



CraneMorley

 **NYSEARCH**
Natural Gas RD&D

Benefits of Integrating Augmented Reality Technologies into Gas Operations

NGA Fall Conference

October 7, 2022

Daphne D'Zurko

Executive Director, NYSEARCH

ddzurko@northeastgas.org

 **Northeast**
GAS ASSOCIATION

NYSEARCH, VOLUNTARY R & D FOR (20)+ GAS LDCS IN N. AMERICA

- A research, development, and demonstration consortium, made up of >20 Local Distribution Companies throughout N.America, serving the gas utility industry by identifying and executing research programs to advance the safety, integrity, and efficiency of the gas utility
- Voluntary based funding
- High leverage of R&D dollar
- Unique access to information on state-of-the-art technologies and research in an open setting with other gas utilities who experience similar, if not same, challenges in operations



MOTIVATION AND BACKGROUND



NYSEARCH began pilot program with first generation Microsoft HoloLens in 2017



A need was identified for efficient and engaging gas ops training as retirements increase and knowledge is lost



Identified CraneMorley as a leader in the space of instructional design and piloting new digital technologies that transform the learning experience



Currently developing and delivering specific gas operations training procedures with each utility funder using the second generation (newest) Microsoft HoloLens

Top 5 priorities for HR leaders in 2022

We surveyed more than 500 HR leaders across all major industries to assess their priorities and expected challenges in 2022. Building critical skills and competencies tops the list, but many HR leaders will also prioritize change management, leadership, and diversity, equity and inclusion (DEI) initiatives.

- 40% of HR leaders say they cannot build skill development solutions fast enough to meet evolving skill needs
- AR technologies offers a potential solution to close this gap

01 Building Critical Skills and Competencies

59% of HR leaders prioritizing

02 Organizational Design and Change Management

48% of HR leaders prioritizing

03 Current and Future Leadership Bench

45% of HR leaders prioritizing

04 Future of Work

42% of HR leaders prioritizing

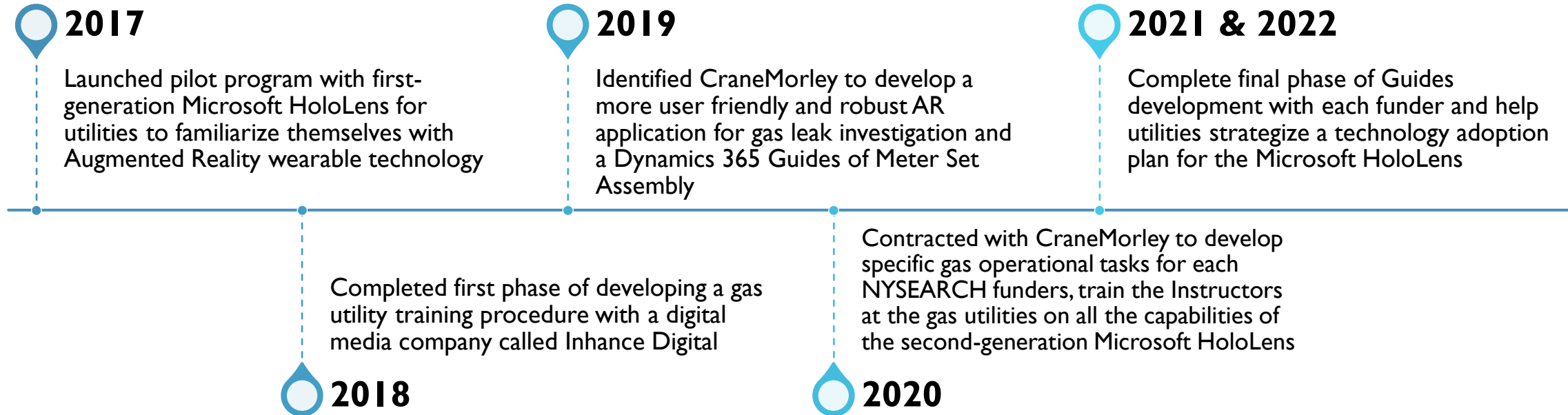
05 Diversity, Equity and Inclusion

35% of HR leaders prioritizing

n = 572 HR leaders

Source: 2022 Gartner HR Priorities Survey; for more on demographics, see Page 23.

