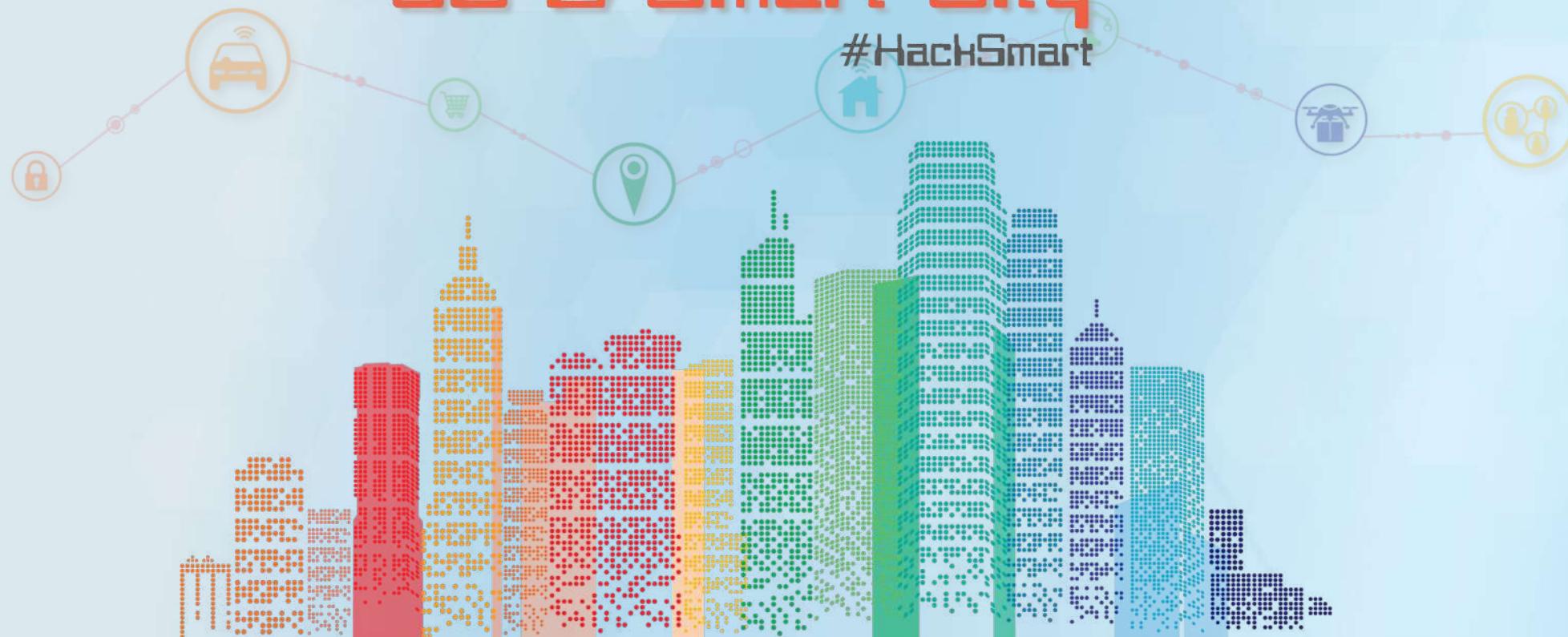


SmarTone hackathon

5G & Smart City

#HackSmart



Your Master of Ceremony



Thomas Huang
Agorize

Opening Remark



Ms Anna Yip
CEO – *SmarTone*

SmarTone hackathon

5G & Smart City

#HackSmart

Introduction



The Challenge

5G & Smart City

#HackSmart



Smart
Living



Smart
Transportation



Smart
Shopping



Smart
IoT

Partners & Sponsors

Co-organisers



Technology Partner



Sponsors



Supporting Organisations



What You Can Win



Champion
HK\$60,000



1st Runner-up
HK\$30,000



2nd Runner-up
HK\$20,000

Chance to receive:

- 1 Latest gadgets
- 2 Interview to Cyberport Entrepreneurship Programmes
- 3 Internship in SHKP Group and its subsidiaries
- 4 Develop and deploy your idea in SHKP projects

More Awards



Smart Synergy Award
HK\$10,000



Smart Pitch Award
HK\$10,000



Intrapreneurship Award
HK\$10,000



Latest Gadgets
Special Promotions

Hack Day

Saturday, 26 October

Hack Day 1

09:00	Doors Open & Breakfast
11:00	Coding Begins
12:00	Lunch
13:00	Coding Continues
18:00	Dinner
20:00	Pitch Workshop Session

Sunday, 27 October

Hack Day 2

07:00	Breakfast
11:00	Submission Due and Lunch
12:00	First Round Pitching + Deliberation
15:00	Second Round Pitching
16:30	Second Round Deliberation and Networking
17:00	Closing Remarks and Awards Presentation
17:30	Event Closes

**Hacking will continue throughout the night. Feel free to stay overnight to hack, the venue will be open and staffed!*

How It Works

24 Hours of Hacking

Starting at 11am on Hack Day 1.
Submission due on Hack Day 2 at 11am.



Pitching Round 1

3-min Presentation + 2-min Q&A



Finalist teams will be selected to
advance to the Final Round

Number of teams TBD



Pitching Round 2

5-min Presentation + 3-min Q&A

Deliverables

Submissions must be uploaded before **11 AM on Hack Day 2** onto the platform

Minimum Deliverable:

- ✓ Source code
- ✓ Wireframes / Design mock-up
- ✓ User journey
- ✓ Pitching slides (PPT or PDF)

All presentations must be in **English**

Your **pitching** must **include** a demonstration of the **prototype**, not solely a presentation of idea

**Instruction to upload will be shared in the morning session of Hack Day 2*

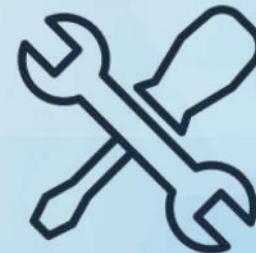
Judging Criteria

Judges will evaluate the deliverables based on the following:



INNOVATION

5 Points



FUNCTIONALITY

5 Points



UX/UI

5 Points



TECHNOLOGY

5 Points

Judging Panel – Round 1



Mr Stephen Chau

CTO –
SmarTone



Mr Herman Cheng

Head of Digital Banking –
Hang Seng Bank



Mr Jim Man

Chief Information & Operations Officer –
Ping An OneConnectBank



Ms Rosana Wong

Vice President & Chairperson of Smart
Living Committee –
Smart City Consortium



Mr Mike Ng

VP, Product & Service Development –
SUNeVision Holdings Limited



Ms Maaike Steinebach

General Manager of Hong Kong
and Macau –
VISA

Judging Panel – Round 2



Ms Anna Yip

CEO –
SmarTone



Mr Vincent Ma

Chief Digital Officer –
Sun Hung Kai Properties Limited



Mr Brian Tsui

Co-Founder, Hong Kong & GBA –
Chicago Booth Angel Network



Ms Carman Chan

Founder and Managing Partner –
Click Ventures



Mr Patrick Kirby

Director, Technology, Media,
Telecommunications & Innovation –
KPMG China



Mr Nio Liyanage

Managing Partner –
STARTUPRIGHT

Hack Days Rules

- You can still form, join, and/or complete your teams after this Introduction session
 - Teams of up to 5 are allowed
- All hardware and equipment required for hacking and demonstration will be taken care of by yourself
- All the code you develop, the intellectual property belongs to YOU AND YOUR TEAM
- A pitching workshop will be available at the end of Hack Day 1
- Make sure your idea is a FRESH one, that is not an already existing solution.
- Mentors from our partners, **Microsoft and Cyberport**, will be available to help you on Hack Day 1 from 11am – 6pm

