ViperNetworks

# apollo
SMART LIGHTS

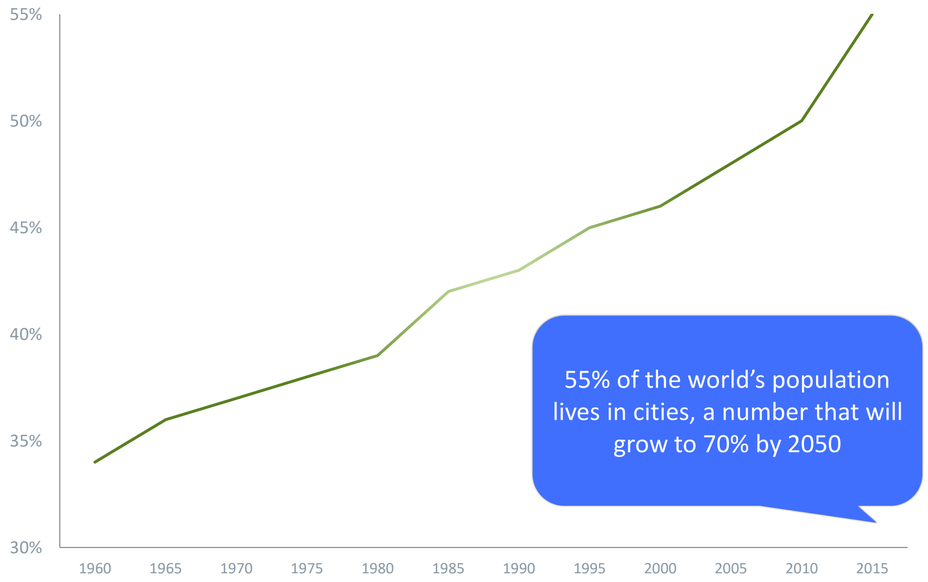
**Smart metropolitan infrastructure**

**revolutionizing the future of cities**

# The challenge

## Rapidly rising urban population…

GLOBAL URBAN POPULATION (% OF TOTAL)




