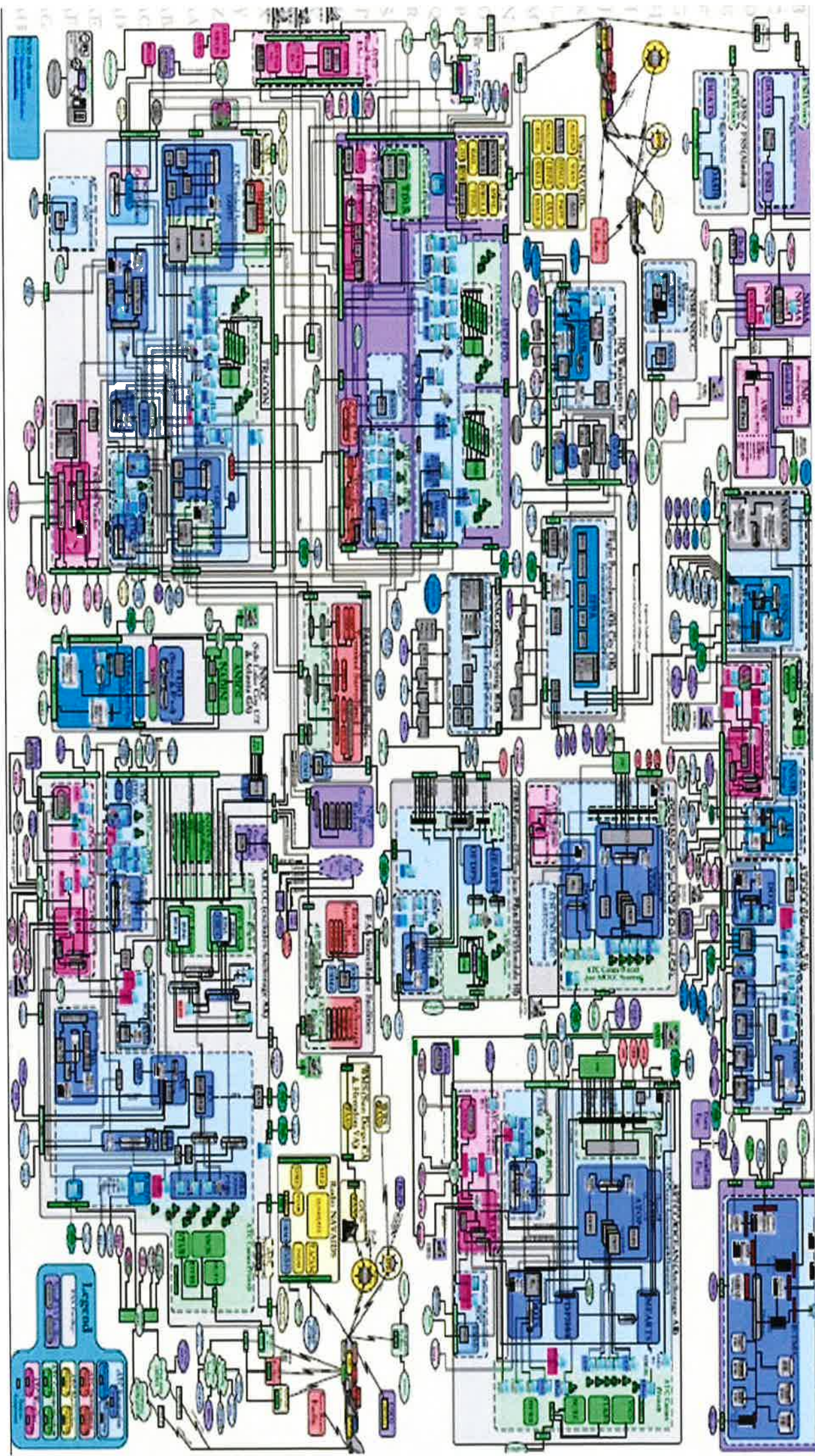


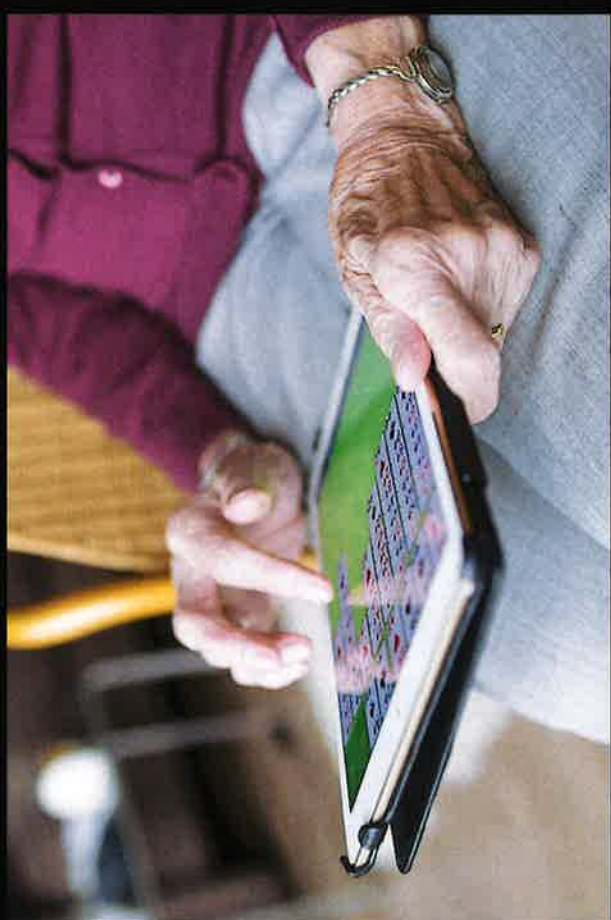
Norske Havners fagseminar2019

The Cognitive Enterprise Blockchain and TradeLens

Shahid Skar | Associate Partner IBM Norge
21/05/19 | London
shahid.skar@ibm.com







“The combination of capabilities at this high level –depth and breadth – is **unparalleled in the industry**. Major competitors are either software-only companies or cloud-only companies or consulting-only companies ...[IBM] has now developed a portfolio to address all kinds of hybrid deployment scenarios that can **barely be copied** ... IBM cares about customer data more than any other cloud company. Their commitment to not touching customer data and not using it for internal purposes or analysis **clearly sets it apart from its cloud competitors**. ”

