

Machine Learning developer in “Business”

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“

Machine Learning의 여러 분석기법과 알고리즘을 어떻게 비즈니스에 활용 가능한지, 실제 Cognitive Service(Face API & Voice API)로 구축된 키오스크 사례와, Machine Learning API 호출 및 API를 consume 하고 C#(또는 Python)으로 개발

”

[illegible]

이분은 누구?



무슨 서비스?

33000000



DEMO

<http://how-old.net/>

#HowOldNumbers

4일간:

- 33M 사용자
- 1.2M 방문자 / 시간
- 236M 이미지
- 10K 이미지 / 초
- 1.7M FB 공유



DEMO

Face API

<https://www.celebslike.me/>

DEMO

Sentiment 분석 – Text API

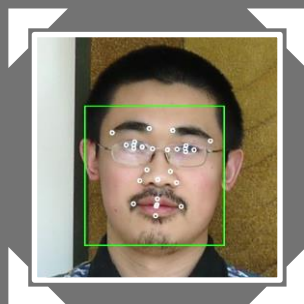


얼굴 인식 API – 얼굴 감지



INPUT
IMAGE

DETECTION



FACIAL
RECTANGLE + LANDMARKS

ATTRIBUTES

Detection Result:

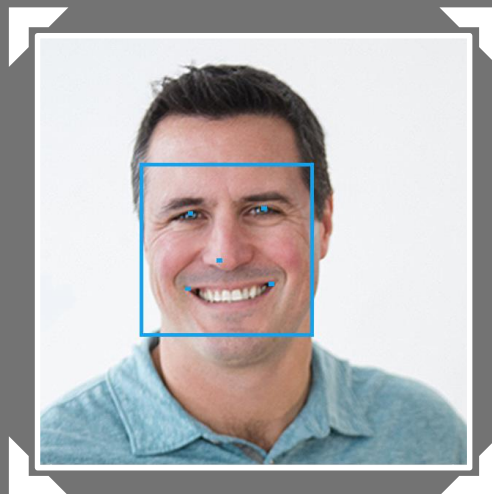
JSON:

```
[
  {
    "faceRectangle": {
      "width": 109,
      "height": 109,
      "left": 62,
      "top": 62
    },
    "attributes": {
      "age": 31,
      "gender": "male",
      "headPose": {
        "roll": "2.9",
        "yaw": "-1.3",
        "pitch": "0.0"
      },
      "faceLandmarks": {
        "pupilLeft": {
          "x": "93.6",
          "y": "88.2"
        },
        "pupilRight": {
          "x": "138.4",
          "y": "91.7"
        }
      }
    },
    ...
  }
]
```



얼굴인식 API – 동일인 감지

Given two faces, determine whether they are the same person



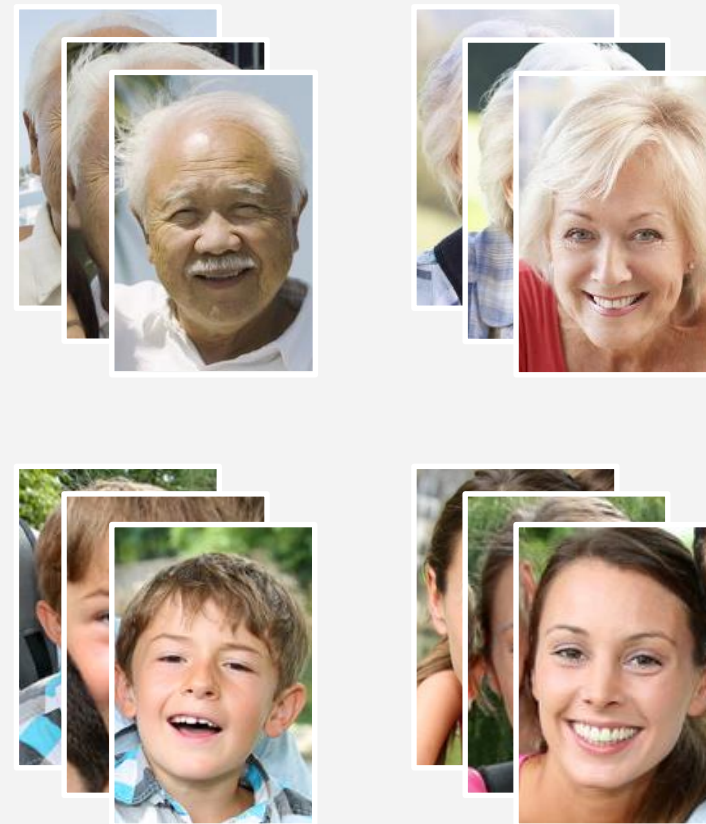
Verification Result:

JSON:

```
[  
  {  
    "isIdentical":false,  
    "confidence":0.01  
  }  
]
```



얼굴 인식 API – Grouping



CLUSTERED BY
DETECTED PEOPLE

DEMO

Intelligent Kiosk

Video

Dartmouth-Hitchcock 의료 서비스

DEMO

Dartmouth-Hitchcock 의료 서비스
<http://dhpoc.azurewebsites.net/>



DEMO

고객 맞춤 서비스

Dartmouth-Hitchcock 의료 서비스

<http://dhpoc.azurewebsites.net>

실세계의 ML - 추천 상품

- 전통적인 추천
 - 크로스셀/업셀/가격 디스카운트 제안
 - 대부분 수동 추천, 비즈니스 "규칙"으로 업셀,크로스셀 제공
- 국내외 대부분의 마켓 서비스에서 제공

Frequently Bought Together



Price for all three: **\$279.70**

[Add all three to Cart](#)

[Add all three to Wish List](#)

[Show availability and shipping details](#)

- ☒ **This item:** Nokia Lumia 920 Smartphone - unlocked - White **\$259.80**
- ☒ ArmorSuit MilitaryShield - Nokia Lumia 920 Screen Protector Shield + Lifetime Replacement \$9.95
- ☒ Nokia Lumia 920 Low Profile Covert Branded PU Leather Wallet Case (Black) \$9.95

Customers Who Bought This Item Also Bought

Nokia Lumia 920 Low Profile Covert Branded PU Leather Wallet Case (Black) ★★★★☆ (262) \$9.95 ✓Prime	ArmorSuit MilitaryShield - Nokia Lumia 920 Screen Protector Shield ... ★★★★☆ (335) \$9.95 ✓Prime	NOKIA LUMIA 920 HYBRID RUBBERISED BACK COVER CASE - SOLID BLACK ★★★★☆ (161) \$6.95 ✓Prime	Nokia Lumia 920 Black Factory Unlocked 32GB phone 4G LTE ★★★★☆ (184) \$236.99 ✓Prime	Skinomi® TechSkin - Nokia Lumia 920 Screen Protector Premium HD Clear Film with ... ★★★★☆ (196) \$8.95 ✓Prime	Nokia Lumia 920 Low Profile Covert Branded PU Leather Wallet Case (Purple) ★★★★☆ (262) \$8.95 ✓Prime	Nokia Lumia 920 Premium PU Leather Wallet Case with Floral Interior (Red) ★★★★☆ (126) \$8.95 ✓Prime	The Friendly Swede Bundle of 10 Colorful Silicone Covers Cases Skins for Nokia Lumia ... ★★★★☆ (134) \$12.77 ✓Prime	MP Ant Pro 920 ★ \$0.



JJ Foods - Churn(고객이탈) 예측

JJ Food 서비스

- Customers

- 패스트푸드 등
- 소매업
- 급식
- 호텔 등
- 이벤트 케이터링

- Year 2014

- 8 지점
- 60,000 고객
- 4,500 제품들
- 1M + 구매 주문



JJ Food Service

- 상위 20%의 churn prediction을 이용해 3배 이상의 효과(기존 random 프로모션)
- 200개의 상위 예측에 대해 45% 이상의 유지 = 17%의 이탈





실세계의 ML – 미 체신부

The United States Postal Service processed over 150 billion pieces of mail in 2013—far too much for efficient human sorting.

But as recently as 1997, only 10% of hand-addressed mail was successfully sorted automatically.



