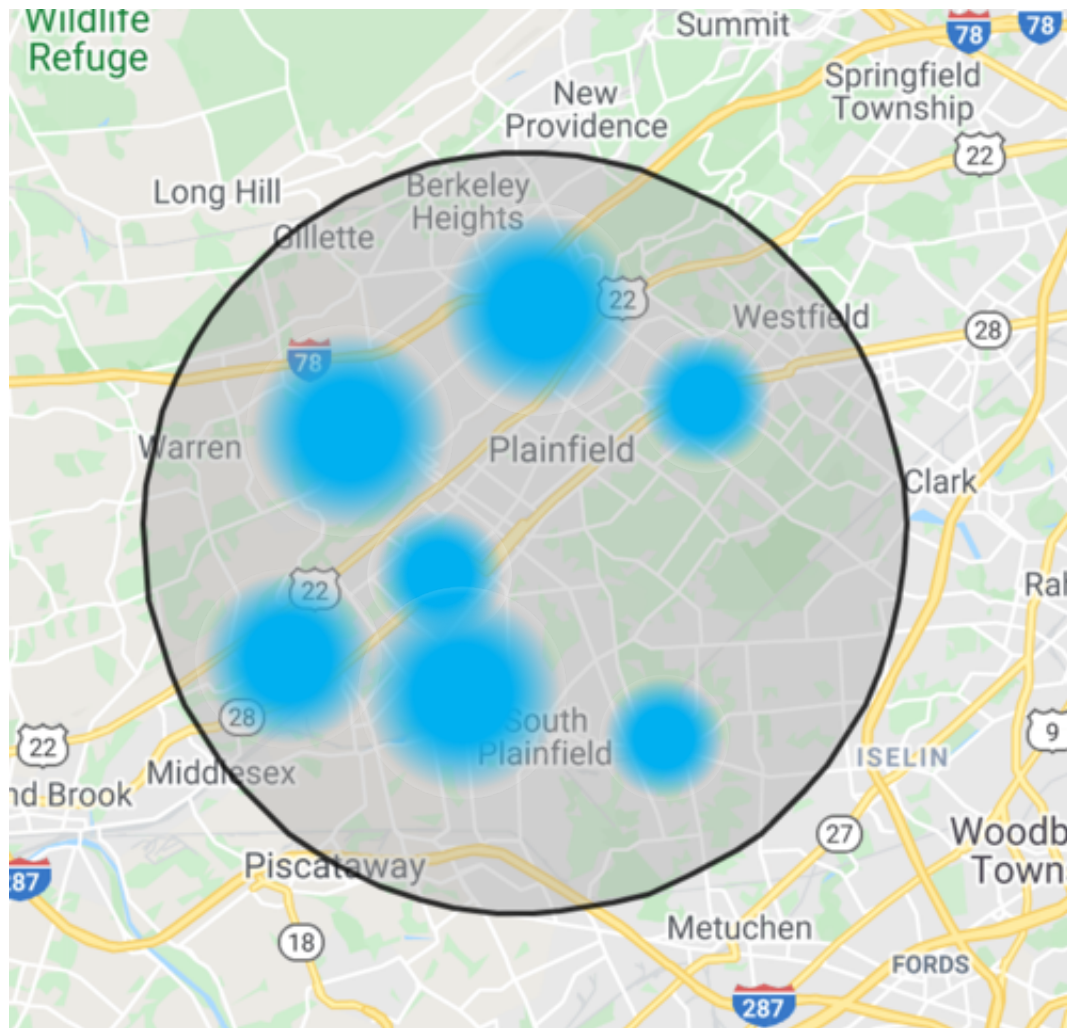
"What is a high potential direction of economic development for Plainfield? How can organizations and resources align with technology to accelerate progress in that direction?"

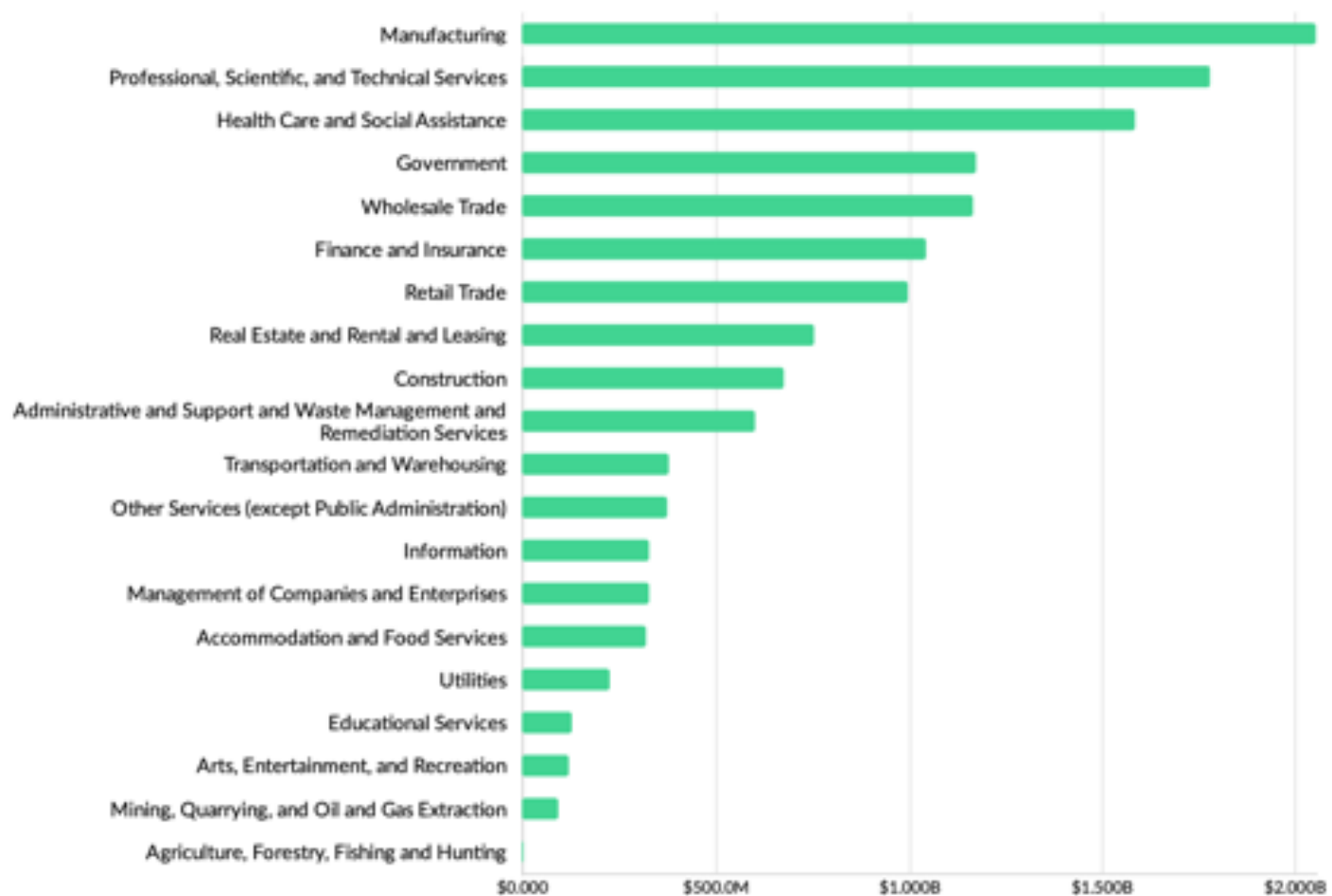
Our mandate is “Industry” ...