**If you or your team has compromised the Hackathon in anyway, your team will be DISQUALIFIED and will be asked to leave the premises of the Hack Days.*

House Rules

- Food, drinks, and dedicated working stations are arranged for you
- The venue will open and staffed overnight. You may rest anywhere in the dedicated area for this Hackathon
- Treat everyone with the utmost respect
 - Act kindly, behave professionally, do not insult or put down other attendees
- No place for any harassment, racist, sexist, or exclusionary actions, comments or remarks
- While taking photographs is encouraged, please be respectful of others and opt out if requested.
- By participating in the Hackathon, you have agreed to be photographed and videotaped by the Organizer's contractors to be used for communication without compensation
 - Please inform the Hack Day staff if you'd like to opt out upon check-in

**If at any point you are harassed, please talk to the nearest Hack Day staff*

**Failure to comply with the Rules may result in DISQUALIFICATION of the entire team*

Staff

SmarTone

Available for
the entire
Hackathon

agorize
asia

Mentors

Microsoft

Available on
Hack Day 1
from
11am – 6pm

數碼港
cyberport

Available on
Hack Day 1
from
1pm – 6pm

SmarTone hackathon

5G & Smart City

#HackSmart



5G & Smart City

Ivan Leung

Head of Engineering

5G and Smart City

Ivan Leung | Head of Engineering

October 2019

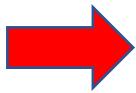
SmarTone

What is 5G?

New mobile technologies



Access to new spectrum
at higher frequency bands



- Enhanced user experiences in mobile data services
- Higher network capacity to meet rapidly growing data demand
- Higher network efficiency

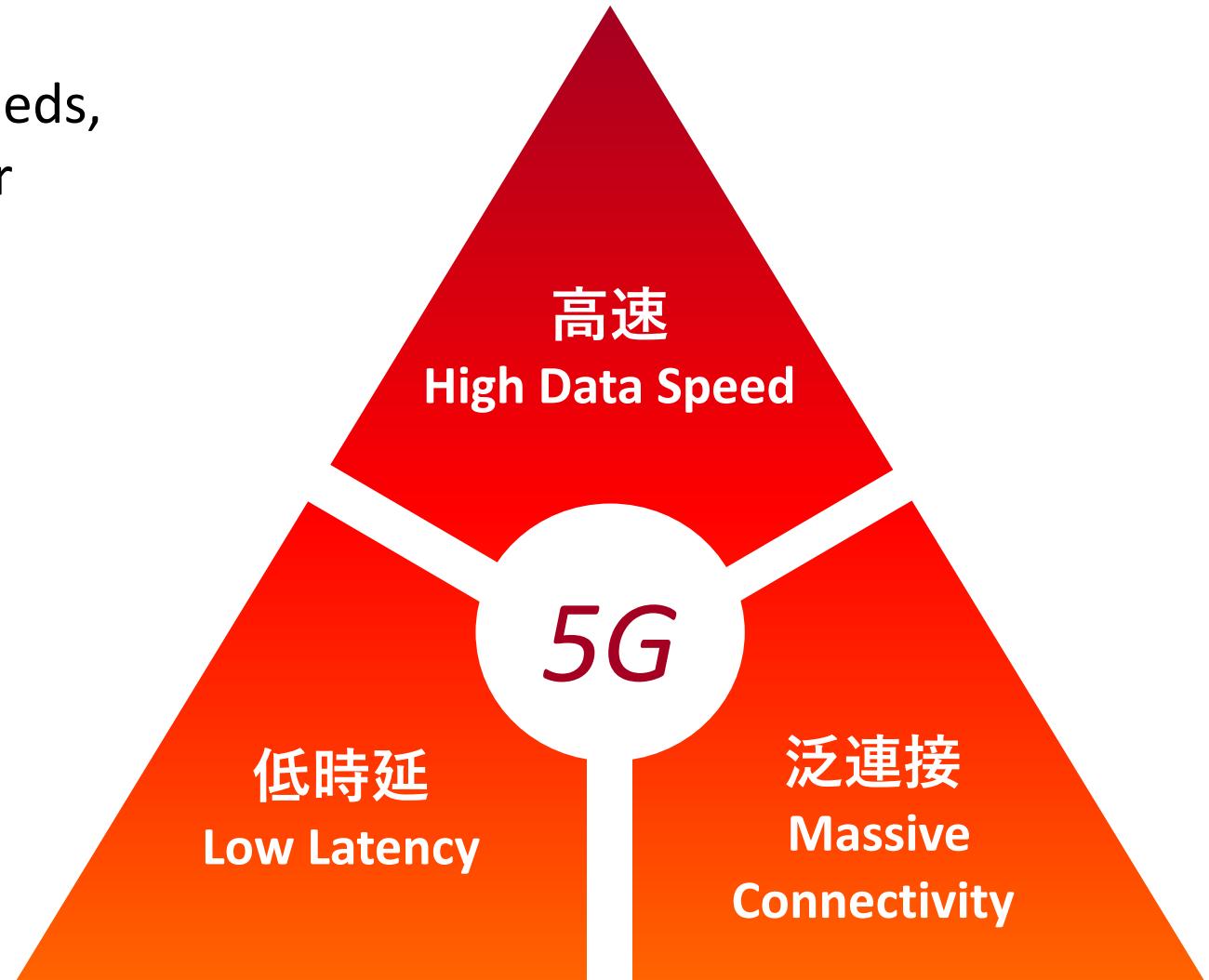
New Spectrum for 5G

- Two major frequency bands for 5G:

Characteristics	Frequency Bands	
	Sub-6GHz (<6GHz)	mmWave (24-100GHz)
Frequency band^(a)	<ul style="list-style-type: none">• Low to mid band (e.g. 3.3 GHz, 3.5GHz)	<ul style="list-style-type: none">• High band (e.g. 28 GHz)
Coverage	<ul style="list-style-type: none">• Broad coverage	<ul style="list-style-type: none">• Narrow coverage for traffic hotspots
Connectivity	<ul style="list-style-type: none">• Operable through walls and indoor environment	<ul style="list-style-type: none">• Direct, “line of sight” connection required
Relative speed	<ul style="list-style-type: none">• Slower relative to mmWave	<ul style="list-style-type: none">• Faster relative to Sub-6GHz
Latency	<ul style="list-style-type: none">• 10ms	<ul style="list-style-type: none">• 1ms (with a Standalone network)
Theoretical peak speed in Hong Kong	<ul style="list-style-type: none">• Over 1Gbps	<ul style="list-style-type: none">• 5 – 10 Gbps

