



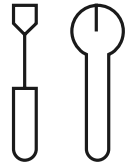
# Getting started: Intelligent Experiences

Mohamed Saif

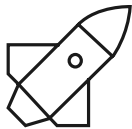
*App Innovation Technical Lead*

*Global Black Belt - EMEA*

 *@mohamedsaif101*



New Tools



Emerging Technologies



Disruption on **WHAT** can be built  
and **HOW** we can do it

But where should you **start**?



# FUTURE PROOF EXISTING APPLICATIONS



App Modernization



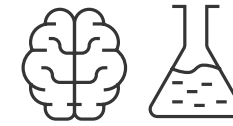
Re-platform, re-architect, Re-factor applications using a [container-based platforms](#) or [PaaS / Serverless](#)

Free up human and financial resources from legacy applications and repurpose them towards innovation

# EXPERIMENT WITH EMERGING TECHNOLOGIES

New Products, High Differentiation,  
Innovation & experimentation

App Innovation



Intelligent Apps, Intelligent Agents, Blockchain  
Apps, AR/MR Apps

# INDUSTRIALIZE CREATION OF APPLICATIONS

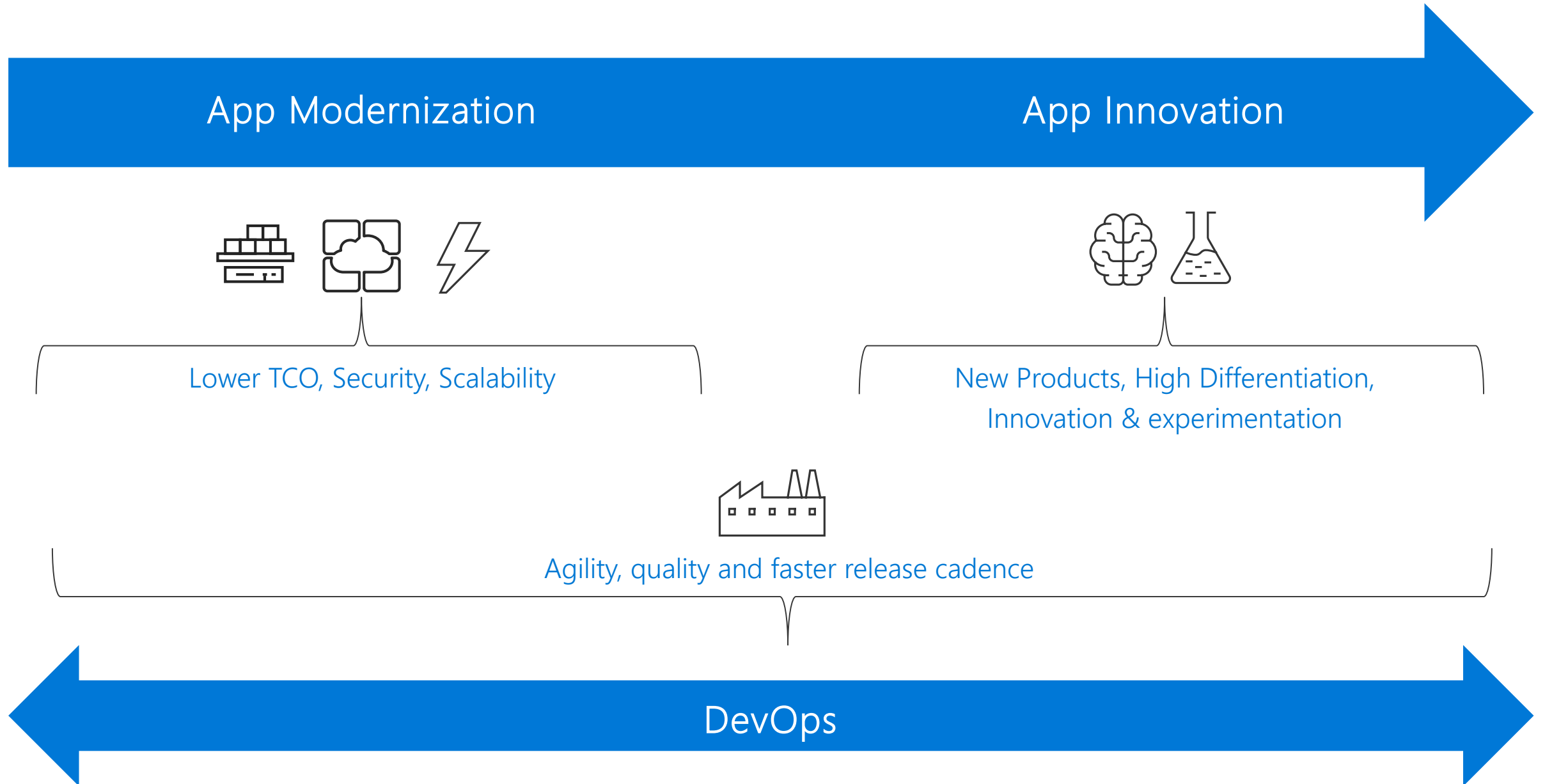


Azure DevOps, Azure Kubernetes Services, Docker, *Pivotal Cloud Foundry*, *Redhat Openshift*