NYSEARCH AUGMENTED REALITY PROGRAM



CRANEMORLEY AT A GLANCE

Microsoft
Partner

Mixed
Reality

- 28 – Year proven track record for delivering training programs with evolving digital technologies
- Gold Mixed Reality Microsoft Partner
- Work closely with the Guides and Remote Assist Development Teams at Microsoft



| UTILITIES |



| MANUFACTURING |



| IoT/TECH |



| HEALTHCARE |

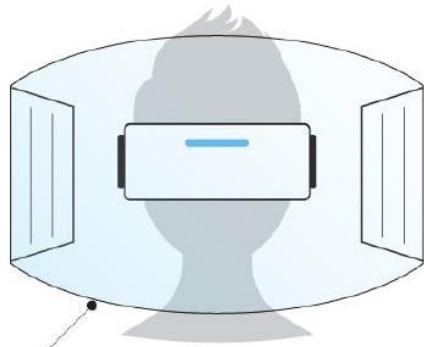
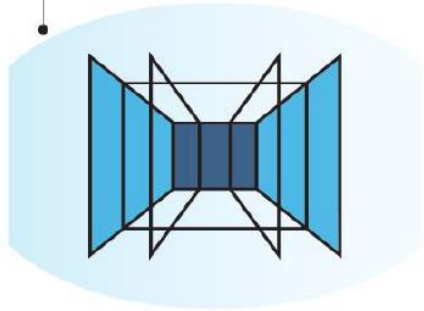


| AUTOMOTIVE |



VIRTUAL REALITY (VR)

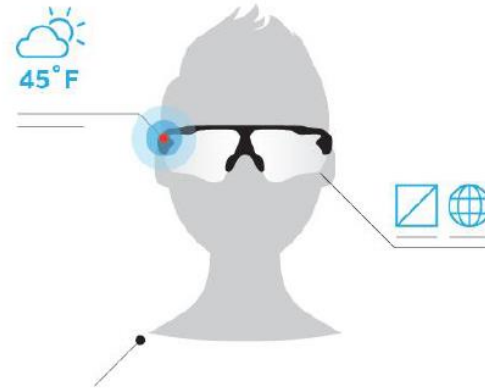
Completely digital environment



Fully enclosed, synthetic experience with no sense of the real world.

AUGMENTED REALITY (AR)

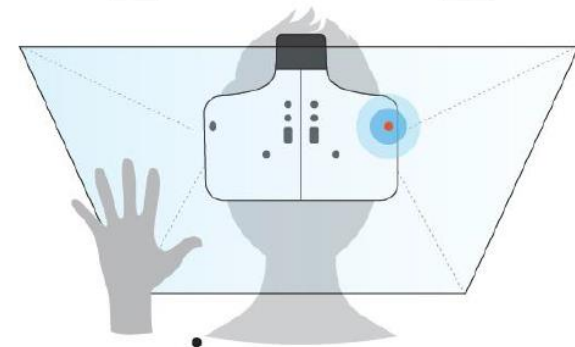
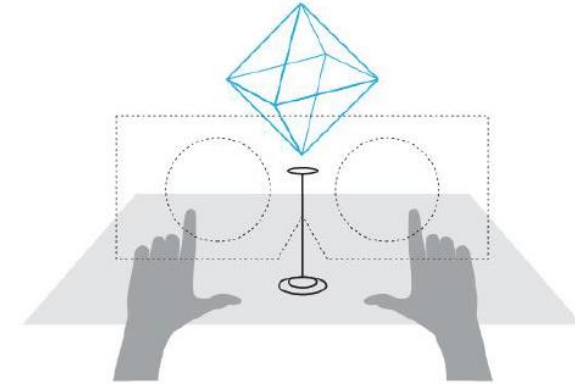
Real world with digital information overlay



Real world remains central to the experience, enhanced by virtual details.