**So, what does “Industry” look like in
the Plainfield Area?**

5 of the top 10 Industry Clusters in the Plainfield Area are SPECIALTY MANUFACTURING

1. **MFG: Medical Devices**
2. **MFG: Biopharmaceuticals**
3. **MFG: Upstream Chemical Products**
4. Business Products
5. Education & Training
6. **MFG: Food Processing**
7. Local Government Services
8. Distribution and E-Commerce
9. **MFG: Paper & Packaging**
10. Local Health Services





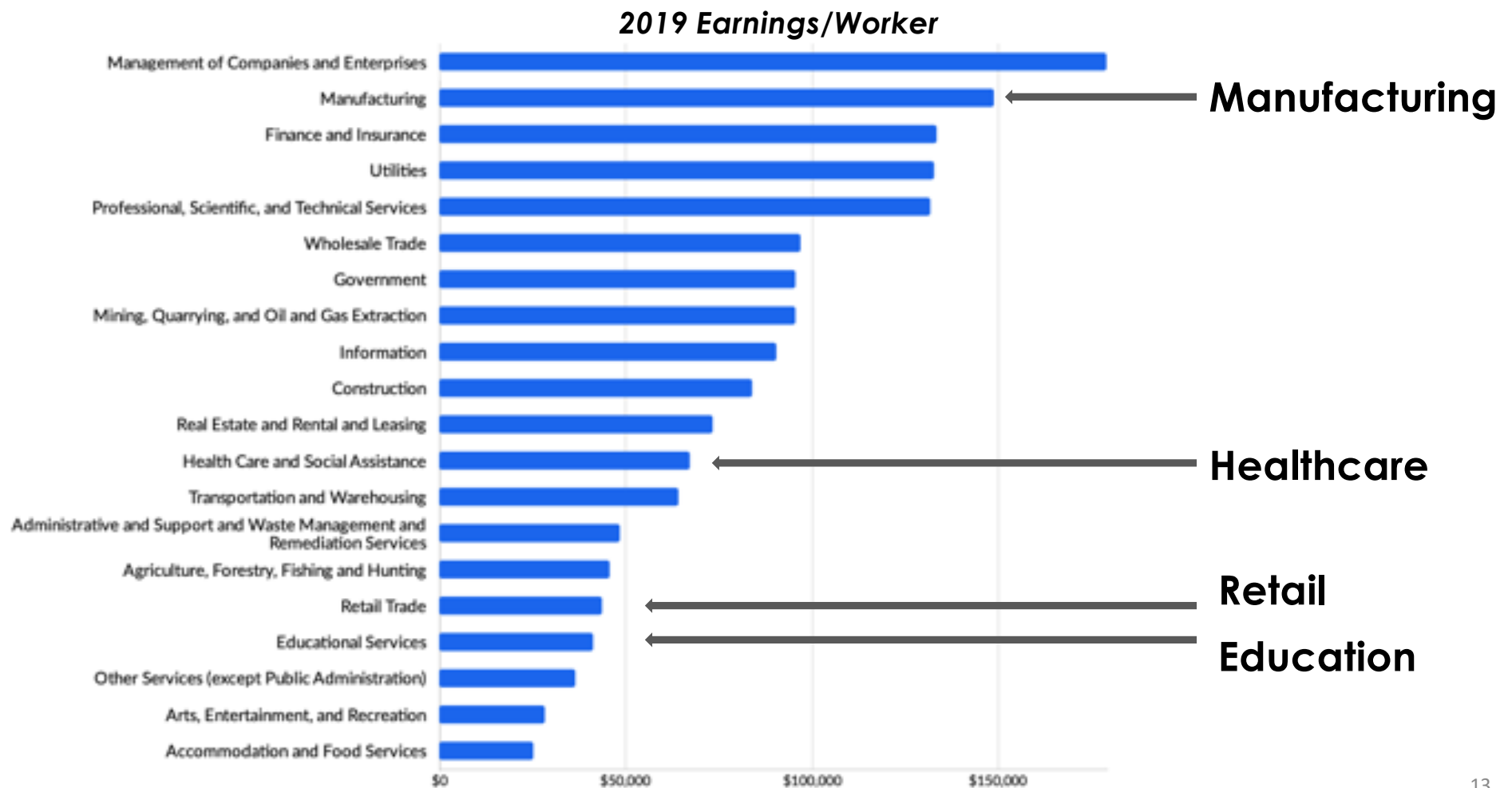
← **MFG**

Manufacturing generates the largest economic output for the Plainfield Area – more than \$2.0B in 2019 (GRP) ADD Multiplier...

Top Industries by Employment

1. Healthcare
2. Retail
3. Government
4. Professional Services
5. Waste Management
6. Food Services
7. Manufacturing

“Careers not Jobs”



So, what?

- 1. A proven economic development strategy is to amplify existing strength**
- 2. Complementary business like to co-locate**

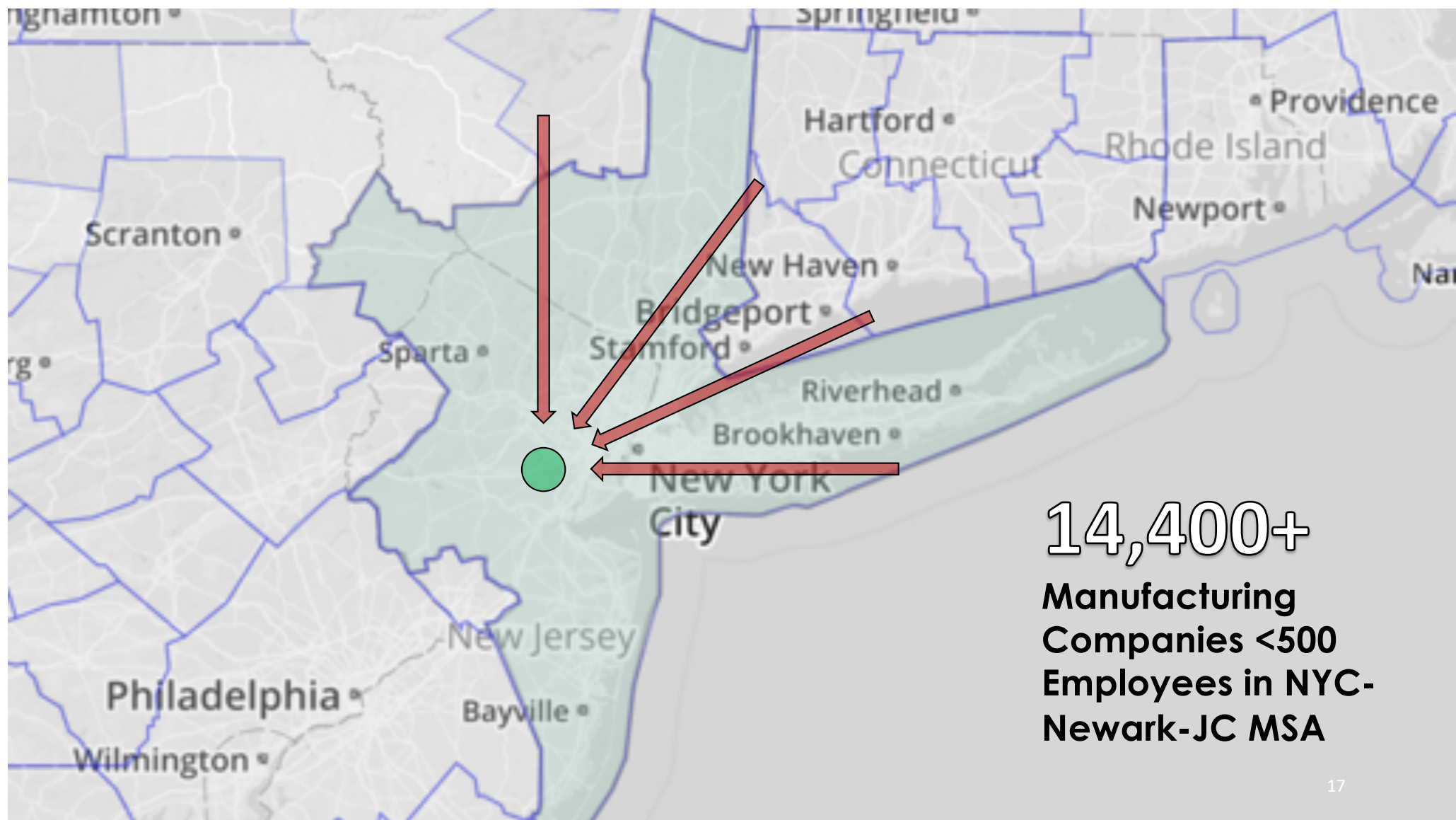
**Is there excess “Industry” demand that
we can pull into the Plainfield Area?**

Demand Outpaces Development in New Jersey Industrial Market

Posted on October 16, 2019 by Taylor Williams in Industrial, Market Reports, New Jersey, Northeast, Northeast Market Reports

“Despite the near-record level of development in the industrial sector, the state faces a product deficit that even the nearly 5.3 million square feet of space currently under construction cannot satisfy.”