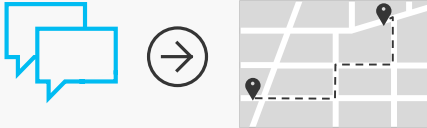







DevOps

Agility, quality and faster release cadence

# APP DEV STRATEGY



# A variety of real-world applications

Vision 	Speech 	Language 	Knowledge 	Search 											
 <b>What is in the image or video?</b>	 <b>Give me directions to the nearest local branch</b>	 <b>Play today's customer call recording</b>	 <b>QnA Pair of this site?</b>	 <b>Search for 'fraud prevention'</b>											
<b>Intelligent Image insights</b> 	<b>Speech to text</b> 	<b>Natural Language Processing</b> <div><b>Intent:</b> PlayCall <b>Content:</b> Customer# <b>DateTime.date:</b> today</div>  Now Playing 11/29/2016 Customer Call	<b>Automatic extraction of questions and answers</b> <div><div>What are your hours today?</div><div>Today we are open from 7:00 AM to 10:00 PM.</div><div>Do you have vegetarian options?</div><div>Yes, we have vegetarian options available.</div></div>	<b>Intelligent web search</b> <div><b>Information Communications Media Market News</b> It also investigates the top three expected <b>Fraud Detection</b> and <b>Prevention</b> programs, in terms of demand in key markets...</div> <div><b>The Big Question: In-House or Outsourced Fraud Protection?</b> First, let's point out that there is not one absolute answer—there are "pros" and "cons" to each. Those who favor in-house...</div> <div><b>How to Protect Your Business from Online Fraud this Holiday Season</b> Michael heads fraud prevention tool. Online and mobile shopping are expected to continue growing apace...</div>											
<table><tr><td>Category</td><td>People; 5 faces</td></tr><tr><td>Adult/Racy?</td><td>False/False</td></tr><tr><td>Dominant colors</td><td></td></tr><tr><td>Accent color</td><td></td></tr></table> <b>Computer Vision</b>	Category	People; 5 faces	Adult/Racy?	False/False	Dominant colors		Accent color		<table><tr><td>Convert spoken audio to text</td></tr><tr><td>Convert text to spoken audio</td></tr><tr><td>Extract intent of user</td></tr></table> <b>Speech Service</b>	Convert spoken audio to text	Convert text to spoken audio	Extract intent of user	<b>Language Understanding</b>	<b>QnA Maker</b>	<b>Bing News Search</b>
Category	People; 5 faces														
Adult/Racy?	False/False														
Dominant colors															
Accent color															
Convert spoken audio to text															
Convert text to spoken audio															
Extract intent of user															



# Intelligent Experiences in Action

Are you a Lover or  
Hater?

Created in 1902





How do you attract  
a new audience to a  
100 year old brand?



# Taste Face

A digital experience that analyses your emotions whilst you taste Marmite

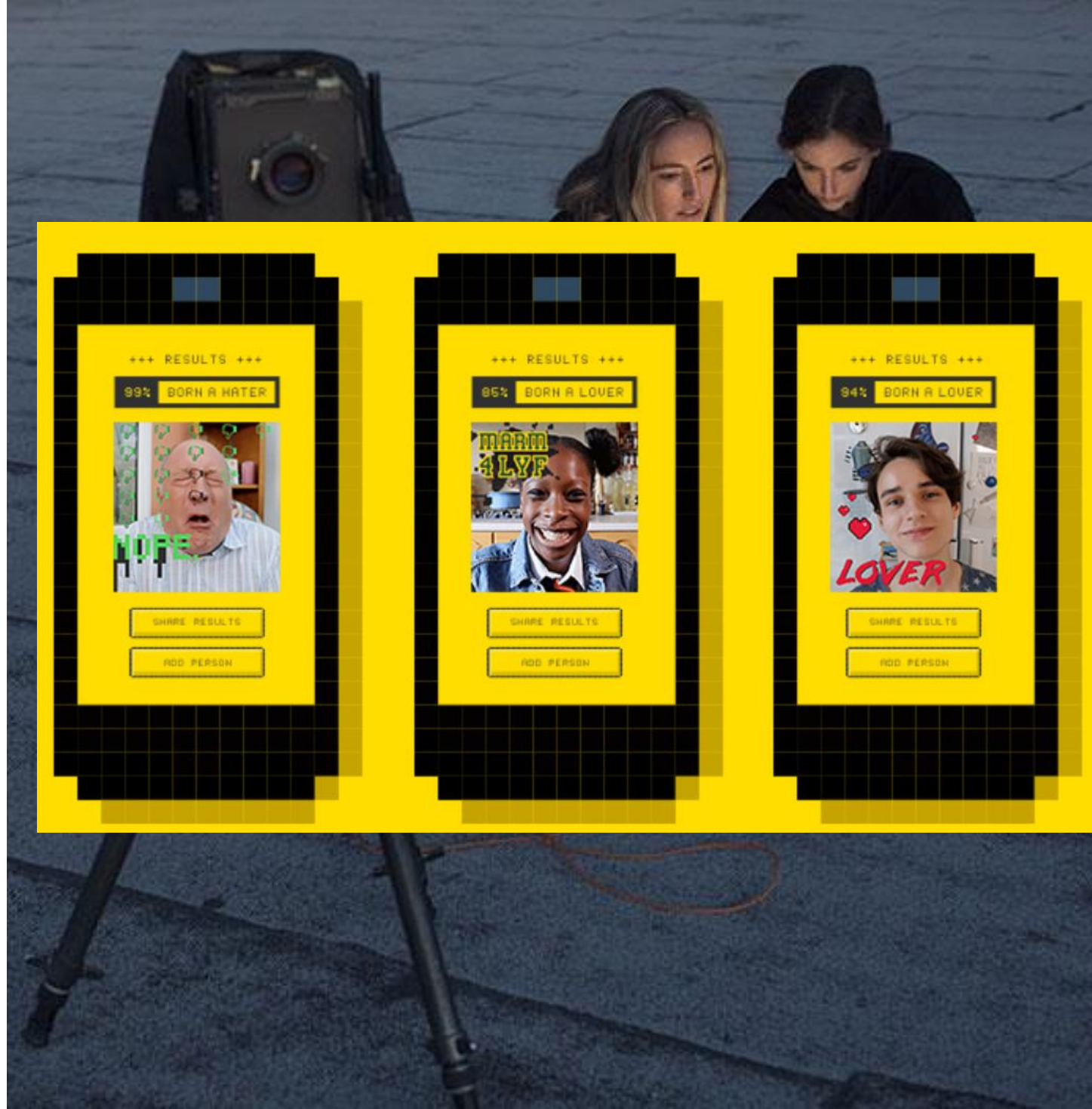
Try it:

<https://tasteface.marmite.co.uk/>

Video:

<https://www.youtube.com/watch?v=7woghR4k4-4>

**AnalogFolk**



# ...and Machines have come a long way

**96%**

RESNET vision test  
152 layers

**5.1%**

Switchboard speech  
recognition test

**88.493%**

SQuAD reading  
comprehension test

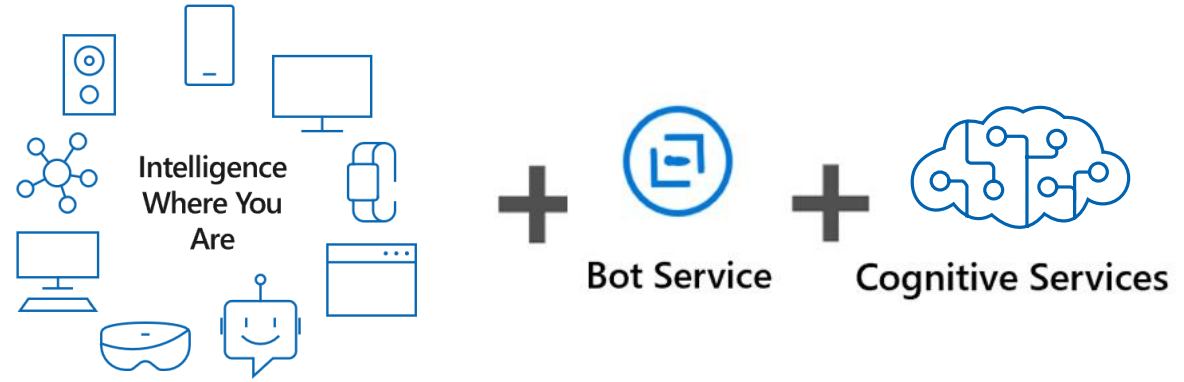
**69.9%**

MT  
research system

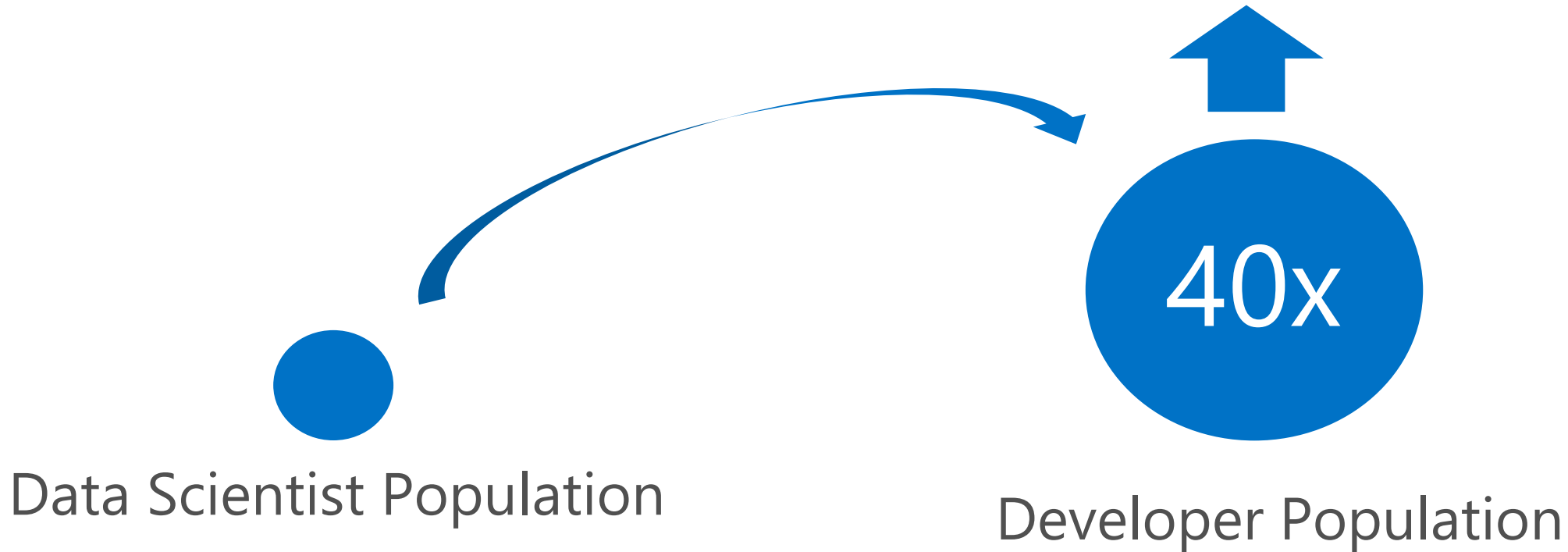




# Democratising AI



*Intelligent API's for every developer*



# Democratising AI

*Intelligent API's for every developer*



Vision



Speech



Language



Knowledge



Search



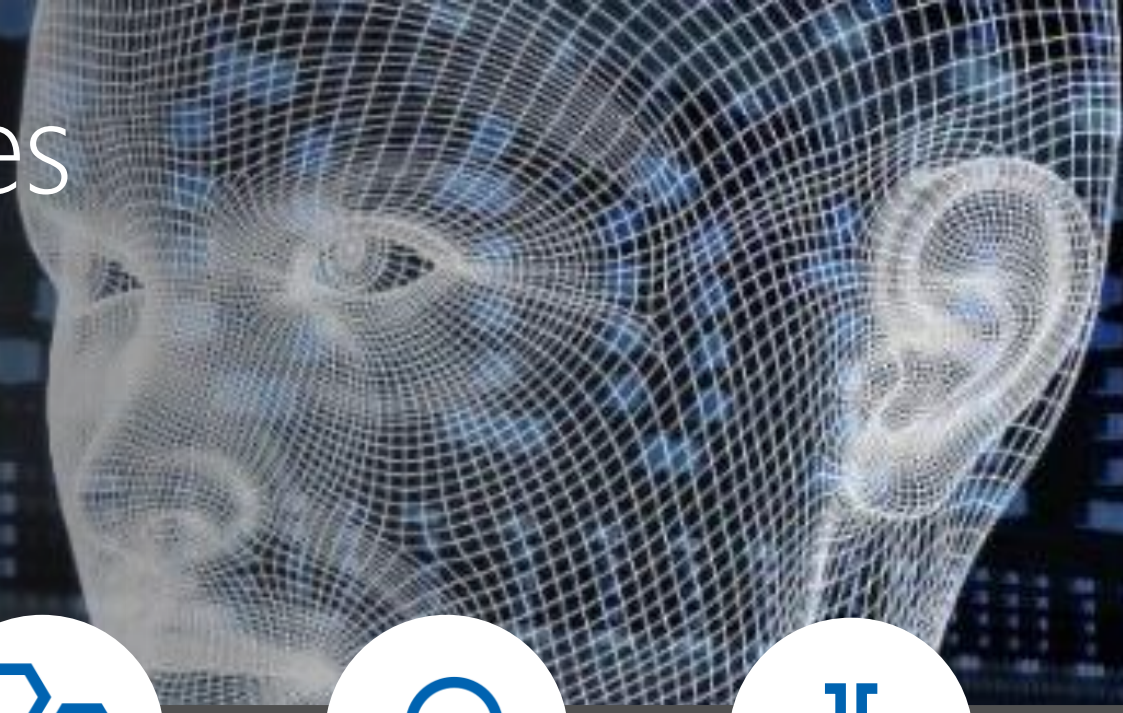
Bot Service

*"Because the Cognitive Services APIs harness the power of machine learning, we were able to bring advanced intelligence into our product without the need to have a team of data scientists on hand."*

Aaron Edell, Chief Product Owner, GrayMeta

# Microsoft Cognitive Services

Give your apps a human side



## Vision

From faces to feelings, allow your apps to understand images and video



## Speech

Hear and speak to your users by filtering noise, identifying speakers, and understanding intent



