



Machine Learning



About us

10+

years serving

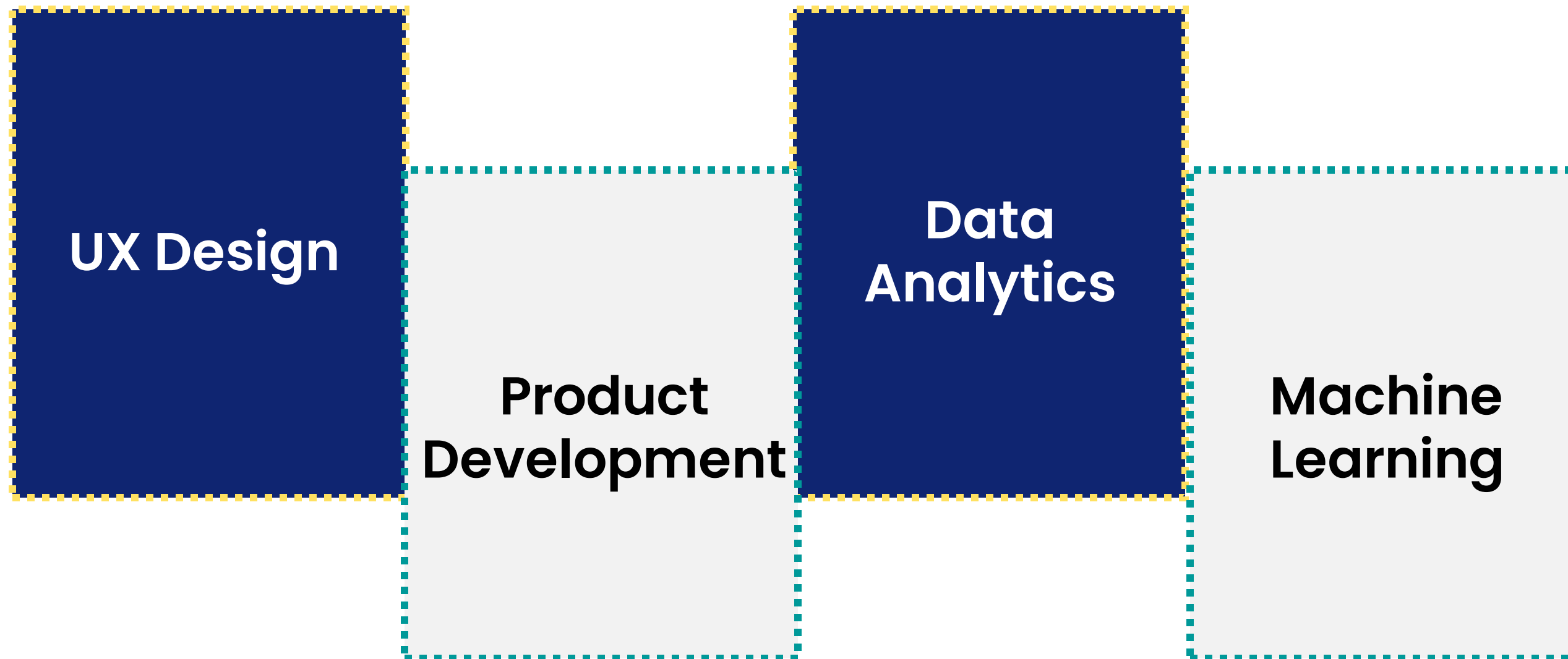
20+

million end customers

100+

projects

Our Core Services



Our Team

1. Data Analysts

- Domain knowledge of multiple domains
- Expertise defining business use cases & KPIs with stakeholders
- Hands on experience in Descriptive, predictive and prescriptive analytics
- Identify data sources, Attribute relationships mapping to KPIs

2. Data Engineers

- Experience in recommending optimal, low-cost tech stack for ETL
- Data lake for structured and unstructured data
- Skills in Spark, Airflow, SQL, Databricks, Snowflake, Social media APIs
- Third-party SaaS product integration knowledge
- ETL on AWS, Azure, GCP and on-premise

3. Visualization Experts

- Decide on apt dashboard visualization for quick decision-making
- PowerBI, Tableau, Redash, Plotly, Quicksight, Superset

Our Team

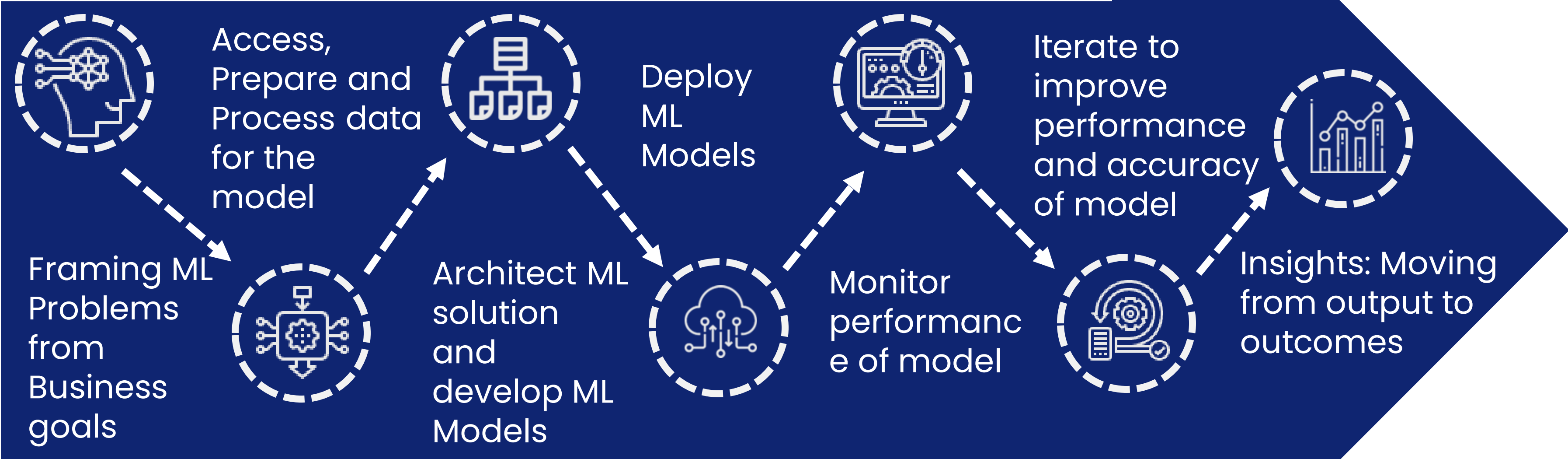
4. Data Scientists

- Data normalization and cleaning
- Feature Engineering
- Unsupervised and Supervised Learning Algorithm Selection