14,400+
Manufacturing
Companies <500
Employees in NYC-
Newark-JC MSA



The Rise of Urban Manufacturing

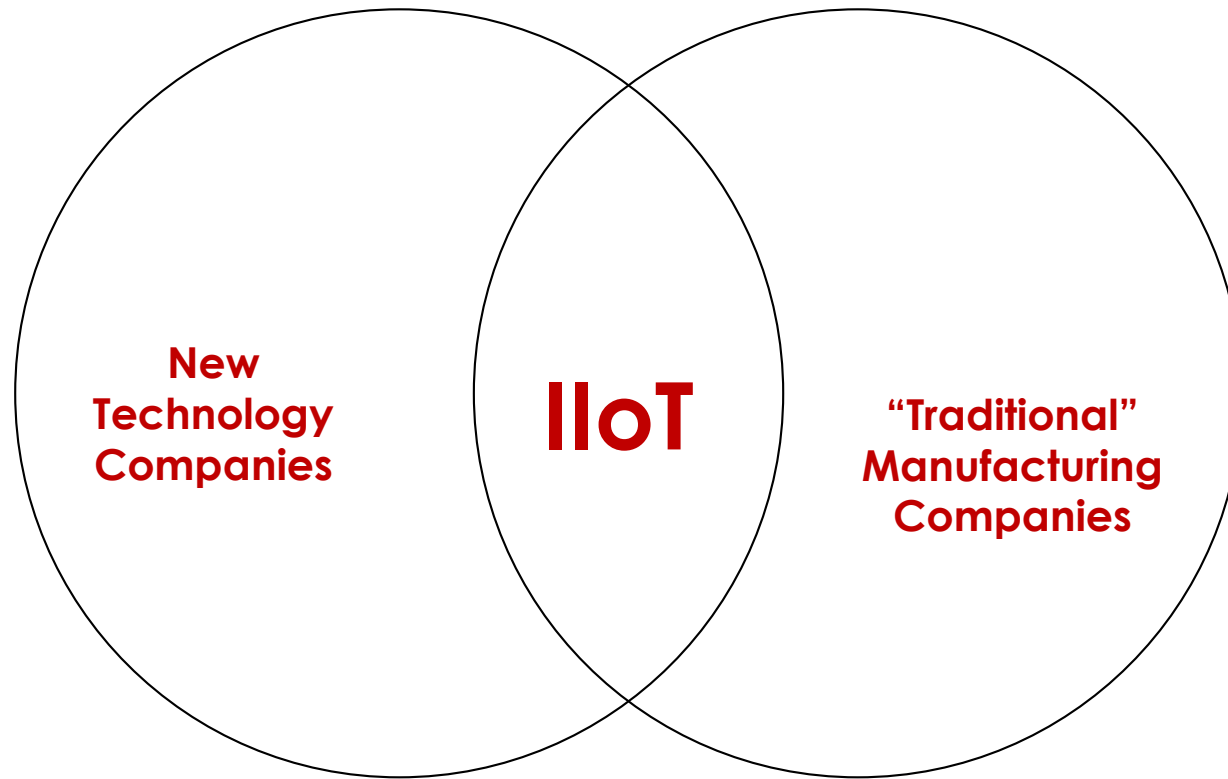
Many U.S. manufacturers are seeking facility spaces ranging from 5,000 to 75,000 square feet, and many are finding their ideal locations in cities and urban locales across the country.

A key driver of urban manufacturing is **manufacturers' ability to gain proximity to workforce**

Well-suited for areas with a rich history of manufacturing and ties to a strong local economy

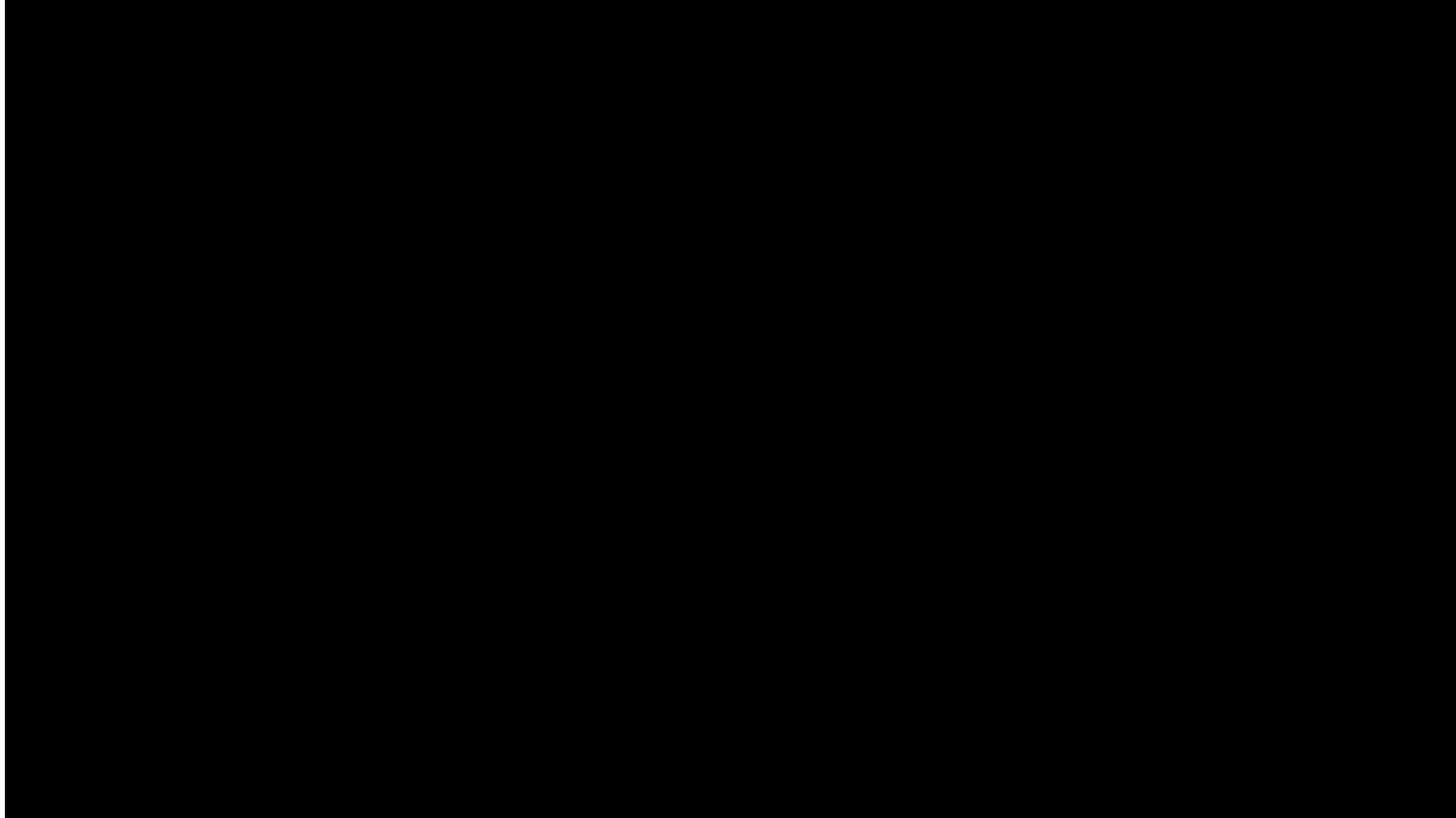
The background of the slide is a solid red color with a complex, low-poly geometric pattern. The pattern consists of numerous triangles of varying sizes and shades of red, creating a textured, crystalline effect. The triangles are arranged in a way that they seem to flow and interlock across the entire surface.