## Language

Process text and learn how to recognize what users want



## Knowledge

Map complex information and data in order to solve specific tasks



## Search

Access billions of web pages, images, videos, and news with the power of Bing



## Labs

An early look at emerging Cognitive Services technologies: discover, try, and give feedback on new technologies before general availability

# 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



# Microsoft Cognitive Services APIs



## Vision

Video Indexer

Computer Vision

Face

Emotion

Content Moderator

Custom Vision



## Speech

Speaker Recognition

Bing Speech

Custom Speech

Translator Speech

### Unified Speech

Speech to Text  
w. Custom Speech

Text to Speech  
w. Custom Voice

Speech Translation  
w. Custom Translator



## Language

Text Analytics

Bing Spell Check

Translator Text

Language Understanding  
(LUIS)



## Knowledge

QnA Maker

Custom Decision



## Search

Bing Entity Search

Bing Autosuggest

### Bing Search

Web Search

Image Search

News Search

Video Search

Bing Statistics add-in

Bing Visual Search

Bing Custom Search



## Labs

Project Gesture

Project Local Insights

Project Academic  
Knowledge

Project Entity Linking

Project Knowledge  
Exploration

Project Event Tracking

Project Answer Search

Project URL Preview

Project Anomaly Finder

Project Conversation  
Learner

Project Personality Chat

# Every Intelligent Solution needs a Modern Architecture



Vision



Speech



Language



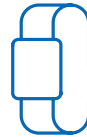
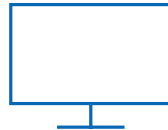
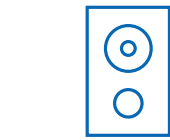
Knowledge



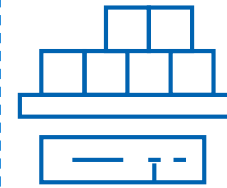
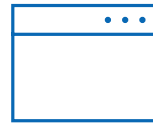
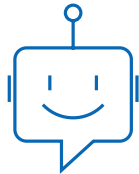
Search



Bot Service



Intelligence  
Where You  
Are



Container Platforms



App Services



Serverless



Intelligent Experiences

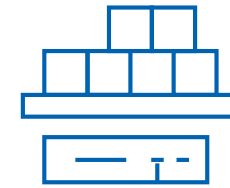
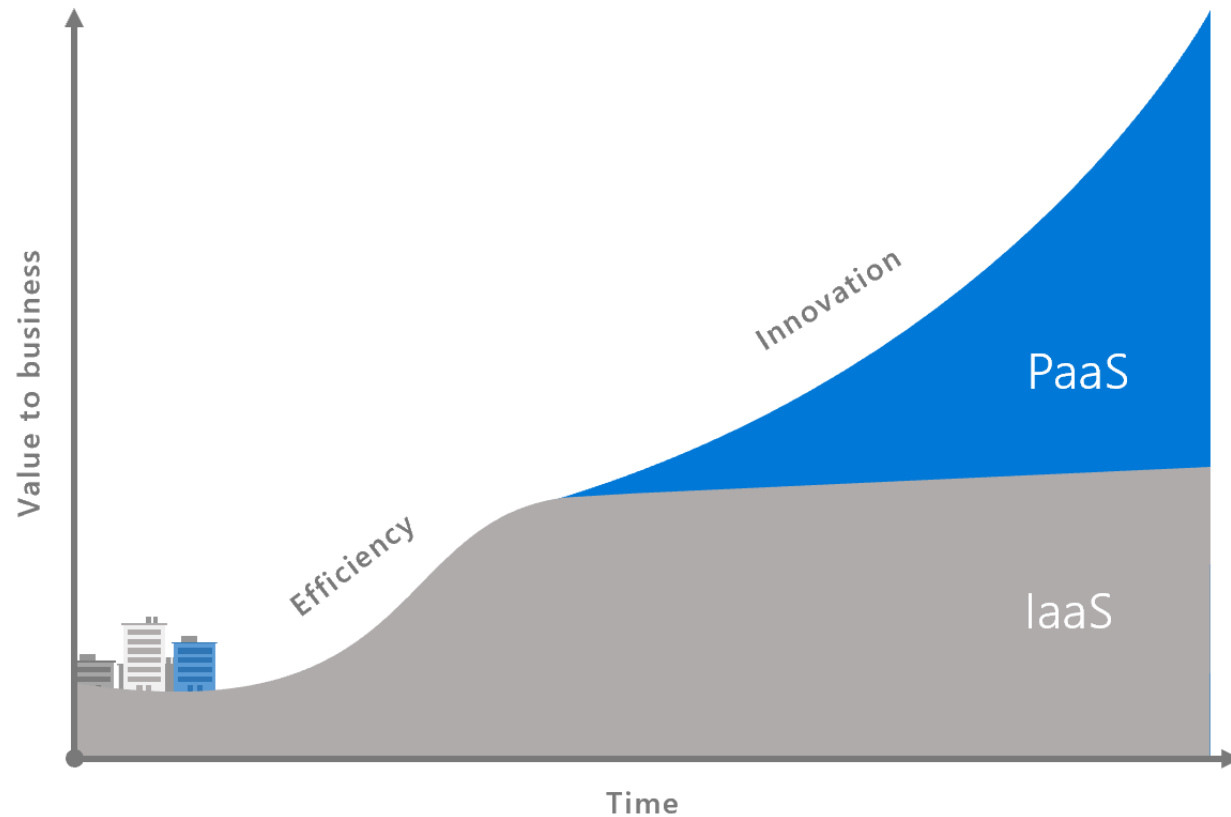
# Every Intelligent Solution needs a Modern Architecture