Ruediger Spies

A look at the broader picture

The Cognitive Enterprise

This is IBM

Blockchain and TradeLens

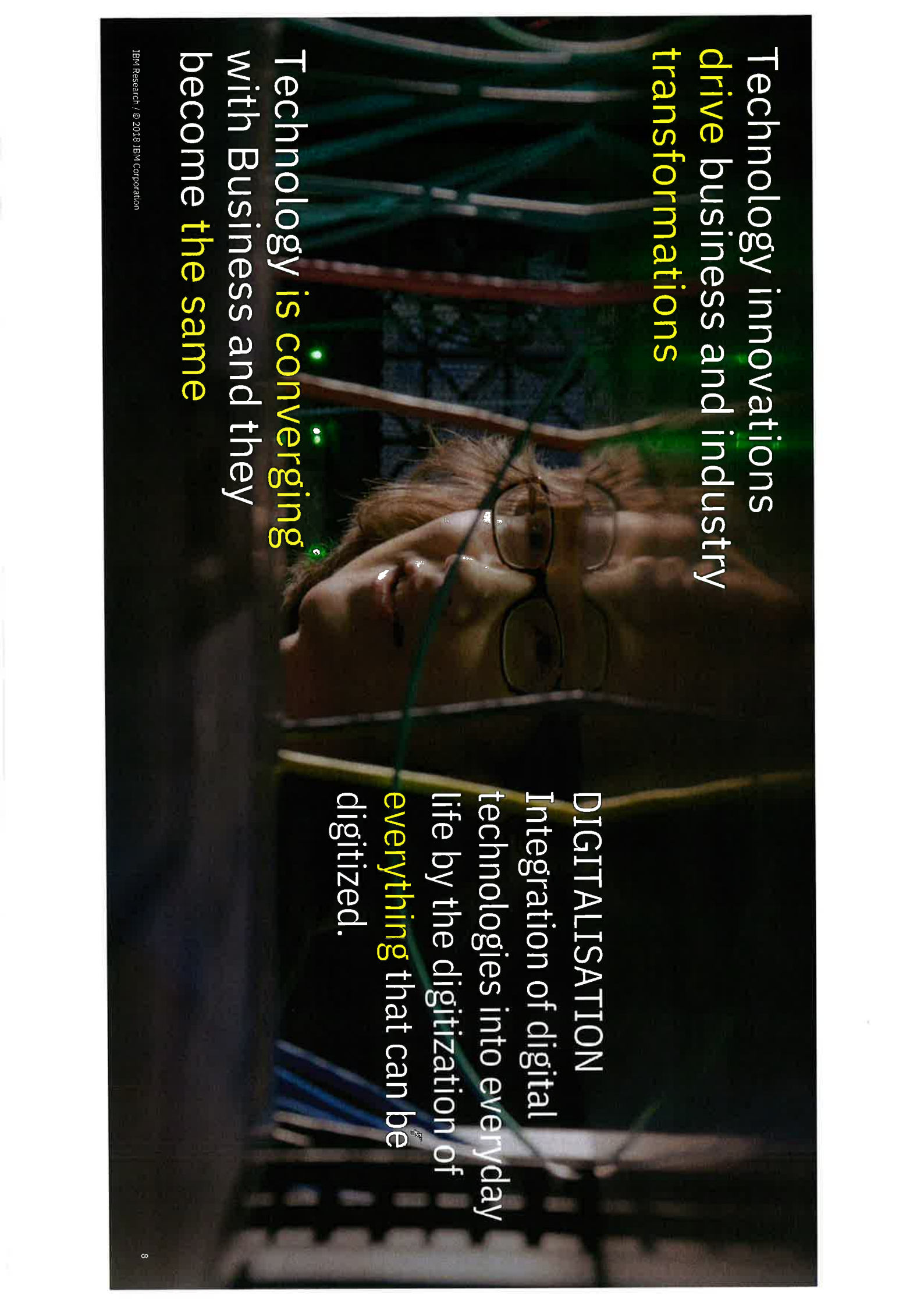




The Cognitive Enterprise

Get agile, change fast and build things



A woman with blonde hair and glasses is looking upwards with a slight smile. She is positioned in front of a complex network of green fiber optic cables that crisscross the frame. The background is dark, and the cables are illuminated with a soft green light, creating a futuristic and technological atmosphere.

Technology innovations
drive business and industry
transformations

Technology is converging
with Business and they
become the same

DIGITALISATION

Integration of digital
technologies into everyday
life by the digitization of
everything that can be
digitized.

Data is what fuels digital transformation

Yet, only **15%**
get what they need
from their data



say improving the use of data
is a top priority

have a plan to build a system of
insights to become data-driven

Data has changed every industry, profession, and domain

102,000,000

wearables shipped in 2016, growing
to 237,000,000 by 2021

100,000

new cancer articles published every
year

80,000,000

MRIs taken every year, up from
3,000,000
in 1980

2,200,000,000

locations generating hyperlocal
weather forecasts across the
globe every 15 minutes

2,581,586

Emails every second

10,000

new software vulnerabilities recorded
in 2016, up 30% since 2011

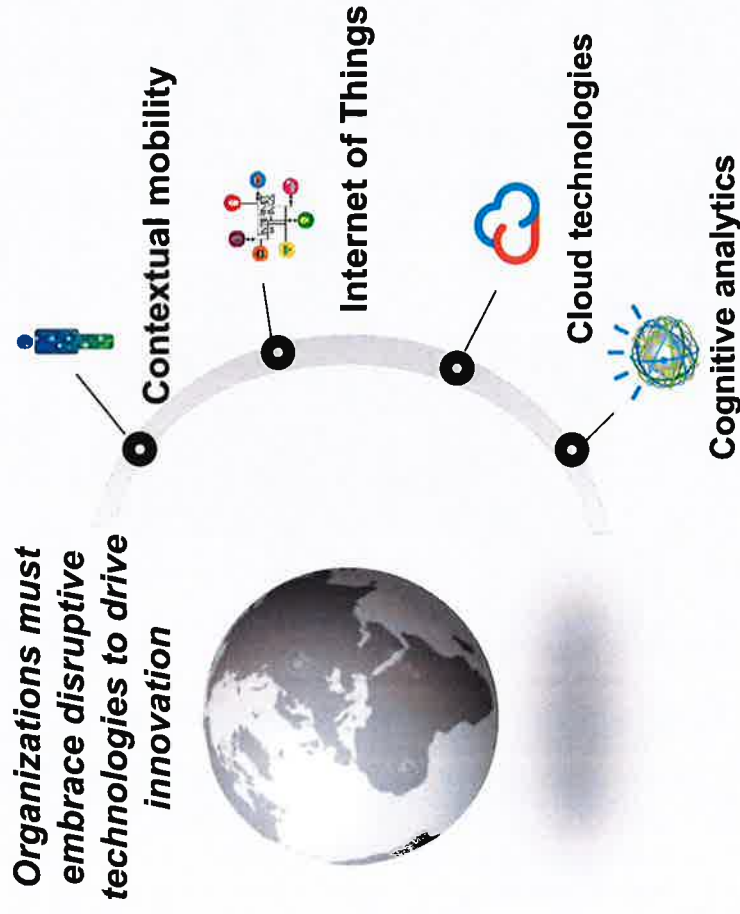
600,000,000

forms of malware - with close to 400k
variations introduced daily

500

hours of video uploaded to YouTube
every minute

Emerging technologies are driving change through economic and societal forces



Economic & societal forces



Connected and Open

- Proliferation of mobile devices and internet access
- Trust and accountability with partners and consumers



Simple and Intelligent

- Reduced and masked complexity
- Analytics and insights to drive decision-making



Consumer and content

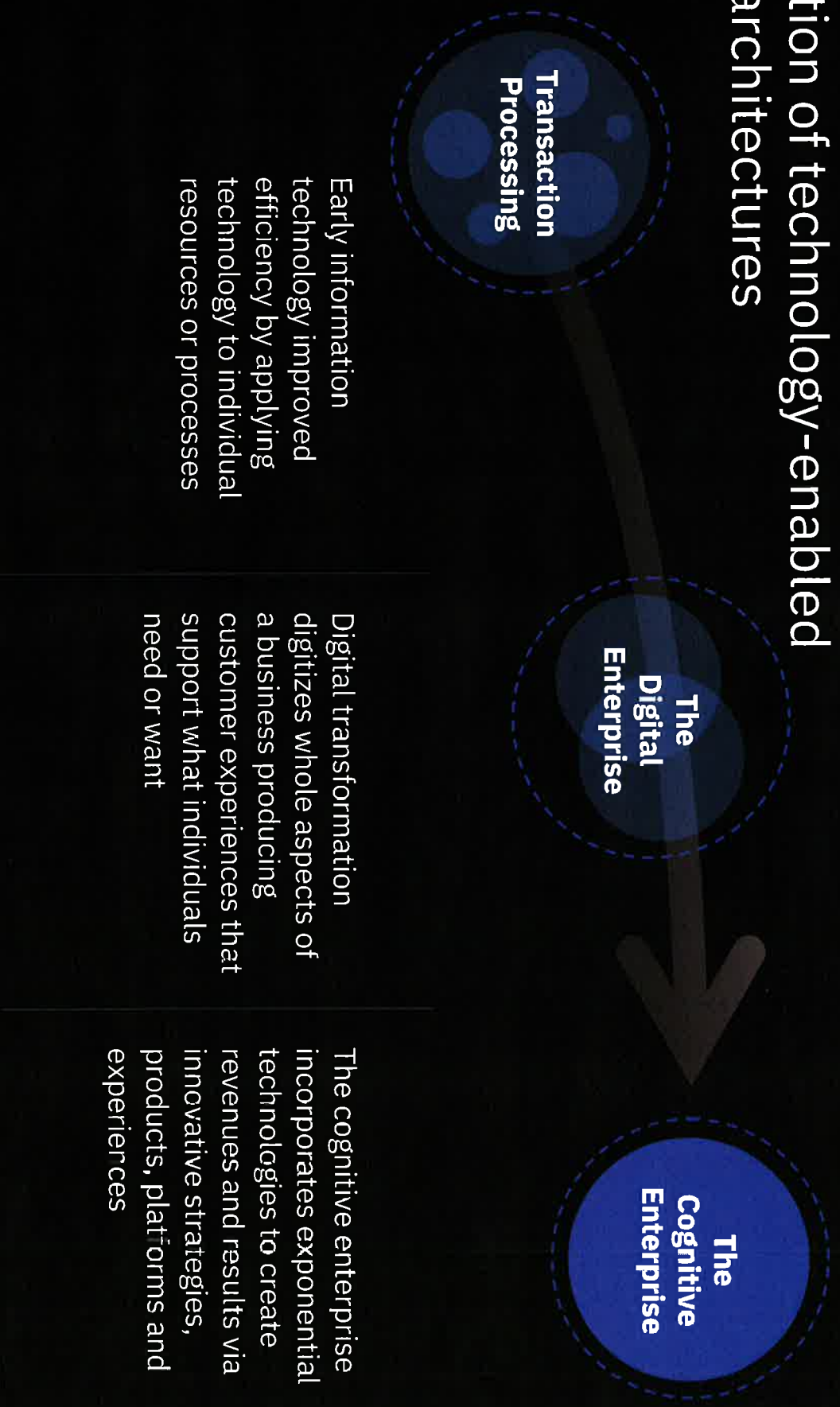
- Heightened customer expectations
- Rapid adoption of connected devices, magazine apps and free content
- Exponential growth in content and customer data



Production technologies

- Growing distribution complexity with new, multiple platforms

The evolution of technology-enabled business architectures



Key success factors

1.