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reference
reference

challenge

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자동적으로 다양한 유형의
손글씨를 해석하는 기술 학습

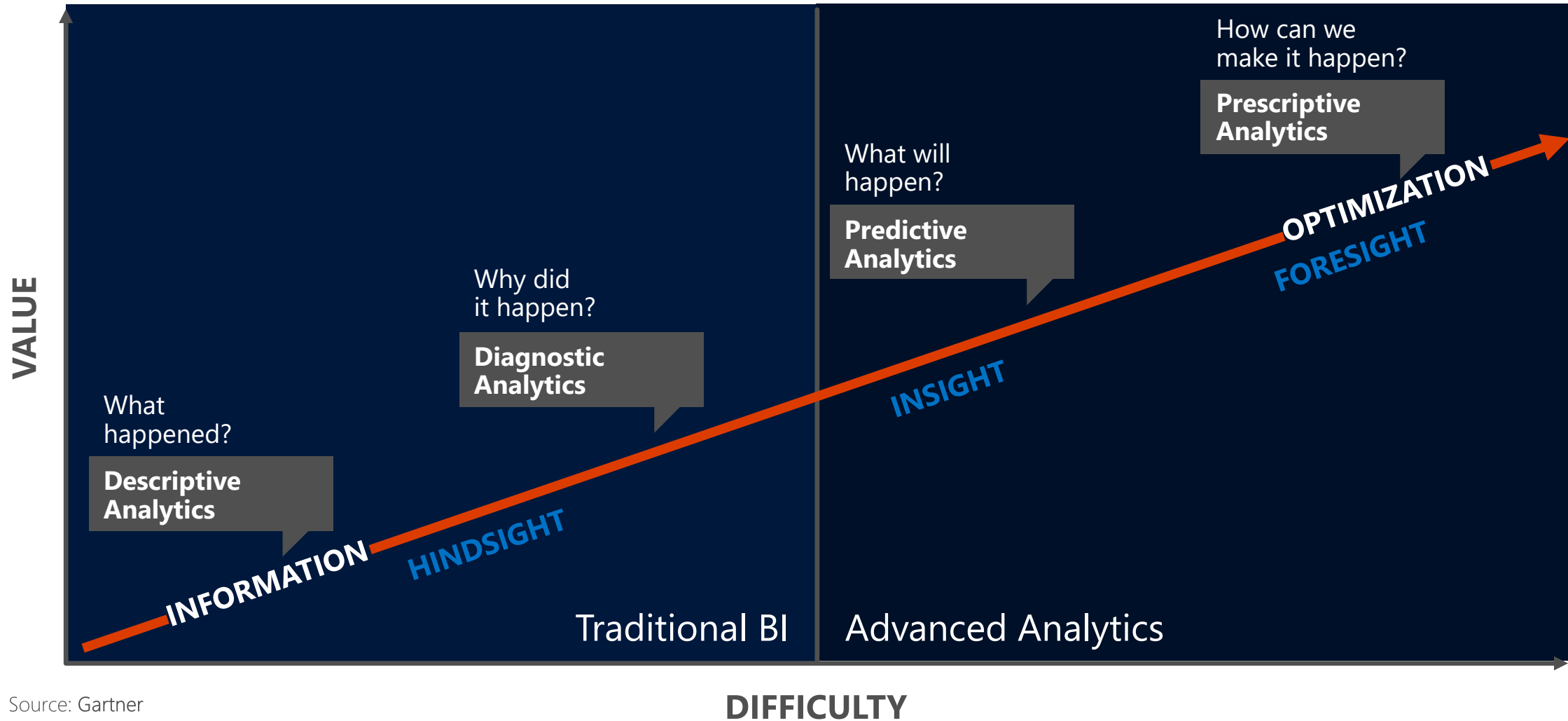
- 98% 이상의 정확도

Transformational trends



Advanced Analytics

Business Intelligence와의 비교



Demo

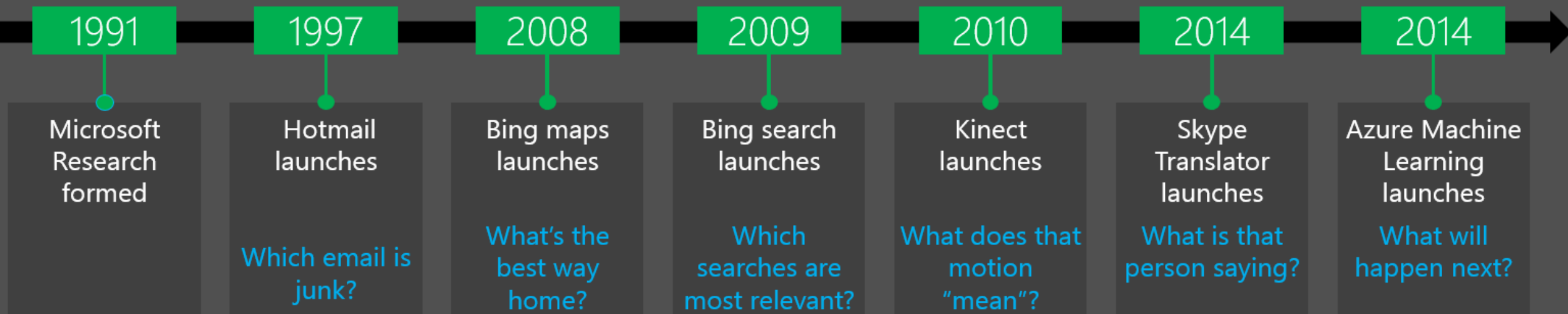
Bot framework

Power – BI DEMO

<https://powerbi.microsoft.com/>

Microsoft & Advanced Analytics

Answering questions with experience



John Platt,

Distinguished scientist at
Microsoft Research

“Machine learning is pervasive throughout Microsoft products.”

