



ORGANIZZAZIONE SOSTENIBILE: IL RUOLO DELLA TECNOLOGIA

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CHOUDARY, SANGEET PAUL - PLATFORM SCALE



“ We are no longer in the business of building software. We are increasingly moving into the business of enabling efficient social and business interactions, mediated by software ”

DIGITAL INNOVATION - MATURITY

“Maturing digital businesses are focused on integrating digital technologies, such as **social**, **mobile**, **analytics** and **cloud**, in the service of transforming how their businesses work.

Less mature **digital businesses** are focused on solving discrete business problems with individual **digital technologies**.”

MIT Sloan Management Review and Deloitte's 2015 global study of digital business.



DIGITAL TRANSFORMATION ISN'T REALLY ABOUT TECHNOLOGY.

IT IS ABOUT DEFINING A **CLEAR DIGITAL STRATEGY.**

DIGITAL STRATEGY- **WHAT MATTERS**

- 1 The power of a **digital transformation** strategy lies in its scope and objectives.
- 2 Maturing **digital organizations** build skills to realize the strategy
- 3 Employees want to work for **digital leaders**.
- 4 The **digital agenda** is led from the top.



SUCCESS IN THE **DIGITAL AGE** REQUIRES GIVING TO THE CONSUMERS WHAT THEY WANT BUT TO MEET CUSTOMERS EXPECTATIONS **REQUIRES STRONG CAPABILITIES IN 4 AREAS.**

DIGITAL INNOVATION- **WHAT MATTERS**

- 1** Because the digital business model allows the creation- and shorter time to market - of digital products and services, **companies need to become skilled at digital-product innovation** that meets changing customer expectations.
- 2** Companies need to provide a **seamless multichannel** (digital *and* physical) experience so consumers can move effortlessly from one channel to another.
- 3** Companies should **use big data and advanced analytics** to better understand customer behavior.
- 4** Companies **need to improve their capabilities in automating operations** and digitizing business processes.



DIGITAL NATIVES

DIGITAL ADOPTERS

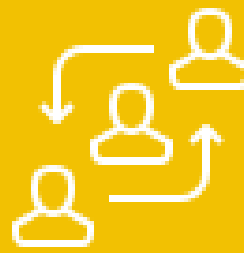
FOUR RULES TO EMBRACE DIGITAL INNOVATION