Create platforms to
unleash Digital
Darwinism

2.

Leverage the
incumbent advantage
in data

3.

Architect your
business for change

4.

Redesign company
workflows
around AI

5.

Get agile,
change fast and
build things

6.

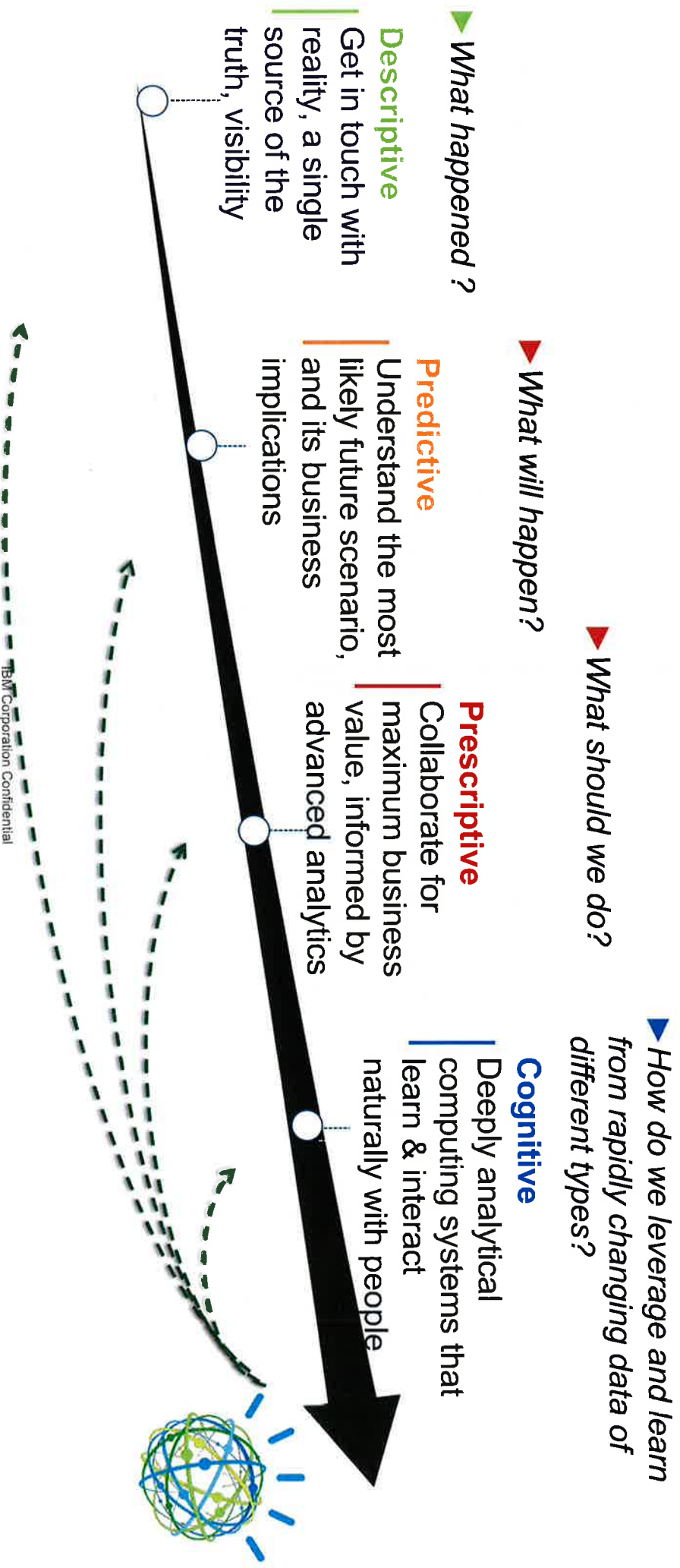
Reinvent your
workforce to
ignite talent

7.

Win with trust
and security

“Ability to predict business events”

by understanding the environment will be key to optimize business performance



Cognitive systems open up for a new partnership between humans and machines

Cognitive Systems are better at:

FINDING KNOWLEDGE
PATTERN RECOGNITION
NATURAL LANGUAGE
MACHINE LEARNING
ELIMINATE BIAS
LARGE CAPACITY



Humans are better at:

COMMON SENSE
MORALS AND ETHICS
FANTASY
COMPASSION
DILEMMAS
ABSTRACTION
DREAMING
GENERALISE

The fusion of multiple exponential technologies powers both disruption and tremendous opportunity

AI/Cognitive Computing



Makes sense of specific context and helps link insight to action

Cloud



Allows data to be stored and accessed and applications run, from everywhere

Blockchain



Secures and authenticates information housed within a secure infrastructure

Cybersecurity



Embeds safeguards into systems and surfaces threats

Internet of Things



Generates new data and creates ecosystems of physical devices

Automation and Robotics



Enhances productivity by working autonomously or in conjunction with staff

Quantum Computing



Improves optimization and drives the creation of new products

3D Printing



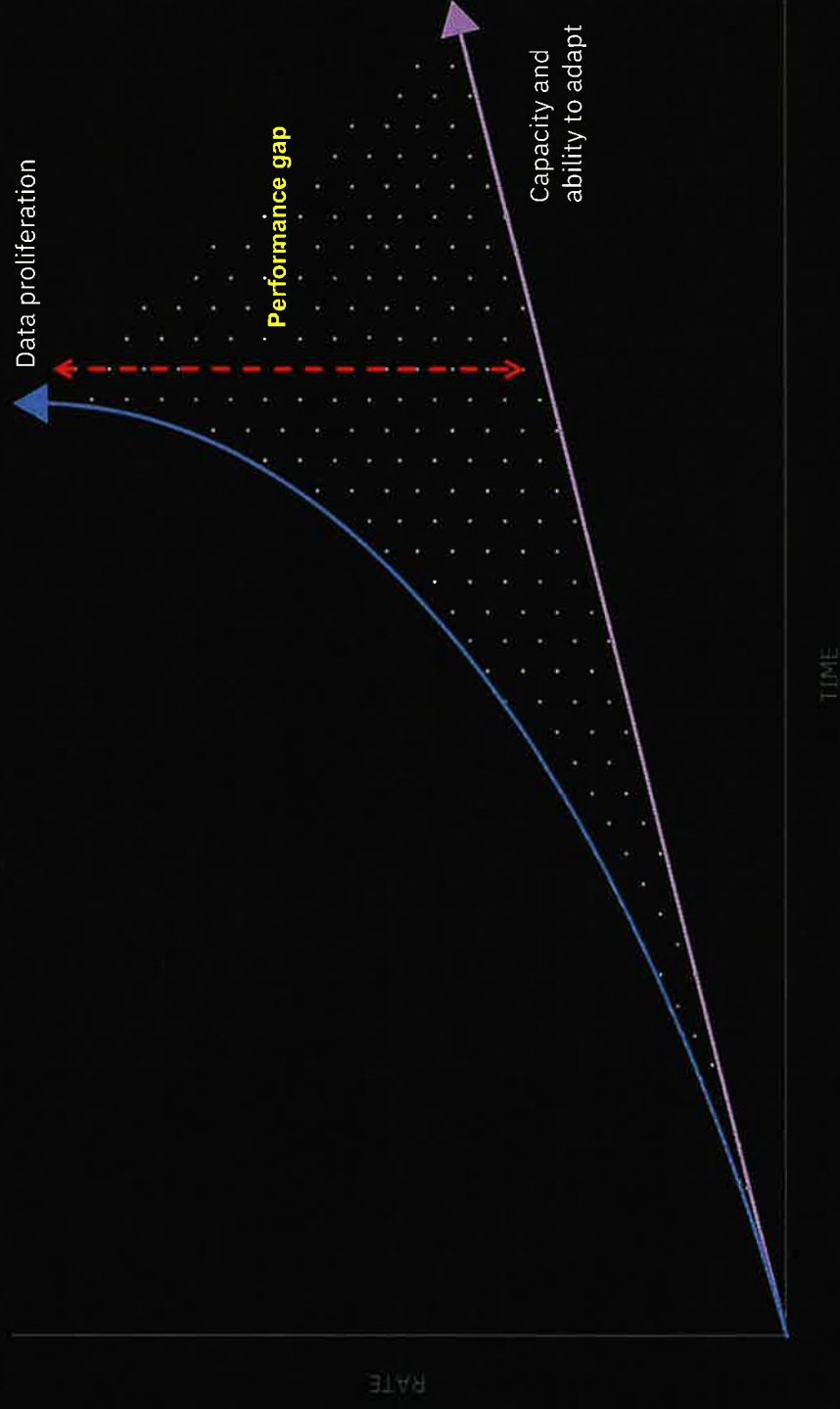
Enables mass customization, rapid prototyping and just-in-time inventory management

Virtual and Augmented Reality



Redefines human computer interaction, creating new experiences and services

As the volume of data, digital transformation, and the pace of technological change accelerate, the ability of organizations and professionals to keep up and capitalize on the opportunity is becoming more challenging.