*Source: BOML Primer on 21st Century Cities*

## …with cities reaching a tipping point on many issues

**Inadequate infrastructure** ($78T of investment needed over 10 years) and competition for resources

**Environmental challenges** (75% of natural resource use and emissions)

**Multiple inefficiencies & rising cost pressures** (lack of data, analytics, innovation and predictive ability)

**Crime & security** (a top concern for citizens))

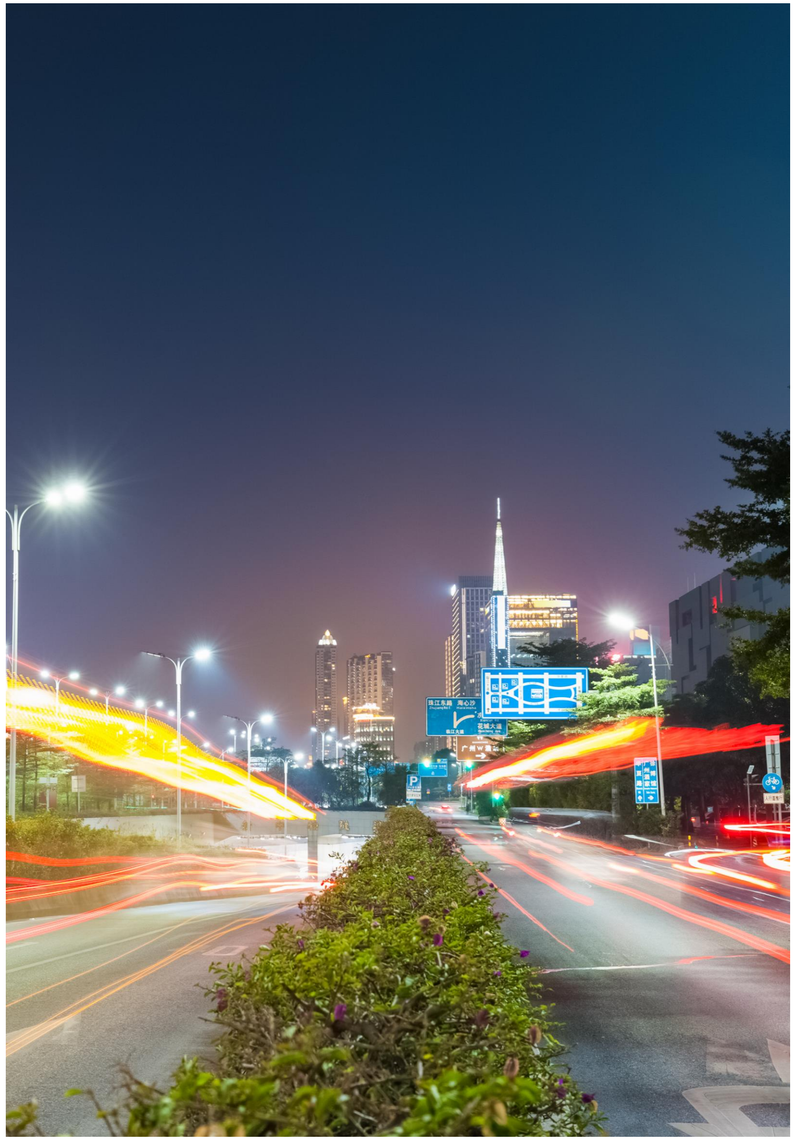
apollo
SMART LIGHTS

OUR SOLUTION

# Introducing Smart Cities projects

**Viper Networks & Apollo Smart Lights** are launching Smart City Projects: **intelligent lighting solution** that offers municipalities the ability to control and adjust street lighting while enabling them to monitor the streets, enhance security, manage traffic – all while radically cutting costs, reducing environmental footprint and unlocking new revenue opportunities.

apollo
SMART LIGHTS



# Smart City Project

**Powerful smart city infrastructure with intelligent streetlights and a wireless communications network**

**.01** **Expandable communication network, sensors, and backbone hardware/software system** flexibly integrates and operates a wide array of technologies and services

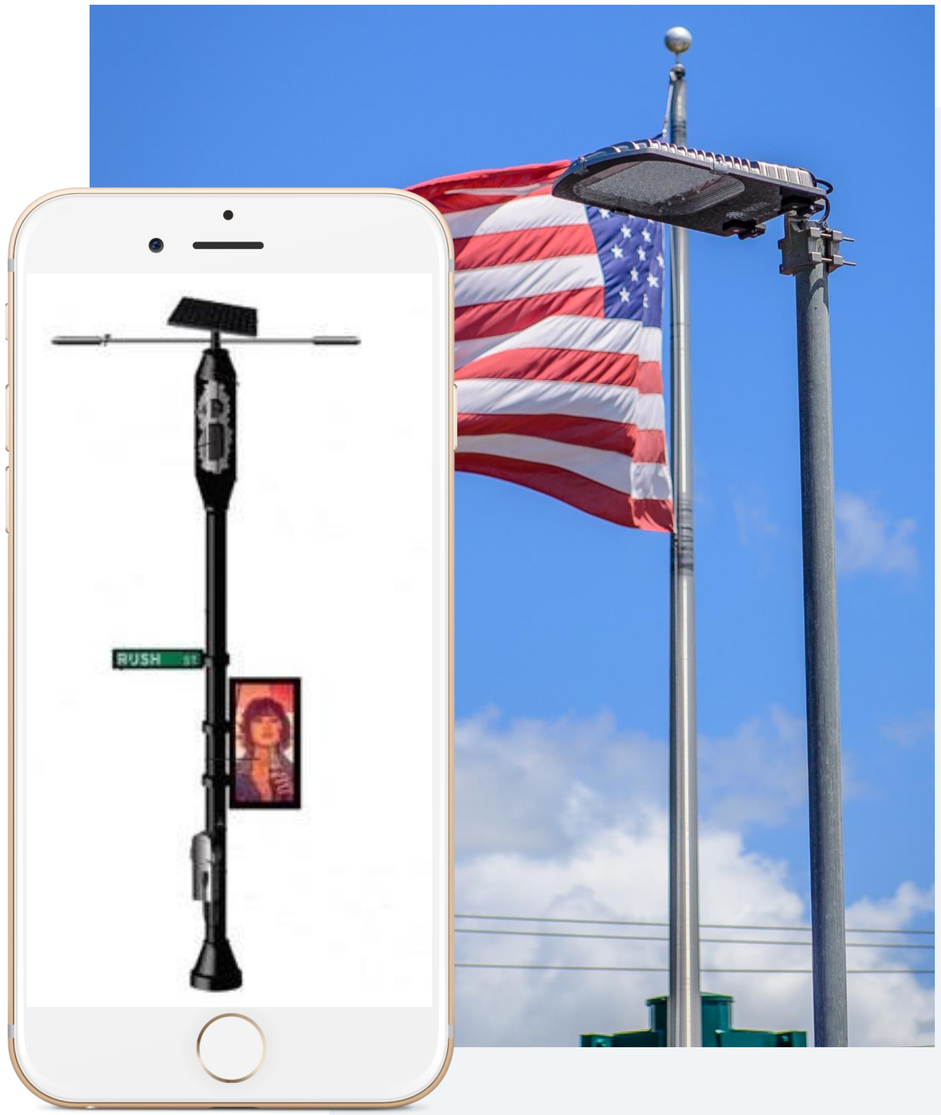
**.02** **Enables real-time monitoring and recording** of street cameras, smart parking, water, gas, and electric meters, lowering city operating costs and revealing cost saving opportunities