MIXED REALITY (MR)

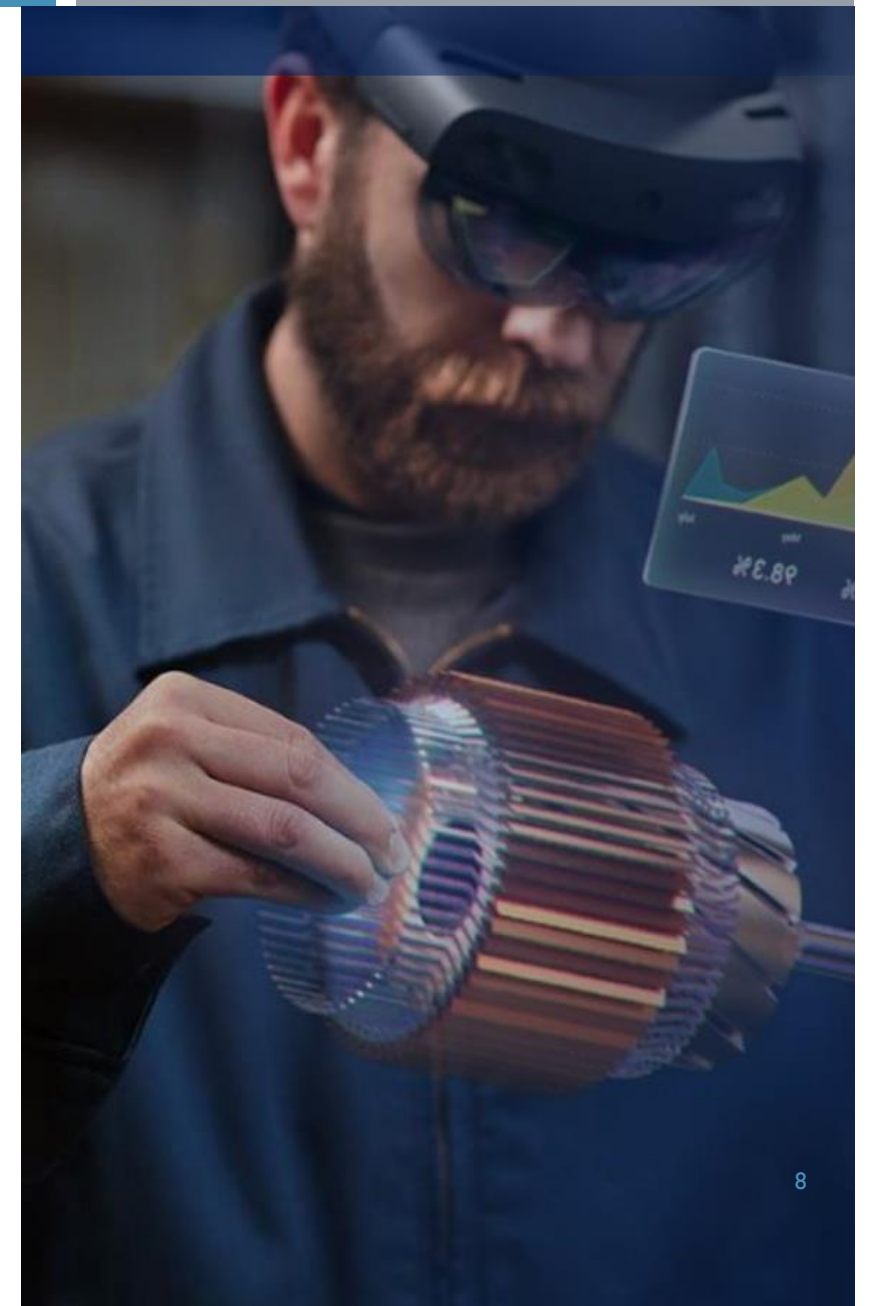
Real and the virtual are intertwined



Interaction with and manipulation of both the physical and virtual environment.

WHAT IS THE HOLOLENS?

- The Hardware (The Headset)
 - A headset that can be used with **mixed reality** applications
- The Software
 - Built-in Functionality
 - Take pictures
 - Record video
 - Check email
 - Browse the web
 - **Microsoft Dynamics 365: Remote Assist**
 - Tech support sees what you see
 - **Microsoft Dynamics 365: Guides**
 - Develop Mixed Reality applications
 - No coding skills required
 - Custom Applications
 - Game engines: Unity, Unreal, etc.



