

Submission Guidelines

Outline for 5-Page White Paper Submissions for Data to Decision

1. Introduction

a. Digital twins in urban planning can help break down data silos by creating a unified, integrated view of a city's infrastructure, systems, and operations. This allows for better decision-making, resource allocation, and improved public services by integrating data from various sources, such as GIS, IoT sensors, and BIM models. Data Silos in Urban Planning: Separate Departments: Different city departments (e.g., transportation, utilities, public works) often maintain data in their own systems, making it difficult to share information and coordinate actions. Conflicting Data: Data from different sources may be incomplete, inaccurate, or inconsistent, leading to unreliable decision-making. Limited Visibility: Decision-makers may have limited access to the full picture of how different systems interact, hindering their ability to address complex challenge

b. Wings of Liberty is designed to help urban decision-makers visualize, simulate, and respond to safety incidents in real-time. It creates a semantic model of the city's physical infrastructure—such as roads, buildings, emergency services, and crowds—while integrating live data from surveillance systems, emergency response units, and IoT sensors (e.g., fire alarms, gunshot detectors, weather stations). This virtual replica enables city officials to simulate emergency scenarios, identify risks early, and coordinate real-time responses—improving public safety outcomes and community resilience with Microsoft Azure Digital Twins.

FarmerNet is a Artificial Intelligence One of 137 companies chosen for a \$15,000 grant with Microsoft AI for Earth for it's state-of-the-art remote estimation of carbon with computer vision models and satellite imagery data and Award winning Ethereum technology for carbon credit NFT marketplaces for decentralized verification and supply chain traceability with accurate ratings for Voluntary Carbon Markets (VCM) .

2. Proposed Solution Details

To ensure seamless integration and interoperability of real-time and historical data from multiple urban systems in a Microsoft Azure Digital Twins environment, the approach hinges on leveraging Azure's event-driven architecture, digital modeling language (DTDL), and data federation tools.

1. Modeling the Urban Environment in Azure Digital Twins

Azure Digital Twins uses the Digital Twins Definition Language (DTDL) to model entities like buildings, traffic signals, public transit, and utilities as graph-based twins with defined relationships.

- Define a unified schema using DTDL to represent:
 - Building, StreetLight, BusStop, AirQualitySensor, etc.
 - Relationships like locatedIn, connectedTo, poweredBy.

This model acts as the semantic foundation for harmonizing disparate datasets.

2. Real-Time Data Ingestion via Azure IoT Hub & Event Grid

- IoT Hub ingests real-time telemetry from sensors (air quality, smart meters, traffic cams).
- Use Azure Functions or Stream Analytics to transform and route events.
- Events are published to Event Grid, triggering updates to relevant digital twins.

Example:

```
{  
  "busStopId": "BS-102",  
  "timestamp": "2025-06-01T12:00:00Z",  
  "passengerCount": 42,  
  "temperature": 31.2  
}
```

This data would be parsed and mapped to the BusStop twin's properties or telemetry stream.

3. Historical Data Storage and Replay

- Time Series Insights (TSI): Store telemetry for historical trend analysis.
- Azure Data Lake / Synapse Analytics: For large-scale, long-term storage and analytics.
- Historical data is linked via twin IDs and visualized through APIs or Power BI dashboards.

Usage:

- Compare past vs. current air quality.
 - Replay a week of traffic data to simulate policy impacts.
-

4. Interoperability with External Systems (GIS, Transportation, Utilities)

- Use Azure Data Factory to integrate batch data from:
 - GIS systems (via GeoJSON/KML)
 - SCADA/utility backends
 - Transportation APIs (GTFS/GTFS-RT feeds)
 - Convert external schemas into twin-compatible formats using:
 - Data mapping pipelines
 - Custom adapters
 - Microsoft Graph Connectors (for enterprise data)
-

5. Contextual Data Presentation

- Power BI with Azure Digital Twins connector: Visualizes live twin states alongside historical trends.