**.03** **Highly efficient LED street lighting** that adjusts to weather conditions and the status of the grid lowers electric utility costs while improving nighttime safety and visibility

**.04** **420p, always-on camera system enhances public** safety and gives police a powerful tool expanding coverage and a historical resource when safety events occur

**.05** Camera system integrates with traffic light controllers to **enhance traffic flow efficiency**, enabling motorists to arrive quickly and safely to their destinations

apollo
SMART LIGHTS




THE PRODUCT

# Smart City in action: Apollo Smart Pole

**Intelligent, cost effective, remotely managed solution** serving as a vital digital hub for smart cities

- ✓ Intelligent LED lighting
- ✓ Hi-Speed WiFi
- ✓ High Resolution Concealed Cameras
- ✓ Emergency (E911) PSAP interface
- ✓ Solar panels
- ✓ Weather and air quality monitoring
- ✓ Car and pedestrian counting sensors
- ✓ Electric Vehicle Charging Stations
- ✓ Digital advertising panels & digital street signs

apollo
SMART LIGHTS

# Unique competitive advantage

STATE-OF-The-ART SMART SOLUTION THAT DELIVERS INSTANT OPERATIONAL BENEFITS & COST SAVINGS, INCREASES EFFICIENCY AND REDUCES ENVIRONMENTAL FOOTPRINT

Provides **valuable analytics** to enhance security, assist police force, monitor traffic, increase response time and push the hot spot areas out of the city/state

**Attractive business model** for cities delivering bottom line savings while also sharing revenues

Agile platform that can be fully adapted to clients' needs, developing **new capabilities and IP**

Unlike other solutions on the market Apollo does not simply provide a standalone product but offers **full integration** incorporating technology into the city's local ecosystem

apollo
SMART LIGHTS

**We love the Apollo LED lights.**
**The hidden camera allows us to monitor access without being noticed and I can even view the live video feed from my cell phone.**

BOB LASHENKA
*Board Member, Banyan Woods Home Owners Association*

**We chose to work with Apollo Metro because they have a light that is far superior to anything else that is currently on market.**

JOHN W. MILLER
*Project Manager, Signal & Lighting Operations, Collier County*

# Huge addressable market

SMART CITY MARKET VALUE

**$1.3T**

expected by 2020, growing to

$3.5T by mid 2020es

SMART INFRASTRUCTURE MARKET VALUE

**$712B**

smart ICT infrastructure

market by 2020E

SMART POLE MARKET VALUE

**$16.7B**

by 2023, growing at CAGR

of 20% (2017-2023)