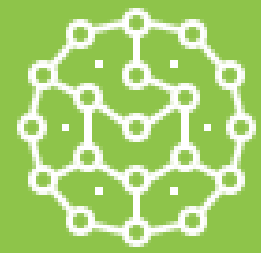
Customer
Centric



Bimodal
Approach



Company
**Cultural
Change**

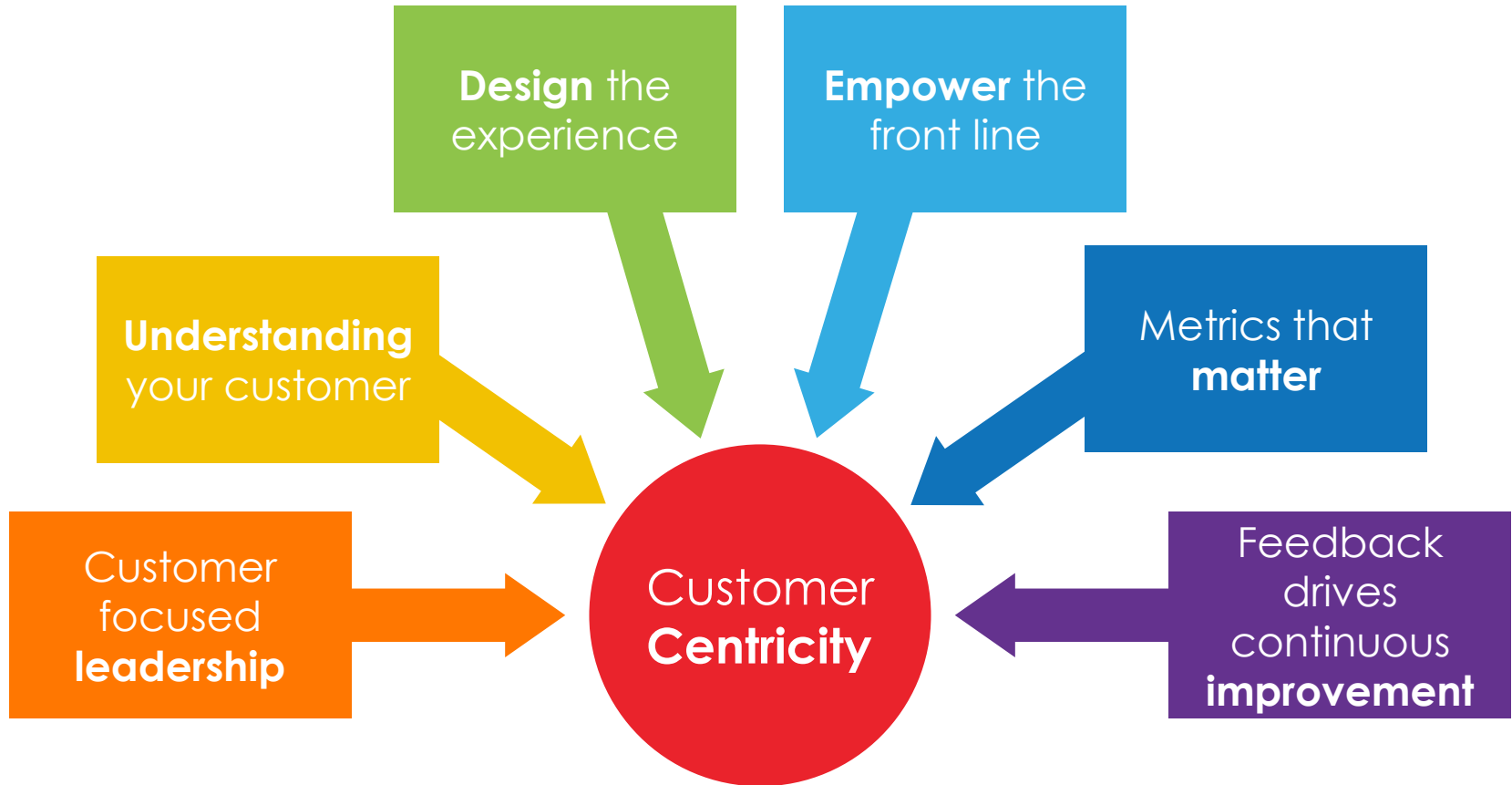


Adapted IT
Infrastructure



CUSTOMER CENTRIC

CUSTOMER CENTRIC



PRODUCT CENTRIC vs CUSTOMER CENTRIC

STRATEGY

Create the **best product**

STRATEGY

Create the **best solution**
for the customer

PEOPLE/CULTURE

New **Product Culture** -
looking for new products to develop

PEOPLE/CULTURE

Customer Culture -
searching for new needs to fill

PROCESSES

New **Product Development**

PROCESSES

New **Solution Development**,
Customer Experience Management

REWARDS/METRICS

Rewards new **product development**