- Custom dashboards (React/Mapbox/Azure Maps):
 - Real-time overlays of traffic, pollution, occupancy
 - “What-if” scenario simulations (e.g., blackout, road closures)

6. Harmonization via Knowledge Graph Approach

Azure Digital Twins functions as a contextual layer, allowing:

- Cross-domain linking: e.g., a school’s indoor air quality linked to nearby traffic congestion
- Unified queries using Azure Data Explorer (ADX) or GraphQL over twins
- Reasoning across domains using AI/ML in Azure Machine Learning

In the context of Microsoft Azure Digital Twins, enhancing real-time urban management and decision-making involves integrating AI-driven analytics, event-based processing, and simulation tools that leverage the live graph of interconnected digital entities. Below is a technical breakdown of tools and models that empower city leaders to make informed, proactive, and time-sensitive decisions:

1. Azure Machine Learning for Predictive & Prescriptive Analytics

Azure ML can be trained on historical and real-time data from digital twins to provide:

- ♦ Predictive Models
 - Traffic flow prediction (based on weather, events, historical congestion)
 - Energy consumption forecasting (by district, building type, time of day)
 - Public health anomaly detection (e.g., sudden rise in air pollutants)
- ♦ Prescriptive Models
 - Recommending dynamic rerouting in transportation networks
 - Suggesting load balancing for energy grids
 - Triggering automated HVAC adjustments for sustainability

Integration: Use Azure Functions or Logic Apps to trigger ML inferencing workflows as events flow through Event Grid from Digital Twins.

2. Azure Stream Analytics for Real-Time Event Processing

Real-time telemetry from urban systems is streamed into Azure Stream Analytics, where you can:

- Define SQL-like rules to detect anomalies or threshold breaches
- Output insights to dashboards, alerting systems, or update digital twins

→ This rule could trigger a heatwave alert for vulnerable populations or adjust smart shading systems in city zones.

3. Cognitive Services for Contextual Understanding

- Computer Vision: Analyze CCTV feeds for crowd density, traffic accidents
- Speech/Text Analytics: Analyze citizen helpline calls or social media for incident detection
- Language Understanding (LUIS): Help voice-enabled command centers understand natural language inputs

→ These can feed non-IoT insights into the Digital Twin graph (e.g., tagging a zone as “crowded” or “accident-prone”).

4. Simulation & Scenario Modeling with Azure Synapse + ADT

Use Azure Synapse Analytics + Time Series Insights + the ADT graph to simulate urban scenarios:

- Evacuation routing during emergencies
- Infrastructure stress testing (e.g., power grid under heatwave)
- Public transport load balancing if a major road is closed

You can run “what-if” simulations and visualize the results on a map-based dashboard (e.g., Azure Maps or Power BI with Azure Digital Twins connector).



5. Decision Dashboards with Real-Time Insights

Power BI + Azure Digital Twins

- Live twin telemetry
- ML prediction overlays
- Interactive filtering by zone, time, or system type

Custom React Dashboards with Azure Maps

- AI insights overlaid on geospatial layers (traffic, pollution, infrastructure)Real-time control triggers (e.g., reroute traffic, change light patterns)



6. Event-Driven Automation for Proactive Response

Use Azure Logic Apps or Durable Functions to define workflows that auto-respond to real-time conditions:

- Close digital signage in a flooded subway entrance
Alert utility teams when pressure drops in water lines
- Notify emergency services when vision AI detects a vehicle collision

These systems turn AI-driven insights into automated, proactive actions.



GOAL:

Enable city leaders, planners, and public safety officials to interpret, interact with, and act upon data without needing technical expertise in IoT, machine learning, or programming.



1. Digital Twin Graph + Azure Maps = Intuitive Spatial Visualization



What Happens:

The Azure Digital Twins platform models the entire urban environment as a graph of entities and relationships—buildings, intersections, utilities, sensors, people, and more.



Visualization Layer:

- Overlay the twin graph on Azure Maps or Power BI, showing:
 - Real-time heatmaps (e.g., noise, pollution, congestion)
 - Dynamic icons (e.g., malfunctioning sensors, water leak zones)
 - Geofenced alerts and color-coded zones (e.g., red for danger, green for resolved)




Benefit for Officials: They see city-wide patterns at a glance, with clickable regions that show details like status, ML-driven predictions, and action buttons.



2. Power BI + Azure Digital Twins Connector = Executive Dashboards

Features:

- Low-code interface with drag-and-drop visual tools
- Real-time dashboards connected to ADT graph and telemetry
- Embedded AI Insights (e.g., forecasting cards, anomaly detection visual cues)

 Use Case: A city health officer monitors asthma-related emergency calls and sees predictive surges in specific neighborhoods due to rising particulate matter—without needing to know SQL or data science.