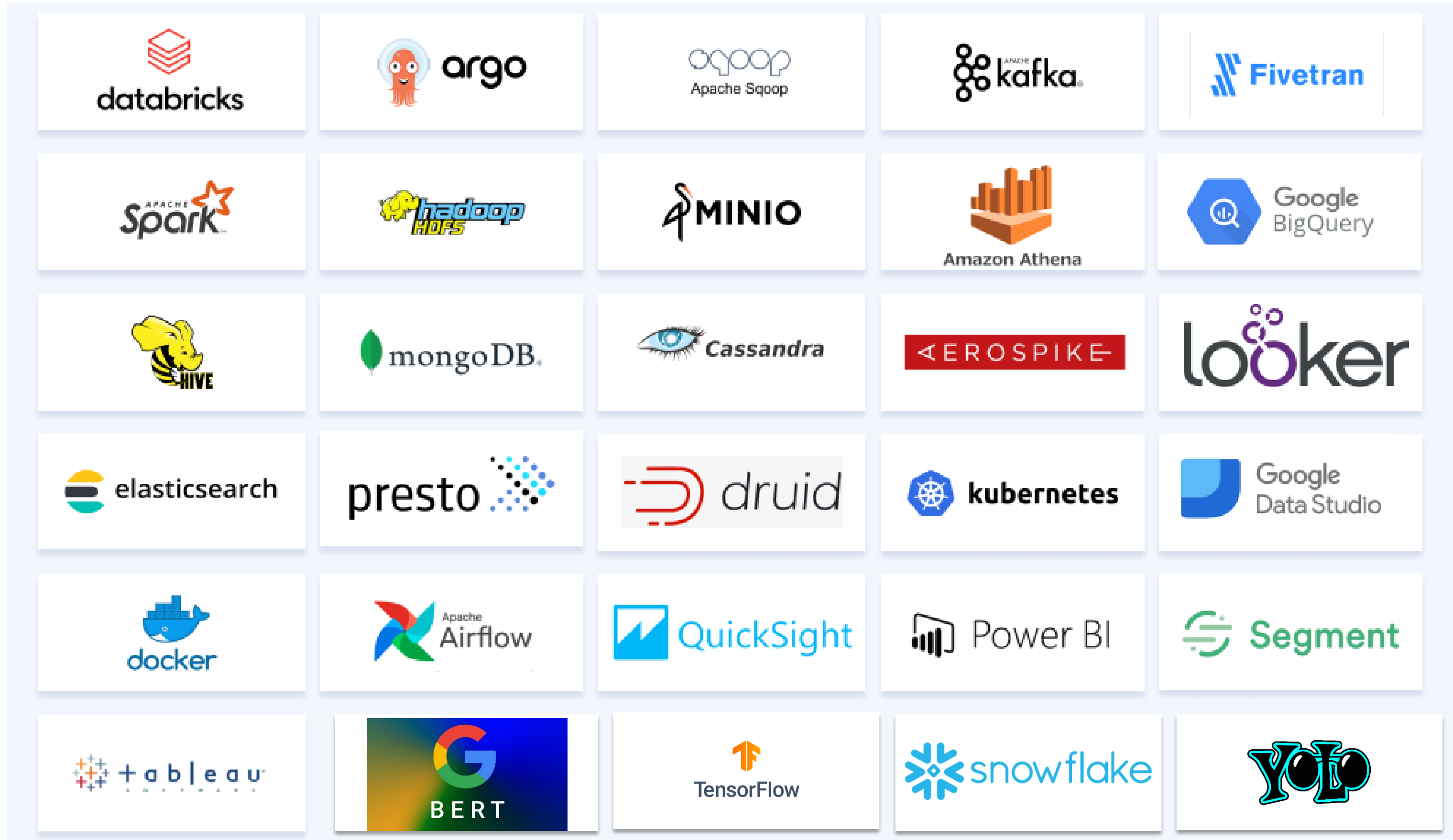
5. Machine Learning Engineers

- Deep Learning Algorithms implementation using TensorFlow, Yolo, BERT Frameworks
- Unstructured data interpretation – Computer Vision, NLP
- MLOps pipeline for continuous improving of ML model accuracy
- High performance deployments over GPUs
- Knowledge of Cloud ML Services like Sagemaker, AIBuilder etc.

ML Lifecycle



Technologies



Domains we Serve



Finance



Government



Healthcare



Agriculture



Logistics &
Transportation



IoT Sensor
Data



Sales &
Marketing



Gaming

Helping you Innovate across your Business



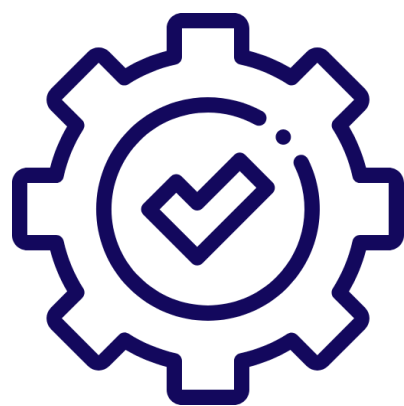
Services

- Intelligent catboats
- Virtual Assistants



Finance

- Document Understanding
- Financial Forecasting
- Risk Management



Operations

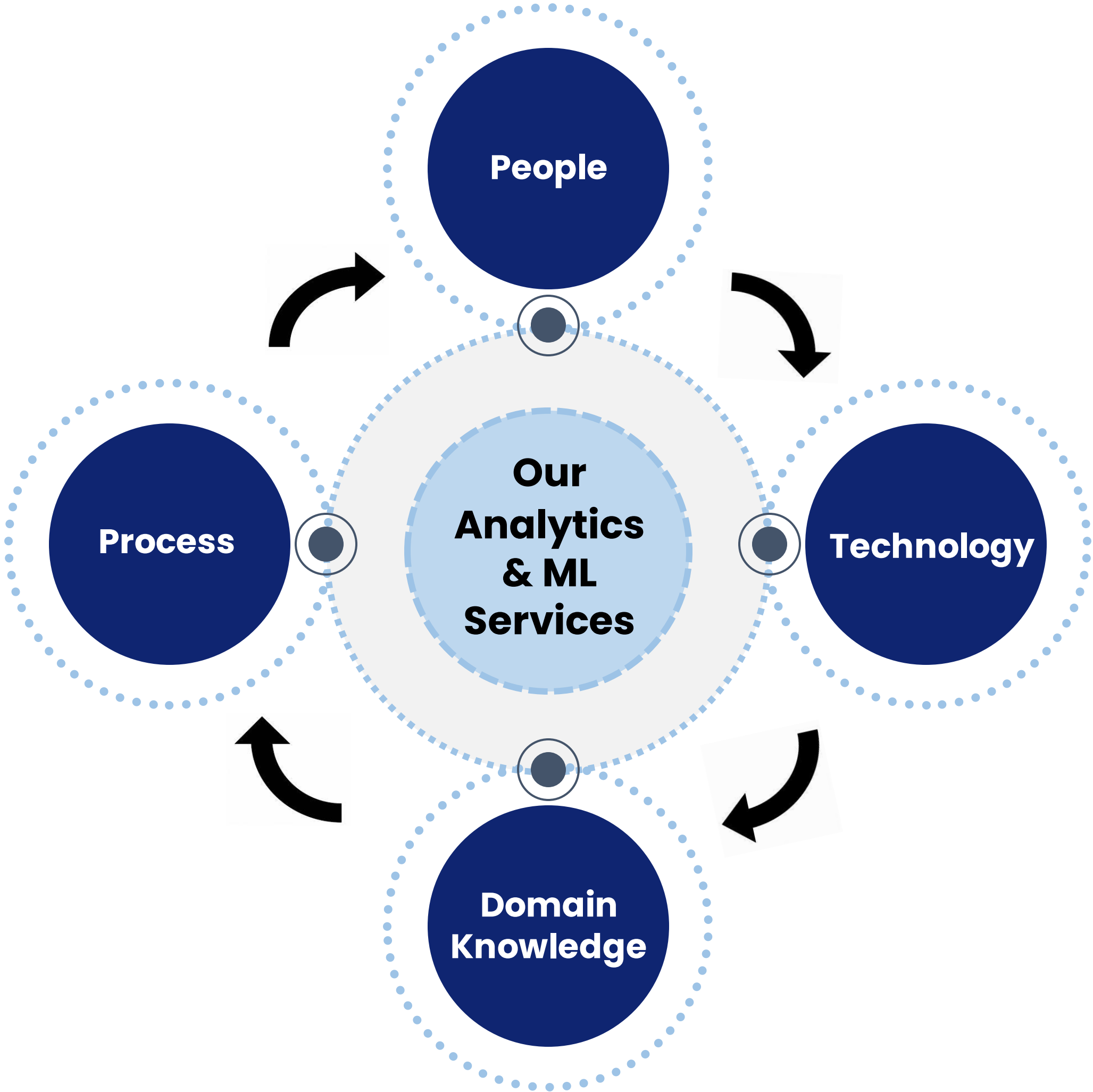
- Predictive Maintenance
- Demand Forecasting
- Quality Assurance