REWARDS/METRICS

Rewards **people** with
deep insight **into customers**

ORGANISATIONAL STRUCTURE

Product Divisions with P&L

ORGANISATIONAL STRUCTURE

Customer Segments with P&L



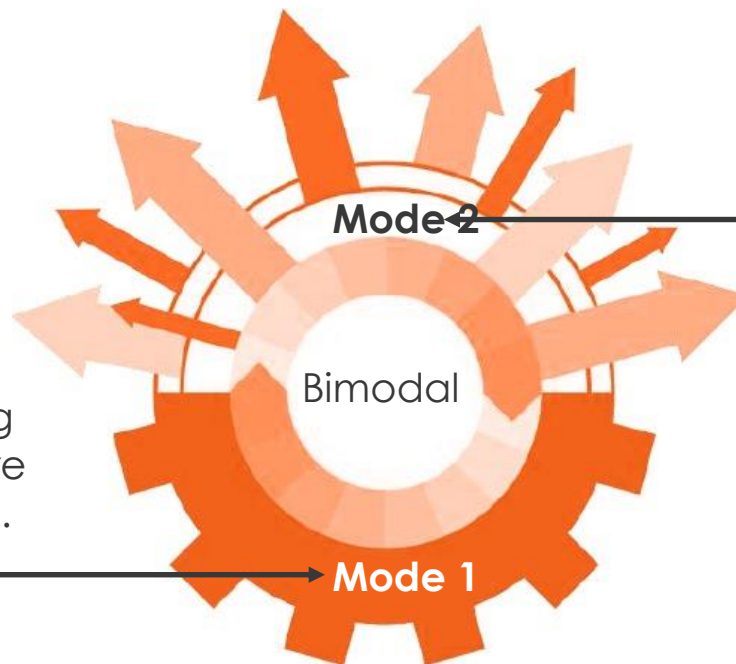
BIMODAL APPROACH

BIMODAL APPROACH

Bimodal is the practice of managing two separate but coherent styles of work - one focused on **predictability** and the other in **exploration**.

Mode 2 is exploratory, experimenting to solve new problems.

Mode 1 is predictable, improving and renovating in more well-understood areas.



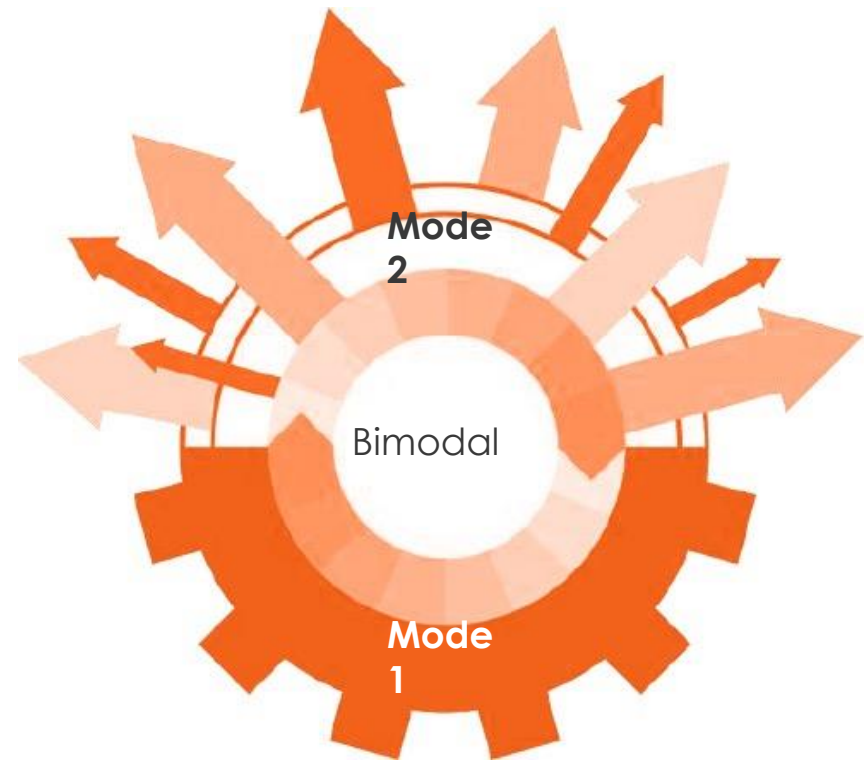


BIMODAL IS VERY EXPERIENTIAL
SHOW, DON'T TELL!