3. Conversational Interfaces with Azure OpenAI + ADT

 Benefit: Officials don't need to explore dashboards—they can talk to the data.


4. Mixed Reality + 3D Visualization (HoloLens, Unity, Babylon.js)

Advanced UX:

- Full 3D models of city infrastructure mapped to the twin graph
- Real-time sensor overlays in AR/VR (e.g., water pressure, traffic)
- Scenario playback: “What happened in the flood zone 10 minutes ago?”

Microsoft Tools:

- Azure Remote Rendering for high-fidelity city models
- Babylon.js + Azure Digital Twins SDK for browser-based 3D views

 Example: Urban planners walk through a virtual reconstruction of traffic flow before and after a new bike lane proposal.

5. Personalized Alerting & Role-Based Dashboards

- Role-based access control (RBAC) filters what each official sees
- Mayors get high-level KPI visualizations
- Fire chiefs get incident heatmaps and resource locations
- Utility heads get system diagnostics

When using Microsoft Azure Digital Twins in smart urban environments, ensuring data privacy, security, and transparency is a top priority—especially as cities handle sensitive information across IoT, transportation, utilities, and citizen data.

1. Granular Access Control with Azure Role-Based Access Control (RBAC)

- Use RBAC to assign fine-grained permissions to specific users or systems.
- Twin-level and property-level access:

- Example: A utility provider can access electrical grid twins but not residential HVAC twins.
- Supports Active Directory integration for user identity verification.

✓ Privacy Benefit: Only authorized stakeholders access specific slices of the twin graph.

2. Data Partitioning and Isolation with Digital Twin Models & Instances

- Segregate sensitive vs. public data in your twin graph structure.
 - Example: Health-related environmental twins are separated from public traffic flow models.
- Implement virtual network isolation using Azure Private Link to restrict exposure.

✓ Security Benefit: Limits attack surfaces and enforces clear data boundaries.

3. Data Lineage and Transparency via Twin Graph Querying

- Use the ADT graph and Digital Twin Definition Language (DTDLD) to track:
 - Source of data (sensor ID, timestamp, device location)
 - History of interactions (e.g., who accessed or modified twin state)

✓ Transparency Benefit: City leaders and citizens can see where data came from and how it was used.

4. Privacy-Preserving Analytics Using Azure Confidential Computing + Edge AI

- Deploy AI models at the Edge (IoT Edge, Edge runtime) to process sensitive data locally before sharing aggregated or anonymized results.
 - Example: Smart cameras compute foot traffic patterns without uploading raw footage.
- Use Azure Confidential VMs or Enclaves for sensitive data processing in memory-encrypted environments.

✓ Privacy Innovation: Reduces central exposure of raw, identifiable data.

5. Encryption In Transit and At Rest

- All data flowing into or out of Azure Digital Twins is protected using TLS 1.2+
- Stored telemetry, models, and twin data are encrypted using Azure-managed keys or customer-managed keys (CMKs)

✓ Security Foundation: Meets compliance standards (ISO 27001, SOC 2, GDPR)

3. Potential Impact

Faster Response Times: Real-time situational awareness and geospatial alerts enable quicker mobilization of emergency services. Reduced Casualties and Property Damage: Predictive maintenance and hazard detection reduce incident occurrence and improve preparedness. Cross-Agency Coordination: Unified data layer supports joint operations between fire, police, healthcare, and public works. Data-Driven Planning: Insights support pre-emptive strategies for festivals, traffic reroutes, protests, or extreme weather.