DYNAMICS 365 REMOTE ASSIST

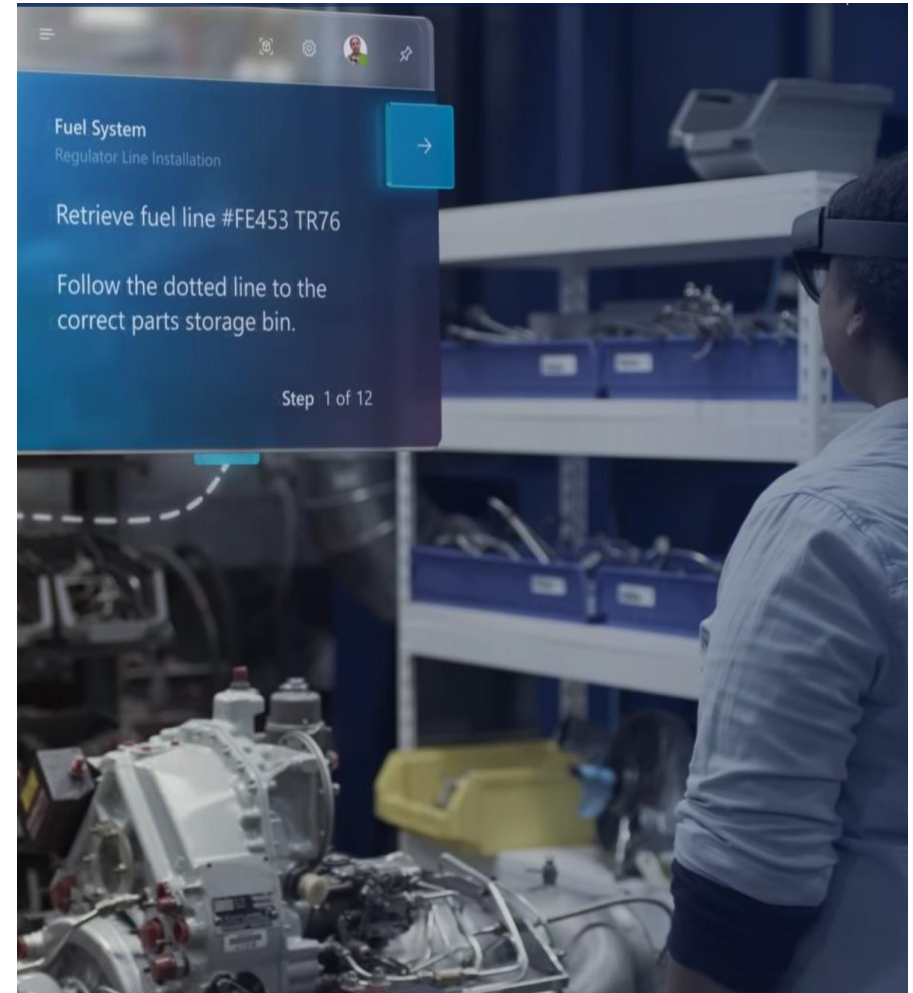


- Solve problems in real-time
- Share files and documentation
- Walk the site without being on location
- Record for future reference



DYNAMICS 365 GUIDES

- Mixed Reality training tool for the HoloLens
- Holograms instruct and lead operators through procedures
 - Step-by-step assembly training
 - Informational systems overviews
- Provides a hands-on, head-up approach to training
- Ideal for Self-Paced, On-the-Job training





DYNAMICS 365 GUIDES FOR RESIDENTIAL MSA: REDUCE TIME TO COMPETENCY FROM 8 HOURS TO 1 HOUR

Classroom Training

- In the standard classroom environment, employees needed about 4-8 hours of training before they could assemble and connect a gas meter



