

A decorative graphic in the top-left corner consisting of a grid of squares in various shades of green and blue, arranged in a pattern that tapers to the right.

"Automação na agricultura como vetor de sustentabilidade"

Visão da Pesquisa

Câmara:Câmara Temática de Agricultura Sustentável e Irrigação

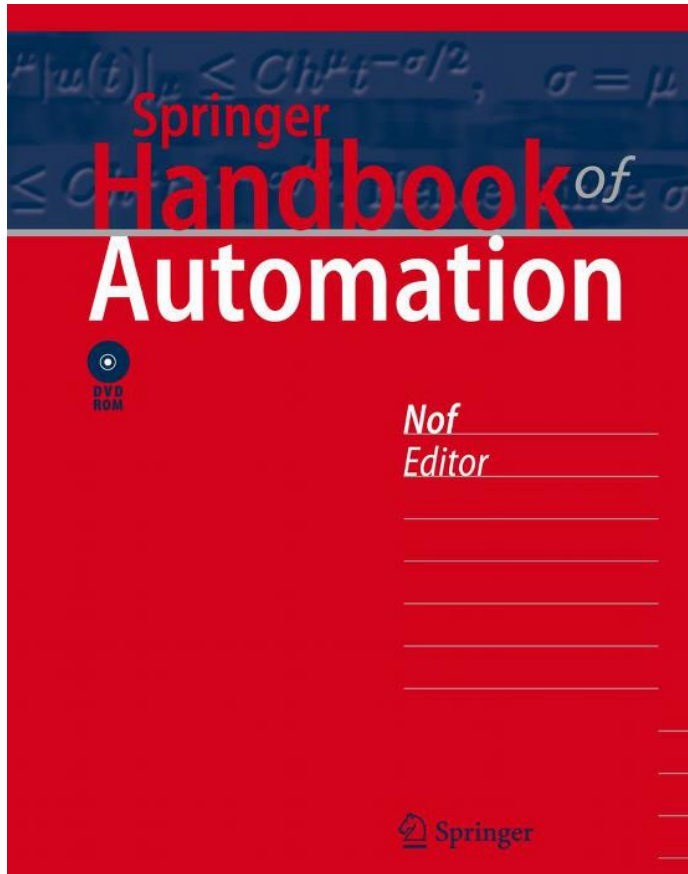
Reunião:Reunião Ordinária N. 34 **Data da realização:**19/03/2019 às 10:00

Local:Sala de Reuniões do 2º Andar, nº 250 - Ed. Sede do MAPA - Brasília/DF

Ricardo Inamasu – Embrapa Instrumentação

A decorative graphic in the bottom-right corner consisting of a grid of squares in various shades of green and blue, arranged in a pattern that tapers to the left.