*"It isn't a world
of Watson; it's a
world with Watson."*

Ginni Rometty
Chairman, President
& CEO, IBM



*"If it's digital
today, it will
be cognitive
tomorrow."*



Deep learning
earnir
w Ng



"AI is the new electricity"
former
Andrew NG, Chief Scientist, Baidu



cog-ni-tive



Understand

Like humans do



Reason

to extract ideas



Learn

From past results



Interact

In a natural way



AI / Cognitive
is underpinned
by many
advanced
technologies

AI / Cognitive Technologies

Artificial intelligence

*Simulation of human intelligence
processes*

Recommendation engines

*Analyze data and suggest
something as per user's
interest*

Predictive analytics

*Predicting outcomes
using statistical
algorithms and machine
learning*

Deep learning

*Machine learning with
artificial neural network
algorithms*

Robotics

*Conception, design,
manufacture, and
operation of robots*

Machine learning systems

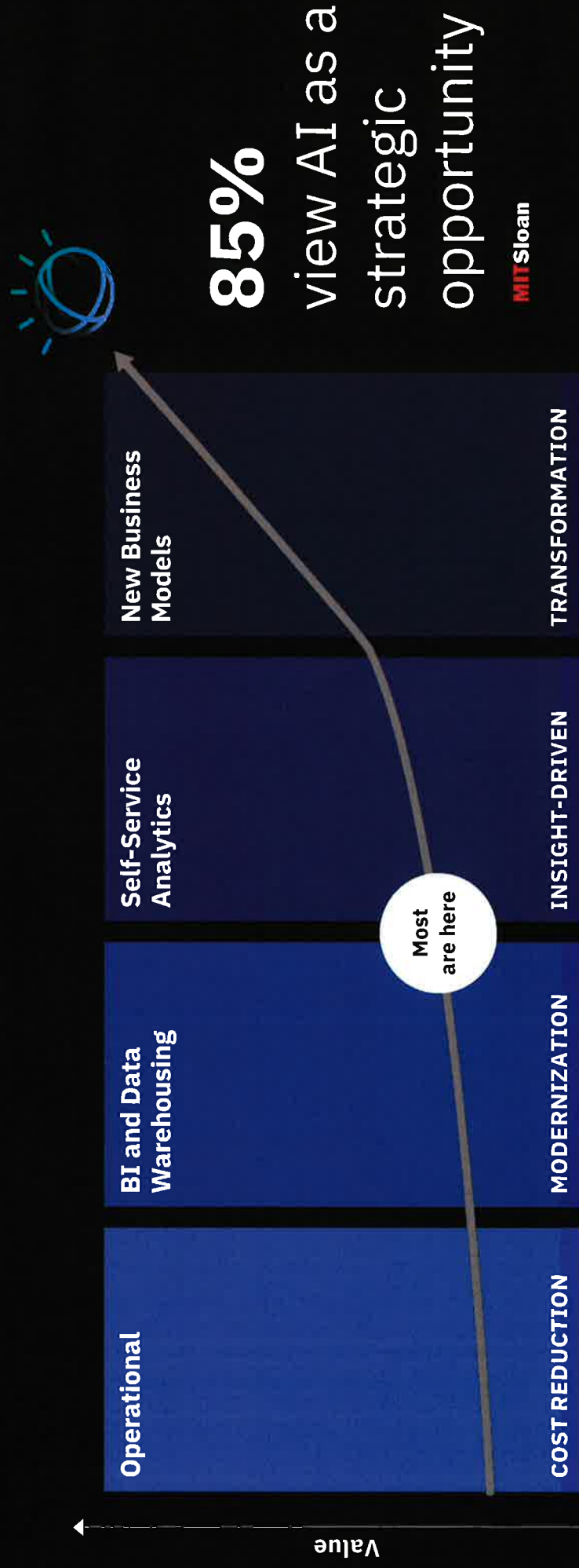
*Ability to learn and
improve without explicit
instructions*

Natural language processing

*Ability to understand
human speech as it is
spoken*

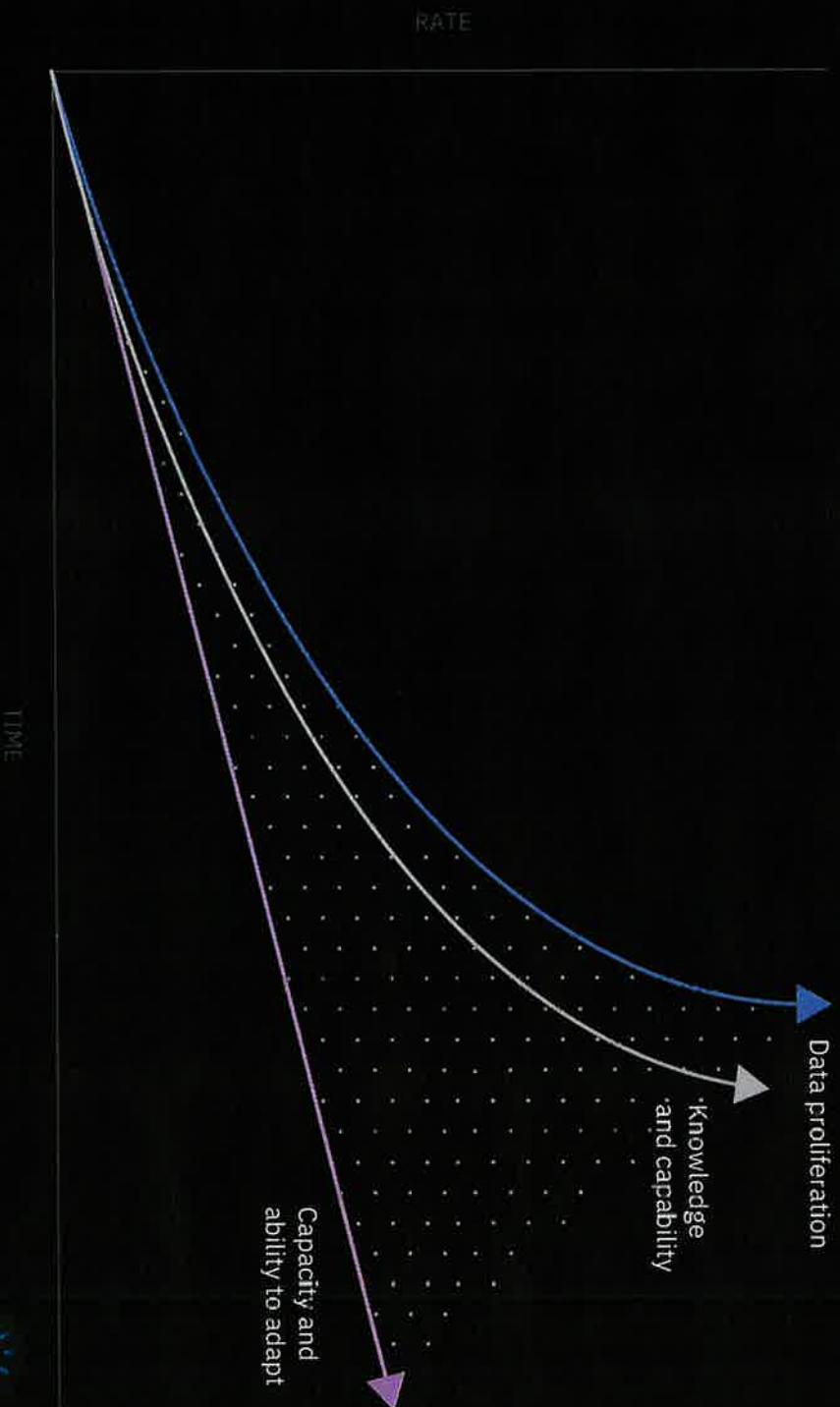


Enterprises are investing to unlock the business value of their data



As the volume of data, digital transformation, and the pace of technological change accelerate, the ability of organizations and professionals to keep up and capitalize on the opportunities becoming more challenging.