*Source: Technavio, McKinsey, BOML Primer on 21st Century Cities*

apollo
SMART LIGHTS

# Why now:

# Perfect momentum for Apollo technology

KEY MARKET DRIVERS

- Need for energy-efficient pole lighting systems that deliver better performance at lower cost
- Increasing government initiatives for smart cities
- Advantage offered by smart poles in preventing traffic jams and accidents

BEGINNING OF THE ADOPTION HYPE

**91%** of government respondents view Smart City initiatives as transformational with the potential for long-term positive impacts on cities worldwide

*Source: Morgan Stanley Primer on 21st Century Cities*

apollo SMART LIGHTS

# ”Smart Cities - A $1.5 Trillion Market Opportunity.”

FROST & SULLIVAN

”To achieve and sustain municipalities must pay closer attention to the way they manage resources and infrastructure.”
McKinsey Global Institute

MCKINSEY GLOBAL institute

”Smart Cities use 21st century disruptive technologies to meet demographic, economic, environmental, infrastructure and social challenges.”

BANK OF AMERICA MERYLL LYNCH

apollo
SMART LIGHTS

# Chicago 3P* Project

**MoU signed with a consortium or 21 cities in the suburb of Chicago (Illinois) establishing a Private Public Partnership to build and operate the smart city project on a revenue-sharing scheme, with a subsequent transfer of the project to public sector in 20 years**

**Pilot of smart light technology in one of the partner cities (Bedford Park), showcasing 8 and then 10 smart poles (smart wireless control, camera and wireless 4G interconnection, digital advertising panels, smart lights, WiFi, fiber optics interconnection etc**

**100 smart poles**
by mid-year 2018

**500 smart poles**
by Q1'19

**1000 -1500 smart poles**
to complete about 2000 total poles by Q4'19

1st Phase

2nd Phase

3rd Phase

*Note: 3P – Public Private Partnership*

apollo
SMART LIGHTS

# Business model

**Infrastructure-as-a-service to maximize the revenues while providing an attractive business case for municipalities**

PROJECT STRUCTURE

## 3P

Pure 3P (Public Private Partnership) project with all equipment and services provided by Viper and profit shared according to each service

CONTRACT TERM

## 20

20-year lease, with the assets being on Apollo books with the possibility of being used as a collateral for any loan amount

REVENUE PER POLE

## $5000

with the revenue shared 40/60 for traffic violations, 25/75 at start for advertising and set rate paid by the city for surveillance