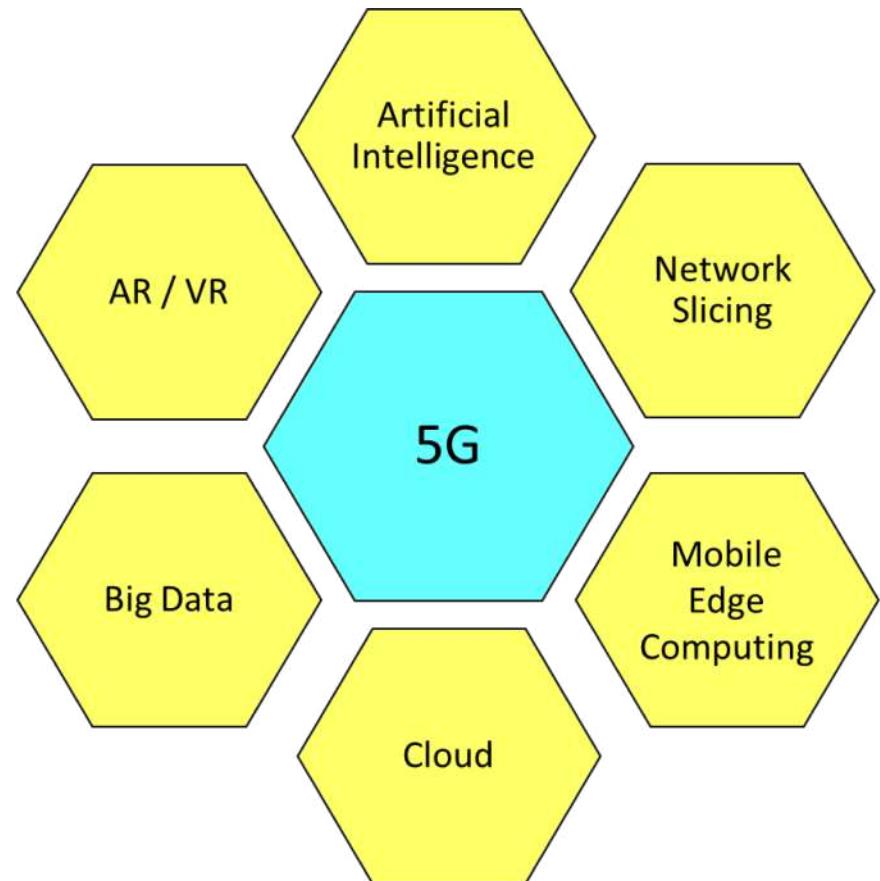
What can 5G bring to Customers?

- 5G supports much higher data speeds, extremely lower latency and larger network capacity



5G + Other Technologies

- Together with other advanced technologies, 5G will enable development of many innovative new applications
 - Able to change and enrich everyone's life
 - Huge business opportunities for business markets
- Plays an important role in Hong Kong's transformation to a smart city



5G Enables New Use Cases

- For all segments from consumer to business markets

Consumer

- Smart Transportation
- Smart Education
- Smart Healthcare
- Smart Entertainment
 - eMBB / UHD video
 - Cloud gaming
 - AR/VR apps



- Enhanced user experience
- Improved life quality

Business

- Smart Factory
- Smart Port
- Smart Logistics
- Smart Energy
- Smart Construction
- Smart Hotel
- Smart Agriculture
- Smart Mining
- Smart Crisis Management



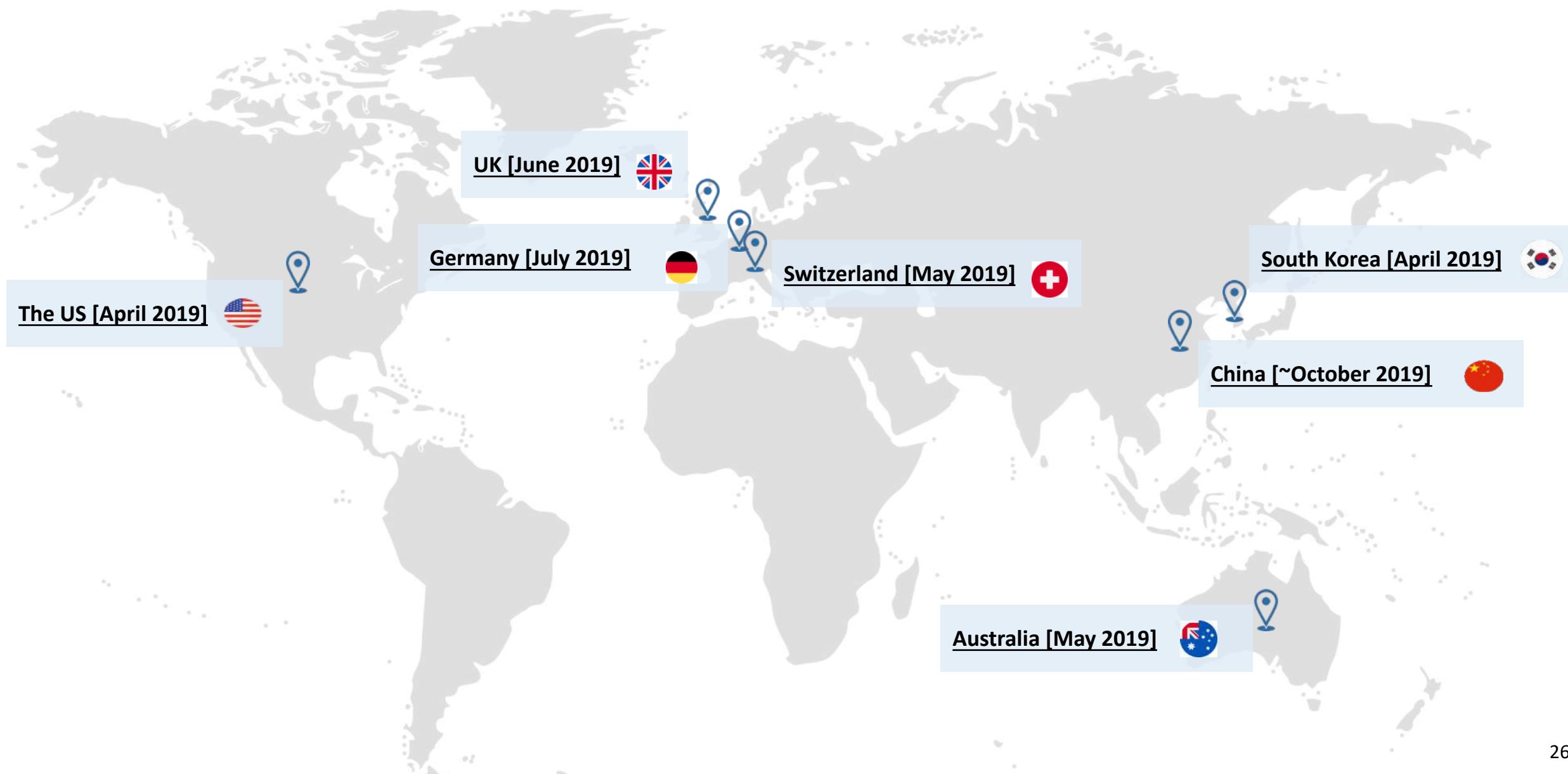
- Enhanced efficiency
- More business opportunities



5G - Driving for E2E Digitalization and Smart Cities



5G Deployment Status



SmarTone's Evolution to 5G

- First in HK to run 5G technology demo in Jan 2017
- Live deployment of FDD Massive MIMO trial in Oct 2017
- Established Innovation Hub in Nov 2017 to support different industry partners to showcase and test ICT solutions
- First to demonstrate 5G connection on a smartphone form factor device together with Ericsson and Qualcomm in 2018