Healthcare

- Risk Adjustment Coding
- HEDIS Quality Measurement

Our Pillars



SUCCESS STORIES

Document AI platform for Mortgage Processing company

- Scalable and highly accurate document classification and data extraction platform
- Recognizes checkboxes, tables, signatures areas, stamps, signatures
- Consists of a built-in feedback loop to continuously improve accuracy
- Is based on Computer Vision and Natural Language Processing
- Has a built-in mortgage domain dictionary and taxonomy
- Compliant with MISMO standard SMARTDoc conversion

Chapter 1

CHAPTER 1 • WORLD E-GOVERNMENT RANKINGS

Table 1.3. Top 20 countries in Africa

Country	Level of Income	EGDI	E-GOV	EGDI	Change in Score
Algeria	Upper Middle	0.5390	0.33	0.21	↑ 28
Mali	Lower Middle	0.3338	0.13	0.21	↑ 11
Egypt	Upper Middle	0.5129	0.30	0.21	↑ 27
Morocco	Lower Middle	0.3280	0.12	0.21	↑ 38
South Africa	Upper Middle	0.4999	0.30	0.19	↑ 11
Botswana	Upper Middle	0.4196	0.12	0.21	↑ 9
Namibia	Upper Middle	0.3898	0.11	0.20	↑ 9
Kenya	Lower	0.3805	0.10	0.19	↑ 9
Ethiopia	Lower Middle	0.2753	0.13	0.14	↑ 7
Ghana	Lower Middle	0.3720	0.22	0.13	↑ 22
Rwanda	Lower	0.3589	0.25	0.14	↑ 15
Madagascar	Lower	0.3500	0.20	0.15	↑ 15
Cape Verde	Lower Middle	0.3351	0.22	0.11	↑ 37
Libya	Upper Middle	0.3290	0.13	0.19	↑ 6
Algeria	Upper Middle	0.2700	0.10	0.17	↑ 4
Swaziland	Lower Middle	0.2606	0.18	0.14	↑ 6
Angola	Upper Middle	0.2520	0.10	0.15	↑ 2
Nigeria	Lower Middle	0.2429	0.10	0.14	↑ 2
Cameroon	Lower Middle	0.2394	0.10	0.13	↑ 3
Regional Average		0.2812			
World Average		0.4712			

Despite this phenomenal growth, there are challenges for strategic e-government development. Governments may need to play a greater role in navigating effective policies to reduce access costs for mobile broadband, support private collaboration, encourage innovative business models that drive employment such as micro-work and outsourcing, and support ICT entrepreneurship. Connectivity and digital divide issues should also be given more attention in the region, given the fact that in rural locations, where 65 to 70 per cent of Sub-Saharan Africa's population currently resides, connectivity is still nearly non-existent.⁴ Regional cooperation mechanisms could be strengthened to facilitate national development goals, particularly among those countries with no direct sea access (see section on Landlocked Developing Countries).

While the general e-government trends in Africa seem to be inclined toward mobile government initiatives and social media strategies, it is also advisable for policymakers to explore e-government on a more fundamental level through adjusting legislation and policies to encompass technology in national development strategies and welcoming new ideas and ways of connecting with citizens.

MARKET OWNER OCCUPANCY DATA

Average Value	Minimum Value	Maximum Value	Median Value
\$517,217	\$194,303	\$1,918,145	\$447,963

BUYERS AND SELLERS

Buyer/2nd Buyer	Seller/2nd Seller	Lender	Deed Transfer Price	Year	Code
ALAMI LLC	BORAL PROPERTIES LLC		WINN SALE	\$46,000	2019
ASHMORE THOMAS A / REMUE TASHMORE MARLORE K	PETERSON DAVID H & CATHY / PETERSON CATHY		WINN SALE	\$83,000	2019
ATKINSON BRENDA K	CARLTON LAKES MASTER ASSN INC		LIEN LIEN	2019	
ATKINSON BRENDA K	PERLIN KIM & ROBIN / PERLIN ROBIN	AMERIFIRST FNL CORP / AMERIFIRST FNL CO	WINN SALE	\$26,500	2019
HILL GREGORY E / HILL LYNN M	ORIS RICHARD G & JEANNE S / ORIS JEANNE S	FIRST FID INTEGRITY BK	WINN SALE	\$33,000	2017
KREPPLE MARY R	SCHLIEFF HAROLD V & KATHRYN M / SCHLIEFF KATHRYN M		WINN SALE	\$198,500	2019
KRYVAN JEFFREY / KRYVAN DIANE M	PORTER MARGARET & ROSCOE / PORTER ROSCOE	CITIZENS BK NA / CITIZENS BK NA	WINN SALE	\$205,000	2019
NOREN CHARTERING PROPLEN ANN D			WINN SALE	\$239,000	2019
PAMELA ST LAURENT REV L TRUST	HILL GREGORY E & LYNN M / HILL LYNN M		WINN SALE	\$300,000	2019
ROSOLIA CHRISTINA A	SELLERS CAROL R+	LOANDEPOT.COM LLC / LOANDEPOT.COM LLC	WINN SALE	\$168,000	2019
TATF KENNETH L / TATF SUSAN T	CZARNIK JOHN & VICTORIA / CZARNIK VICTORIA	PNC BK NATIONAL ASSN / PNC BK NATIONAL AS	WINN SALE	\$260,000	2019
VASCASSENNO VITO	STEELE DENNIS & PATRICIA A / STEELE PATRICIA A	CROSSCOUNTRY MTD INC / CROSSCOUNTRY MTD INC	WINN SALE	\$175,000	2019

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EMPLOYER SITE MAP

UNEMPLOYED LOCATION: 201 WASHINGTON RD WASHINGTON, MA 01093 (22.1 miles from unemp location) (SEE MAP)

EMPLOYER ASSOCIATED BUSINESS SEARCH: No associated businesses found.