4. Team Experience and Capabilities

Team

Team Experience and Capabilities

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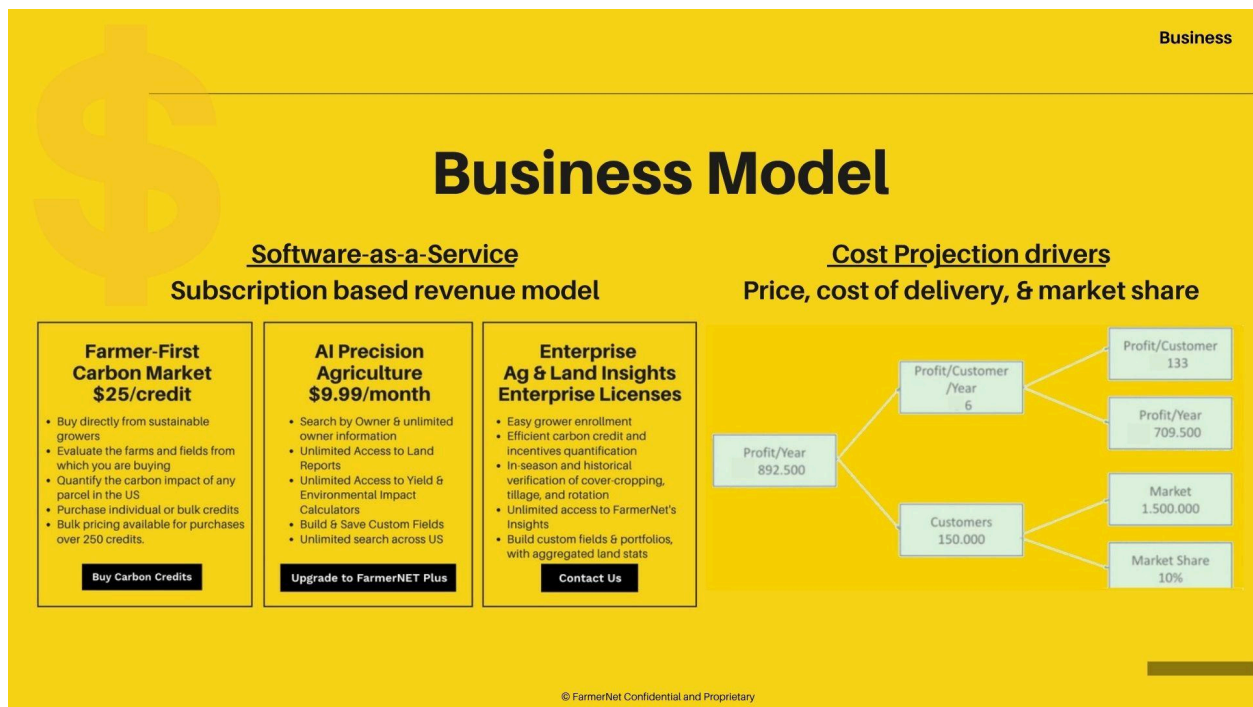
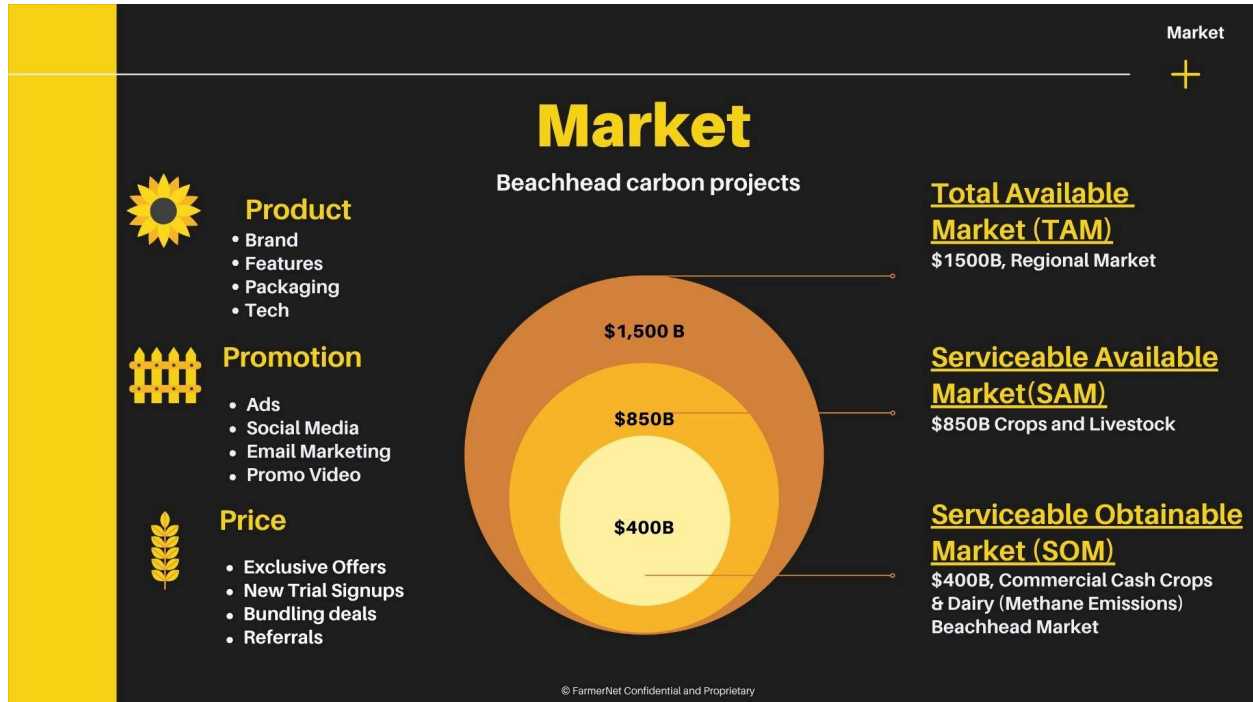