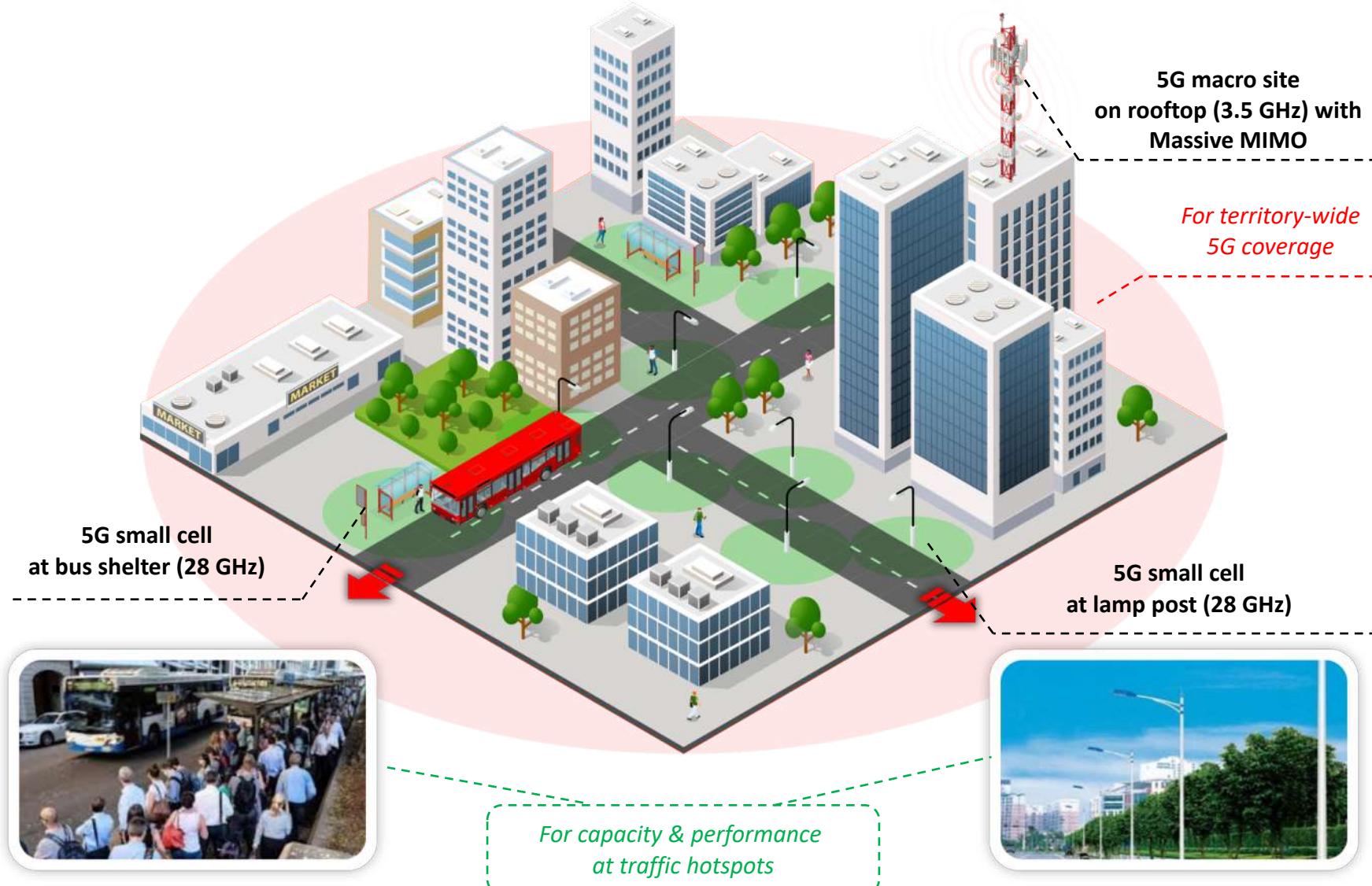
First simultaneous 5G field test on 3.5GHz & 28GHz in HK

- 5G live field trial on the two major 5G spectrum bands in March 2019
- Hands-on experience to fine-tune network planning for rollout



Multi-layer network topology utilising high-band and mid-band

- Optimised for high capacity and high performance 5G network



Existing Enterprise Solutions

IoT Integration



SmartBuilding



SmartConstruction



SmartHotel



SmartHealth
Enhancement



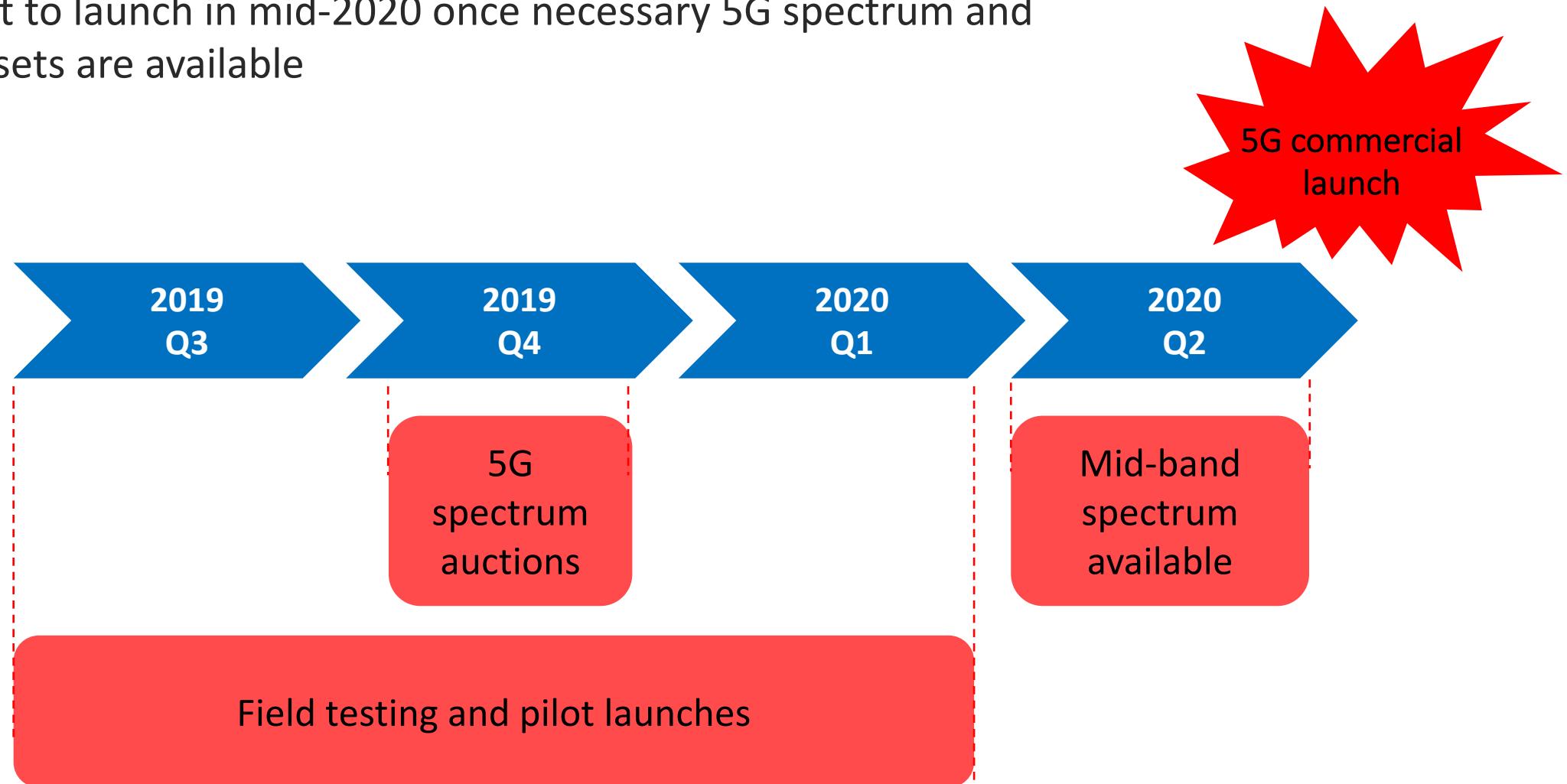
Cybersecurity

5G opportunities from Smart City initiatives



Road to 5G

- Small scale 5G pilot network set up in June 2019 with ongoing trials
- Target to launch in mid-2020 once necessary 5G spectrum and handsets are available



The logo consists of the word "SmarTone" in a bold, red, sans-serif font. The letters are slightly shadowed, giving them a three-dimensional appearance. The background is a dark gray gradient with a subtle, out-of-focus bokeh effect of light circles.