Where is the intersection of Technology & Manufacturing



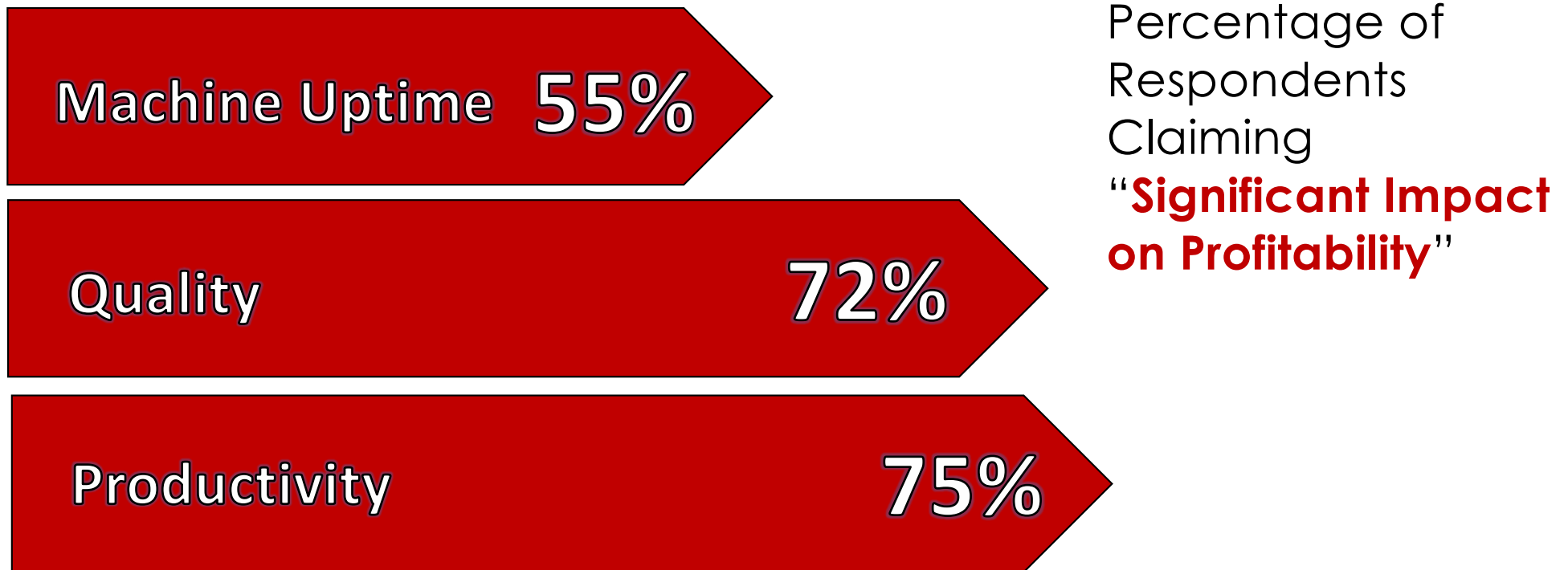
*At the intersection of high-speed communication technology and manufacturing is the “**Industrial Internet of Things (IIoT)**” or “**Industry 4.0**”.*

IloT Example: Warehouse & Inventory Management



Are Manufacturing Companies Benefiting from IIoT?

Survey: 350 U.S. Manufacturing Companies // 35% of Respondents, <\$50M Revenue



Source: MPI, Internet of Things Study - 2017

Small & Medium-Sized Manufacturers: *Digital Transformation*

Only **9%** of manufacturers are currently using IoT.

Top Barriers to Adaption:

1. Cyber Security
2. Unclear ROI
3. Integration
4. Interoperability
5. Talent

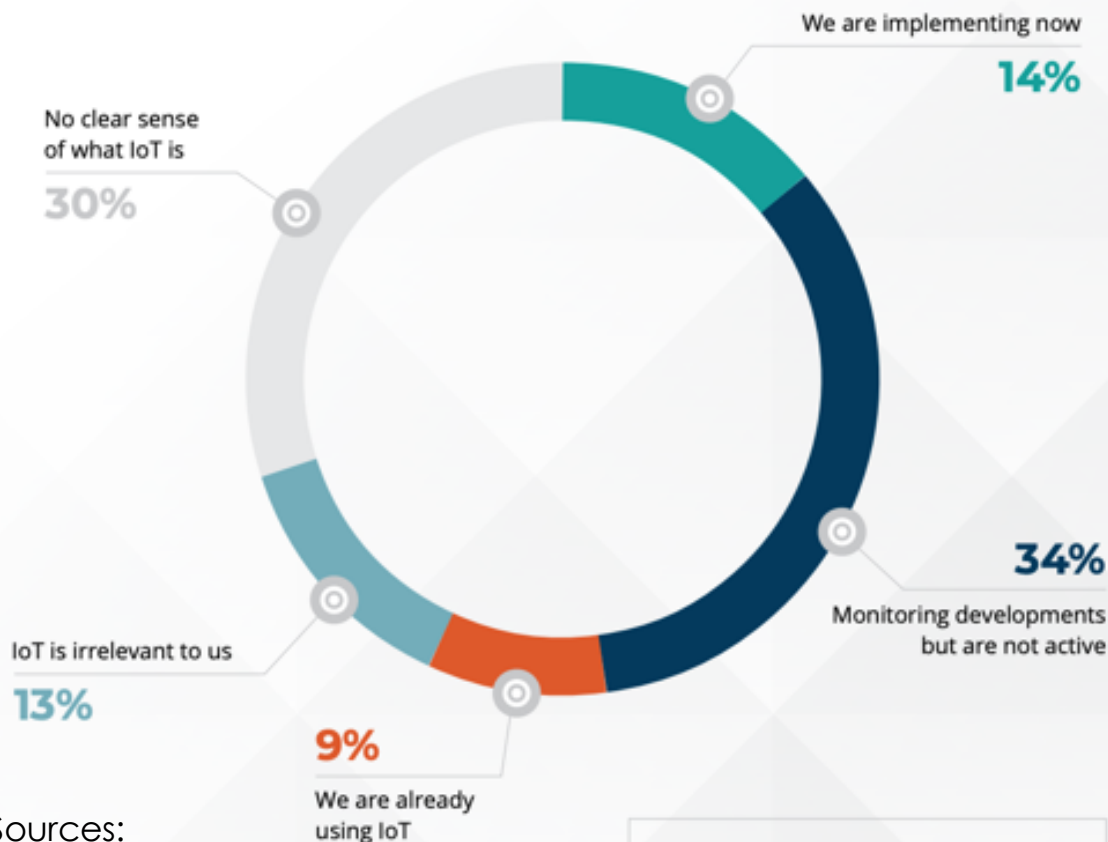


FIGURE 1

When asked whether they plan to employ IoT in their plant, more than three-fourths of respondents said they are not yet using it.

Sources:
2018 M&D Report, The Industry 4.0
Factor, Sikich

Bain & Company: Beyond Proofs of
Concept, Scaling the Industrial IoT

Who is creating IIoT Technologies?