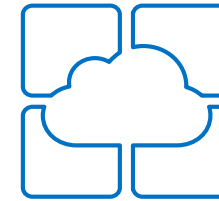
80% IT time saved



50% faster service deployment



Container Platforms



App Services

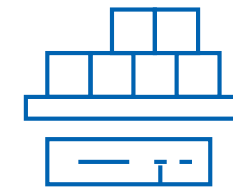
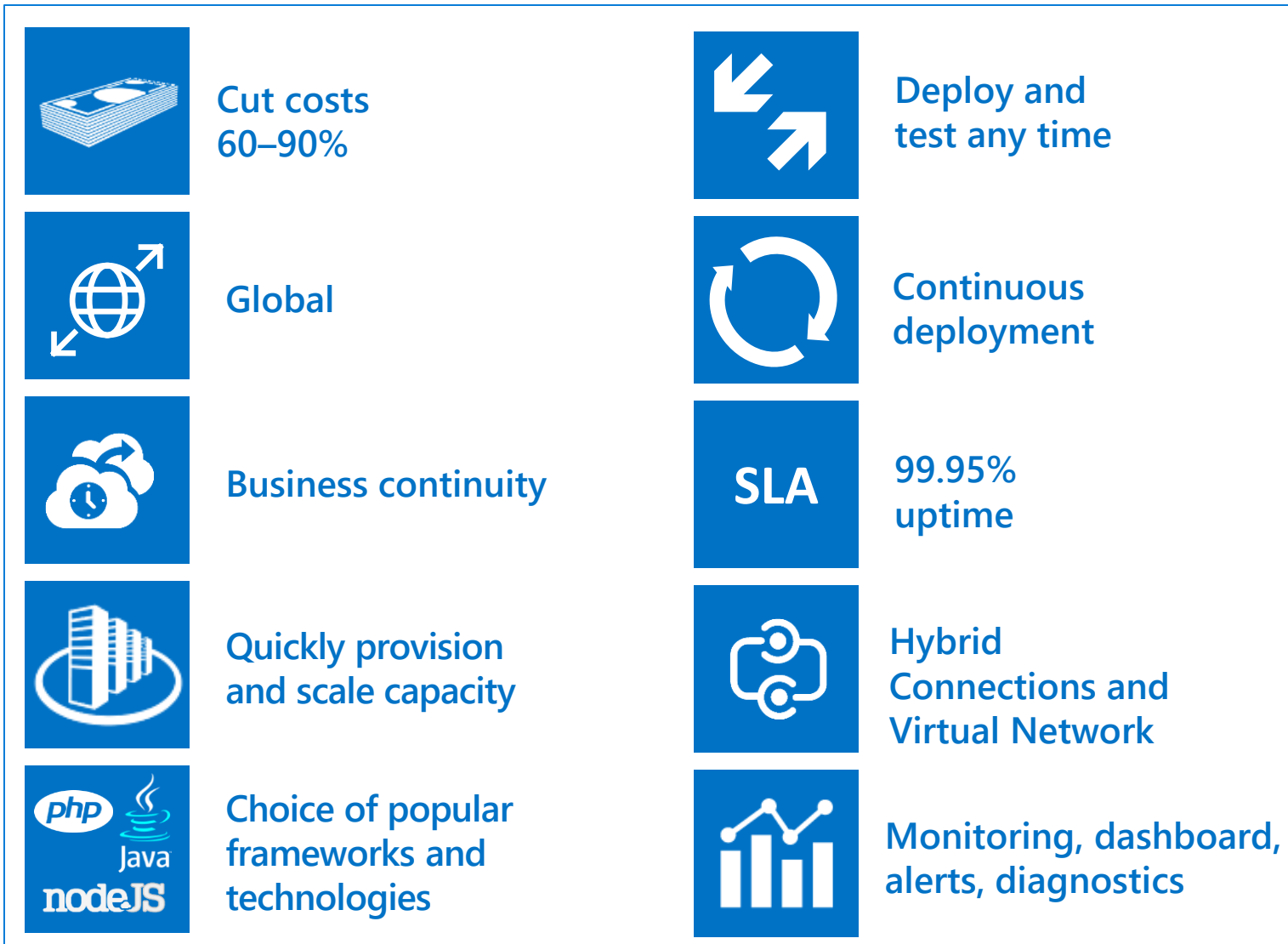


Serverless

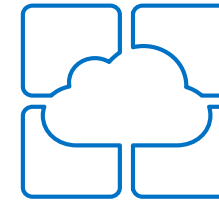
Quickly build, deploy and scale powerful cloud applications without worrying about infrastructure

Statistics based on five-year, risk-adjusted figures for a composite organization constructed from aggregated interviews with eight Microsoft Azure IaaS customers.  
Source: "The Total Economic Impact Of Microsoft Azure PaaS," a commissioned study conducted by Forrester Consulting, June 2016

# Every Intelligent Solution needs a Modern Architecture



Container Platforms



App Services



Serverless

Quickly build, deploy and scale powerful cloud applications without worrying about infrastructure

# Other customers are already creating Intelligent solutions



## Intelligent Agents

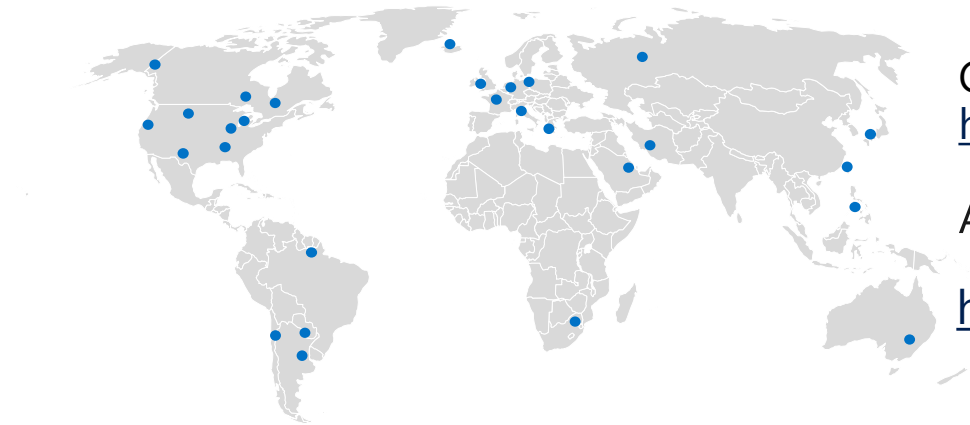
Transform your engagement with customers and employees



## Intelligent Apps

Leverage AI to create the future business applications

1000+ companies



Customer Stories:

<https://customers.microsoft.com>

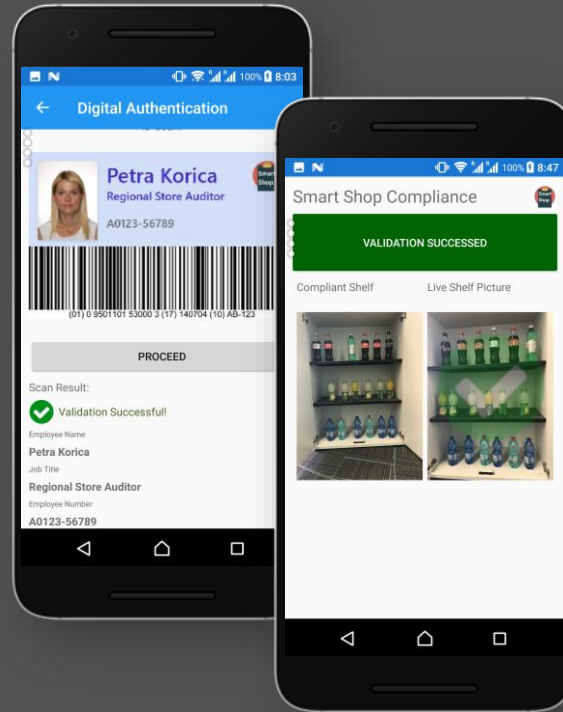
AI Industry stories

<https://bit.ly/2L6Ne2d>





# AI Show Case Smart Shop



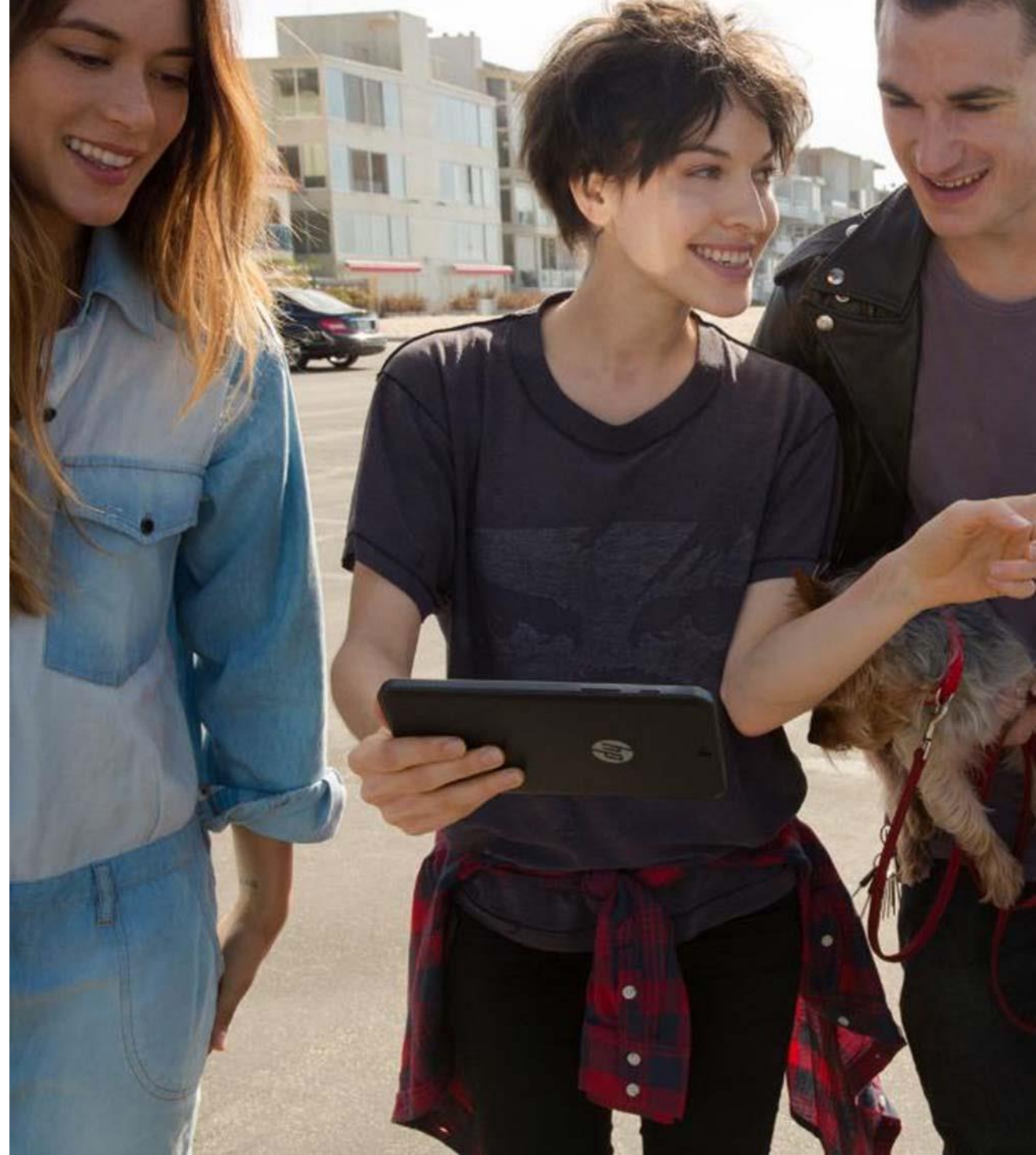
Innovation  
Showcase



# Contoso Smart Shop Chain

## Overview:

- Consumer goods retail industry
- 1000+ geographically distributed stores
- 10,000+ employees
- 100+ store auditors and compliances staff