BIMODAL HELPS DEAL WITH UNCERTAINTY IN A COMPLEX WORLD

Simply put, bimodal recognises that there are areas of the enterprise that have more certainty, objectives are clear, cause and effect is understood, we can predict and plan -

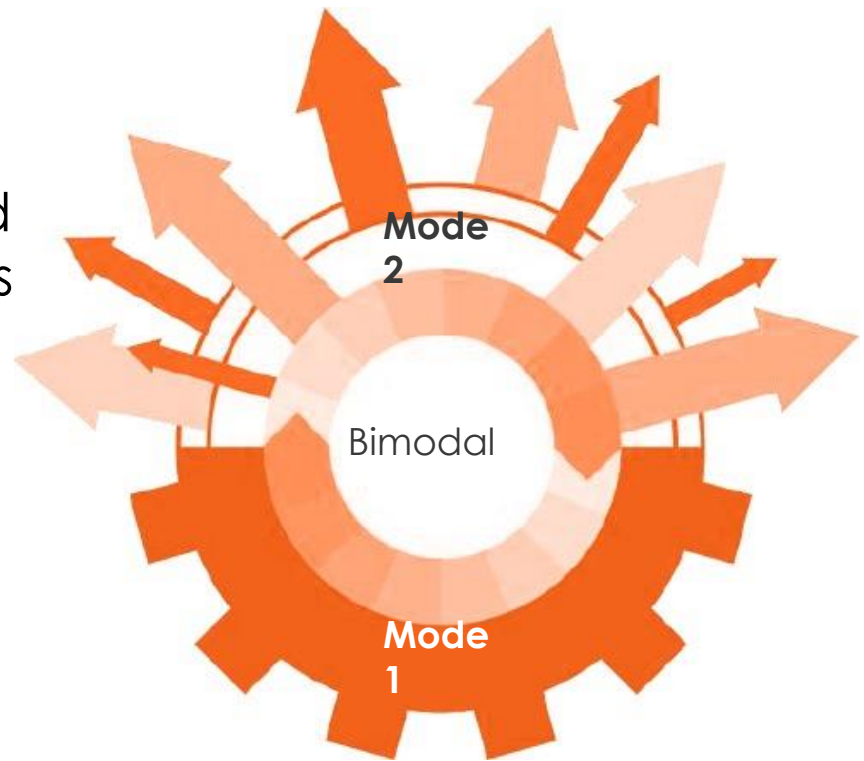
Mode 1

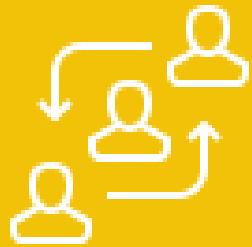


BIMODAL HELPS DEAL WITH UNCERTAINTY IN A COMPLEX WORLD

In other areas, requirements are unclear and changing, the relationship between action and outcome is uncertain, and things are less well-understood at the start -

Mode 2













COMPANY CULTURAL CHANGE



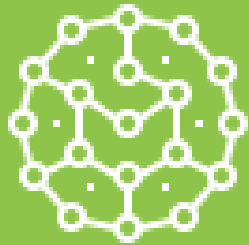
ROTATE STAFF FOR DEVELOPMENT & ENGAGEMENT

- ✓ Use Extensive outsourcing
- ✓ Rotate at least one person each month between operations, development and innovation teams

MULTIDISCIPLINARY, SELF-ORGANISING (SELF-SUFFICIENT-ISH)