Automação Agrícola

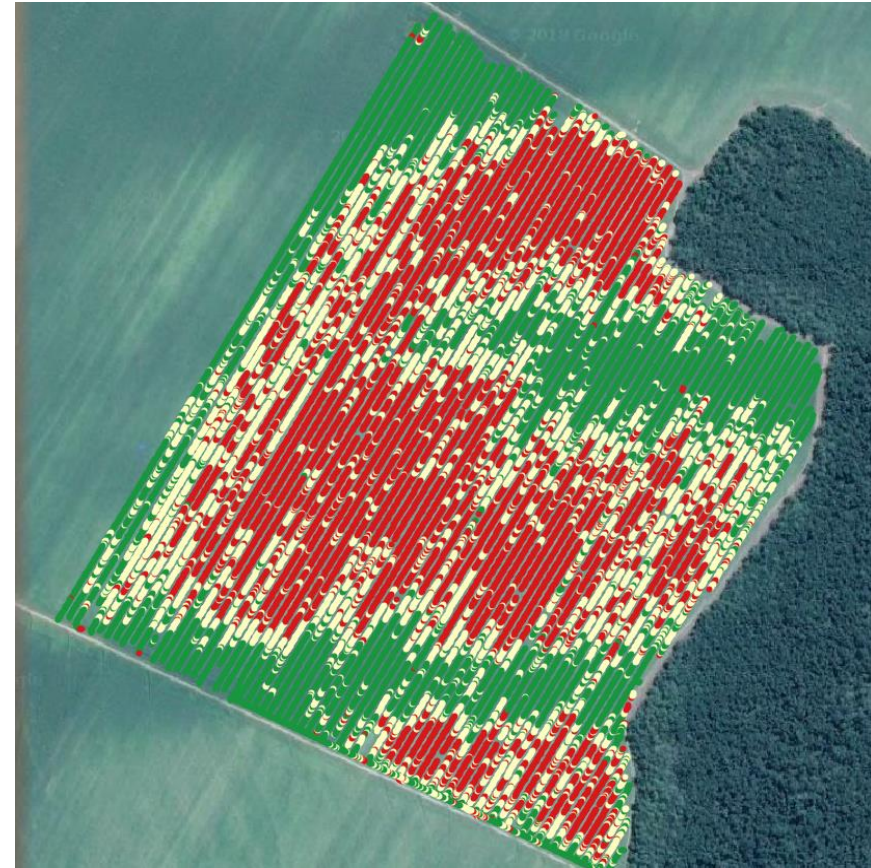


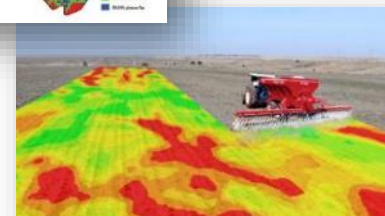
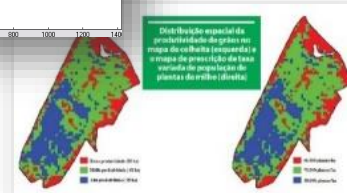
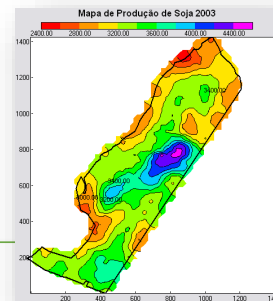
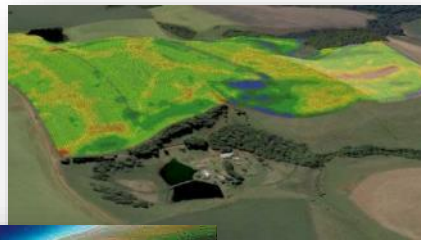
- A **Automação Agrícola** pode ser entendida como "um sistema em que os processos operacionais são controlados e executados por meio de dispositivos mecânicos, eletrônicos ou computacionais, **multiplicando a capacidade do trabalho humano**".



Agricultura de Precisão

- A Agricultura de Precisão pode ser entendida como processo de gestão que leva em conta a variabilidade espacial, objetivando o aumento do retorno econômico e redução de efeito ao ambiente.





Analysis

Decision Support System;
Geographic Information System;
Cognitive technology;
Geostatistics / Multivariate Statistics;
Diagnosis / agronomic recommendation,
Model and simulation, etc.

Actuation

- Application of fertilizers and corrective;
- Agrochemical application;
- Seed application;
- Aerial spraying;
- Irrigation at variable rates; etc.

acquisition

- Yield mapping;
- Mapping of diseases and pests;
- Soil electrical conductivity mapping;
- Remote sensing (drone, satellite, proximal sensing);
- Soil, fertility, micro topography, detailed pedology map; etc.

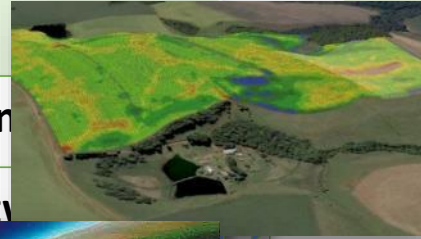
Farm Field



FMIS – Farm Management Information System

Enterprise Software

Enterprise Software; Business analysis; Field analysis of Climate and Market; etc.