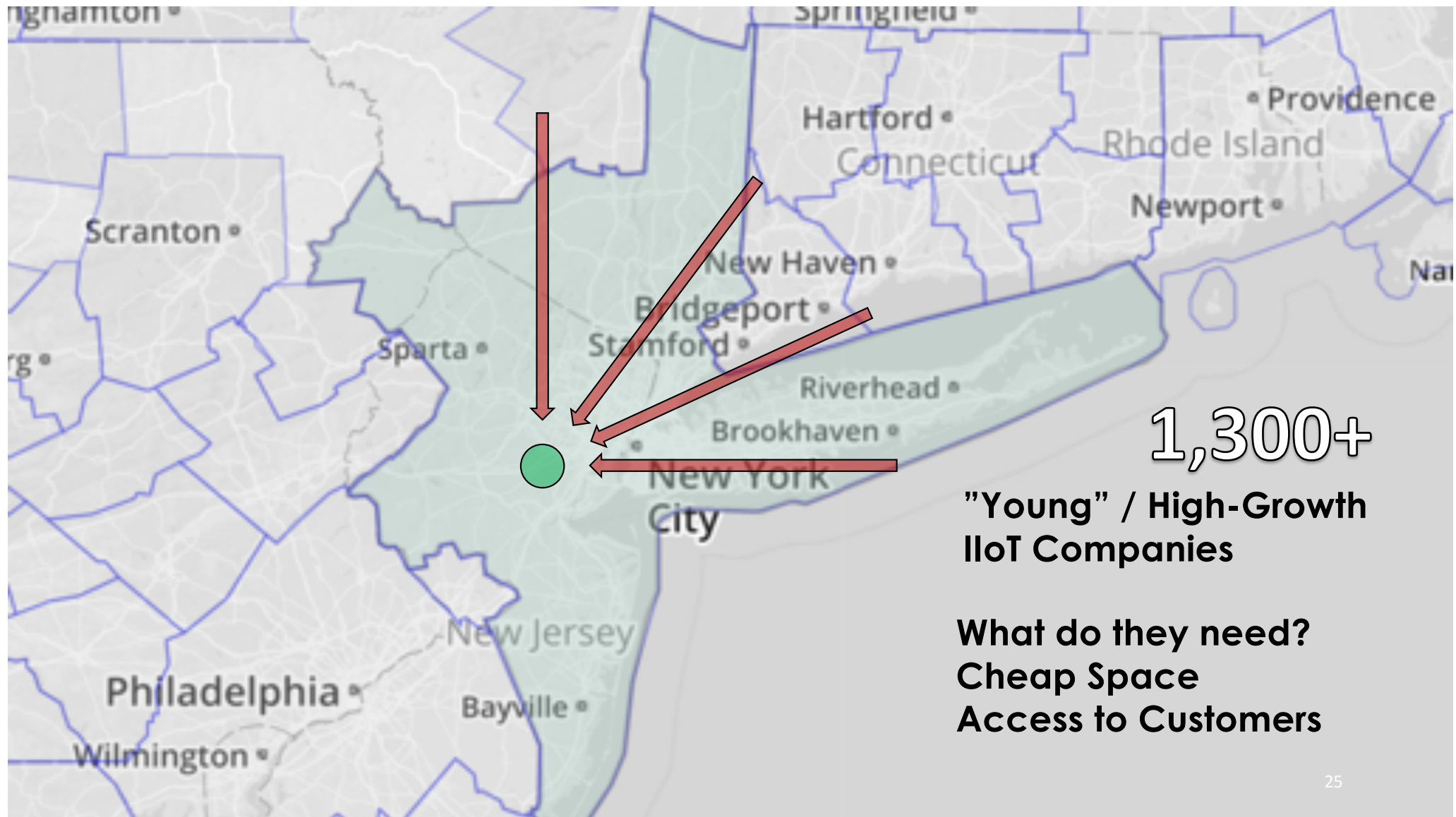
Dynamic market with a large number of small startups entering the market, competing with large, established technology providers

\$90B+ Combined Manufacturing, Energy, and Utility Market by 2023

29.2% Annual Growth Rate (~8x National Growth Rate)

Source: BCC Research, *Internet of Things (IIoT) Markets: A Global Outlook*, May 2019





1,300+

**"Young" / High-Growth
IIoT Companies**

**What do they need?
Cheap Space
Access to Customers**

The diagram consists of two large, empty circles positioned side-by-side. The left circle contains the text 'IIoT Technology Companies' and the right circle contains the text '“Traditional” Manufacturing Companies'. Between the two circles, the text 'West End Industrial Corridor' is written in red. The entire diagram is set against a plain white background.

**IIoT
Technology
Companies**

**West End
Industrial
Corridor**

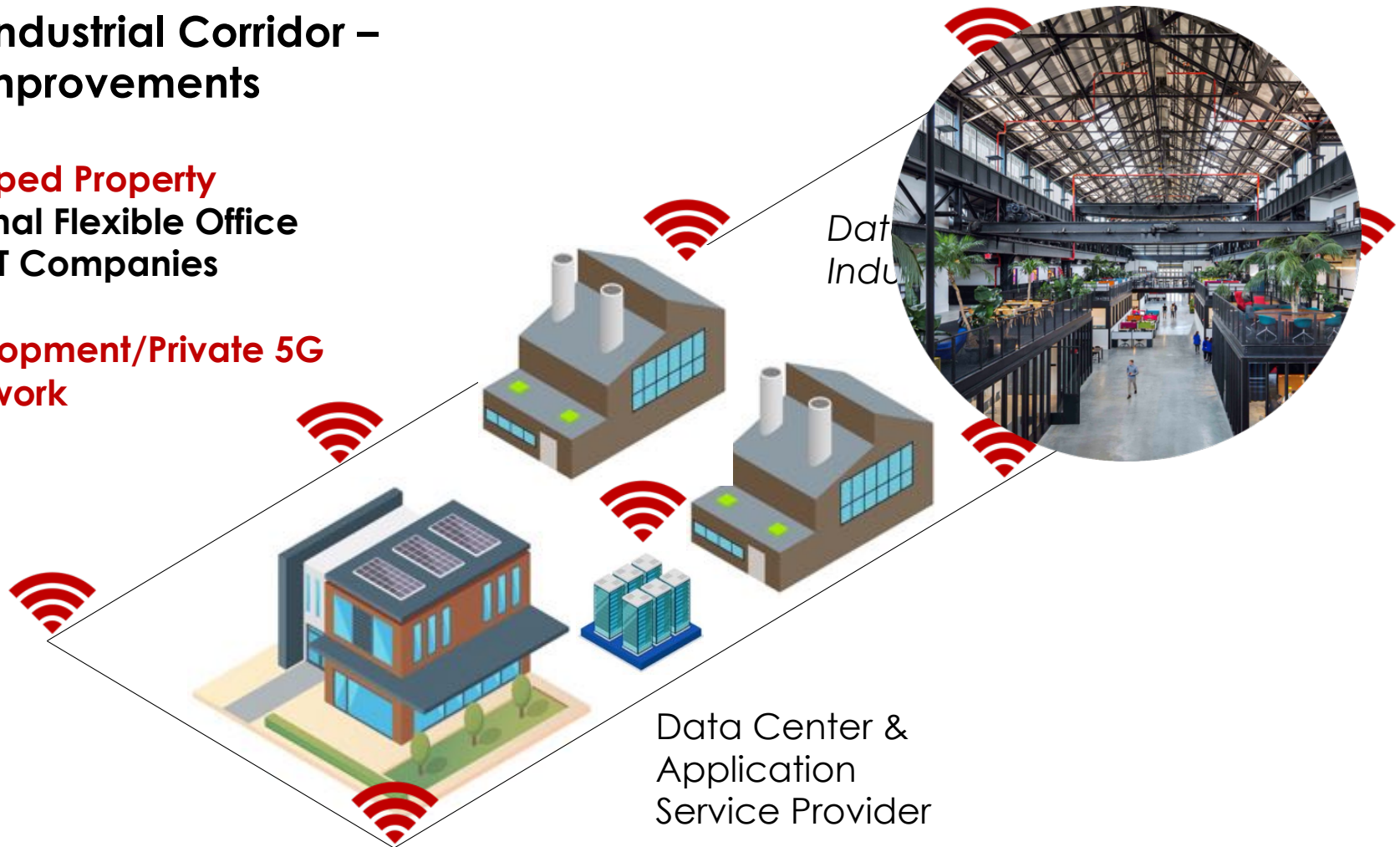
**“Traditional”
Manufacturing
Companies**

The Solution

West End Industrial Corridor – Physical Improvements

1.) Redeveloped Property
Multi-functional Flexible Office
Space for IIoT Companies