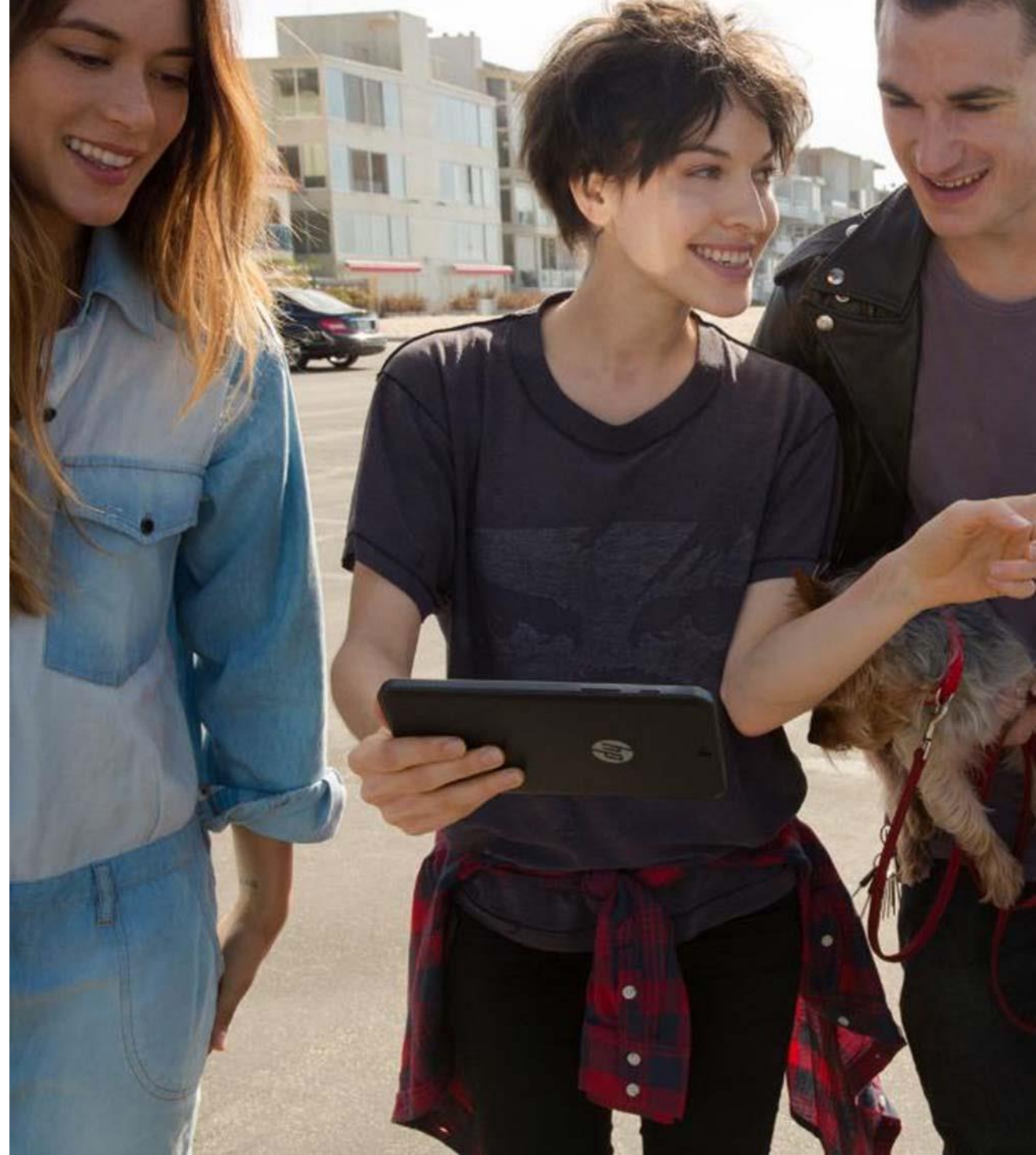




# Contoso Smart Shop Chain

## Problem:

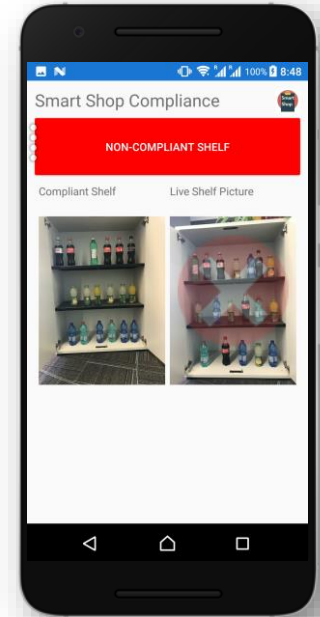
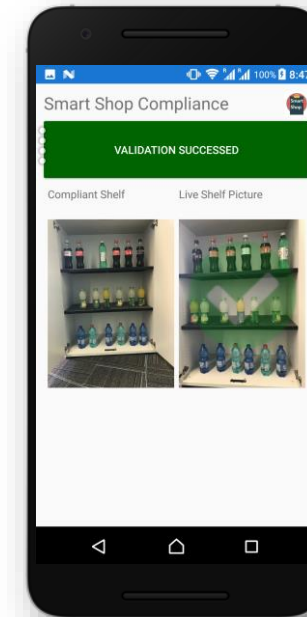
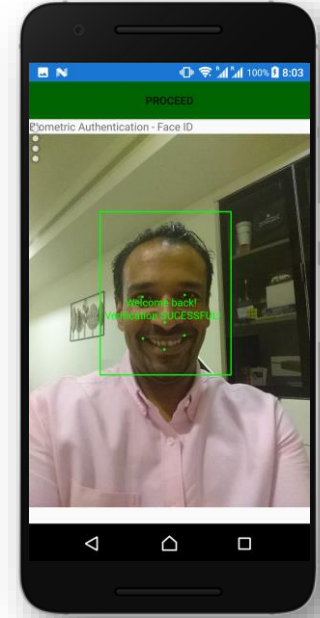
- Shelves stocking compliance is a critical process with regulatory consequences
- Auditors must be authenticated in-person due to the sensitivity of the role
- Store compliance have officers have challenges in assessing the compliance of in-store shelves stocking



# Contoso Smart Shop Chain

## Solution:

- Face-biometric & ID sign in process to ensure compliance with authentication requirements
- AI-assisted mobile application that will enable quick and accurate assessment for compliance and image-documented report.