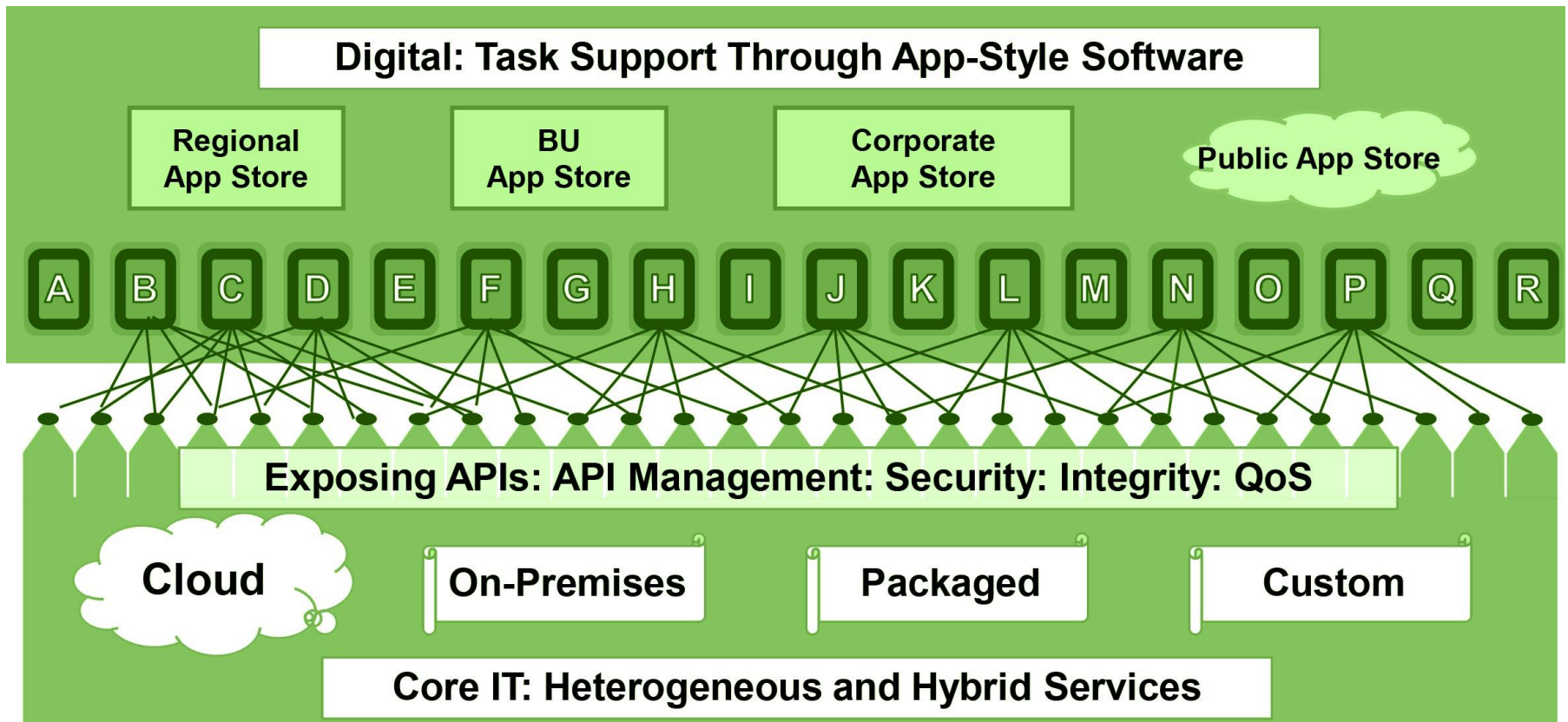
 Marketing
 Engineering
 User Experience
 Data Analytics
 Dev
 Test
Automation
 Product Owner
 DevOps

- ✓ Many variations on the theme
- ✓ Some more IT-centric, some more business-centric
- ✓ Increase levels of self-sufficiency as they mature
- ✓ Contingent on needs of the product
- ✓ Compliance, security, engaged early and late



ADAPTED IT INFRASTRUCTURE

ADAPTED IT INFRASTRUCTURE



YOU CANNOT SCALE UNLESS **YOU RENOVATE THE CORE**

- ✓ SOA and API architecture
- ✓ Modernising application architectures, reducing software and architectural complexity
- ✓ Application rationalisation
- ✓ Infrastructure agility, hybrid cloud

Bimodal does not offer a way to avoid tackling the thorny issues of renovating the IT core - nor is it an excuse to extend the life of outmoded or inappropriate practices. In fact, to scale bimodal, it's essential to address these troublesome issues.



RECOMENDATIONS

1

Two-speed architecture. This implies a fast-speed, customer-centric front end running alongside a slow-speed, transaction-focused legacy back end. For software-release cycles and deployment mechanisms, the customer-facing part should be modular, to enable quick deployment of new software by avoiding time-consuming integration work. In contrast, the transactional core systems of record must be designed for stability and high-quality data management, which leads to longer release cycles.