Advanced Analytics scenarios



EXAMPLE SOLUTIONS



Sales
and marketing



Finance
and risk



Customer
and channel



Operations
and workforce



Sales forecasting



Fraud detection



User segmentation



Agent allocation



Demand forecasting



Credit risk management



Personalized offers



Warehouse efficiency



Sales lead scoring



Product recommendation



Smart buildings



Marketing mix
optimization

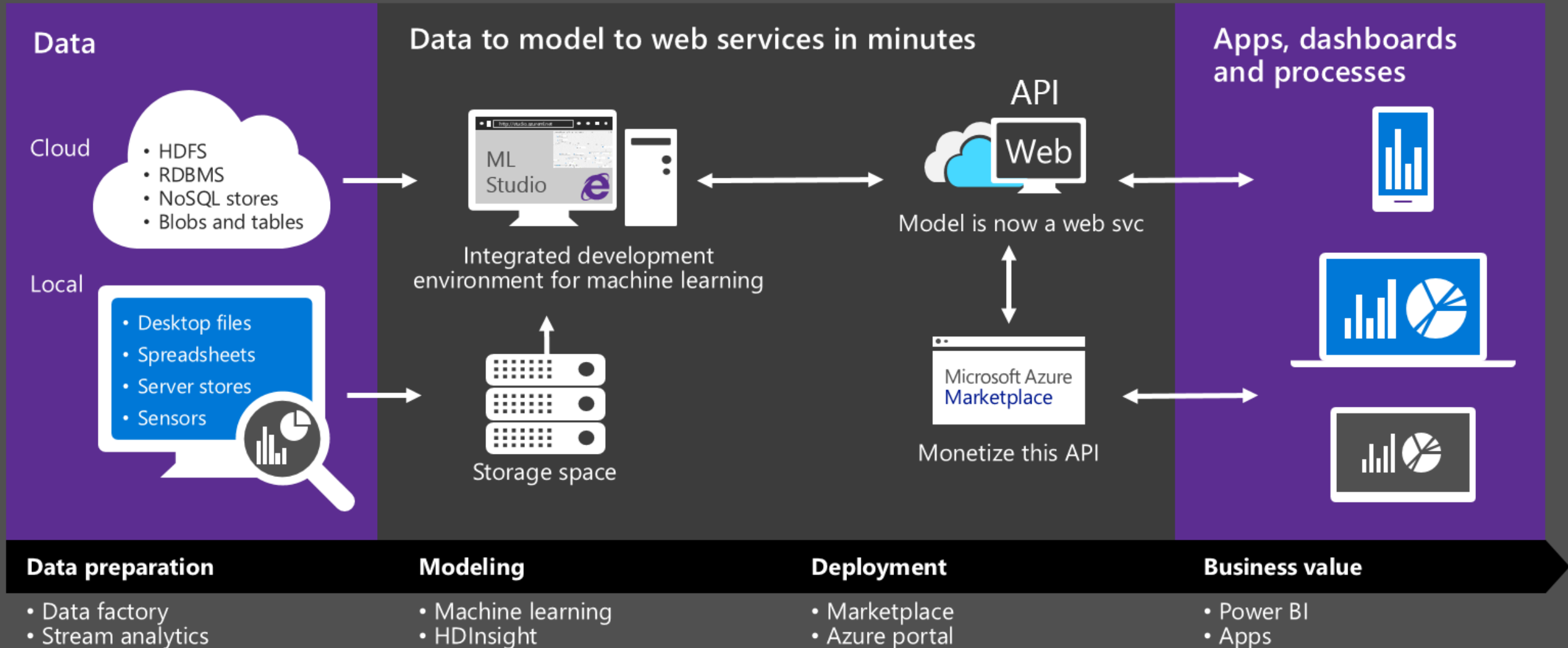


Predictive maintenance



Supply chain optimization