MSA Guides Training

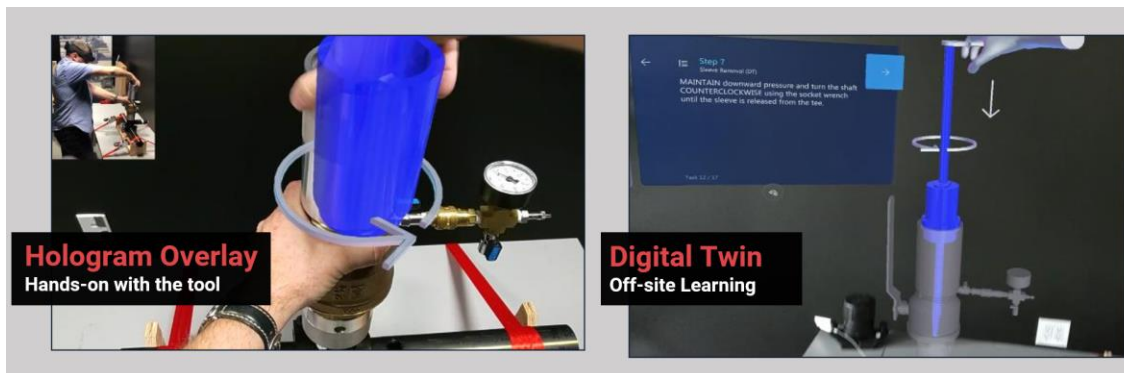
- CraneMorley developed a Guides training module for Meter Set Assembly with NYSEARCH funders
- Empowers new employees to assemble and connect a gas meter in 45 minutes



MICROSOFT 365 GUIDES CAN BE DEVELOPED FOR VARIOUS GAS OPERATIONS PROCEDURES

Bolt on-tee Abandonment Tool Guide

- PECO specific procedure to remove leaking tees from distribution system
- Needed an efficient and accelerated training process that would allow students to get acclimated to the procedure and use of tools prior to on-the-job training



Plastic pipe butt fusion - McElroy

- Currently under development with Central Hudson Gas & Electric, deploying October 2022
- McElroy butt fusion machine procedure



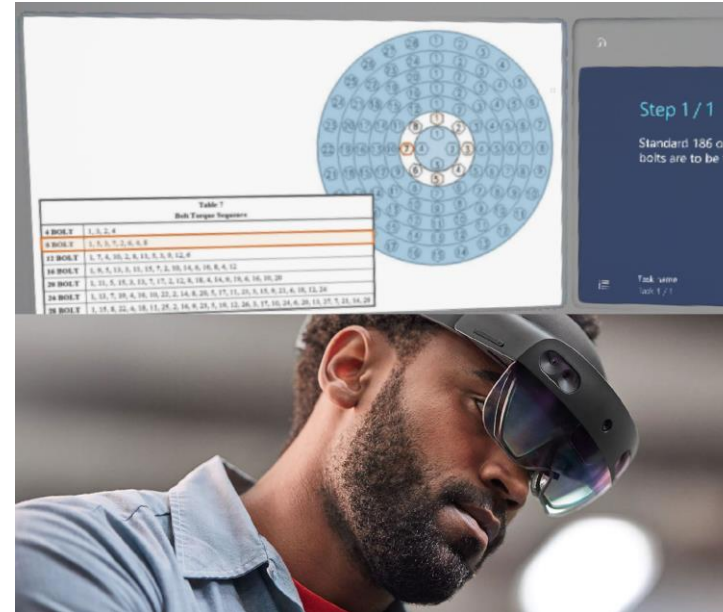
BENEFITS OF MIXED REALITY AND THE HOLOLENS

Dynamics 365 Guides



- Hands-free, heads-up training
- Allows individuals to have hands-on experience with actual tools and equipment
- Training happens at ground zero at the training center and on the job

Dynamics 365 Remote Assist



- Easy access information where operators don't have to stop working to look up details or get information
- Stream video from your headset to others in real-time
- Reach out for advice and assistance while on the job