apollo
SMART LIGHTS

# Enterprise-class security

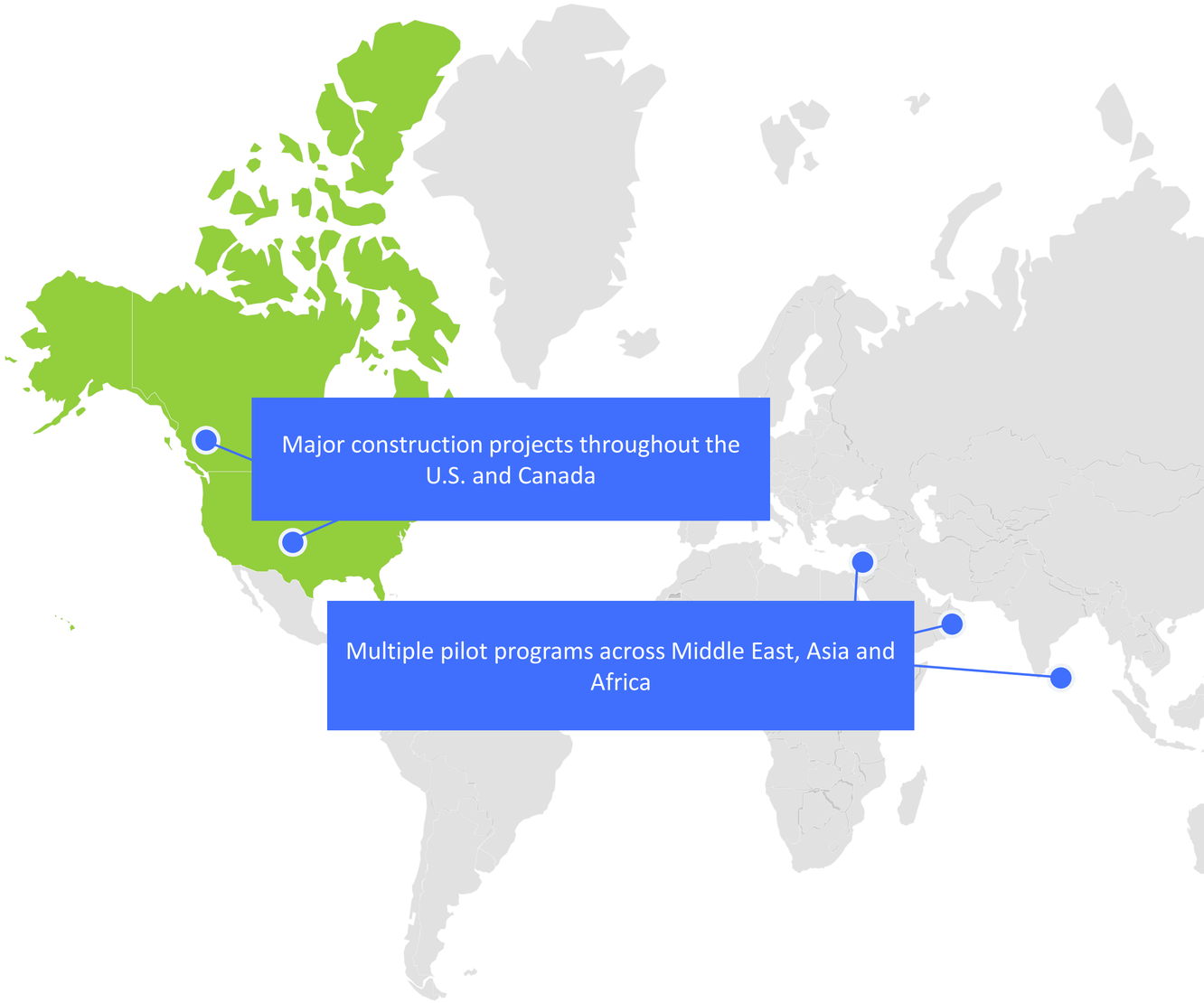
**Cloud-based platform provided by Hitachi, world leader in smart city-wide transportation systems**

- ✓ Designed with **security as core tenet** allowing ease of user experience while enforcement of customer security policies
- ✓ Stringent security measures throughout every element of the network and latest standard security technologies and practices to help ensure **end-to-end protection**
- ✓ **Stringent authentication** and authorization measures
- ✓ **Tamper detection and resistance technologies** to reduce the risk of unauthorized access to even a single endpoint

apollo
SMART LIGHTS

# Strong traction to date

- ✓ Developed a portfolio of **superior turnkey LED lighting & smart city solutions** and established multiple partnerships
- ✓ **Signed a Memorandum of Understanding with a consortium of 21 cities in the suburb of Chicago** in the state of Illinois that agreed to work as Private Public Partnership (3P) to build and operate the smart city project
- ✓ **Acquired GSI (Global Services International, Energy Efficiency Solution Company utilizing state-of-the-art Solid State LED Lighting Systems and Control Sensors)** with a total value of the collective projects totaling approximately $100 million annually