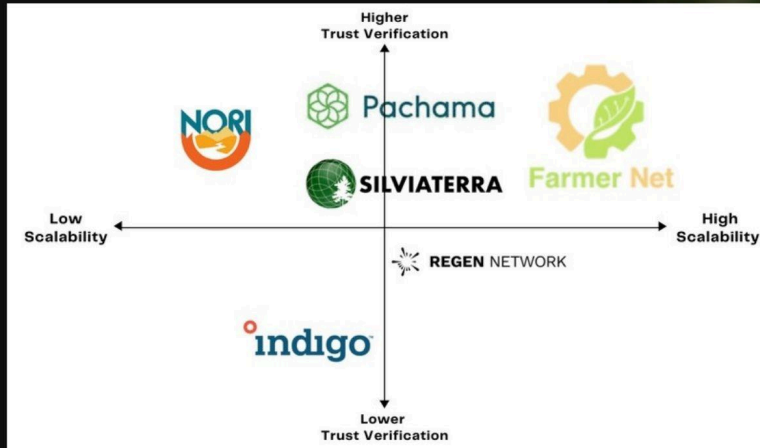



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5. Expected Outcomes



Competitive Analysis



FarmerNet's Advantages

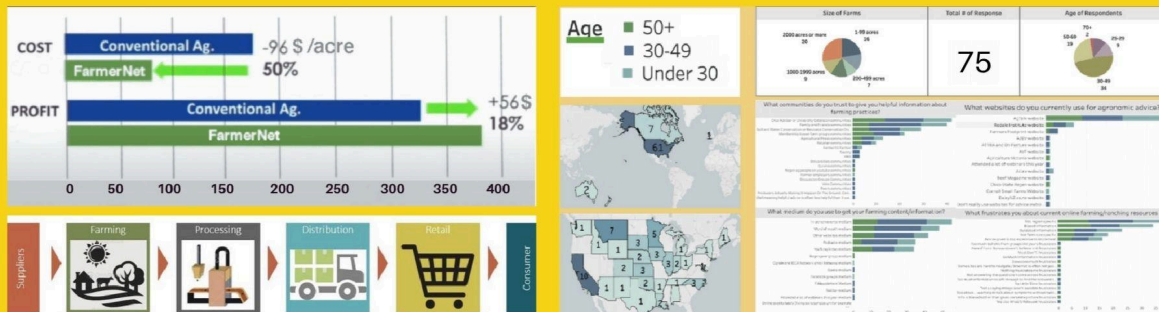
- Highly scalable and modular technology
- Provisional patents and white paper
- Low cost installation, operations, and maintenance
- Sustainable and environmentally friendly

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Customer Value Proposition

Customer Value Proposition

Reduces average measurement, reporting, and verification (MRV) software cost 50% cheaper with 18% greater profitability using AI POWERED TECHNOLOGY



Mean total crop production is projected to decline by 18% under 2 °C of global warming <https://www.pnas.org/content/115/26/6644>

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*Customer Discovery Interviews