**2.) On-Development/Private 5G
Wireless Network**



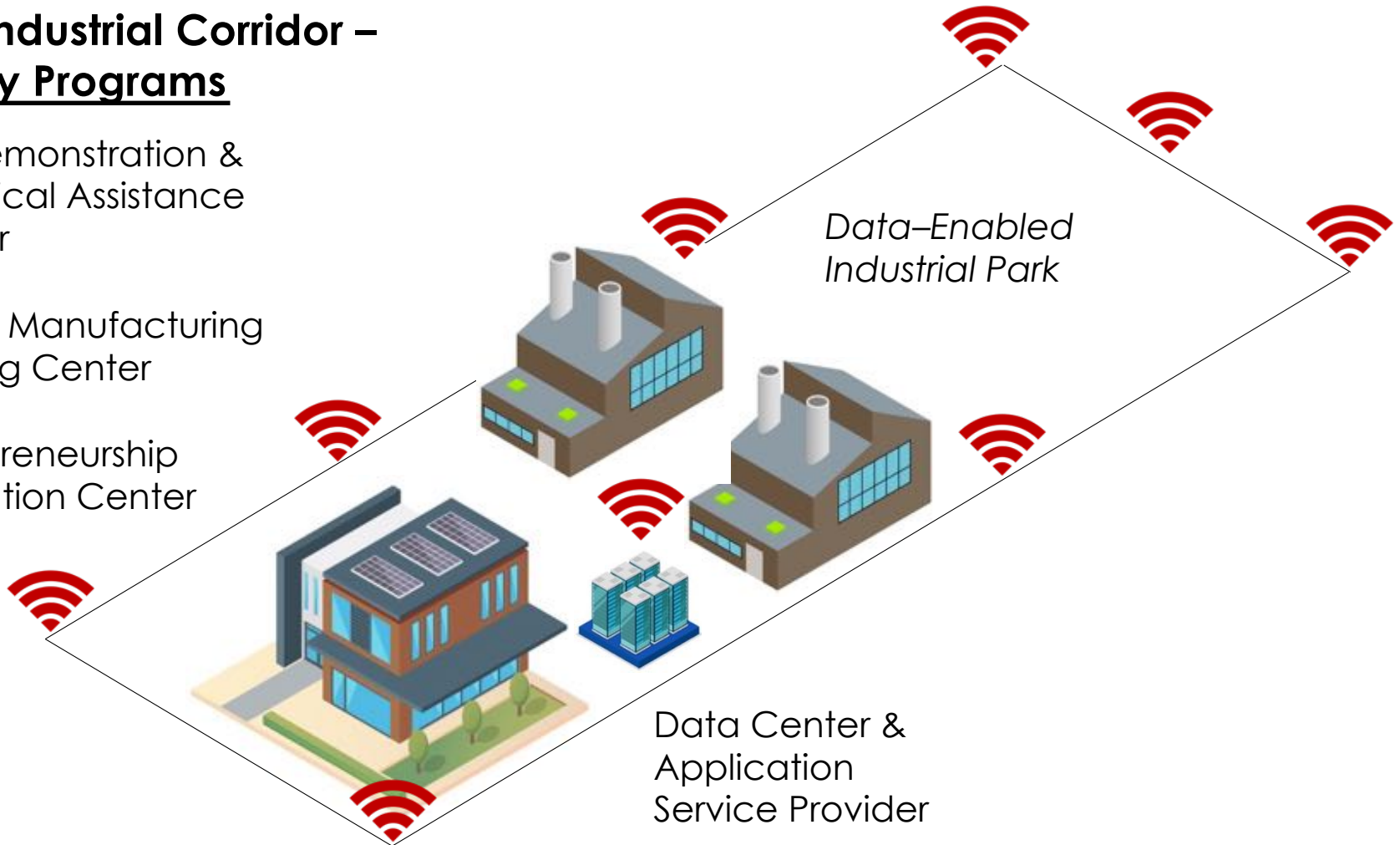
West End Industrial Corridor – Community Programs



IIoT Demonstration &
Technical Assistance
Center

Digital Manufacturing
Training Center

Entrepreneurship
Education Center

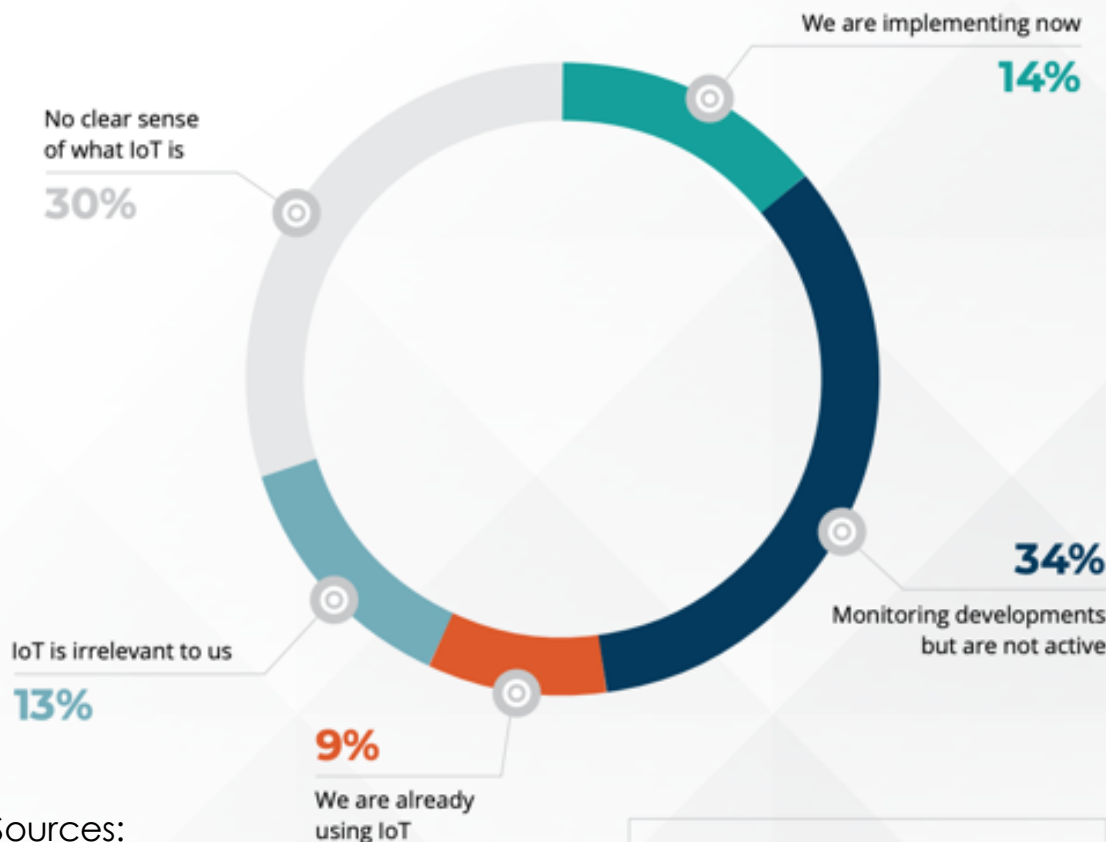


Small & Medium-Sized Manufacturers: *Digital Transformation*

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FIGURE 1

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Potential Solution:

IloT Demonstration & Technical Assistance Center

Trusted 3rd Party offering educational, informational and hands-on demonstrations for showcasing new technology that aids in overcoming the technology adoption barrier.

Vendor Agnostic

Income Source: Vendor Sponsorship (Considered Marketing for their technology)

Operated by an “**Application Services Provider**”