## Policy Compliance



Soda

Juice

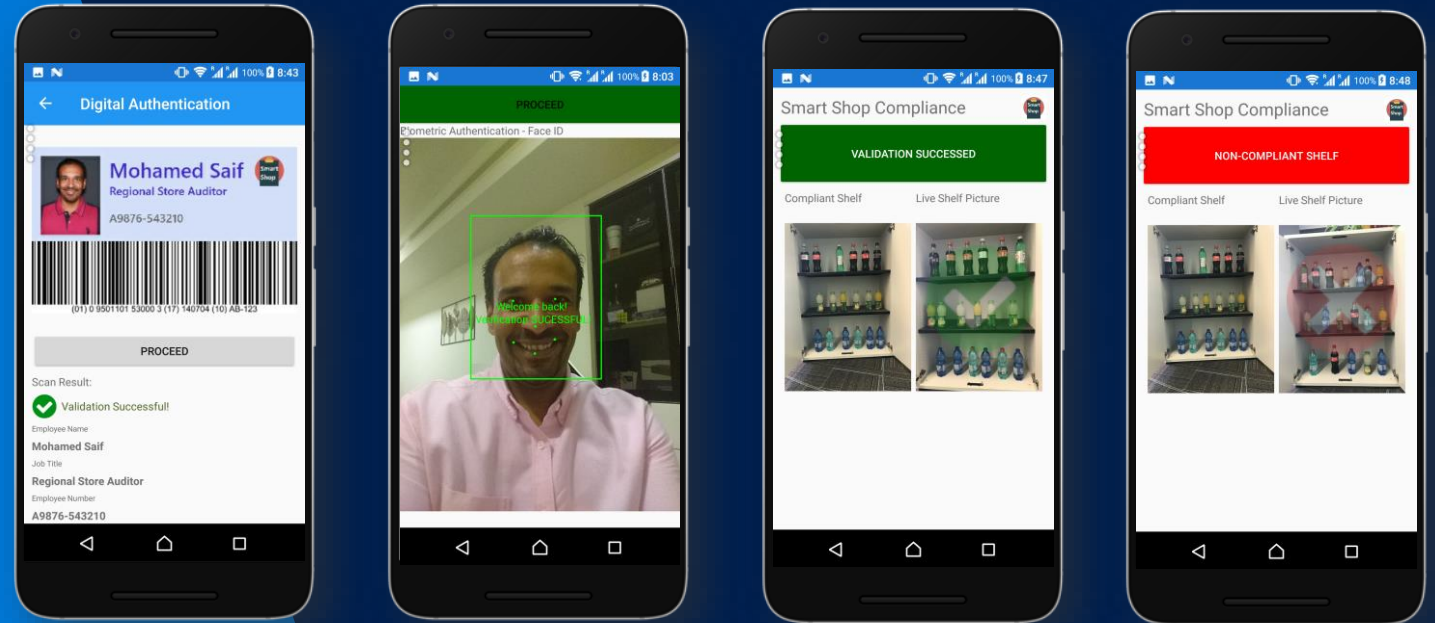
Water



LIVE DEMO  
Shop Manager  
App

# Contoso Smart Shop POC Implementation

## Microsoft Cloud Workshops Intelligent Experiences



Access Intelligent Experiences Workshop code and guide here:

<https://aka.ms/ie-cw>

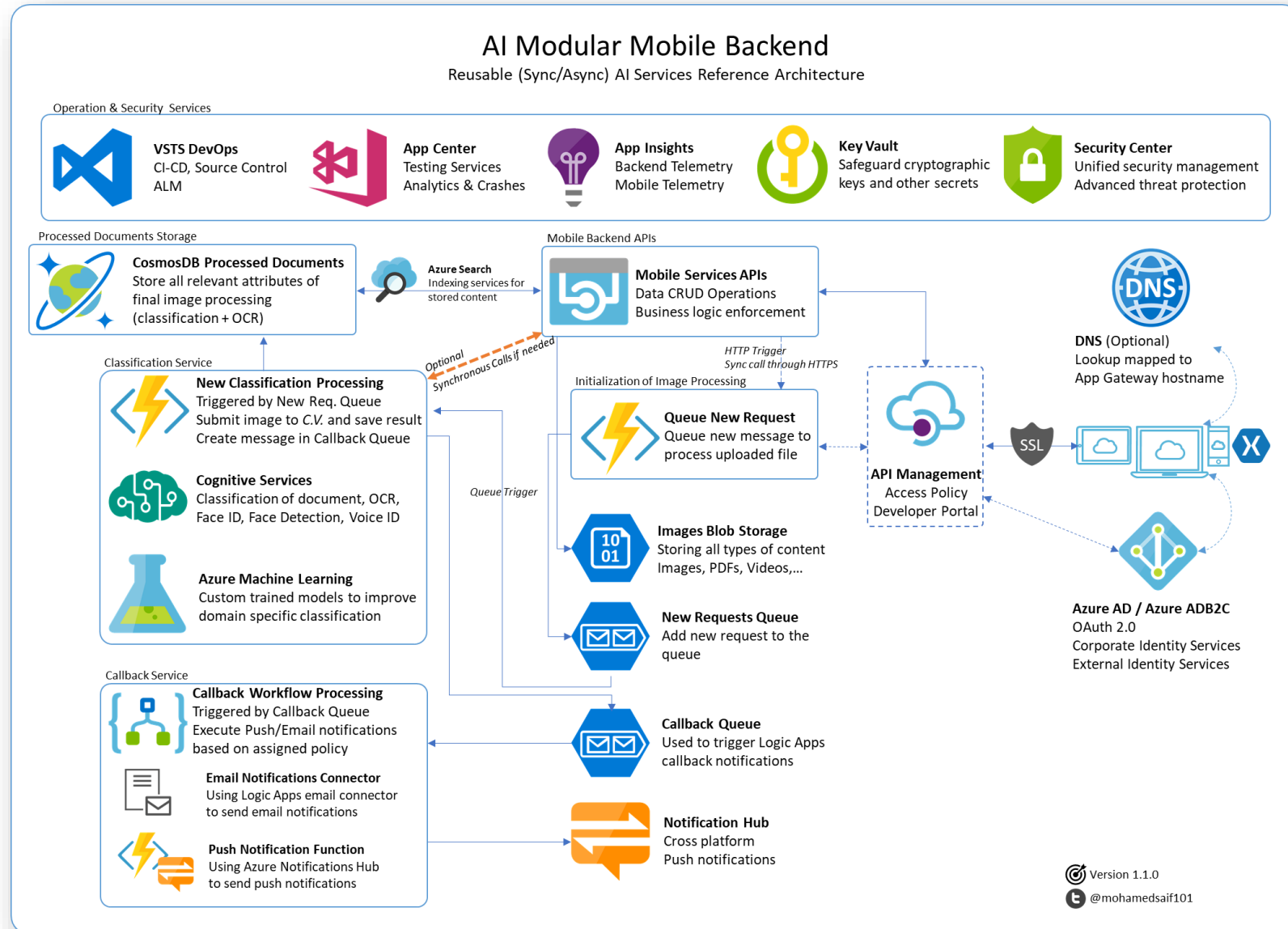


# Azure AI Backend Reference Architecture

Production-AI  
Backend



# AI-Infused Azure Reference Architecture





Get started for free at  
<http://azure.com/Cognitive>



Learn more on the Cognitive  
Services [documentation](#)



Schedule a workshop to identify  
areas in your business where  
analytics and intelligence can  
drive transformation



Talk with your Microsoft contact  
about licensing options and partners





# Developer resources

## Pricing

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

## Documentation

<https://docs.microsoft.com/en-us/azure/#pivot=products&panel=cognitive>

## Client SDKs

<https://azure.microsoft.com/en-us/resources/samples/?sort=0&term=cognitive+services>  
<https://github.com/southwood/project-oxford-python>

## Example Code

<https://github.com/mohamedsaif/ContosoShopManager>  
<https://github.com/jsturtevant/happy-image-tester-django>  
<https://github.com/Microsoft/Cognitive-Face-Android>  
<https://github.com/Microsoft/Cognitive-Samples-IntelligentKiosk>

## Join Our Community

<https://stackoverflow.com/questions/tagged/microsoft-cognitive>  
<https://cognitive.uservoice.com/>



# Thank you!

Mohamed Saif

*App Innovation Technical Lead*

*Global Black Belt - MEA*

 *@mohamedsaif101*

## Intelligent Experiences

<https://github.com/mohamedsaif/ContosoShopManager>