Funding Plans

Major Corporate Funds: Toyota Foundation Toyota Motor Philippines Foundation Caterpillar Foundation Swiss Re Foundation Mitsubishi Corp. Fund for Europe & Africa Metrobank Foundation Tata Trusts Quadrature Capital Foundation ENGIE Foundation Microsoft Innovation Fund Citi Impact Fund Godrej Foundation Intuit (partnered with Project Drawdown)

List of Climate Funds: Grantham Foundation Gates Foundation Good Energies Foundation Eric Schmidt Family Foundation Nature Conservancy World Wildlife Fund DOEN Foundation Turing Foundation Draper Richards Kaplan Foundation Irwin Andrew Porter Foundation Segal Family Foundation Thousand Currents Band Foundation Erbacher Foundation Christensen Fund Ashden Trust Arayau Foundation Swift Foundation United Nations Foundation Sall Family Foundation International Foundation Global Conservation Fund (from Conservation International) Bohemian Fund Tamalpais Trust American Jewish World Service Dalia Philanthropies Charles Stewart Mott Fdn Overbrook Foundation Satter Foundation Porticus Compton Foundation Mulago Foundation Osprey Foundation Bill Clarke Andermatt Foundation WK Kellogg Foundation Robert Wood Johnson Foundation Conservation International Rainforest Action Network Natural Resources Defense Council Sierra Club/ Sierra Club Foundation Wildlife Conservation Society Oceana Audubon Society Jane Goodall Institute Greenpeace Fund Walton Family Foundation Mariela Foundation S.D. Bechtel, Jr. Foundation Ford Foundation Rockefeller Brothers Fund (RBF) Oak Foundation Doris Duke Fdn Packard Fdn High Tide Foundation Frederick Mulder Foundation Cargill Philanthropies Children's Investment Fund Foundation European Climate Foundation Aviva Siftung KR Foundation Paul Allen Family Foundation Bloomberg Philanthropies JM Kaplan Fund Gordon & Betty Moore Foundation MacArthur Fdn Sea Change Foundation Energy Foundation Rockefeller Foundation Kresge Foundation Grawold Family Fund Barr Foundation Bullitt Foundation Helsing-Simons Foundation Joyce Foundation JPB Foundation Pisces Foundation Turner Foundation Yellow Chair Foundation Hewlett Foundation ClimateWorks Pew Charitable Trusts IKEA Foundation Dutch Postcode Lottery V. Kann Rasmussen Foundation dIcaprio Foundation Earth Alliance

List of SDG/ESG Impact Investors: Acumen Good Energies Oikocredit Bamboo Capital Partners Sorenson Impact Village Capital New Island Capital Root Capital Lowercarbon capital Obvious Ventures Beyond Capital City Light Unitus Renewal Funds Invested Development DBL Partners (Nancy Pfund) Allotrope Partners Emerging Africa Infrastructure Fund Climate Finance Partnership Open Road Alliance Open Road Ventures Prime Coalition Breakthrough Energy Ventures Trifidos Bank Bamboo Finance Engle Impact Prelude Ventures Generation Investment Management (Blood & Gore) AgDevCo KKR Actis Goldman Sachs Impact Blackrock Impact European Investment Bank EIB Trenewable Forestry & Climate Fund EIB Land Degradation Neutrality Fund International Finance Corporation (IFC) International Development Association Mindanao Trust Fund Asian Development Bank African Development Bank (AfDB) Harvest Returns Althelia World Bank Carbon Initiative for Development (Ci-Dev) Conservation International - Carbon Fund Nordic Environment Finance Co. (NEFCO) Private Financing Advisory Network (PFAN) GET.invest Tonic network Global Impact Investing Network (GIIN) Social Venture Circle Angel List Gust EIT Climate KIC