apollo
SMART LIGHTS

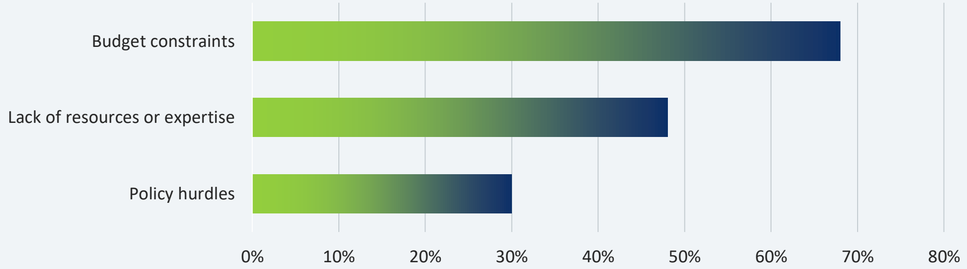
# Perfectly fit to lead the market

STRONG PRODUCT-MARKET FIT WITH APOLLO ADDRESSING THE KEY CITIES NEEDS & MITIGATING THE CORE CONSTRAINTS

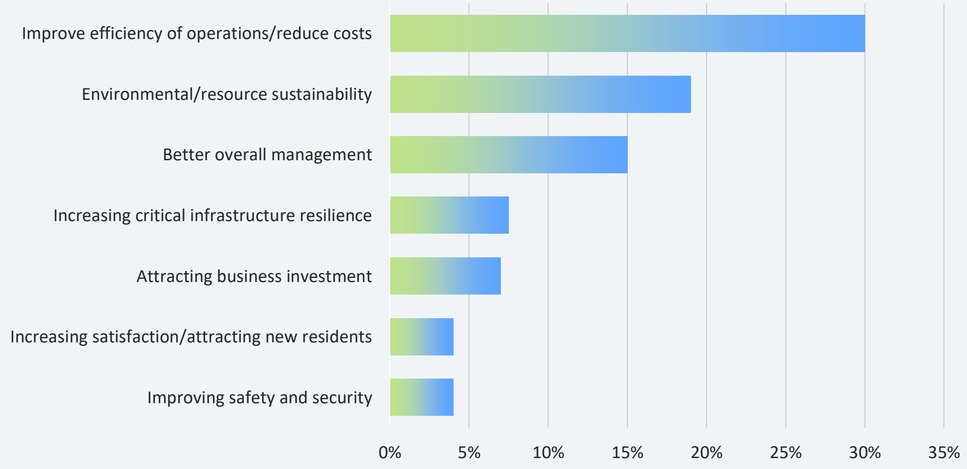
- ✓ **Addressing cities' budget constraints** with creative financing and public-private partnership model that offers new revenue streams for the city
- ✓ **Mitigating the concern for lack of expertise & resources** by providing a full suite solution with support and integration, requiring minimum effort on the city's side
- ✓ **Delivers instant savings** and increases the efficiency, satisfying the major core need of governors
- ✓ **Helps to build better data, analytics and predictive ability**, increasing city's competitiveness, ability to attract business investment and new citizen

apollo SMART LIGHTS

**What are the top three hurdles that must be overcome to enable city/community systems to be managed in a smarter, more integrated way?**