EMPLOYER DATA VERIFICATION

EMPLOYER TRACE	BORROWER REPORTED DATA	VERIFIED RESULTS	STATUS
Company Matched	Boston Public Schools	BOSTON PUBLIC SCHOOLS	✓
ESS Code Matched	0173	0173	✓
Phone Matched	617-630-8000	617-630-8000	✓
Address	200 WASHINGTON ST ROXBURY, MA 02119	200 WASHINGTON ST ROXBURY, MA 02119	✓
City, State, Zip	ROXBURY, MA 02119	ROXBURY, MA 02119	✓
Cell Phone			✓
Employer		SCHOOLS	✓
Industry		SCHOOLS	✓

OVERALL ANALYSIS: ✓ Employer Matched

Uniform Residential Loan Application

APPLICANT INFORMATION

Borrower: Brooke Hernandez

TYPE OF MORTGAGE AND TERMS OF LOAN

Mortgage Applied For: Conventional Other (specify) _____ Agency Case Number: _____ Lender Case Number: _____

Amount: \$ 724,000 Interest Rate: 4.125% No. of Months: 360 Term: Fixed Rate Other (specify) _____

PROPERTY INFORMATION AND PURPOSE OF LOAN

1814 Kingston Rd, Fullerton, CA 92631 County: Orange

Purpose of Loan: Purchase Refinance Construction Permanent Other (specify) _____

Complete this line if construction or construction permanent loan.

Year: 2019 Original Cost: \$ 785,000 Amount Existing Loan: \$ 705,800 Limited Cash-Out Rate/Term: _____ Cost: \$ _____

BORROWER INFORMATION

Borrower's Name (include Jr. or Sr. if applicable): Brooke Hernandez

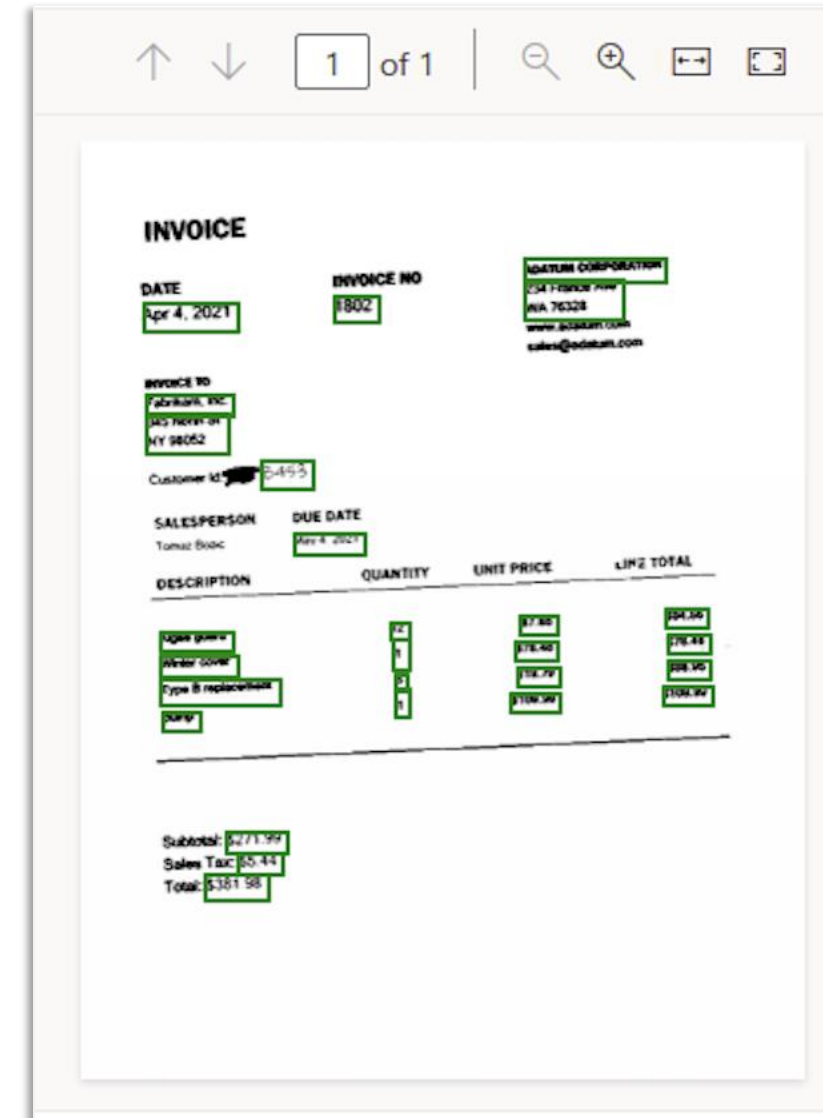
Co-Borrower's Name (include Jr. or Sr. if applicable): _____

Married (includes registered domestic partners): Married (includes registered domestic partners) Other (specify) _____

Present Address (street, city, state, ZIP+4): 1814 Kingston Rd, Fullerton, CA 92631 / United States

Invoice data extraction using Microsoft AI Builder

- Accurate invoice data extraction from variety of supplier invoices
- Recognizes invoice number, dates, items and prices
- Train model for classifying invoices and extracting accurate data
- Extracted data is inserted in CRM using Selenium automated scripts