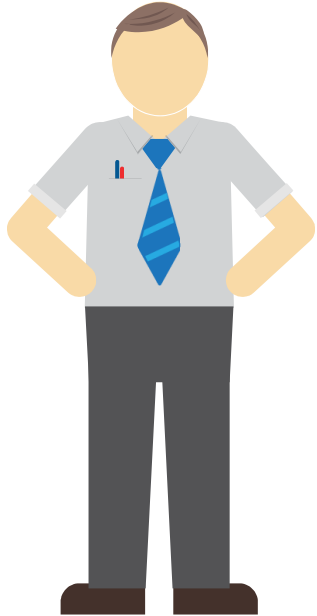
Advanced analytics architecture



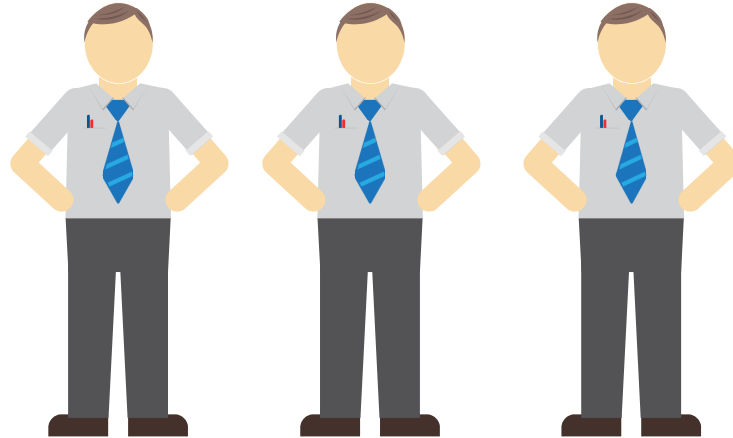
Machine learning DEMO – 분석 모델 개발

Scenario

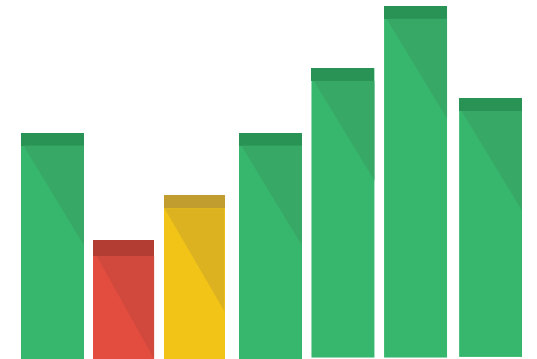
게임 고객의 이탈을 방지해
지속적인 게임 매출 유지



다양한 통계 변인을 가진 고객
고객들 중 향후 이탈 가능성이 높은
변인을 가진 고객 파악



기본적인 정보를 통해
고객의 향후
이탈 여부 측정 희망



DEMO Azure Machine Learning

모델 개발 및 API 배포

Azure Machine Learning 목표

Make machine learning accessible to every enterprise, data scientist, developer, information worker, consumer, and device anywhere in the world.