Corridor Level (i.e. Shared Community) Applications



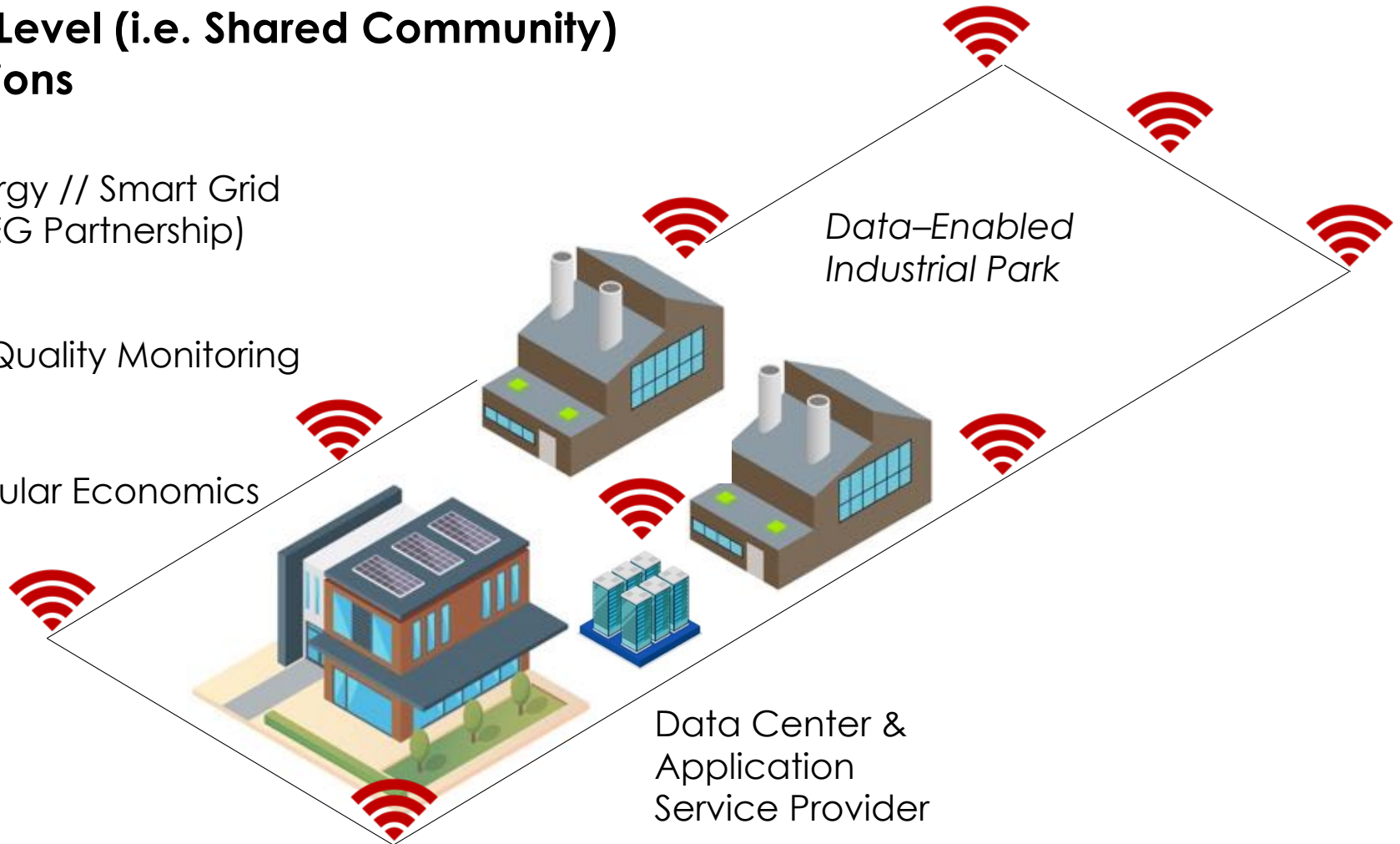
Energy // Smart Grid
(PSEG Partnership)



Air Quality Monitoring



Circular Economics



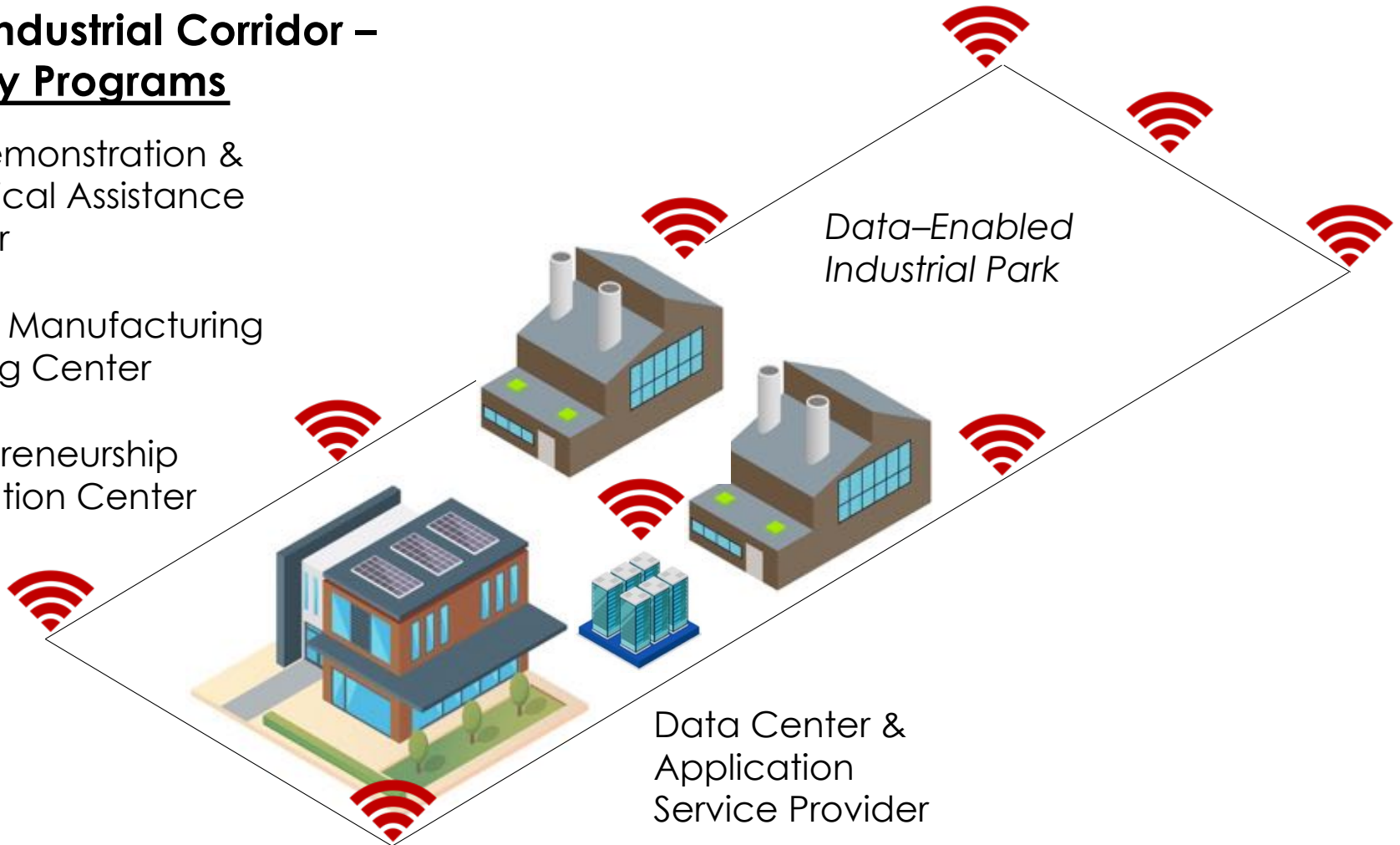
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IIoT Demonstration &
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*Data-Enabled
Industrial Park*

Data Center &
Application
Service Provider

Potential Solution:

Digital Manufacturing Skills Training



Top Barrier (No. 5) to IoT Adaption:
Talent

Good fit or Workforce
Development: Both
Manufacturing & Technology do
not depend (heavily) on
credentials

IoT training programs are
emerging at large corporates –
hard to SMEs to replicate this