Total Tax
\$5.44

Vendor Address
234 France Ave WA 76328

Vendor Address Recipient
ADATUM CORPORATION

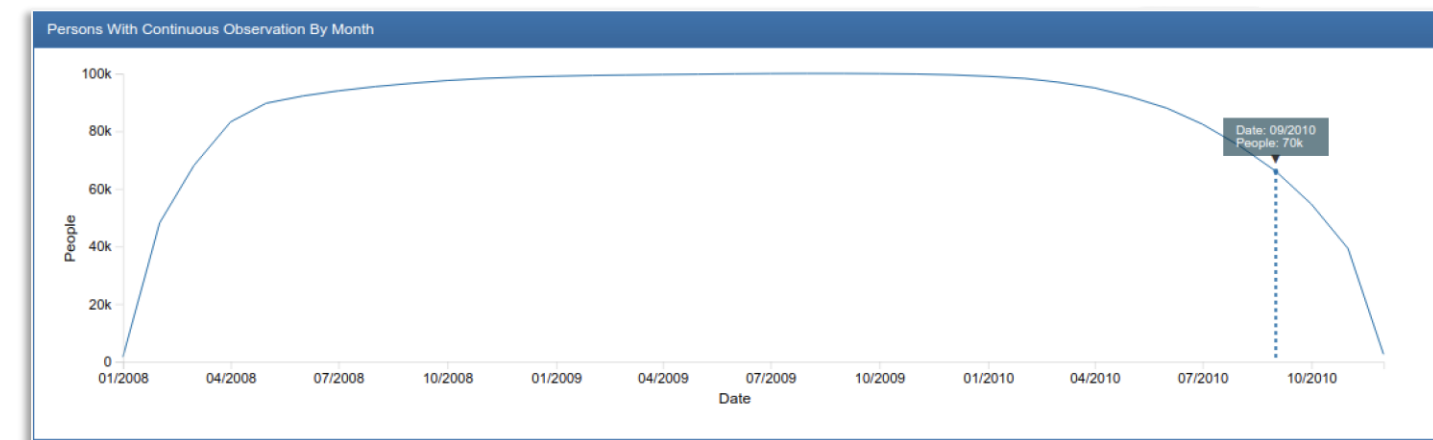
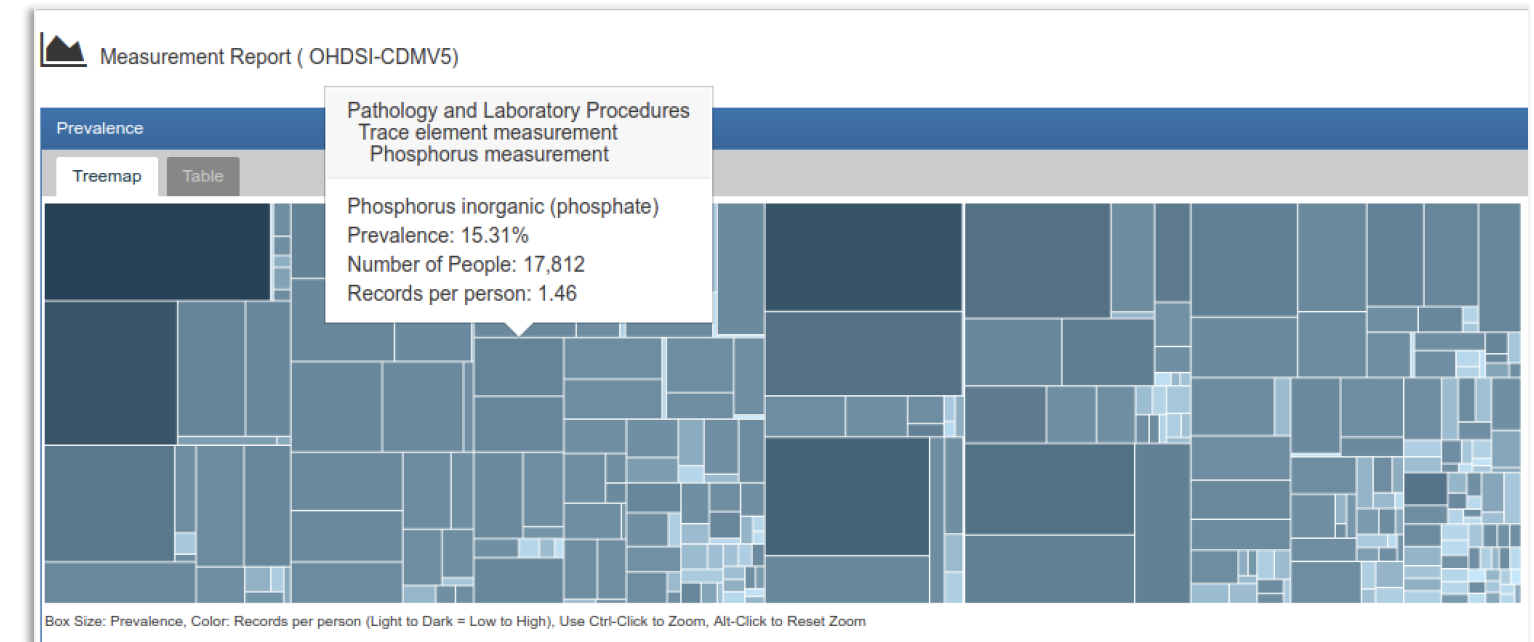
Vendor Name
ADATUM CORPORATION

Line items

Description	Quantity	Unit price	Amount
Algae guard	12	\$7.88	\$94.56
Winter cover	1	\$78.48	\$78.48
Type B replacement	5	\$19.79	\$98.95
pump	1	\$109.99	\$109.99

Risk Adjustment Coding and HEDIS Quality Measurement Platform

- Highly accurate document understanding & data extraction platform
- Works on Computer Vision & Natural Language Processing
- Capable of extracting ICD-10 & CPT codes, DRG & MS- DRG codes
- Consists of a built-in feedback loop to continuously improve accuracy
- Supports administrative & hybrid method of HEDIS measurement compliance



Yoga Pose Detection

- A platform that helps in detecting, extracting and storing pose body points from multiple videos of Yoga experts
- It detects user's yoga pose points in real-time, compare them against expert points and provide feedback on accuracy and improvement
- Has Mobile SDK and APIs for application to integrate with the yoga detection feature



Resume rating based on job description

- Scalable and highly accurate document classification and data extraction platform
- Helps in rating resume on how closely it matches with job description by parsing and extracting information from both resumes and job description
- Has custom NER that finds relevant spans of text fields such as experience, college name, or companies
- Extracts layout information present in the digital pdf and understands different sections of the page
- Has deep learning-based object detection to find sections of the page
- Can extract skills from the job description, capable of creating a taxonomy



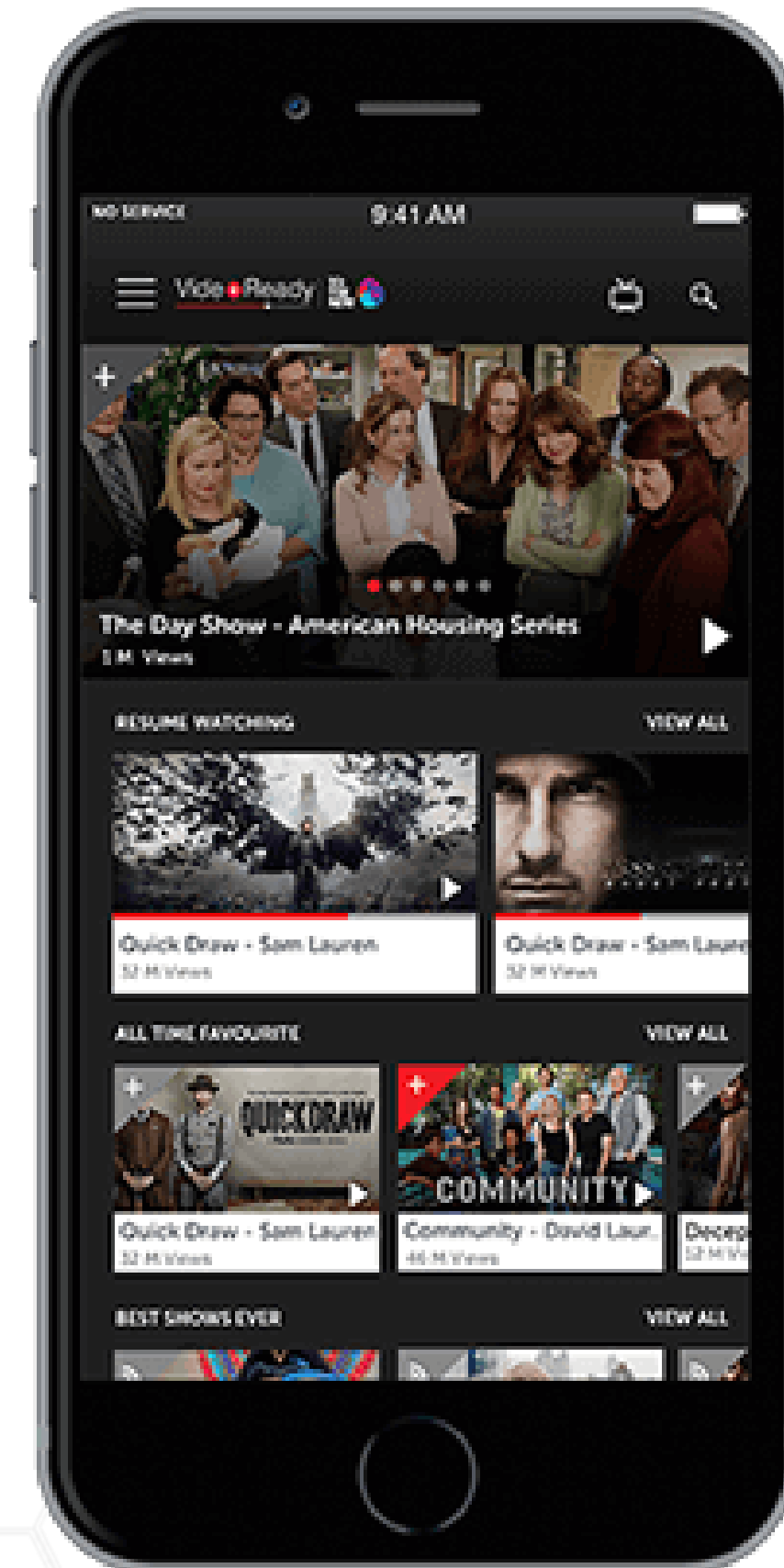
Invoice Classification & Extraction Model