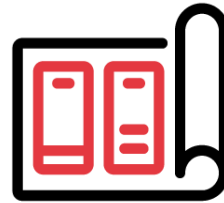
ENGAGEMENT ROADMAP FROM EXPERIENCED DEVELOPER AND USED WITH NYSEARCH MEMBERS



Envision



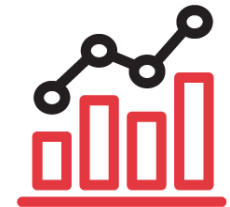
**CM Develops
Pilot**



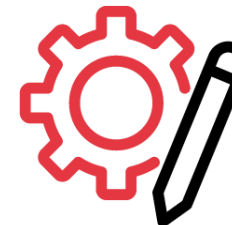
Blueprint



Develop Content



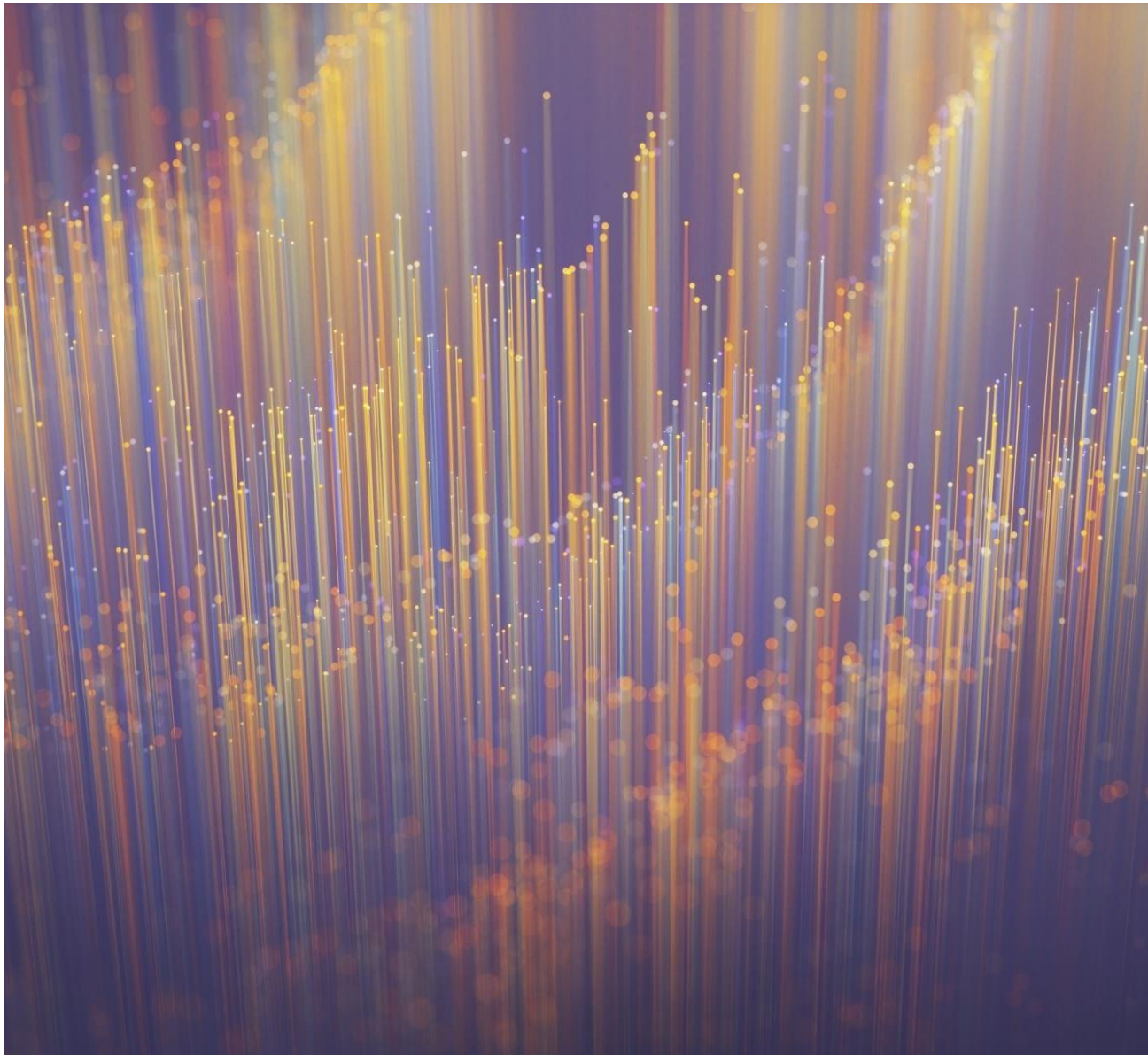
Scale



Train

CRANEMORLEY HAS GUIDED NYSEARCH FUNDERS THROUGH THIS ROADMAP UNTIL THE 'SCALE' STAGE

ADOPTION OF NEW TECHNOLOGY HAS BEEN CHALLENGING FOLLOWING COMPLETION OF NYSEARCH PROGRAM



THANK YOU

DAPHNE D'ZURKO,
DDZURKO@NORTHEASTGAS.ORG

PROJECT MANAGER : AHRA KWON,
AKWON@NORTHEASTGAS.ORG