SmarTone

A smaller version of the SmarTone logo, featuring the brand name in its signature red font on a white, rounded rectangular background.

SmarTone

SmarTone hackathon

5G & Smart City

#HackSmart



Introduction to the Tech

Warren Wong

Cloud Solution Architect

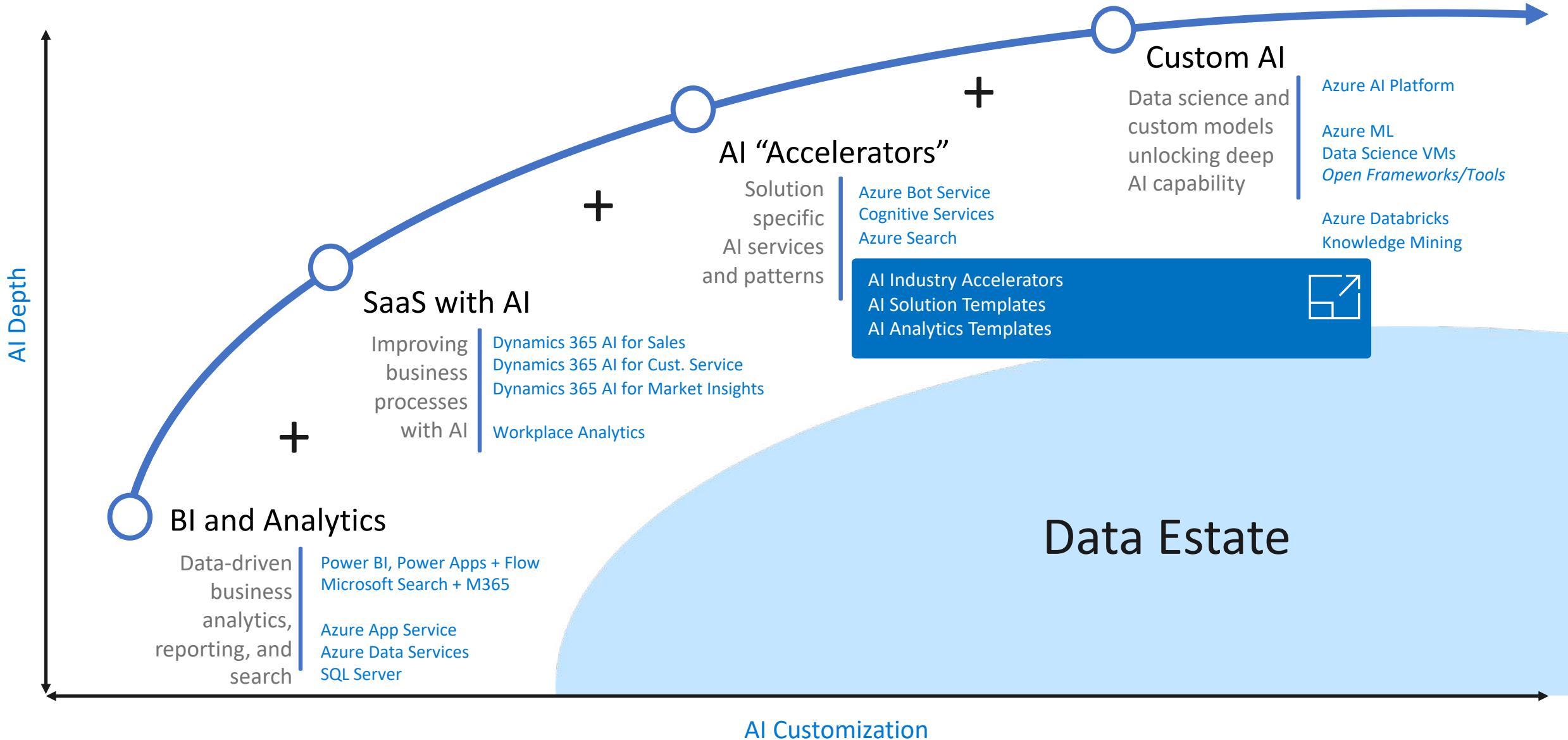
SmarTone Hackathon

The AI Journey using Microsoft Azure

Warren Wong
Cloud Solution Architect
Microsoft Hong Kong



The AI Journey – Where to Start



BI & Analytics – Quick Insights in Power BI

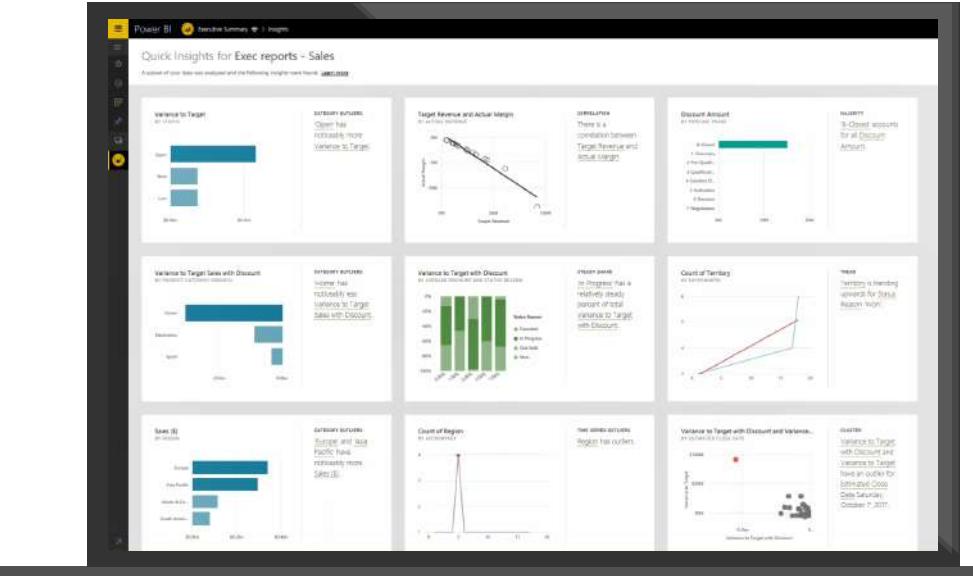
Automatically generate visualizations based on your data