- An advanced model for automated classification and extraction of invoices
- It includes selenium scripts that help in entering the invoice data into the in-house portal
- It takes invoices from emails and extracts particular fields as per requirement such as PO number, Total amount in dollars, No. of parts/devices and then dump into the database
- It has a built-in feedback loop to improve accuracy continuously

The image displays several screenshots from the Microsoft Power Automate and Power Apps ecosystem. The top-left screenshot shows the 'Add collections of documents' interface, where users can create collections for different document layouts. The top-right screenshot shows a 'Quick tips' panel explaining document collections. The middle-right screenshot shows the 'Models > AP_Invoice_Automation_Model' page, displaying a 'Selected fields' list including invoice date, invoice number, po, total, vendor name, document type, and items. The bottom-left screenshot shows a flow step 'Run a flow built with Power Automate Desktop' under a 'Recurrence' trigger. The bottom-right screenshot shows a 'Run DOS command' step in a flow, with the command output stored in a variable named 'CommandOutput'.

Recommendation Engine for OTT Generator

- We developed an admin portal and mobile application for users that included uploading videos with tags and making the search easier and quicker.
- It is an ensemble of collaborative filtering and content-based filtering.
- A large number of videos can be uploaded to a library, making data management simpler.
- Content-based recommendation, trending/popular movies
- Removing duplicates of videos/users using ML algorithms
- Using tech that traverses relationships faster and delivers recommendations in real-time
- Users can view and segregate their playlist based on the tags mentioned above.



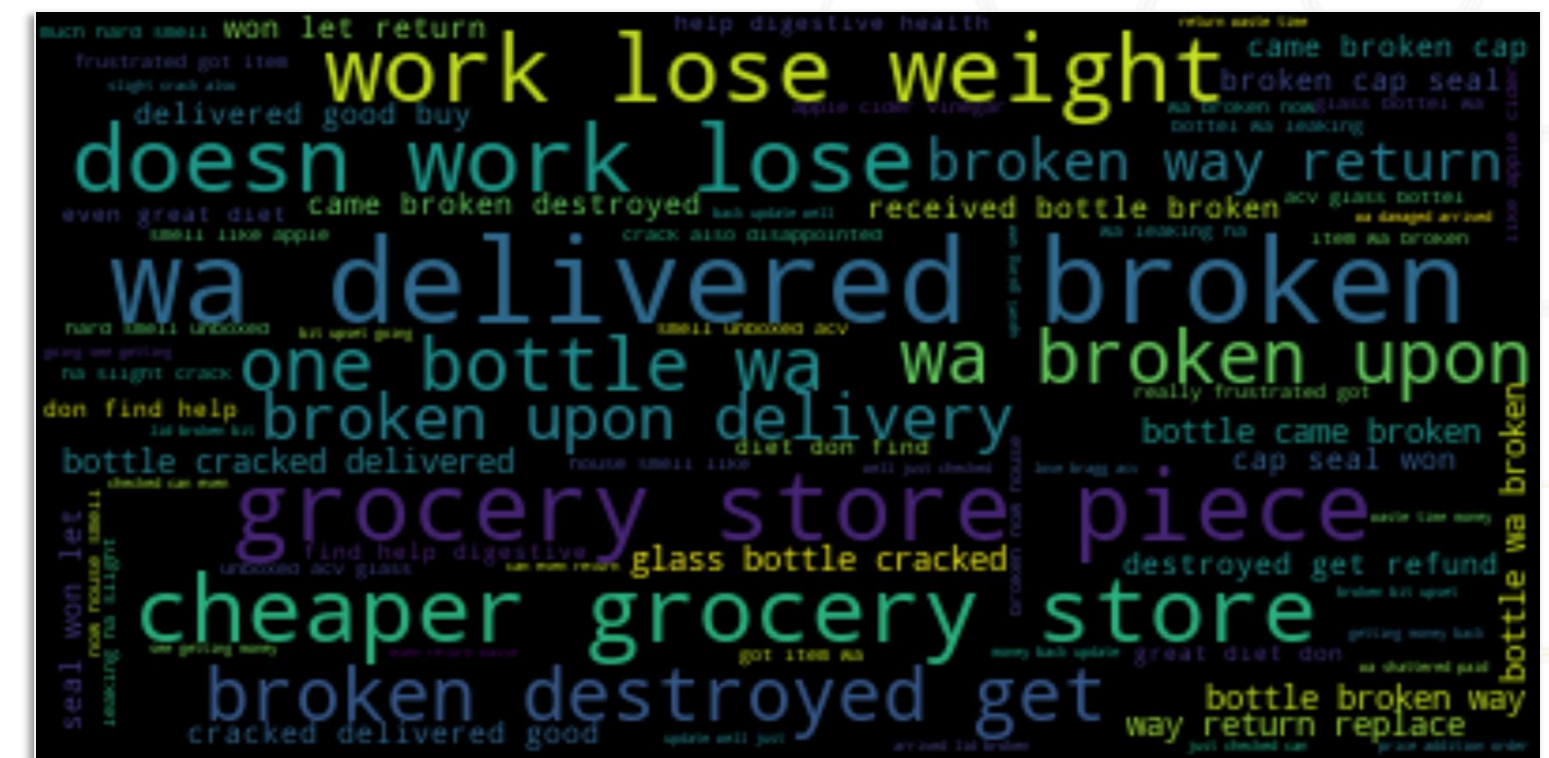
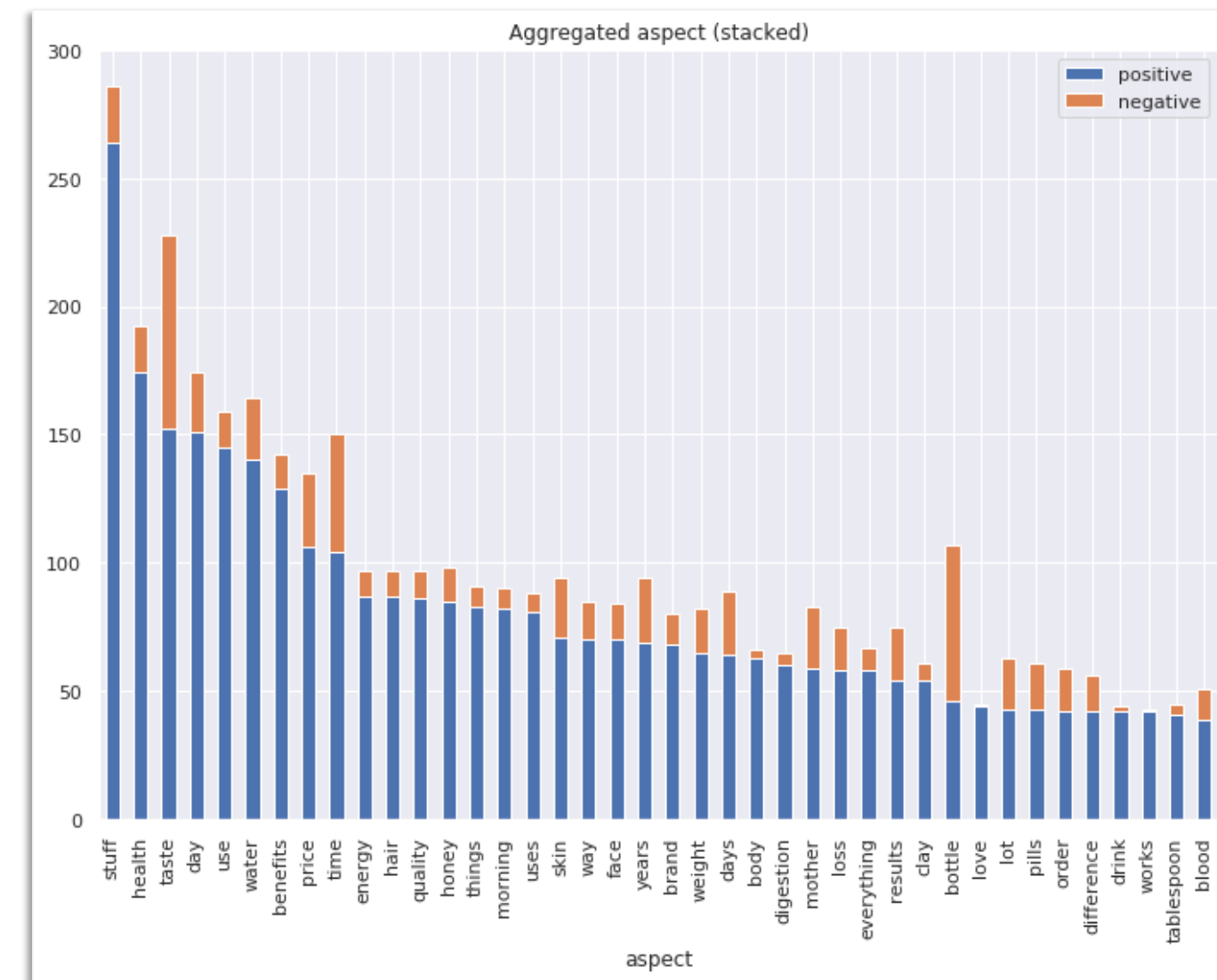
Customer Churn Prediction Model