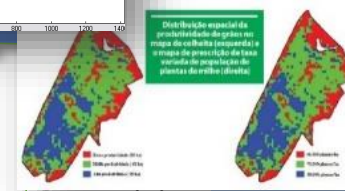
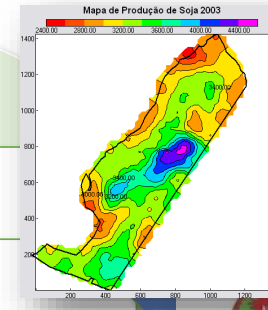


Cloud computing

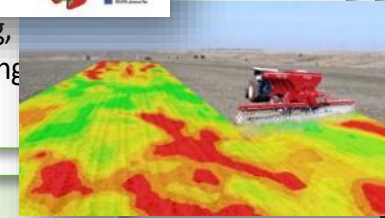
System

Analysis

Decision Support System;
Geographic Information System;
Cognitive technology;
Geostatistics / Multivariate Statistics;
Diagnosis / agronomic recommendation,
Model and simulation, etc.



Data mining,
deep learning



Acquisition

- Yield mapping;
- Mapping of diseases and pests;
- Soil electrical conductivity mapping;
- Remote sensing (drone, satellite, proximal sensing);
- Soil, fertility, micro topography, detailed pedology map; etc.



Actuation

- Application of fertilizers and corrective;
- Agrochemical application;
- Seed application;
- Aerial spraying;
- Irrigation at variable rates; etc.



Farm Field



Cloud computing

FMIS – Farm Management Information System

Enterprise Softwares

Enterprise resource planning (ERP);
Supply chain management (SCM);
Business process management;
Field operations management and logistics;
Analysis of Climate and Market; etc.

Analysis

Decision Support System;
Geographic Information System;
Cognitive technology;
Geostatistics / Multivariate Statistics;
Diagnosis / agronomic recommendation,
Model and simulation, etc.

Data storage and knowledge extraction

Big Data;
Data warehouse;
Data mining, Knowledge extraction,
deep learning, etc.

Data acquisition

- Yield mapping;
- Mapping of diseases and pests;
- Soil electrical conductivity mapping;
- Remote sensing (drone, satellite, proximal sensing);
- Soil, fertility, micro topography, detailed pedology map; etc.

Actuation

- Application of fertilizers and corrective;
- Agrochemical application;
- Seed application;
- Aerial spraying;
- Irrigation at variable rates; etc.

Farm Field



Lucratividade da agricultura^{1,2}

Eliseu Alves³
Geraldo da Silva e Souza⁴
Daniela de Paula Rocha⁵

Brasil no período 1980-2008

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que vigoraram em 2006, ano a que se refere o Censo Agropecuário 2006. E não sabem administrá-la porque desconhecem seus parâmetros, erram nas previsões de preços, enfrentam restrições intrínsecas e de mercado intransponíveis e não são disciplinados. Duas recomendações emergem para extensão rural: ensinar administração rural e ensinar os agricultores a monitorar a aplicação da tecnologia.

Ao governo caberia cooperar com a eliminação das restrições de mercado, quais sejam: risco de preços e de clima, acesso ao crédito rural, ser competitivo no mercado internacional, acesso à tecnologia moderna e oferta de boa infraestrutura de transporte, em portos e aeroportos. Quanto às restrições intrínsecas, principalmente a aversão ao risco, cabe à extensão rural enfrentá-las.

Palavras-chave: dispêndio total, índice de Gini para renda bruta, produtividade total dos fatores, renda bruta, renda líquida.