Funding

Year	Funding Source	Amount	Notes
2020	Toyota Foundation	\$1,000,000	Toyota Foundation
2020	Toyota Motor Philippines Foundation	\$1,000,000	Toyota Motor Philippines Foundation
2020	Caterpillar Foundation	\$1,000,000	Caterpillar Foundation
2020	Swiss Re Foundation	\$1,000,000	Swiss Re Foundation
2020	Mitsubishi Corp. Fund for Europe & Africa	\$1,000,000	Mitsubishi Corp. Fund for Europe & Africa
2020	Metrobank Foundation	\$1,000,000	Metrobank Foundation
2020	Tata Trusts	\$1,000,000	Tata Trusts
2020	Quadrature Capital Foundation	\$1,000,000	Quadrature Capital Foundation
2020	ENGIE Foundation	\$1,000,000	ENGIE Foundation
2020	Microsoft Innovation Fund	\$1,000,000	Microsoft Innovation Fund
2020	Citi Impact Fund	\$1,000,000	Citi Impact Fund
2020	Godrej Foundation	\$1,000,000	Godrej Foundation
2020	Intuit	\$1,000,000	Intuit
2020	Grantham Foundation	\$1,000,000	Grantham Foundation
2020	Gates Foundation	\$1,000,000	Gates Foundation
2020	Good Energies Foundation	\$1,000,000	Good Energies Foundation
2020	Eric Schmidt Family Foundation	\$1,000,000	Eric Schmidt Family Foundation
2020	Nature Conservancy	\$1,000,000	Nature Conservancy
2020	World Wildlife Fund	\$1,000,000	World Wildlife Fund
2020	DOEN Foundation	\$1,000,000	DOEN Foundation
2020	Turing Foundation	\$1,000,000	Turing Foundation
2020	Draper Richards Kaplan Foundation	\$1,000,000	Draper Richards Kaplan Foundation
2020	Irwin Andrew Porter Foundation	\$1,000,000	Irwin Andrew Porter Foundation
2020	Segal Family Foundation	\$1,000,000	Segal Family Foundation
2020	Thousand Currents	\$1,000,000	Thousand Currents
2020	Band Foundation	\$1,000,000	Band Foundation
2020	Erbacher Foundation	\$1,000,000	Erbacher Foundation
2020	Christensen Fund	\$1,000,000	Christensen Fund
2020	Ashden Trust	\$1,000,000	Ashden Trust
2020	Arayau Foundation	\$1,000,000	Arayau Foundation
2020	Swift Foundation	\$1,000,000	Swift Foundation
2020	United Nations Foundation	\$1,000,000	United Nations Foundation
2020	Sall Family Foundation	\$1,000,000	Sall Family Foundation
2020	International Foundation	\$1,000,000	International Foundation
2020	Global Conservation Fund	\$1,000,000	Global Conservation Fund
2020	Bohemian Fund	\$1,000,000	Bohemian Fund
2020	Tamalpais Trust	\$1,000,000	Tamalpais Trust
2020	American Jewish World Service	\$1,000,000	American Jewish World Service
2020	Dalia Philanthropies	\$1,000,000	Dalia Philanthropies
2020	Charles Stewart Mott Fdn	\$1,000,000	Charles Stewart Mott Fdn
2020	Overbrook Foundation	\$1,000,000	Overbrook Foundation
2020	Satter Foundation	\$1,000,000	Satter Foundation
2020	Porticus Compton Foundation	\$1,000,000	Porticus Compton Foundation
2020	Mulago Foundation	\$1,000,000	Mulago Foundation
2020	Osprey Foundation	\$1,000,000	Osprey Foundation
2020	Bill Clarke Andermatt Foundation	\$1,000,000	Bill Clarke Andermatt Foundation
2020	WK Kellogg Foundation	\$1,000,000	WK Kellogg Foundation
2020	Robert Wood Johnson Foundation	\$1,000,000	Robert Wood Johnson Foundation
2020	Conservation International	\$1,000,000	Conservation International
2020	Rainforest Action Network	\$1,000,000	Rainforest Action Network
2020	Natural Resources Defense Council	\$1,000,000	Natural Resources Defense Council
2020	Sierra Club/ Sierra Club Foundation	\$1,000,000	Sierra Club/ Sierra Club Foundation
2020	Wildlife Conservation Society	\$1,000,000	Wildlife Conservation Society
2020	Oceana	\$1,000,000	Oceana
2020	Audubon Society	\$1,000,000	Audubon Society
2020	Jane Goodall Institute	\$1,000,000	Jane Goodall Institute
2020	Greenpeace Fund	\$1,000,000	Greenpeace Fund
2020	Walton Family Foundation	\$1,000,000	Walton Family Foundation
2020	Mariela Foundation	\$1,000,000	Mariela Foundation
2020	S.D. Bechtel, Jr. Foundation	\$1,000,000	S.D. Bechtel, Jr. Foundation