- Predict customer churn in any given year by identifying significant variables
- Use various structured and unstructured data sources
- Exploratory Data Analysis to identify the areas which make customers to churn and to discover hidden patterns in the data
- Use Hypothesis Testing to discover patterns and relationships
- Use supervised machine learning classification algorithms to predict customer churn
- A/B testing to understand what changes can reduce churn that will lead to massive gains - more satisfied users, more engagement, and more sales and retention



Aspect based Sentiment Analysis

- Scrape Amazon customer reviews for a product (Apple Cider Vinegar)
- Detect aspects (features) of the product that customers have a strong feeling about
- Analyze the reviews using NLP to detect the aspects in reviews and the polarity (positive or negative)
- Based on the data, decide what features if a new product in the same category needs to be introduced in the market



Precision Hydroponics

- Control dashboard for indoor, climate-controlled urban farms
- Is capable of deriving optimum recipes for effective growth of multiple varieties of plants based on a real-time feedback loop and sensor data
- Recipes derived are utilized to manage the sensor threshold values in advance before they affect the plant health

Tradeport 105
CHANGE LOCATION

TICKETS LOG OUT

71° 77°

ZONES 1 Ebb & Flood

ZONES

1 2
3 4

5.83 pH 3.84 mg
1300 mg 5.18 mg 75.1 temp

900 ppm 1100 ppm
Co2 992 ppm

NEW TICKET

ZONES STACK 1

TICKETS LOG OUT

H₂O

Ph 5.52
ec 1200
Temp 72.2
ORP 427
DO 5.15

71° 77°

Humidity 20

72° 28%
72° 25%
73° 27%
73° 23%
75° 24%

Tradeport 105
CHANGE LOCATION

TICKETS LOG OUT

CREATE TICKET

FROM 07/10/2019 TO 08/13/2019

ZONE STACK LAYER

DATE LOC

2019-08-02	12:40:30	Z NFT	Demo Ticket	OPEN
2019-08-02	12:40:13	Z NFT	Demo Ticket	VERIFY
2019-08-02	12:39:20	Z NFT, S 9	Demo Ticket	ACTIVE