Build a dashboard quickly

Find insight in your data you may have missed

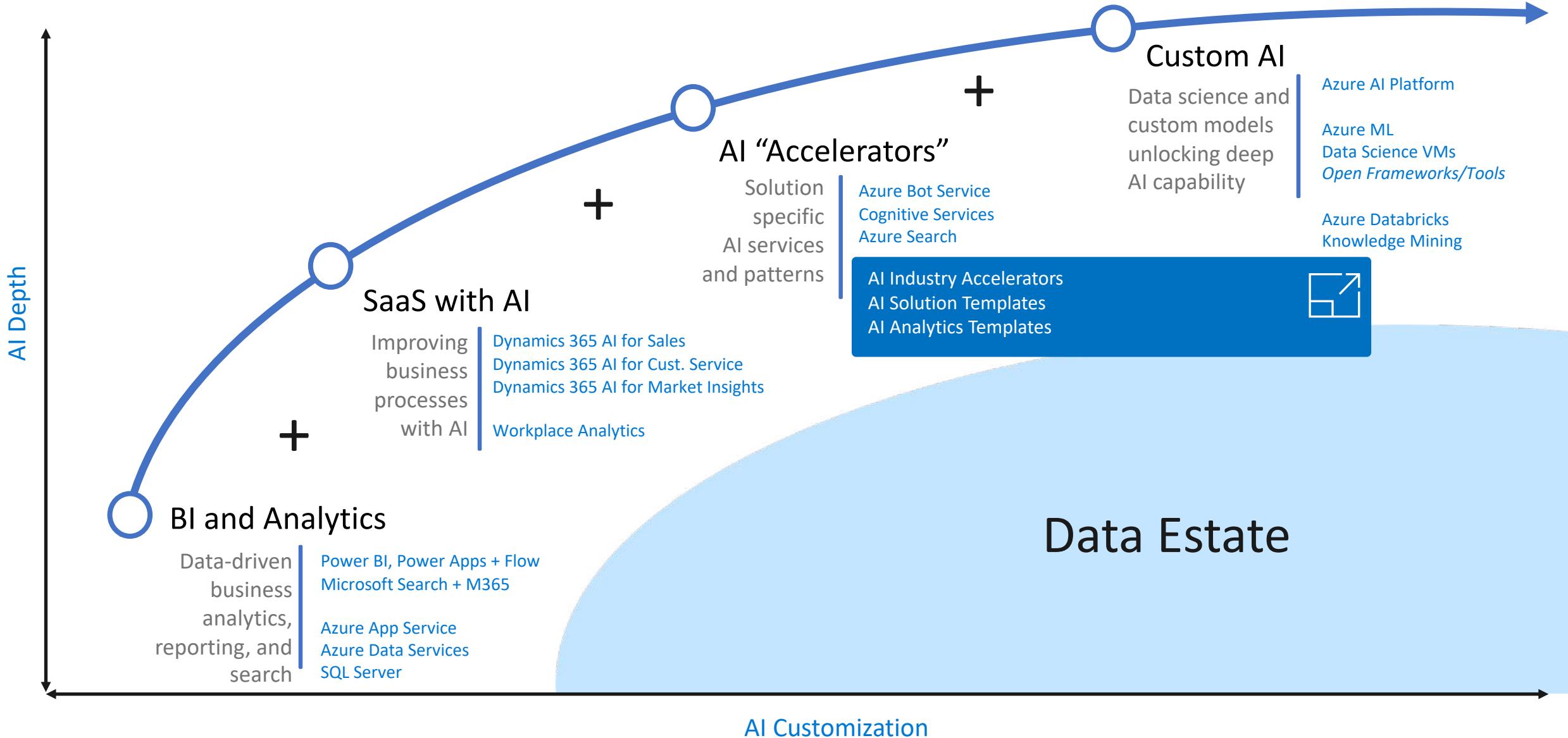
Built on a growing set of advanced algorithms

<https://docs.microsoft.com/en-us/power-bi/service-insight-types>



Quick insights

The AI Journey – Where to Start



AI “Accelerators”: Cognitive Services capabilities

Infuse your apps, websites, and bots with human-like intelligence



Vision

- Object, scene, and activity detection
- Face recognition and identification
- Celebrity and landmark recognition
- Emotion recognition
- Text and handwriting recognition (OCR)
- Video metadata, audio, and keyframe extraction and analysis
- Explicit or offensive content moderation
- Custom image recognition



Speech

- Speech transcription (Speech-to-text)
- Speech Synthesis (Text-to-speech)
- Real-time speech translation
- Speaker identification and verification
- Custom Speech models for transcription and translation
- Custom voice



Language

- Language detection
- Text sentiment analysis
- Key phrase extraction
- Entity recognition
- Spell checking
- Explicit or offensive text content moderation, PII detection
- Text translation
- Customizable text translation
- Contextual language understanding



Knowledge

- Q&A extraction from unstructured text
- Knowledge base creation from collections of Q&As
- Semantic matching for knowledge bases
- Customizable content personalization learning



Search

- Ad-free web, news, image, and video search results
- Trends for video, news
- Image identification, classification and knowledge extraction
- Identification of similar images and products
- Named entity recognition and classification
- Knowledge acquisition for named entities
- Search query autosuggest
- Ad-free custom search engine creation



Vision

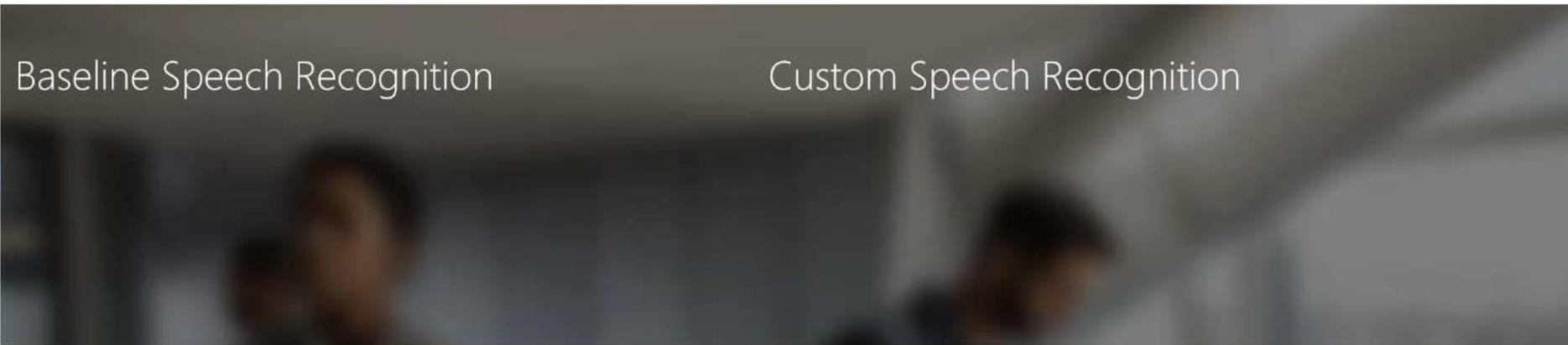
Image-processing algorithms to smartly identify, caption, and moderate your pictures





Speech

Convert spoken audio into text, use voice
for verification, or add speaker recognition
to your app



Allow your apps to process natural language with pre-built scripts, evaluate sentiment and learn how to recognize what users want

I had a wonderful trip in Seattle, I enjoyed the Space Needle and Pike Place Market.