45

Ano XXI – N° 2 – Abr./Maio/Jun. 2012

Revista de
**Política
Agrícola**

setor agrícola
brasileiro
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agropecuários
do Brasil
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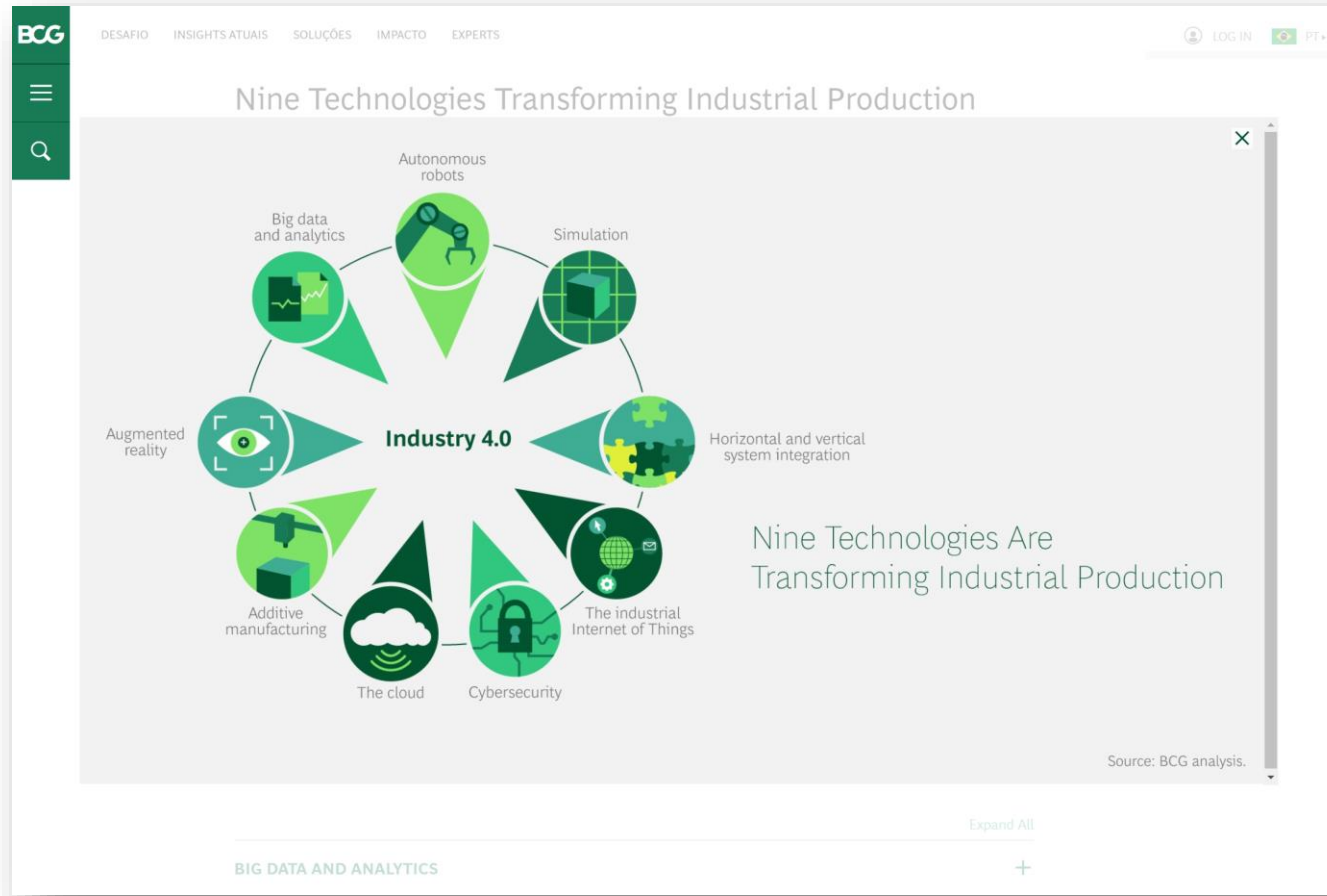
Ano XXI – N° 2 – Abr./Maio/Jun. 2012