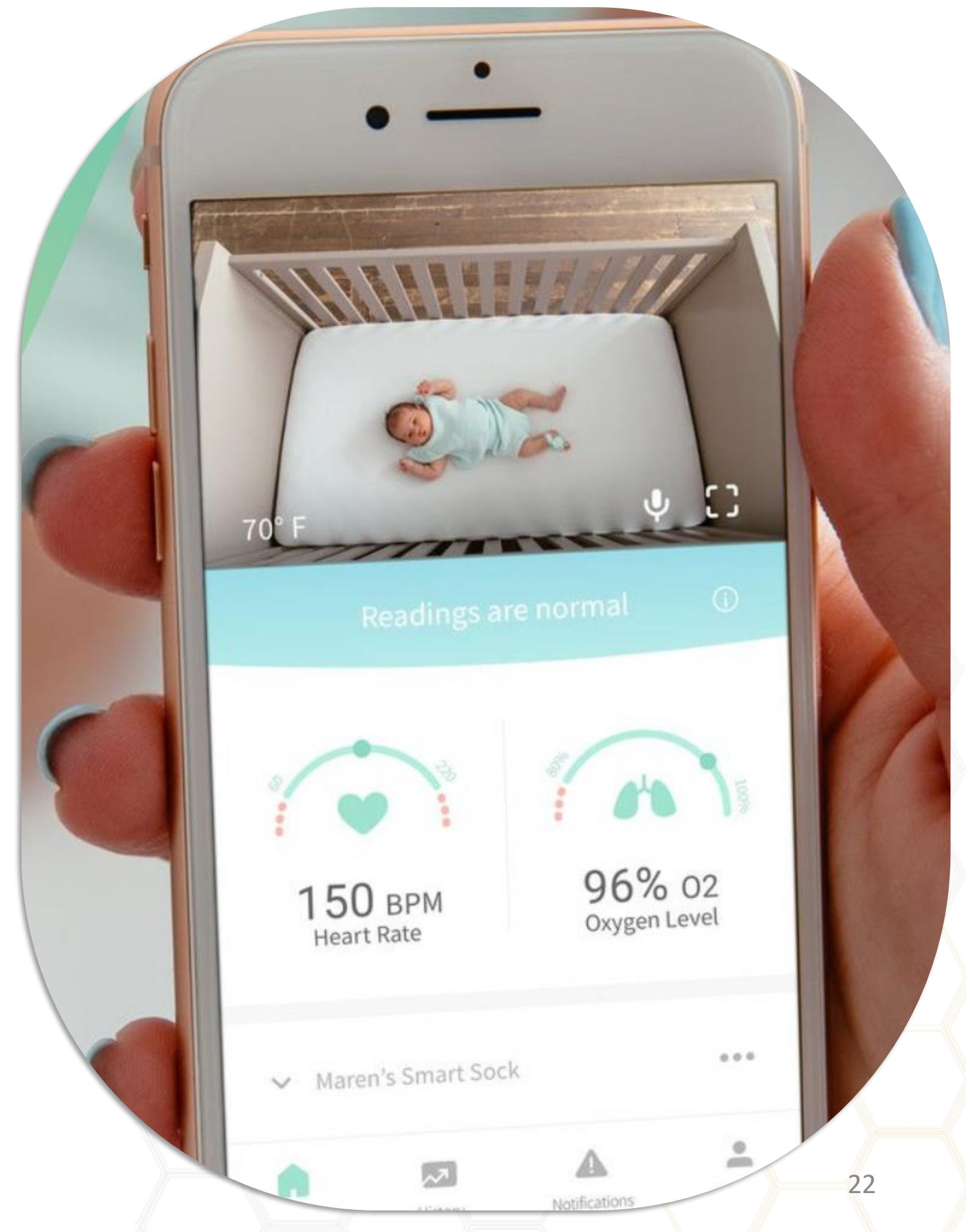
Predictive Analytics for Machine Maintenance at Mine sites

- Has visualization for data from sensors in mining machines spread across multiple mine sites
- Real-time anomaly detection in machineries and predictive maintenance if there are any breakdowns or shutdowns
- People & asset tracking for health and safety management



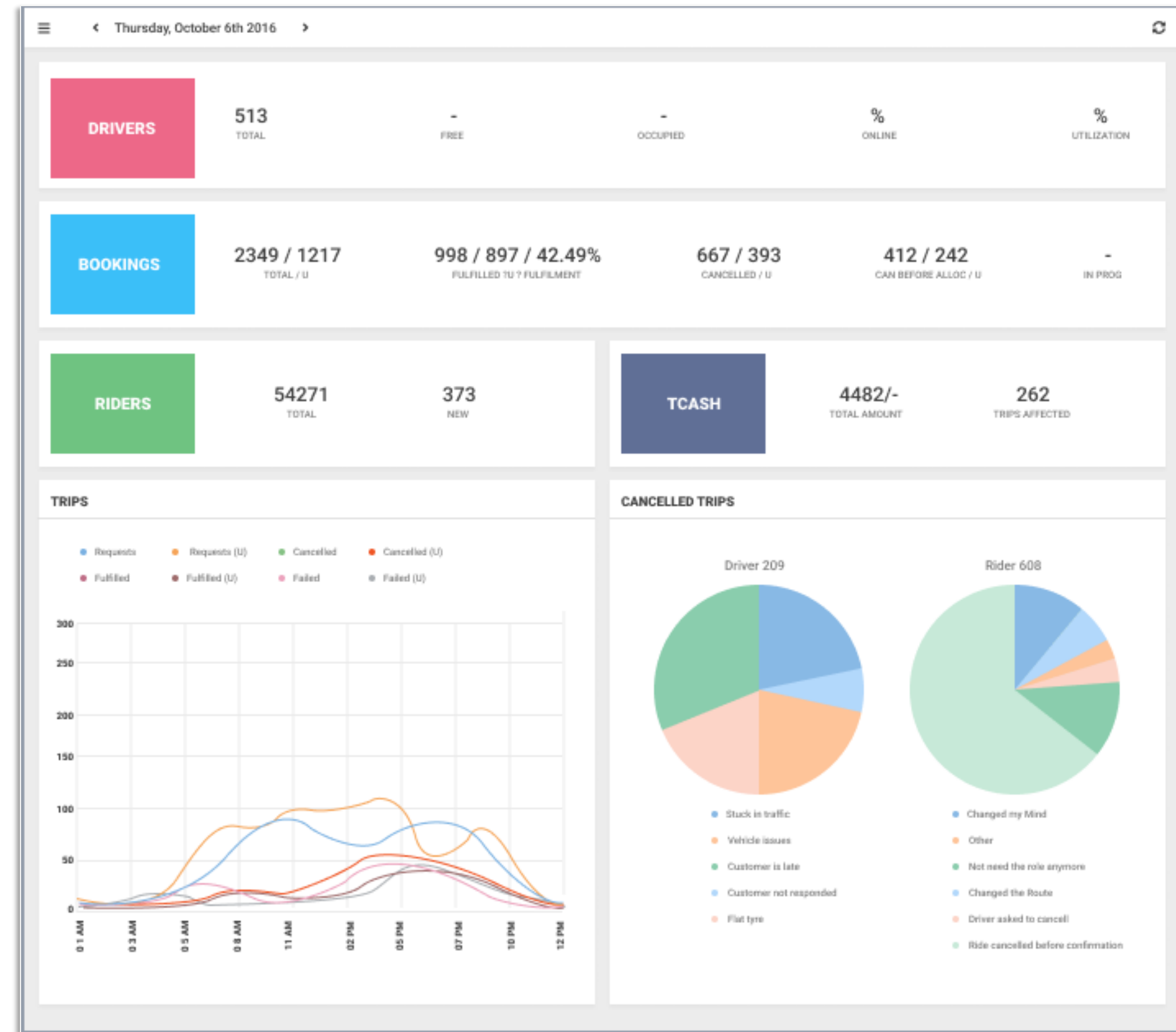
Predictive Monitoring of Infant's Health

- Cloud-hosted mobile-app with Bluetooth connectivity for communicating with IoT based monitoring device attached to the infant's body
- Users can set threshold levels of health monitoring parameters such as skin temperature, breathing pattern, sleeping angle, and many more as per doctor's suggestions
- These parameters help parents in predicting symptoms of SIDS and taking appropriate measures to prevent it



Optimal Vehicle Routing

- Dashboard with analytics on ride fulfilment, cancellations, demand, supply, locations, driver effectiveness, reviews, route, and traffic
- Predict passenger interests, optimal routes, and better prices
- Run targeted push and InApp ad campaigns with gamification for discounts, referrals, promotions



Technologies



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www.47billion.com

THANK YOU!

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HELLO WORLD!