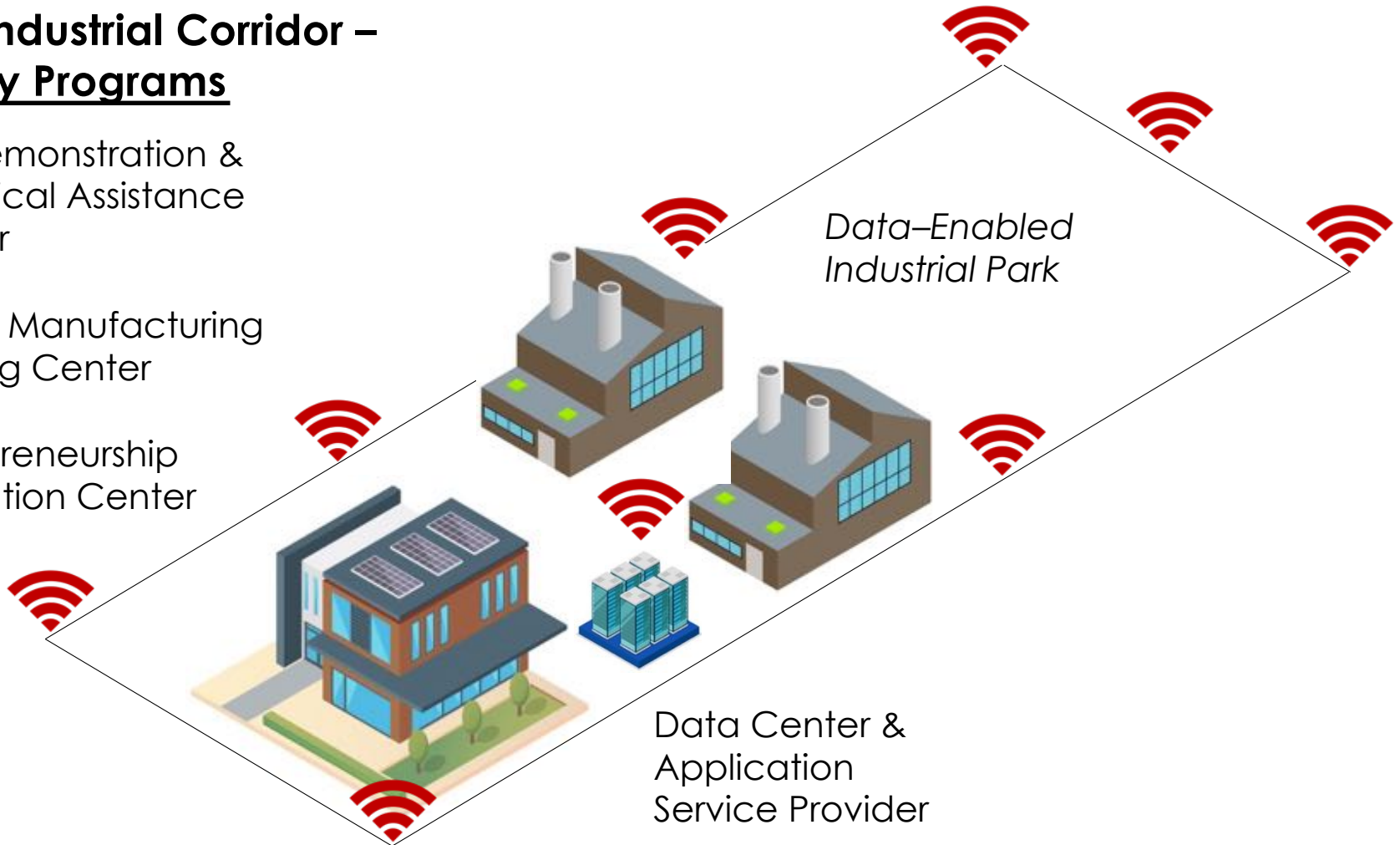
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Entrepreneurship
Education Center



Plainfield Area Student Population: *Entrepreneurship*

The Technology Infrastructure as
assets to pilot Smart city
applications

Student Engagement
Opportunities – Smart City, Smart
Industrial Park,

Entrepreneurship Education

Lesson 1: Importance Entrepreneurship

MODULE 1
INTRODUCTION OF ENTREPRENEURSHIP



West End Industrial Corridor

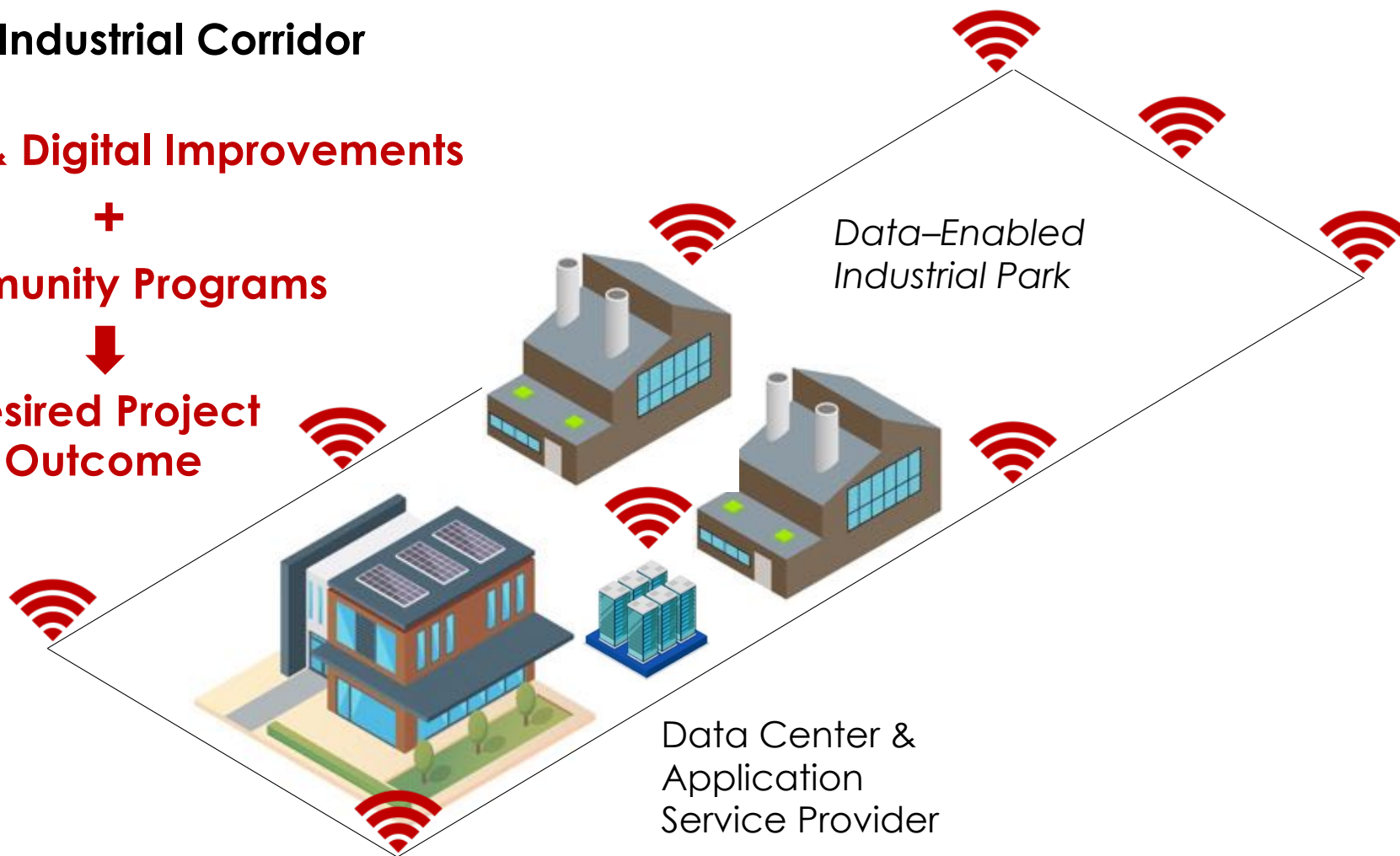
Physical & Digital Improvements

+

Community Programs



Desired Project Outcome





**Downtown
Connectivity
Solution**

How has the community responded?

Jan. 29th – Corridor Business Engagement

March 4th – Community Engagement Meeting

The majority of business and community leaders engaged have responded positively

Feedback Highlights:

- *“AND-OR” Misconception – “Good idea, but our community may not be ready for this type of initiative. We need to focus on foundational education outcomes.”*
- *Gentrification: “I’m concerned this effort (combined with others) will push out the blue collar families that I employ on the plant floor.”*
- *Community Silos: How can this effort be designed to be inclusive around the various ethnic communities in Plainfield?*

What's Next? Phase 2

Objective (1): Deepen understanding of stakeholder needs, assets, and motivations

Proposed Activities: Direct, 1:1 customer discovery targeting the following

Deliverables: Interview Summaries & Synthesis (i.e. What did we learn?)

Objective (2): Effective and efficient communication with stakeholders

Proposed Activities: Creation of marketing collateral, leveraging the NJII strategic communications team.

Deliverable: Marketing artifacts

Objective (3): Search for additional planning funds.

Proposed Activities: Work together with the City of Plainfield's development team to target funding source and author proposals as needed.

Deliverables: Contributions, as needed, to a next funding proposal.