Revista de
**Política
Agrícola**

Muito Obrigado

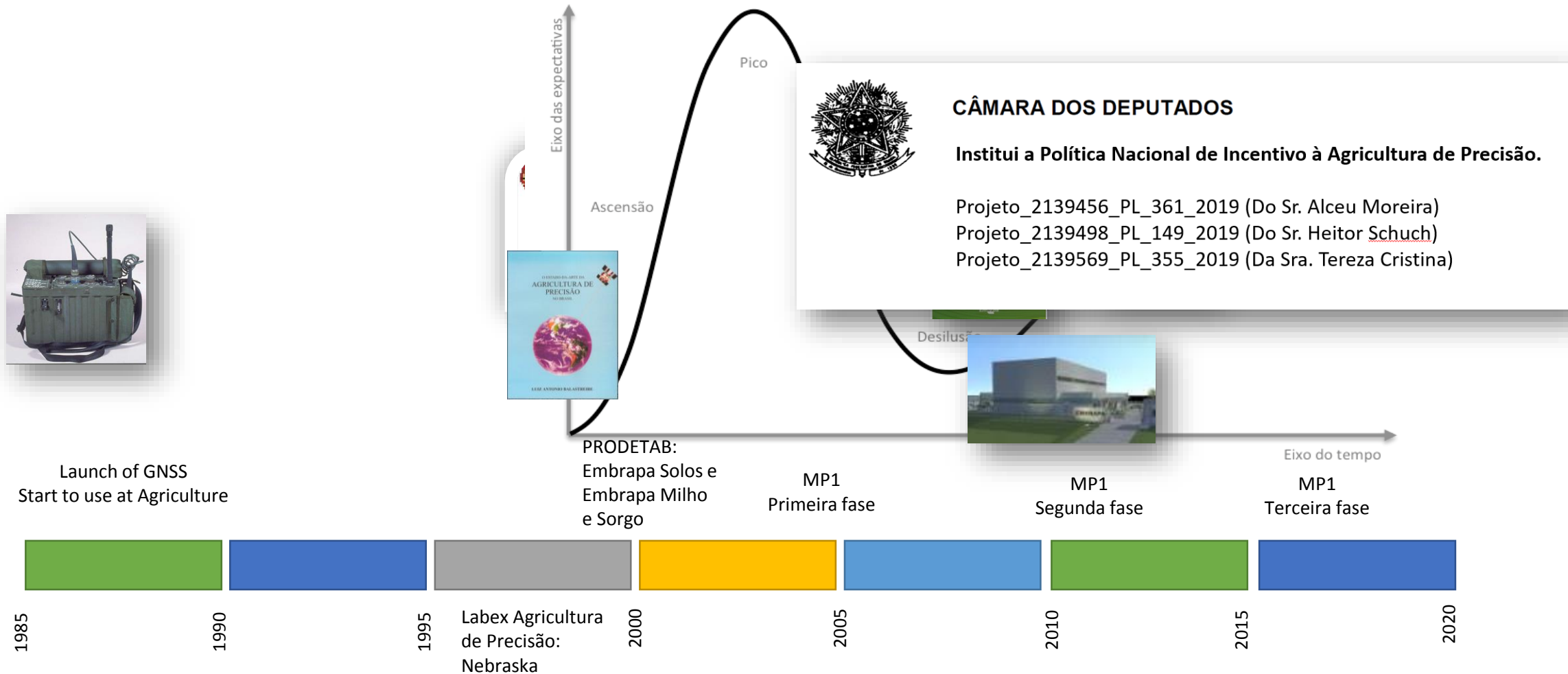


Agricultura Digital (Smart farming - Agricultura 4.0)



- Robôs automatizados ou autônomos
- Manufatura aditiva
- Simulação
- Integração horizontal e vertical de sistemas
- Internet das coisas (IoT)
- Big Data e Analytics
- Nuvem
- Segurança cibernética
- Realidade aumentada

Precision Agriculture at Embrapa



BIG DATA & AI LANDSCAPE 2018

INFRASTRUCTURE

HADOOP ON-PREMISE

- cloudera
- Hortonworks
- MAPR
- Pivotal
- IBM InfoSphere
- bluedata
- jethro

HADOOP IN THE CLOUD

- aws
- Microsoft Azure
- Google Cloud
- IBM InfoSphere BigInsights
- TREASURE DATA
- Qubole
- altilscale
- CAZENA
- CenturyLink

STREAMING / IN-MEMORY

- aws
- databricks
- stream
- confluent
- GridGain
- ORACLE
- dataArtisans
- hazelcast
- TERRACOTTA
- kok
- FASTDATA
- Waltaro LABS

ANALYTICS

DATA ANALYST PLATFORMS

- Microsoft
- Pentaho
- alteryx
- Digital Reasoning
- GUUVUS
- AYASDI
- ATTIVO
- Datameer
- Quid
- Incarta
- Interana
- ClearStory
- Origami
- Endor
- Mendeley
- Mode
- Botflossence
- Switchboard

DATA SCIENCE PLATFORMS

- IBM
- KNIME
- dataiku
- DOMINO
- rapidminer
- CONTINUUM ANALYTICS
- ALGORITHMIA
- Mendeley
- DATAWATCH ANALYTICS
- SAS