2

Instant cross-channel deployment of functionality. New microservices defining only a small amount of functionality, such as lookup of the next product a consumer would most likely purchase, should be deployable in an hour rather than in several weeks. Such microservices should also be available across all channels. Ideally, it should be possible to develop these services in multiple programming languages rather than being locked into a single development framework.

3

Zero downtime. In digital global operations, days-long maintenance windows are no longer an option. Upgrades of systems affecting the consumer's experience should be seamless, using a concept that allows the deployment of a new software or service in parallel with the old version. First, only about 1 percent of the user traffic is routed to the new version. Only when the new version fulfills a set of key performance indicators will all traffic be routed to the new version. Moreover, in daily operations, there should be fallback mechanisms in place so that issues arising in one service do not harm overall operations more than necessary. If, for instance, a retailer's personalized recommendation service is unavailable, a random recommendation in a relevant category would be displayed rather than an annoying web error page.

4

Easy process configuration. Business users themselves should be able to change automated processes. This would allow them, for example, to eliminate unnecessary process steps without requiring time-consuming coding by an IT developer.

5

Product factory. Industries that provide digital products, such as banking and telecommunications, need to decouple the products from the processes. A bank, for example, would implement one sales process and reuse it for all products, such as accounts and cards.

6

Automated scaling of IT platforms. In a digital business, workloads expand and become harder to predict. Ideally, this load would be balanced across private- and public-cloud environments, with mechanisms in place to ensure that when one provider has an outage, others can take over the workload.

7

Secure architecture. In a digital business model, cybersecurity must be an integral part of the overall application. Not only does the company have more valuable data to protect, making it more attractive to hackers, but the digital strategy also opens new interfaces to customers, suppliers, and partners—interfaces that can be exploited by hackers.

8

API Economy -

**Don't make buy!!
.... And choose carefully!**

MACHINE INTELLIGENCE 2.0

AGENTS

PROFESSIONAL	PERSONAL	OS INTERFACES

AUTONOMOUS SYSTEMS

AIR	GROUND	SEA	INDUSTRIAL

ENTERPRISE

SECURITY / FRAUD	HR / RECRUITING	SALES	MARKETING	CUSTOMER SUPPORT	INTERNAL INTEL	MARKET INTEL

PLATFORMS

RESEARCH / AGI	FULL STACK	MACHINE LEARNING	INDUSTRIAL IOT	AUDIO	VISION	DATA ENRICHMENT

INDUSTRIES

ADTECH	AGRICULTURE	FOR GOOD	RETAIL FINANCE	LEGAL	MATERIALS & MFG	HEALTHCARE

INDUSTRIES (CONT'D)

EDUCATION	TRANSPORT & LOGISTICS	INVESTMENT FINANCE	DATA SCIENCE	MACHINE LEARNING	OPEN SOURCE

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MACHINE INTELLIGENCE 3.0

ENTERPRISE INTELLIGENCE

VISUAL Orbital Insight Plagnet clarifai DEEPVISION cortica Igeocian SPACE_KNOW Copricity netra deepomatic	AUDIO Gridspace TalkIQ nexidia twilio CAPIO Expect Labs Clover Mobvoi Qurious.AI popIP archive	SENSOR PREDIX C3iOT MAANA Sentenai PLANET OS UPTAKE IMUBIT Preferred Networks thingworx KONUX Alluvium	INTERNAL DATA PRIMER WATSON Dycorp Palantir ARIMO Alation Sapho Outlier Digital Reasoning	MARKET mattermark Quid Datafax PREMISE Boffenose MOTIVA enigma CBINSIGHTS Trackx predata
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ENTERPRISE FUNCTIONS

CUSTOMER SUPPORT DigitalGenius Kasisto ELOQUENT Wiseio ACTIONIQ zendesk Preact CLARABRIDGE	SALES collective sense fuse machines AVISO salesforce INSIDE SALES COM Zensight clari	MARKETING MINTIGO Lattice RADIUS LiftIgniter PERSADO brightfunnel retention SCIENCE COGNICOR AIRPR migai	SECURITY CYLANCE DARKTRACE ZIMPERIUM deepinstinct Sentinel DEMISTO graphistry drawbridge SignalSense AppZen	RECRUITING textio entelo Wade & Wendy hiQ unitive SpringRole GIGSTER HireVue
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AUTONOMOUS SYSTEMS