AI provides an opportunity to help professionals close the gap and harness the full potential of data by creating new tools to improve their work and outcomes.



Exit

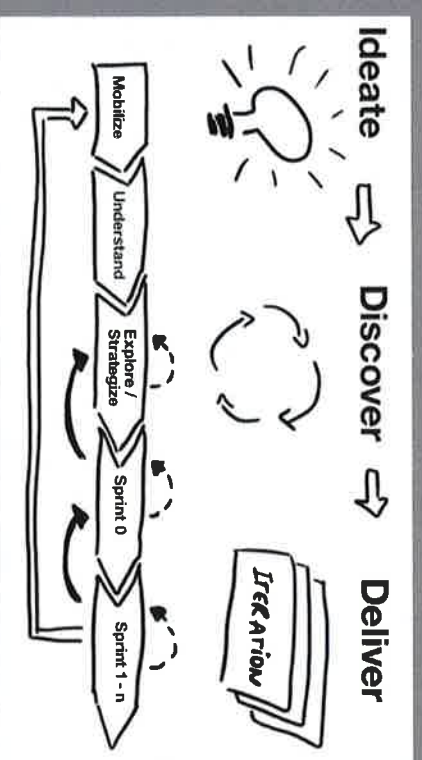
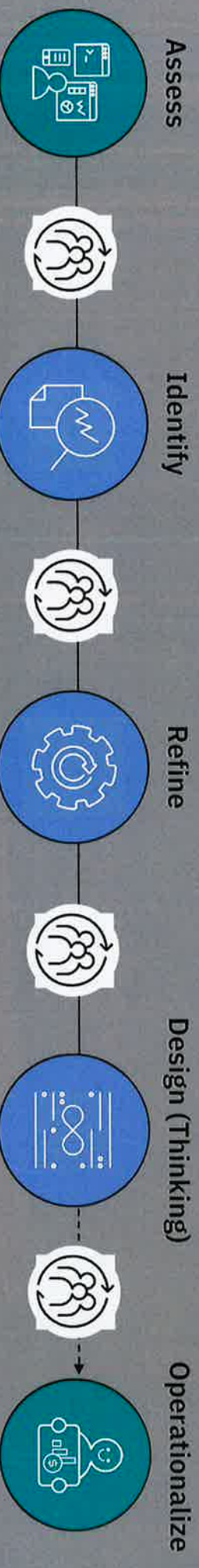


Witgang



Toilets

Cognitive Journey – Getting it back on Track!

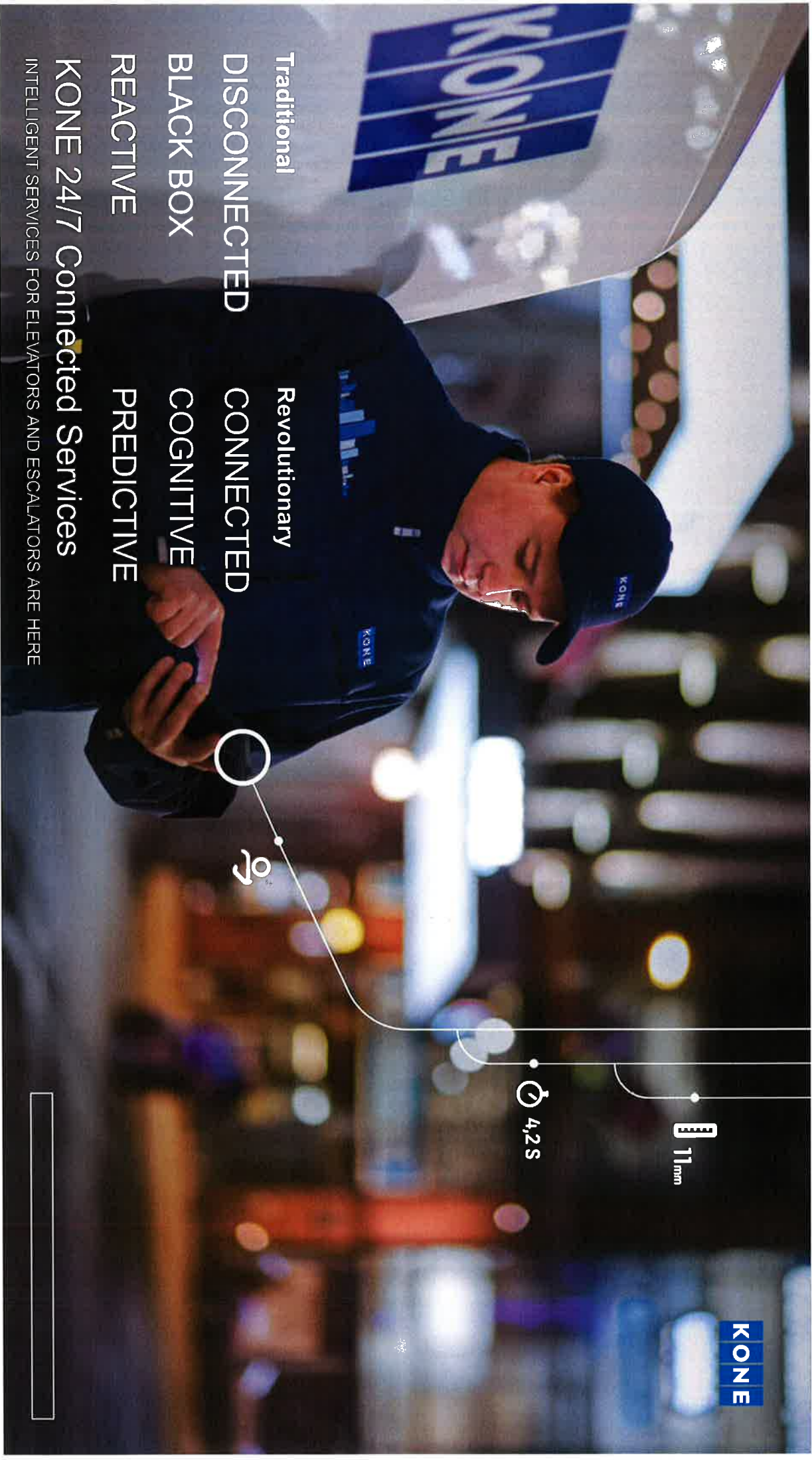


Fail fast and often...

Uncovering needs and goals with Design Thinking

What We Made





Traditional

DISCONNECTED

BLACK BOX

REACTIVE

Revolutionary

CONNECTED

COGNITIVE

PREDICTIVE

KONE 24/7 Connected Services

INTELLIGENT SERVICES FOR ELEVATORS AND ESCALATORS ARE HERE



11mm

Q 4,2 S

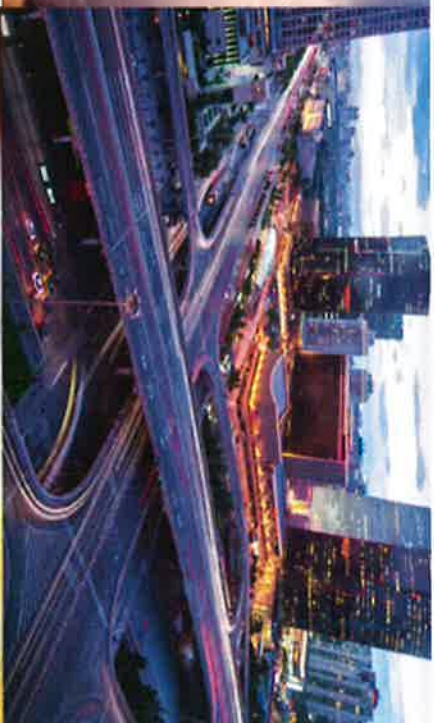
KONE



This is IBM

Restlessly reinventing since 1911





We have reinvented IBM for a new era -- with deep expertise to transform companies, industries and professions.