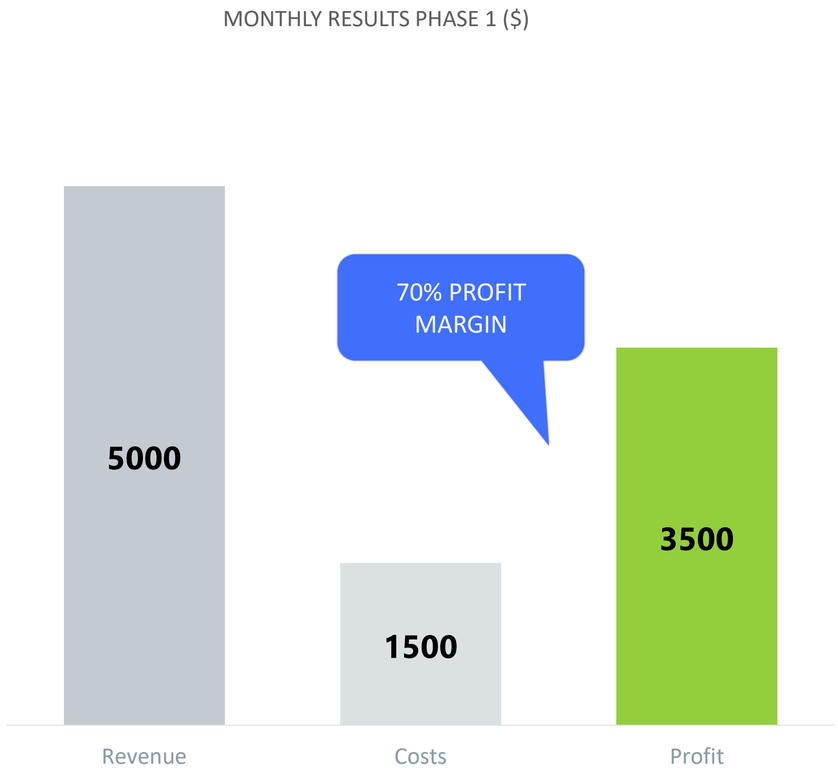



**What do you see as the primary driver for cities to implement smart cities initiatives?**



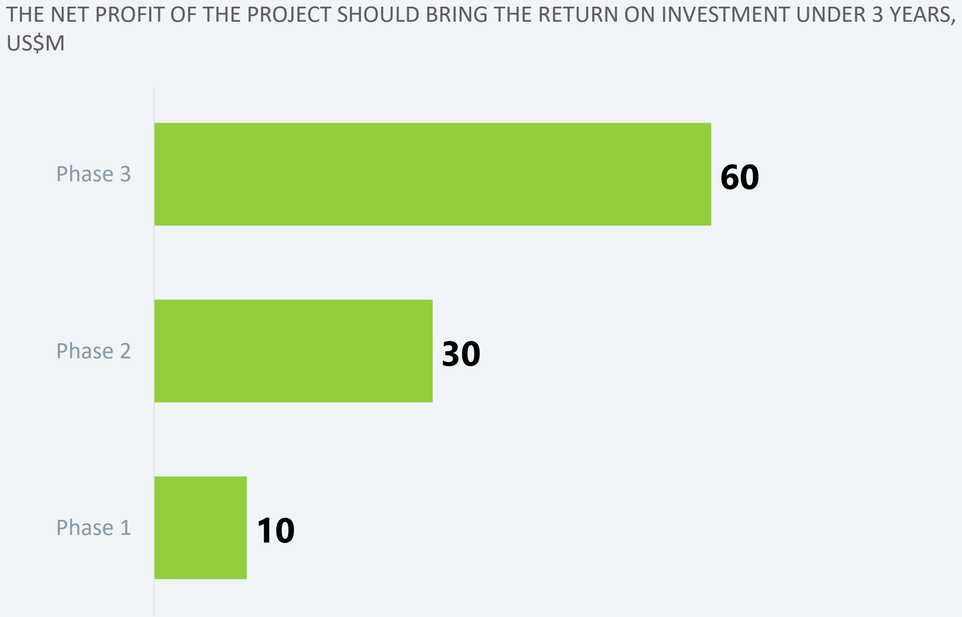

*Source: BOML Primer on 21st Century Cities*

# Financial outlook




# The ask & return

**Looking for $10M funding to finance Phase 1 of the project with ROI delivered in <3 years**




apollo SMART LIGHTS

# The team

## Farid Shouekani

GENERAL MANAGER

**15+ years of experience in corporate management, engineering and software development of communications systems.** For the past decade was working with Viper networks building international network and managing several national and international offices for the company. In the past developed worked at Robotron playing a significant role in attracting investment to the company, cut cost, and sustain operations.

## Tom Otrok, PH.D.

PRESIDENT OF INTL. OPERATION

**Telecommunications industry veteran recognized as one of the industry's most valued network solutions integrators in the world.** In the past key Member of Technical Staff for AT&T Bell Laboratories (a Lucent Technologies predecessor company) and Executive Director of Operations (Middle East) leading a team of over 1,000 staff members .