DATA PLATFORMS

— APPLICATIONS – ENTERPRISE

SALES MARKETING - B2B MARKETING - B2C CUSTOMER SERVICE

[Insider](#) [CH@RUS](#) [RADIUS](#) [App Annie](#) [Zeta](#) [Bloomreach](#) [SendGrid](#)
[INSIDESALES.COM](#) [EVERSTRING](#) [Lattice](#) [BlueYonder](#) [PERSADO](#) [Zohara](#)
[conversica](#) [HENTIGO](#) [sense](#) [ACTION](#) [SAUTHRU](#) [BLUECORE](#)
[clari](#) [aviso](#) [tact.ai](#) [quantifind](#) [mpartice](#) [Amplo](#)
[fuse](#) [machines](#) [TROOPS](#) [tubular](#) [NOAGIO](#) [mip](#) [amperity](#) [Simion](#) [Lycifre](#)
[MEDALLIA](#) [zendesk](#) [CLARABRIDGE](#) [Gainsight](#) [NO DATA](#) [DigitalGenius](#) [afiniti](#)
[AUTOMAT](#) [frame.ai](#) [Cmgco](#) [INTERCOM](#) [C@RD](#)

NoSQL DATABASES

- Google Cloud
- AWS
- ORACLE
- Microsoft Azure
- mongoDB
- MarkLogic
- AEROSPIKE
- DATASTAX
- ArangoDB
- Couchbase
- redislabs
- SCYLLA

NewSQL DATABASES

- SAP
- HANA
- Clustring
- Pivotal
- Cockroach Labs
- MEMSQL
- InfluxDB
- Aerospike
- VOLTD
- splice
- Paragim
- Redshift
- YUBO

GRAPH DBs

- neo4j
- Amazon Neptune
- IBM InfoSphere
- ORACLE
- Microsoft Azure
- InfraGraphX
- Objectivity

MPP DBs

- TERADATA
- VERTICA
- IBM Data Warehouse Systems
- Cloudera
- Ignitio
- Exasol
- dremio

CLOUD EDW

- AWS
- Google Cloud
- Microsoft Azure
- Pivotal
- snowflake

The collage is organized into three vertical columns, each with a header and a collection of logos:

- BI PLATFORMS:** Includes logos for Microsoft, AWS, Domo, Wave Analytics, Looker, Tableau, Alteryx, Amazon Data, ATSCALE, Informatica, DataRobot, Google Data, and MicroStrategy.
- VISUALIZATION:** Includes logos for Tableau, SAP, Google Cloud, Celonis, Qlik, Palimpsest Data, ZEP, Veeva, Plurify, and Chartio.
- MACHINE LEARNING:** Includes logos for AWS, Google Cloud, H2O, DataRobot, gamalor, VESANT, VESIVER, and bonsai.

[illegible]

DATA TRANSFORMATION	DATA INTEGRATION	DATA GOVERNANCE	MGMT / MONITORING
       	             	      	             

The diagram illustrates the relationship between three main AI domains: Computer Vision, Natural Language Processing (NLP), and Speech & NLP. Each domain is represented by a colored circle (red for Computer Vision, blue for NLP, and green for Speech & NLP) and a corresponding text label. Below each domain, several AI companies and services are listed, each with its own logo. The companies are arranged in a grid-like fashion, with some overlapping between domains. For example, Microsoft Azure is listed under Computer Vision, while Google Cloud is listed under NLP. The logos include Microsoft Azure, Amazon Rekognition, Clarifai, Ever AI, Deepomatic, Twenty AI, Neuro, IBM Watson, Cortana, Face++, Sentient, Voyager, Haptik, Affective, Prophase2, Cognitive Scale, Numenta, Petuum, Sift, Nurologics, Curious AI, OSARO, Google Cloud, Twilio, Amazon Lex, Narrative, Semantic Machines, Microsoft, Haptik, SoundHound Inc., PRIMO, 99Minds, Intel, and Snips.