- + 97% of the world's largest banks use IBM products to run their systems
- + 80% of the world's travel reservations are processed on IBM systems
- + 90% of global credit card transactions are processed on IBM mainframes
- + 80% of global retailers are powered by IBM retail solutions
- + 83% of the world's largest communications service providers are IBM clients



Build and monetize cognitive-enabled financial services apps quickly and at scale



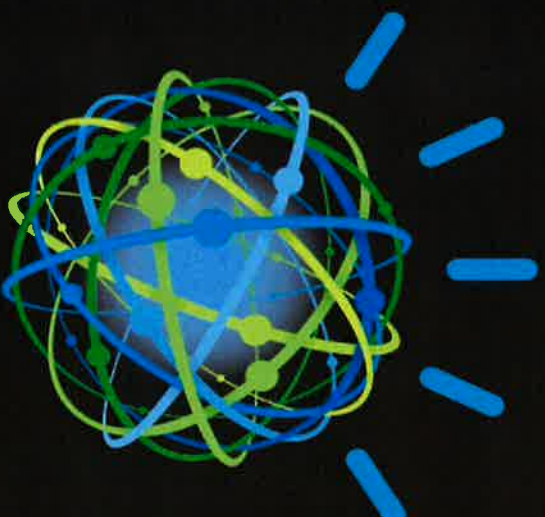
Transform, reinvent and change Healthcare. Tackle the grand challenges of our time, like cancer and cancer care.



Use data to drive smarter insights and action, improve business performance and consumer experience in retail

IBM is a Cognitive Solution and Cloud Platform Company

- Sundtkvartalet HQ in Norway
- Offices in Bergen, Stavanger, Hamar and Trondheim
- Aprox 1000 employees



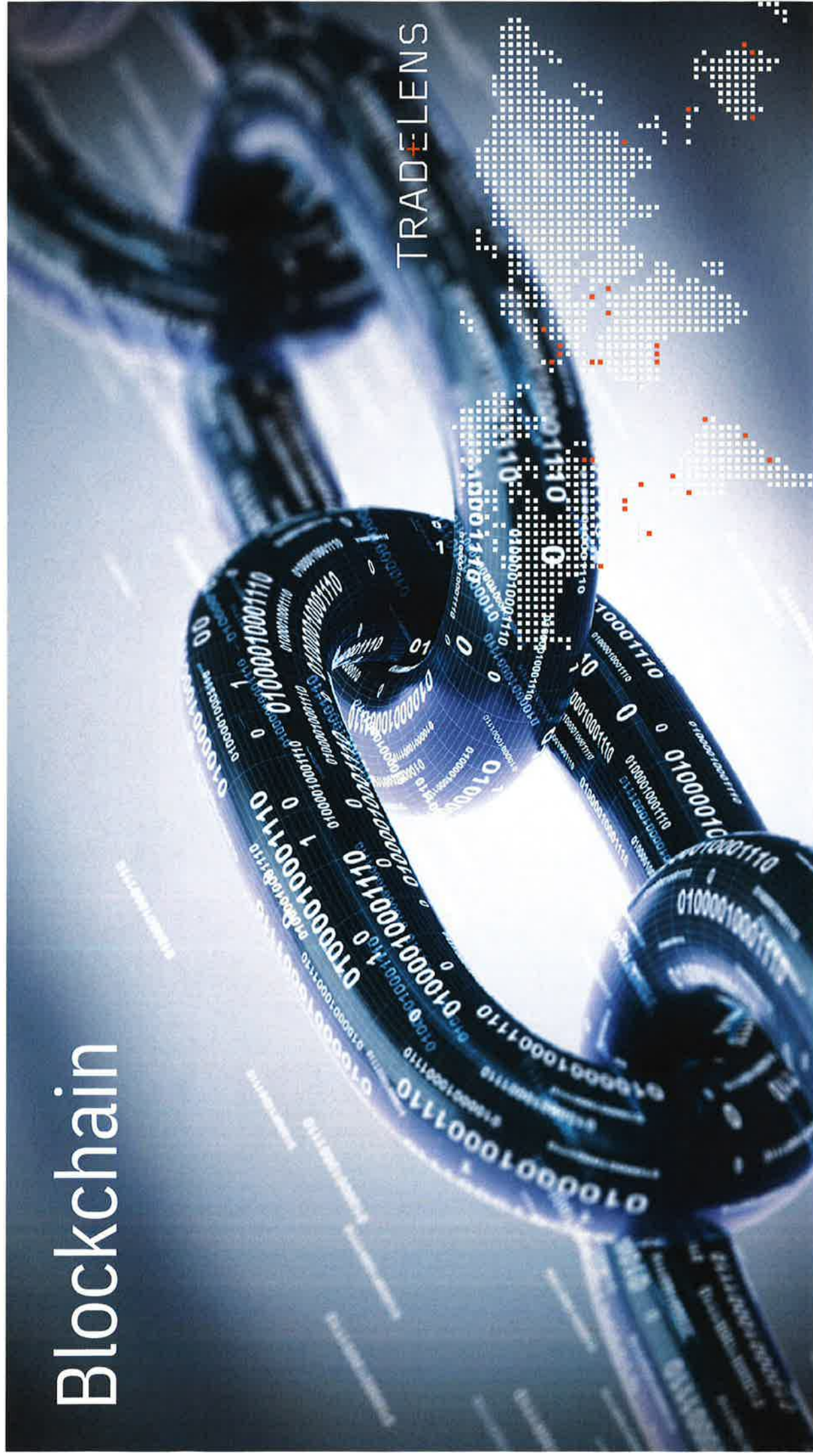
\$6 billion yearly
invested in R&D

25 years for
patent
leadership



Blockchain

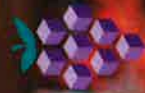
TRADELENS



There are many **Blockchain** cases...

...and all of these are using IBM Blockchain Platform (hyperledger fabric)





IBM Food Trust™

Food Supply Clarity



FOOD SAFETY

Securely trace products in seconds to mitigate waste, cross-contamination, and spread of foodborne illness.



FOOD FRESHNESS

Gain unprecedented visibility into supply chain data for valuable insights and analysis, identifying inefficiencies and ensuring quality of goods sold.



REDUCE WASTE

Share and manage data across the food supply chain, helping to increase efficiency, reduce product loss, and optimize your ecosystem.



SUSTAINABILITY

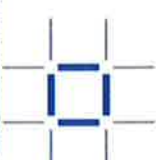
Digitize essential certificates and documents to optimize information management, certify provenance, and ensure authenticity.