## Ali Al-Qaraghuli, PH.D.

DIRECTOR OF ENGINEERING

**30+ years of experience in renewable energy and energy efficiency applications.** Consultant to many multiple prominent organizations including U.S. Department of State and United Nations. In the past principal engineer at the National Renewable Energy Laboratory and director of three Research Centers in the Middle East.

## Housam HajYousif

CHIEF TECHNOLOGY OFFICER

Former Chief Integrator of Energy Related Technologies at GSI. In the past served as Chief Technology Officer in Indonesia for GSI, overseeing the development of a Network and Business plan that would provide telephone service for 70 million lines. As part of his position Housam managed organizations of more than 300 personnel at the cost of $250 million dollars that provided services for 500 thousand subscribers.

## Bennett Johnson

FINANCE DIRECTOR

Former Finance Director at GSI where he worked with executives of all types of corporations from Global 2,000 to start-ups in across a range of industries. the past served as the City of Chicago's Budget Director, responsible for preparing and executing the City's annual $6B operating budget and the $8 B capital budget for over 40 departments with more than 35,000 employees.

HITACHI

Selected AI technology partner

apollo
SMART LIGHTS

# Why invest with us

## COMPELLING INVESTMENT THESIS WITH STRONG RETURN POTENTIAL

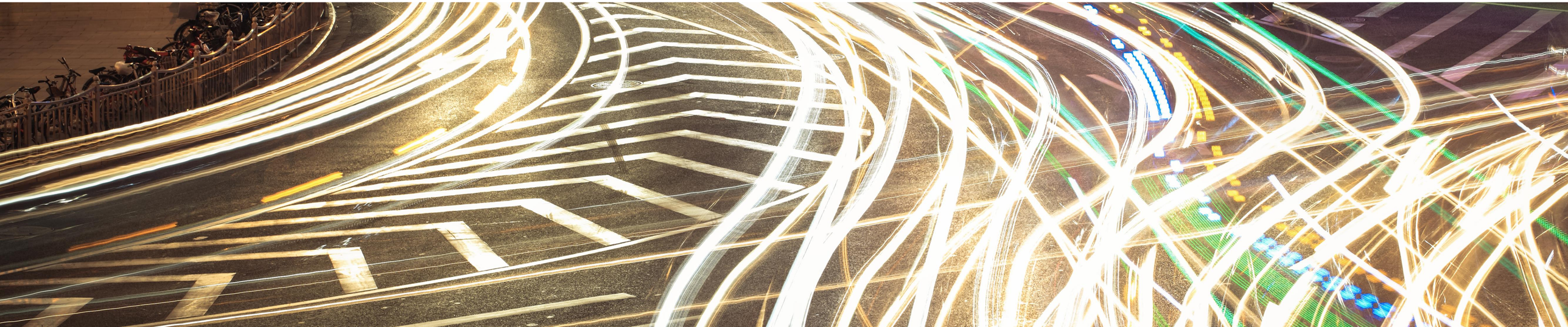
- ✓ **Unique opportunity** to tap into the high growth and high potential market with one of the market's leading players
- ✓ **State-of-art smart solution perfectly fit to address the needs of today's cities**, with a proven ability to unlock instant operational improvements and drive performance
- ✓ **Huge addressable market** for smart city solutions, and a perfect market momentum with strong expected growth
- ✓ **Exceptional traction to date** with excellent customer feedback, wide partner network and multiple projects successfully executed in the past
- ✓ **Unique competitive advantage** offering a far superior solution with system integration, essentially providing cities with powerful tailored solutions with minimum effort required on city's side
- ✓ Experienced and dedicated team with **over 80 years of combined experience** in technology, management, software development and engineering
- ✓ **Solid business model** with diverse revenue streams, high profit margin of 70% and attractive ROI for the investor within 3 years

apollo
SMART LIGHTS

# Contact us.

**THE NEXT GENERATION SMART CITY INFRASTRUCTURE**


**200 East Big Beaver**
**Troy, MI 48083**

farid@apollosmartlights.com
farid@vipernetworks.com

**248-724-1300**