Analyze

Analyzed text JSON

LANGUAGES: English (confidence: 100 %)

KEY PHRASES:

SENTIMENT: 73 %

LINKED ENTITIES (PREVIEW): a

The screenshot shows a user interface for analyzing natural language text. At the top, there's a text input field containing the sentence: "I had a wonderful trip in Seattle, I enjoyed the Space Needle and Pike Place Market.". Below the input is a large green button labeled "Analyze". To the right of the input field, there are two tabs: "Analyzed text" (which is selected) and "JSON". Under the "Analyzed text" tab, the results are displayed in a table format. The first row shows the detected language as "English (confidence: 100 %)". The second row shows key phrases. The third row shows the sentiment analysis with a progress bar at 73%. The fourth row shows linked entities with a preview of the letter "a".



Knowledge

Map complex information
and data in order to solve
specific tasks

The screenshot shows a chat interface for the Microsoft FAQ QnA bot. The top bar is blue with the text "Microsoft FAQ QnA bot" and icons for help, refresh, and close. The main area has a light gray background with a dark gray message box containing the bot's response. The user's message is in a blue button, and the bot's response is in a dark gray box. The timestamp "Bot at 2:52:10 PM" is at the bottom of the message box. A text input field with a camera icon and placeholder text "Type your message..." is at the bottom.

Microsoft FAQ QnA bot

?₂₇ ⌂ ×

Hi, I'm a QnA chat bot. How can I help you today?

Bot

What is a product key?

You

A product key is a 25-character code that comes with a Microsoft Office product. The product key allows you to install and activate the Office product on your PC.

Bot at 2:52:10 PM

Type your message...



Search

Add Bing Search APIs to your apps and harness the ability to comb billions of webpages, images, videos, and news with a single API call



Accent Chairs You'll Love | Wayfair

USD 251.68



Abbyson Living BR-AC1059-BLU Sierra Tufted Velvet Wingback ...

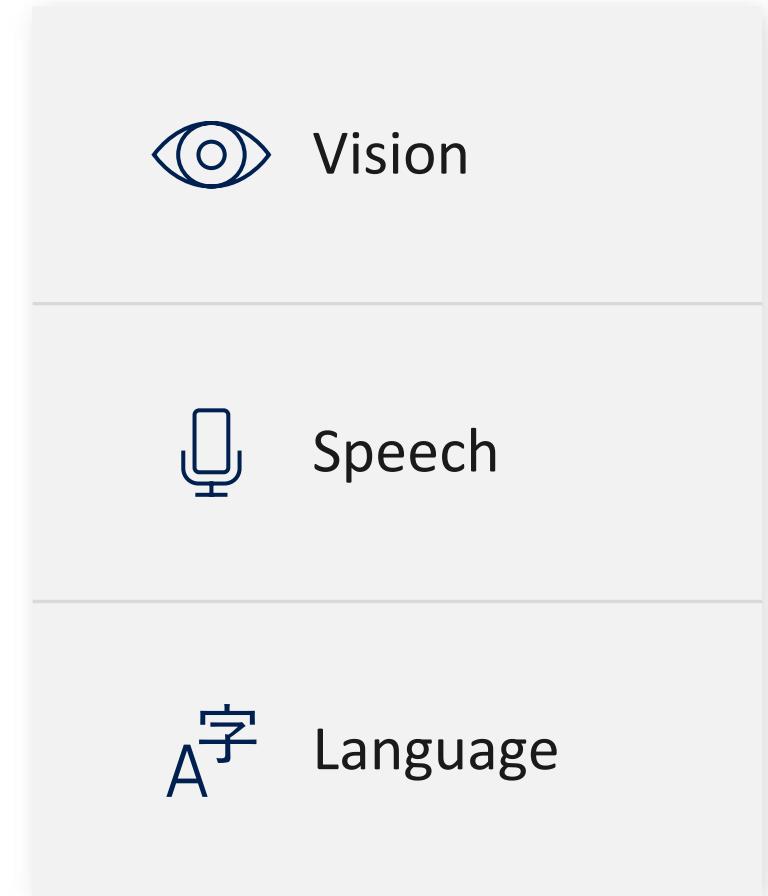
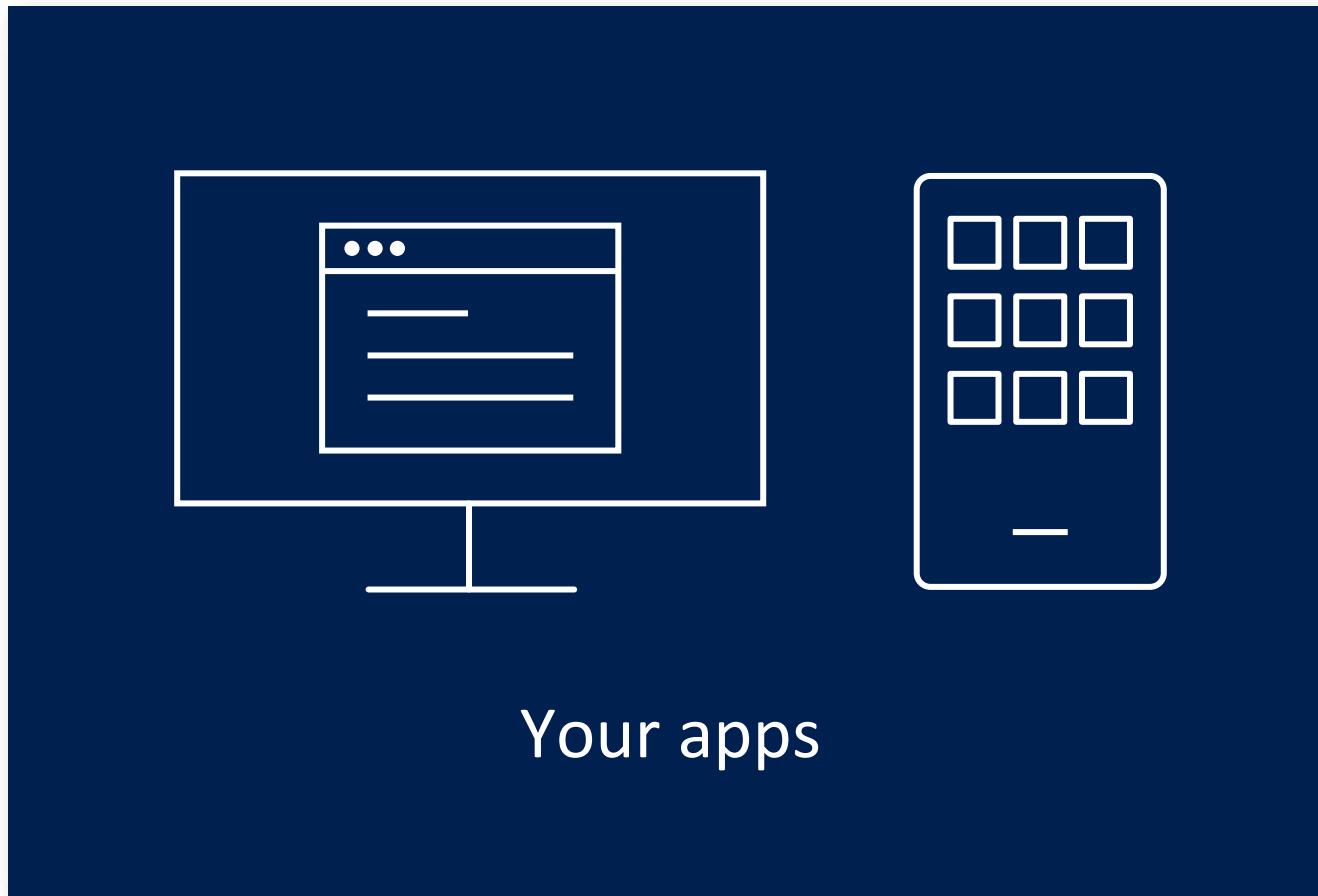


Pair of Guillerme et Chambron Black Cerused Oak 'Edouard ...