COMPUTER VISION

Microsoft Azure

Amazon Rekognition

Clarifai

Ever AI

Deepomatic

Twenty AI

Neuro

NATURAL LANGUAGE PROCESSING

IBM Watson

Cortana

Face++

Sentient

Voyager

Haptik

Affective

Prophase2

Cognitive Scale

Numenta

Petuum

Sift

Nurologics

Curious AI

OSARO

SPEECH & NLP

Google Cloud

Twilio

Amazon Lex

Narrative

Semantic Machines

Microsoft

Haptik

SoundHound Inc.

PRIMO

99Minds

Intel

Snips

[illegible]

STORAGE

- AWS
- Google Cloud
- Microsoft Azure
- Pure Storage
- Alluxio
- Nimble Storage
- Qumulo
- Cohesity

CLIENT SVCS

- AWS
- Eucalyptus
- Docker
- MESOSPHERE
- CoreOS
- Prometheus

APP DEV

- Keen IO
- Rainforest
- Figure Eight
- Scale
- HIVE
- DGS

CROWD - SOURCING

- Amazon Mechanical Turk
- Upwork
- Appen
- Scale
- HIVE
- DGS

HARDWARE

- Google TPU
- ARM
- Intel
- NVIDIA
- Movidius
- VAAVE
- HAILU

GPU DBs

- Kinetica
- Spherion
- MYTHIC
- BLAZINGO
- brylief
- PG Stron

SEARCH	LOG ANALYTICS	SOCIAL ANALYTICS	WEB / MOBILE / COMMERCE ANALYTICS
 elasticsearch	 splunk	 Hootsuite	 sprinklr
 ORACLE	 sumologic	 NETBASE	 Google Analytics
 covdo	 LOGGLY	 synthesio	 mixpanel
 Lucidworks	 TIMESLOGO	 simplesearch	 AIRBRUSH
 ATTIVO	 kbano	 bitly	 sumal
 swiftype	 logzio	 predata	 RESCI
 alolia		 SimilarWeb	 SIGOPT
 alphasense			 granity
 MAANA			 cutora
 omnius			
 SINEQA			

HEALTHCARE

flatiron Clover Xyris HealthSpa

METABOTA Gingerio Glow babyvivo

3D Med zebra Panki Aivue

TEMPUS pathomer

RECURSION pangenos enatic

LIFE SCIENCES

Genome Color Xyris

Sequenom verily

WATSON AI CODE ZEPHYRUS HEALTH

N ZEN

Clear Labs

Genome Delineator

TRANSPORTATION

UBER TESLA

GO CLEARPATH

drive.ai

nauto

PILOT AI

PTMUS movio

AGRICULTURE

FARMERS

Instacart

GRAMINAR

JOHN DEERE

BLUE RIVER

FarmLogs

COMMERCE

STITCH FIX

Do & Co

HowGood

Peapod

INDUSTRIAL

AVSIA SIEMENS

PREDEX

QIoT united

TACHYUS

Aluminum SCOTT

OTHER

eHarmony stem netScout Amparo

CROSS-INFRASTRUCTURE/ANALYTICS

aws Google Cloud Microsoft IBM SAP Hewlett Packard Enterprise SAS 1010DATA vmware TIBCO TERADATA ORACLE NetApp syncsort MAPR cloudera

OPEN SOURCE

The banner displays a wide array of tools used in data science and engineering, organized into 12 categories:

- FRAMEWORK**: Includes Hadoop, MapReduce, Hive, Pig, Tez, Flink, YARN, Mesos, and Spark.
- QUERY / DATA FLOW**: Includes Spark SQL, Presto, SLAMDATA, and Drill.
- DATA ACCESS**: Includes Cassandra, HBase, CouchDB, and various NoSQL databases like MongoDB, Redis, and Riak.
- COORDINATION**: Includes Talend, Apache Airflow, and others.
- STREAMING**: Includes Spark Streaming, Flink, Kafka, and Storm.
- STAT TOOLS**: Includes R, Python, ScalaLab, and others.
- AI / MACHINE LEARNING / DEEP LEARNING**: Includes TensorFlow, Theano, Caffe, and various ML libraries like PyTorch, Keras, and XGBoost.
- SEARCH**: Includes Elasticsearch, Solr, and others.
- LOGGING & MONITORING**: Includes ELK Stack (Elasticsearch, Logstash, Kibana), Prometheus, and others.
- VISUALIZATION**: Includes Tableau, D3.js, and others.
- COLLABORATION**: Includes Jupyter, Anaconda, and others.
- SECURITY**: Includes Apache Ranger, Knox, and others.