Data Visibility

Process Optimization

Demand Management

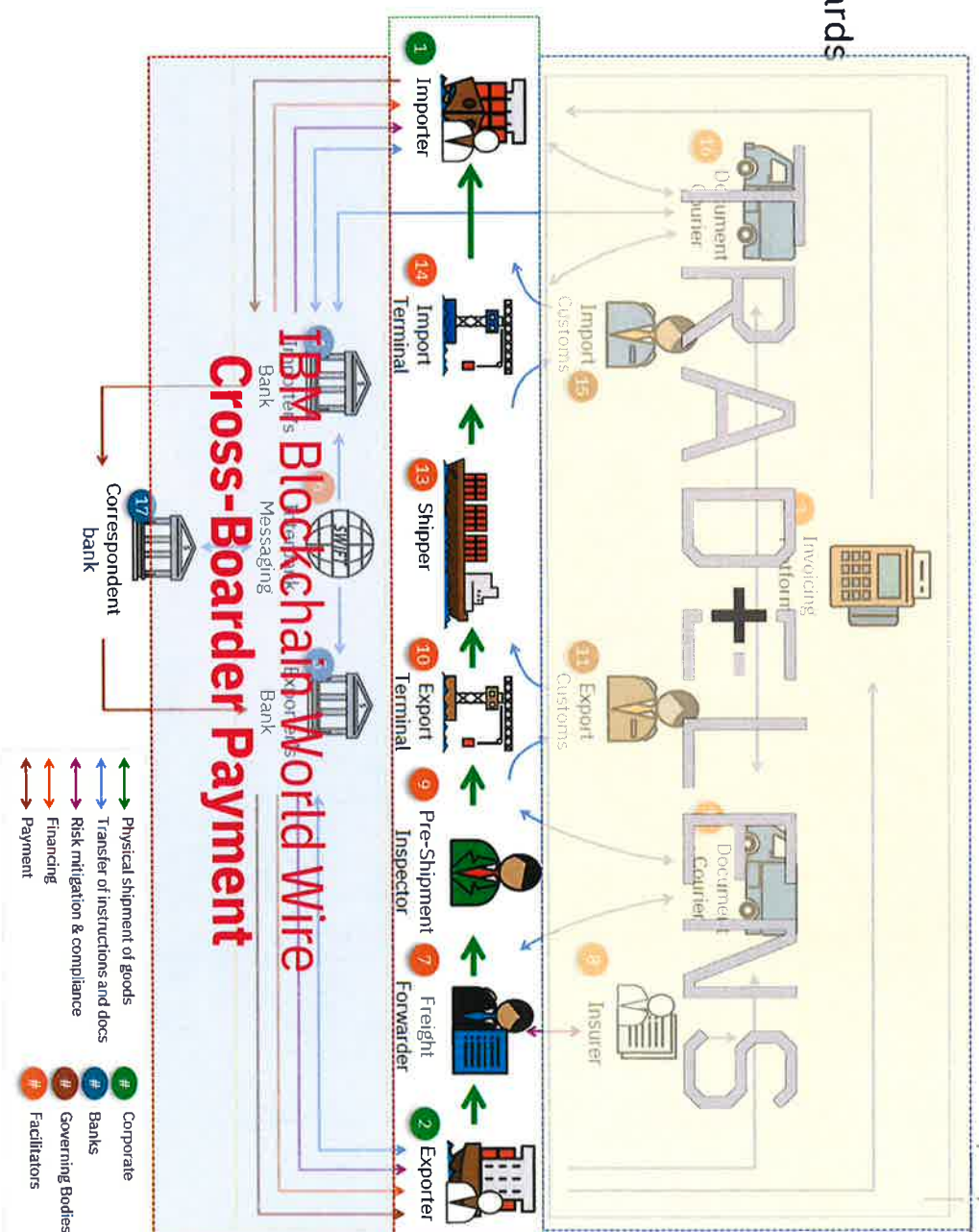


Trade & Trade Finance

the international eco-system

PAIN POINTS IN THE SUPPLY CHAIN

- Lack of unified legal & technical standards
- Data security & willingness to share
- Document flow & quality
- Information flow & quality
- Fraud
- Transport (delivery status/tracking)
- Identification (people, things...)
- Delivery time
- Reputation of market participants
- *Trade Finance*



IBM Blockchain

©2019 IBM Corporation

More than
\$16 trillion in goods
are shipped across international
borders each year

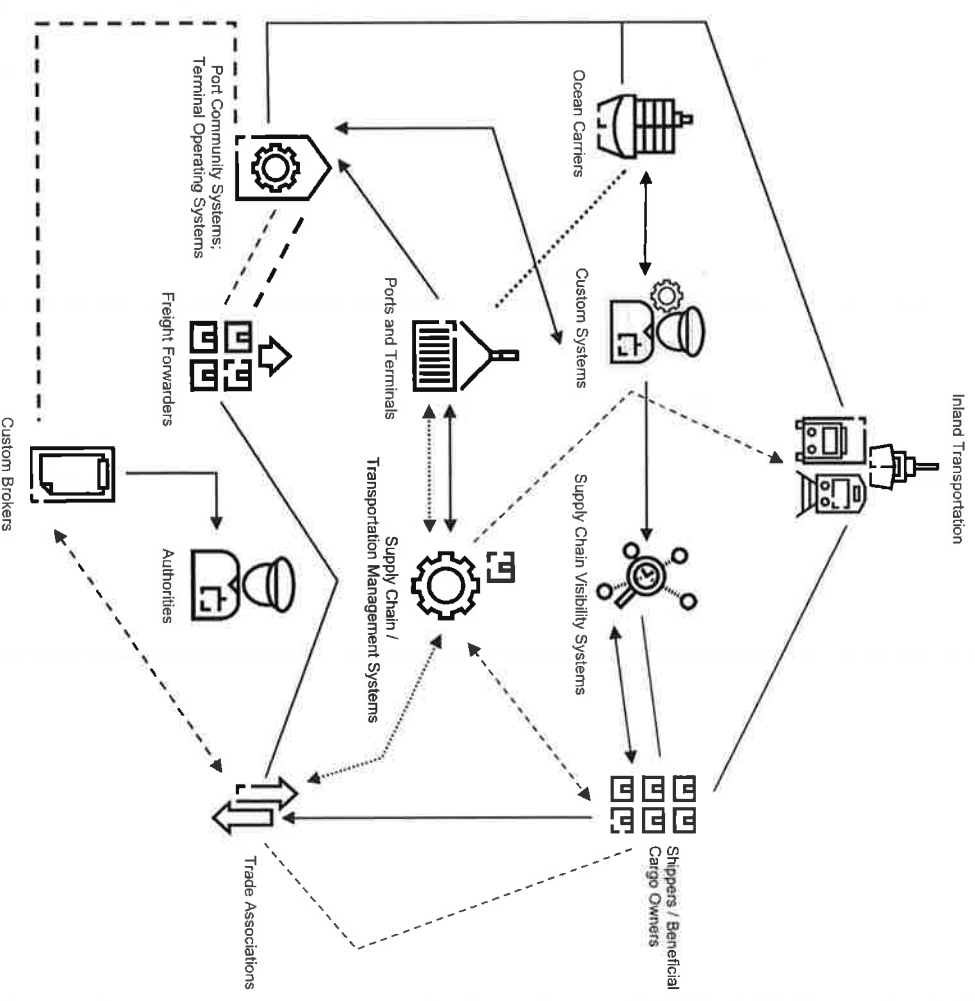
80% of the goods
consumers use daily are carried by
the ocean shipping industry

By reducing barriers within the international
supply chain, global trade could
increase by nearly 15%
boosting economies and creating jobs¹

1) The World Economic Forum: Enabling Trade: Valuing Growth Opportunities 2013

GLOBAL TRADE IS HIGHLY INEFFICIENT AND BURDENED BY PAPER-BASED PROCESSES

- ◉ Data trapped in organizational silos
- ◉ Disparate perspectives on transaction state
- ◉ Manual and time-consuming processes
- ◉ Clearance processes subject to fraud



TRADELENS

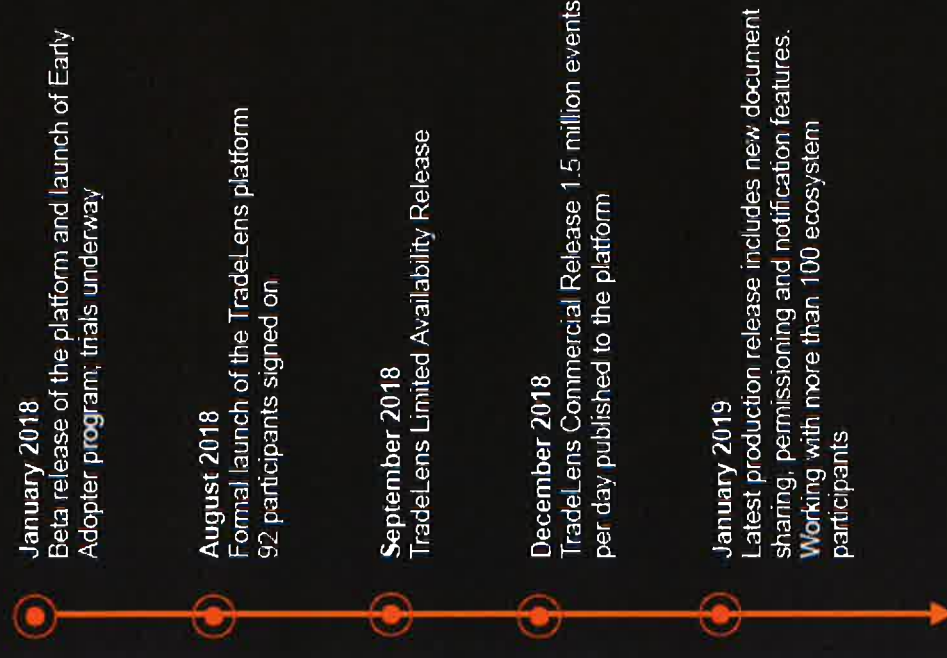
An open and neutral blockchain-based platform that is digitizing the global supply chain and transforming trade

- The platform empowers faster and more efficient, transparent and secure global trade
- TradeLens is built for the industry and offers benefits to trade participants from across the supply chain ecosystem
- IBM and Maersk are developing the platform under a joint collaboration, with significant input from and participation by the industry
- An Advisory Board is being formed to help shape the platform and drive standards
- TradeLens is live in production today, processing millions of transactions per day



TRADELENS

OUR JOURNEY



THE TRADELENS PLATFORM

Digitizing the global supply chain

Connects the ecosystem

Brings together all parties in the supply chain - including traders, freight forwarders, inland transportation, ports and terminals, ocean carriers, customs and other government authorities, and others - onto a Blockchain-based platform with a secure permission and identity framework