USD 8600



AI Apps with Cognitive Services



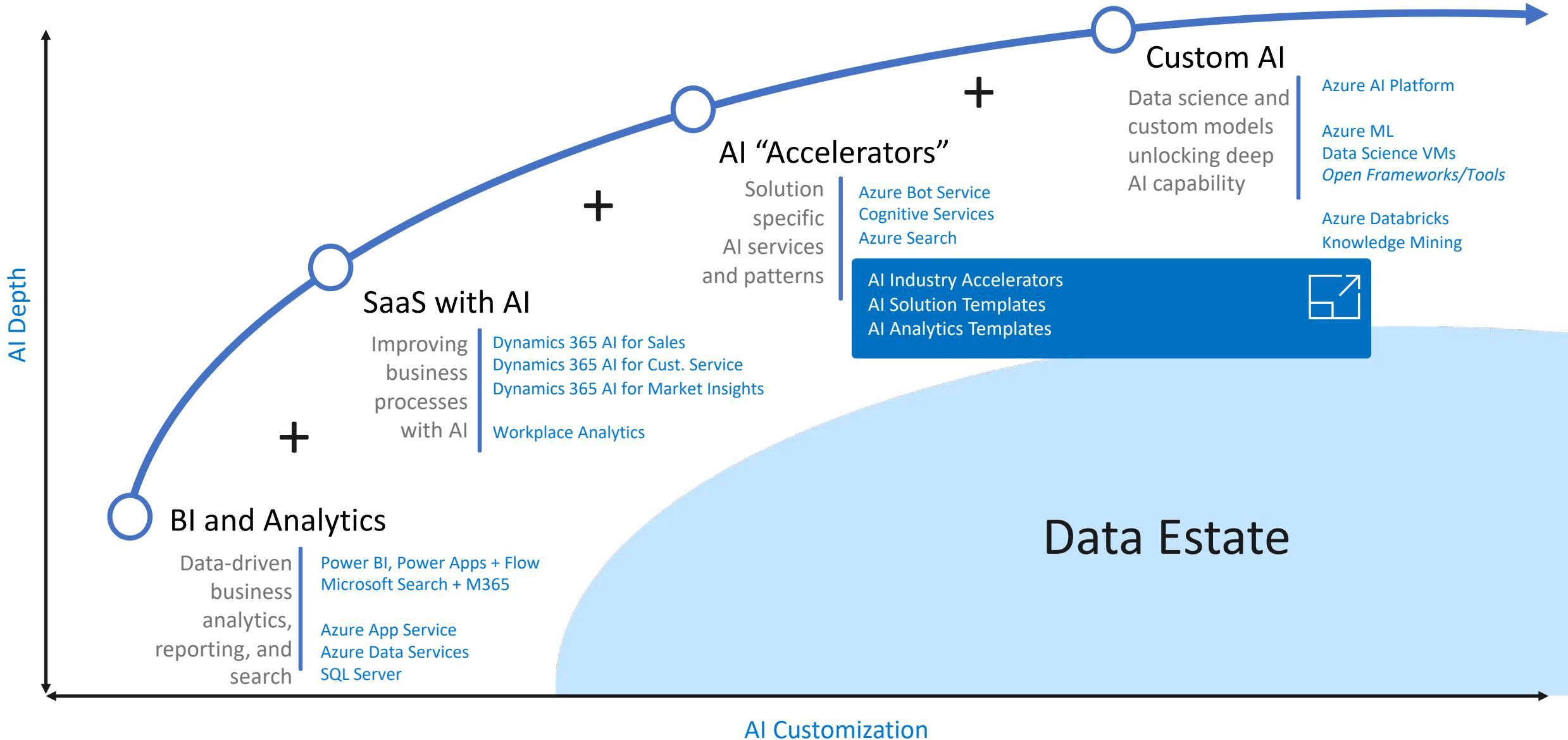
AI Apps with Cognitive Services

The screenshot shows the Microsoft PowerApps studio interface. The top navigation bar includes 'PowerApps' (with a dropdown), 'File', 'Home', 'Insert', 'View' (which is selected), 'Action', 'Text Analytics Demo - Saved (Unpublished)', and various icons for saving, publishing, and sharing.

The main workspace displays a 'Text Analytics Demo' screen. The screen contains three text input fields: 'Text' (containing 'Hello'), 'Sentiment' (empty), and 'KeyPhrases' (empty). A yellow cursor icon is positioned over the 'KeyPhrases' field.

The left sidebar is titled 'Data sources' and lists 'In your app' (MyPeople Collection), 'Entities', and 'Connectors'. The right sidebar shows the 'Advanced' tab for 'Screen2' (the current screen). It includes settings for 'BackgroundImage' (empty), 'Fill' (set to 'RGBA(255, 255, 255, 1)'), 'ImagePosition' (set to 'ImagePosition.Fit'), and 'Height' (set to 'Max(App.Height, App.DesignHeight)'). There is also a 'More options' button.

The AI Journey – Where to Start



Custom AI: Machine Learning Stack on Azure

Domain specific pretrained models

To simplify solution development



Vision



Speech



Language



Search

Familiar Data Science tools

To simplify model development



Visual Studio Code



Azure Notebooks



Jupyter



Command line

Popular frameworks

To build advanced deep learning solutions



PyTorch



TensorFlow



Scikit-Learn



ONNX

Productive services

To empower data science and development teams



Azure
Databricks



Azure Machine Learning



Machine
Learning VMs

Powerful infrastructure

To accelerate deep learning



CPU



GPU



FPGA



From the Intelligent Cloud to the Intelligent Edge



More Resources

1. Power BI Docs:

- <https://docs.microsoft.com/en-us/power-bi/>

2. Cognitive Services Docs

- <https://docs.microsoft.com/en-us/azure/cognitive-services/>

3. Azure Machine Learning Docs

- <https://docs.microsoft.com/en-us/azure/machine-learning/>

Microsoft HK for Startups/ISV
(LinkedIn)

The screenshot shows the LinkedIn group page for 'Microsoft HK for Startups/ISV'. At the top, it displays '43 members' with four profile pictures. Below that is a button labeled 'Invite members'. To the right, there's a section for the 'Group owner' (Phoebe Yuen) and 'Group managers' (ANNIE POON). The main content area features a post from ANNIE POON introducing Microsoft Learn on Cloud Society, which is a free online learning platform. The post includes a link: <http://msft.it/6044rAAh6>. There are also buttons for 'Images' and 'Video'.

Benefits

- Exclusive Incentive Campaigns
- Exclusive Technical Workshops
- Customer Hackathon Opportunities
- Go-to-market (GTM) Advice
- Community Events

[Join us >](#)





SmarTone hackathon

5G & Smart City

#HackSmart

Team Formation



Team Formation

- If you have not formed team before today, please come forward
- For those of you who have already formed teams, **you may begin Hacking!**

Wifi

SSID: SmarTone Hackathon

Password: #hacksmart2019

SmarTone hackathon

5G & Smart City

#HackSmart



Good Luck and Have Fun!