2020	Ford Foundation	\$1,000,000	Ford Foundation
2020	Rockefeller Brothers Fund	\$1,000,000	Rockefeller Brothers Fund
2020	RBF	\$1,000,000	RBF
2020	Oak Foundation	\$1,000,000	Oak Foundation
2020	Doris Duke Fdn	\$1,000,000	Doris Duke Fdn
2020	Packard Fdn	\$1,000,000	Packard Fdn
2020	High Tide Foundation	\$1,000,000	High Tide Foundation
2020	Frederick Mulder Foundation	\$1,000,000	Frederick Mulder Foundation
2020	Cargill Philanthropies	\$1,000,000	Cargill Philanthropies
2020	Children's Investment Fund	\$1,000,000	Children's Investment Fund
2020	European Climate Foundation	\$1,000,000	European Climate Foundation
2020	Aviva Siftung	\$1,000,000	Aviva Siftung
2020	KR Foundation	\$1,000,000	KR Foundation
2020	Paul Allen Family Foundation	\$1,000,000	Paul Allen Family Foundation
2020	Bloomberg Philanthropies	\$1,000,000	Bloomberg Philanthropies
2020	JM Kaplan Fund	\$1,000,000	JM Kaplan Fund
2020	Gordon & Betty Moore Foundation	\$1,000,000	Gordon & Betty Moore Foundation
2020	MacArthur Fdn	\$1,000,000	MacArthur Fdn
2020	Sea Change Foundation	\$1,000,000	Sea Change Foundation
2020	Energy Foundation	\$1,000,000	Energy Foundation
2020	Rockefeller Foundation	\$1,000,000	Rockefeller Foundation
2020	Kresge Foundation	\$1,000,000	Kresge Foundation
2020	Grawold Family Fund	\$1,000,000	Grawold Family Fund
2020	Barr Foundation	\$1,000,000	Barr Foundation
2020	Bullitt Foundation	\$1,000,000	Bullitt Foundation
2020	Helsing-Simons Foundation	\$1,000,000	Helsing-Simons Foundation
2020	Joyce Foundation	\$1,000,000	Joyce Foundation
2020	JPB Foundation	\$1,000,000	JPB Foundation
2020	Pisces Foundation	\$1,000,000	Pisces Foundation
2020	Turner Foundation	\$1,000,000	Turner Foundation
2020	Yellow Chair Foundation	\$1,000,000	Yellow Chair Foundation
2020	Hewlett Foundation	\$1,000,000	Hewlett Foundation
2020	ClimateWorks	\$1,000,000	ClimateWorks
2020	Pew Charitable Trusts	\$1,000,000	Pew Charitable Trusts
2020	IKEA Foundation	\$1,000,000	IKEA Foundation
2020	Dutch Postcode Lottery	\$1,000,000	Dutch Postcode Lottery
2020	V. Kann Rasmussen Foundation	\$1,000,000	V. Kann Rasmussen Foundation
2020	dIcaprio Foundation	\$1,000,000	dIcaprio Foundation
2020	Earth Alliance	\$1,000,000	Earth Alliance

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Funding

Next Steps

1. Business expansion by increasing sales by 10% for business-to-business or direct-to-customer sales, by tracking new customers, growth in new markets, and overall growth in current markets to acquire at least ten new clients with the \$20,000 prize.
2. Business Operations by allocating funding towards costs like phone, internet, website hosting, and professional emails.
3. Expand the team and technical leadership by hiring more people or moving part-time employees to full-time from our current team of 5 members.
4. Sales and marketing by asking current clients for referrals, and launching a social media marketing campaign to increase our annual visitors supporting STEM education

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6. Conclusion

a. Our solution uses **Azure Digital Twins** integrated with **real-time IoT data** to create a live, interactive model of city infrastructure—starting with smart bus stops. By connecting **Azure IoT Hub**, **Event Grid**, and **Azure Functions**, sensor data like air quality and temperature is instantly visualized and updated in the digital twin. This architecture enables **real-time monitoring**, **predictive insights**, and **scalable integration** across smart city systems. Its strength lies in **low-latency data flow**, **cloud-native scalability**, and **visual clarity**, empowering cities to make data-driven decisions for public services and sustainability