DATA SOURCES & APIs

HEALTH

Apple, VALIDIC, practicefusion, fitbit, GARMIN, ULTRASOUND APP, kinsa

IOT

GE Digital, thingworx, USTAKE, helium, samarsa, kinova

FINANCIAL & ECONOMIC DATA

Bloomberg, THOMSON REUTERS, DOW JONES, CB Insights, xignite, Quandl, SP CAPITAL IQ, TWENTY FIRST FINANCIAL, PREMISE, GEstimize, ENLIGHTEN, Engage Alpha, StockTrax, PLaid, Thomson, eArnerest

AIR / SPACE / SEA

Orbital Insight, planet, Airware, AIRBOTICS, spire, kespri, WINDSTORY, telusauto, DroneDeploy

PEOPLE / ENTITIES

axioma, experian, EPSILON, InsideView, Quantcast, BASIS, SAFEGRAPH

LOCATION INTELLIGENCE

FOUR SQUARE, mapbox, scity360, hexagon, PlaceIQ, esri, factual, CARTO, Mapillary, A Radar, cuebio, StreetView

OTHER QUALITIES

DATA GOV, enigma, CRU, MEDICARE

DATA RESOURCES

DATA SERVICES

- Palantir
- OPERA
- McGraw Hill Digital Analytics
- DAYA BIOGENE
- fractal
- kaggle
- DataKind
- improbus
- EXEL

INCUBATORS & SCHOOLS

- FLURALIGHT
- GA
- galvanize
- DataCamp
- DataEstate
- INSIGHT
- The Data Incubator
- NETIX

RESEARCH

- facebook research
- OpenAI
- MIRI
- V VECTIR INSTITUTE
- CSAIL
- CS
- AIZ
- ALLEN INSTITUTE FOR ARTIFICIAL INTELLIGENCE

Final 2018 version, updated 07/15/2018

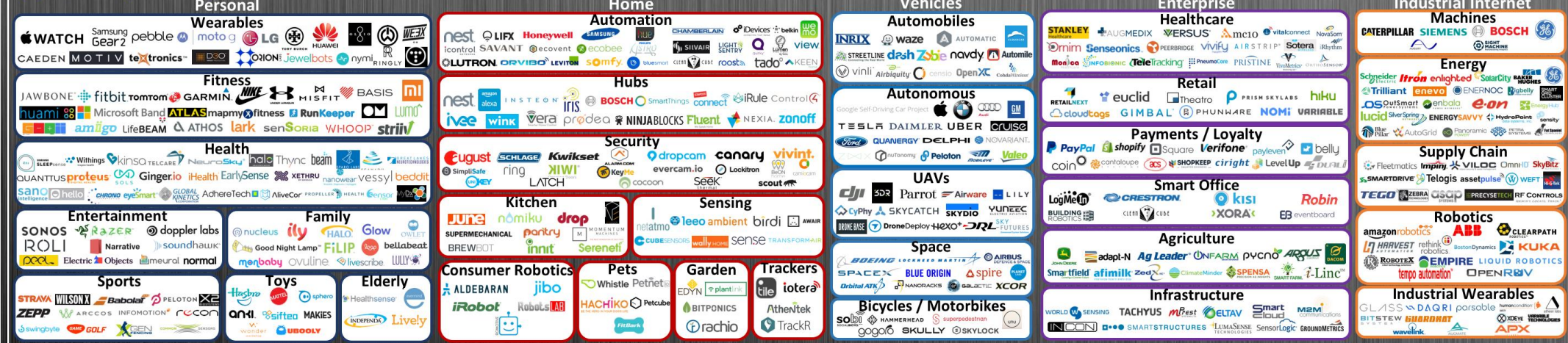
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FIRSTMARK
EARLY STAGE VENTURE CAPITAL

Internet of Things Landscape 2016

Applications (Verticals)



Platforms & Enablement (Horizontals)



Building Blocks



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FIRSTMARK

Portfólio:

Automação Agrícola

Agricultura de Precisão

Agricultura Digital