GROUND NAVIGATION drive.ai AdasWorks ZOOX Mobileye UBER Google TESLA nuro Auto Robotics	AERIAL SKYDIO SHIELD AI Airware DJI LILY DroneDeploy pilo.ai SKYCATCH	INDUSTRIAL JAYBRIDGE OSARO CLEARPATH fetch KINDRED rethink robotics	PERSONAL amazon alexa Cortana Allo facebook Siri Replika	AGENTS PROFESSIONAL butter.ai pogo SKIPFLAG clara x.ai slack talla Zoom sudo
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INDUSTRIES

AGRICULTURE BLUE RIVER mavrx tula TRACE Pivot Bio Terraviva AGRI-DATA Decartes Labs udi independent	EDUCATION KNEWTON volley gradscope CTI coursehero UDACITY school	INVESTMENT Bloomberg sentiment ISENTIUM KENSHC alphaSense Dataminr CEREBELLUM CAPITAL Quandl	LEGAL blue J BEAGLE Everlaw RAVEL Seal ROSS LEGAL ROBOT	LOGISTICS NAUTO Acerta PRETECKT clearmetal Routific MARBLE PITSTOP
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INDUSTRIES CONT'D

MATERIALS zymogen Citrine Eigen Innovations SIGHT MACHINE INKIGO BIOWORKS nanotronics CALCULARIO	RETAIL FINANCE TALA zest finance Lendo earnest Affirm MIRADOR wealthfront Betterment	PATIENT PULSE CareScore ZEPHYR HEALTH Watson Health OncoCrx SENTRIAN Atomwise Numerate	HEALTHCARE IMAGE BUTTERFLY 3SCAN ARTERYS enlitic BAYLABS imagia Google DeepMind	BIOLOGICAL iCarbonX color GRAIL deep genomics RECURSION LUMINIST Numerate Atomwise verily WOLFE
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TECHNOLOGY STACK

AGENT ENABLERS
 OCTANE.AI | howdy | Maluuba | KITT.AI
 OpenAI Gym | Kasisto | AUTOMAT
 semanticmachines

DATA SCIENCE
 DOMINO | SPARKBEYOND | rapidminer
 kaggle | DataRobot | yhat | AYASDI
 data iku | seldon | yseop | bigml

MACHINE LEARNING
 CognitiveScale | GoogleML | context relevant
 Dycorp | HyperScience | narologics | minds.ai | H2O.ai
 SCALED INFERENCE | sparkcognition | loop | GEOMETRIC INTELLIGENCE
 deepsense.io | reactive | skymind | bonsai

NATURAL LANGUAGE
 agolo | RYLIEN | LEXALYTICS
 Narrative Science | loop | spaCy | LUMINOSO
 cortical.io | MonkeyLearn

DEVELOPMENT
 SIGOPT | HyperOpt | fuzzy | okite
 rainforest | lobe | Anodot
 Signifai | LAYER 6 | bonsai

DATA CAPTURE
 CrowdFlower | diffbot | CrowdAI | import
 Paxata | DATASIFT | amazon mechanical turk | enigma
 WorkFusion | DATALOGUE | TRIFACTA | parsehub

OPEN SOURCE LIBRARIES
 Keras | Chainer | CNTK | TensorFlow | Caffe
 H2O | DEEPLARNING4J | theano | torch
 DSSTNE | Scikit-learn | AzureML | neon
 MXNet | DMTK | Spark | PaddlePaddle | WEKA

HARDWARE
 KNUPATH | TENSTORRENT | Cirrascale
 NVIDIA | intel | nervana | Movidius
 tenosilica | GoogleTPU | 10th Labs | qualcomm
 Cerebras | Isesemi

RESEARCH
 OpenAI | maibenberg | ELEMENT | vicarious
 KNOGGIN | Numenta | Kimera Systems | Cogital