Drives true information sharing

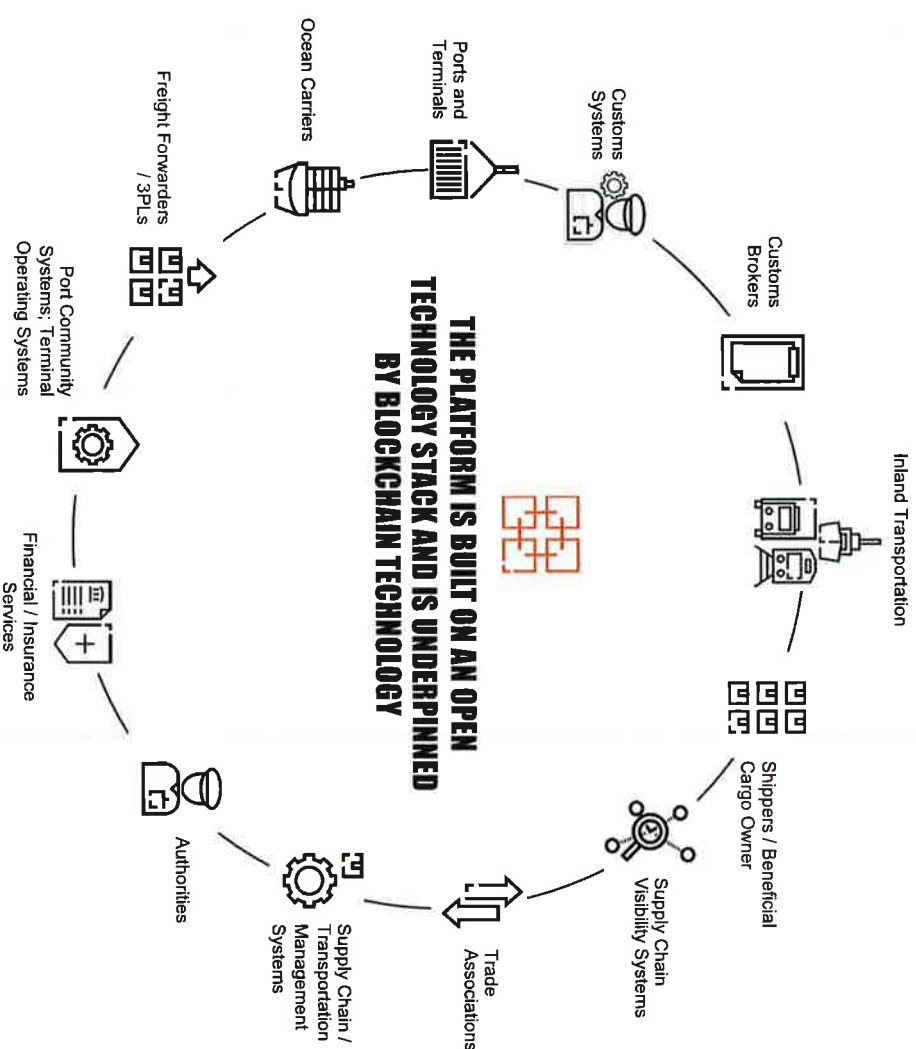
Provides for the seamless, secure sharing of real-time, actionable supply chain information across all parties to a trade - encompassing shipping milestones, cargo details, trade documents, the structured data embedded in trade documents, customs filings, sensor readings, and more

Fosters collaboration and trust

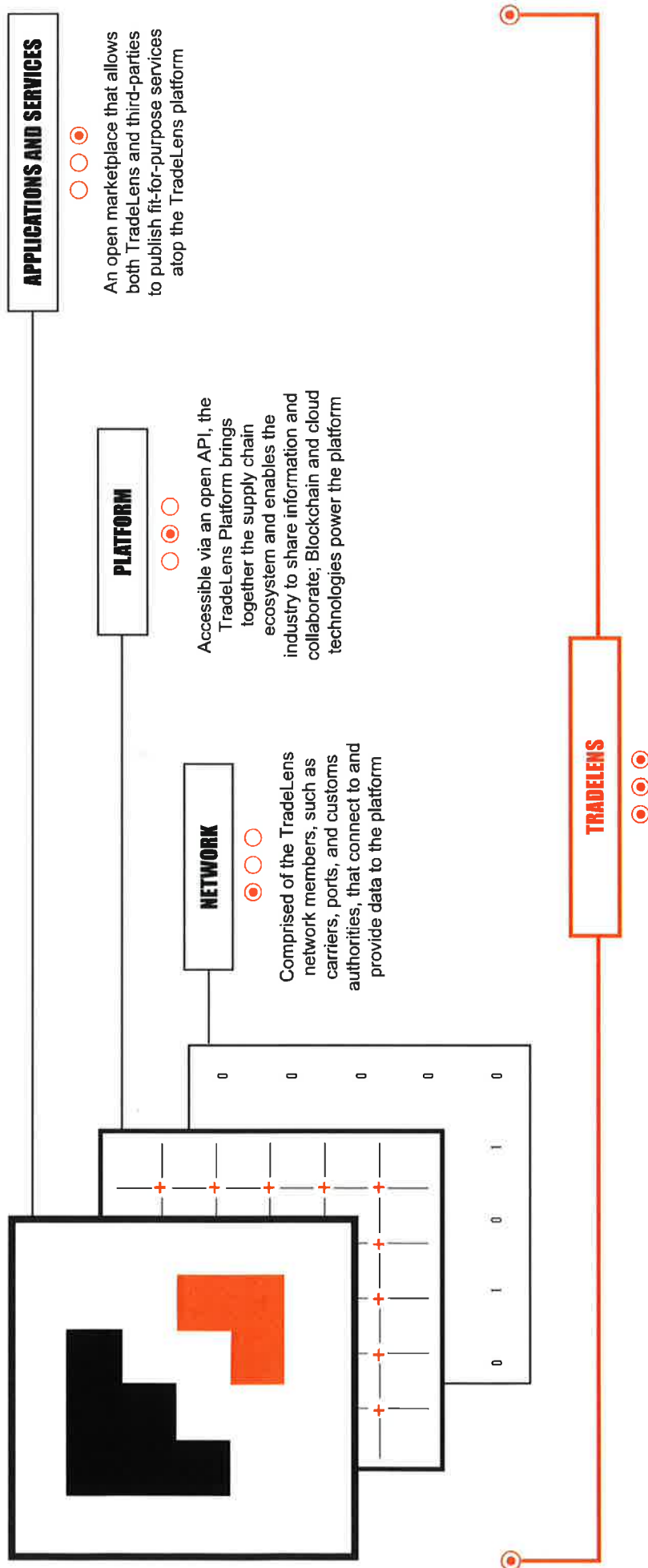
Enables the digitization and automation of the cross-organization business processes integral to global trade, including import and export clearance, with Blockchain ensuring secure, auditable, and non-repudiable transactions

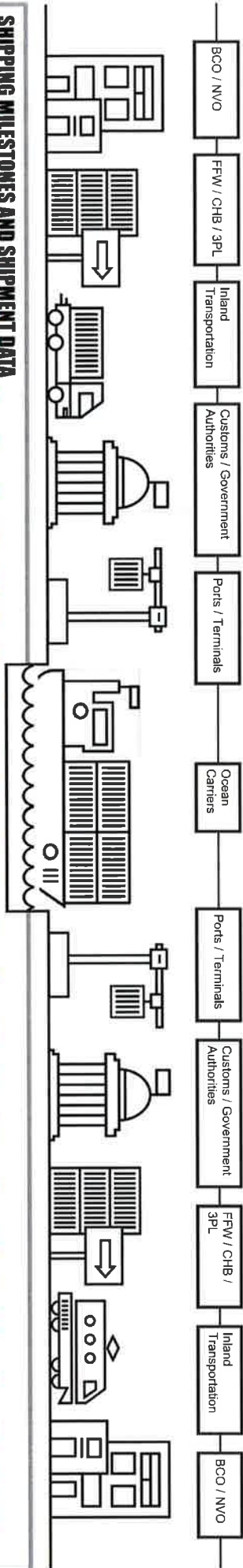
Spurs innovation

Lays the foundation for ongoing improvement and innovation through an open, non-proprietary API, the use of standards and promotion of interoperability, and the launch of an Applications Marketplace that parties can use to build and deploy TradeLens-powered applications for themselves, their partners, and their customers



TRADELENS SOLUTIONS LANDSCAPE





SHIPPING MILESTONES AND SHIPMENT DATA

- Start container tracking
- Empty container picked up from depot
- ETA empty container at stuffing site
- ATA Empty container at stuffing site
- Container stuffing completed at inland location
- VGM submitted
- Container sealed
- ATD Packed container from stuffing site
- Estimated gate in for packed container at terminal export
- Gate in full at terminal export
- ETD packed container from export terminal
- Packed container loaded
- Export documentation cleared
- Container ready to load
- ATD packed container from export terminal
- ETA packed container at import terminal
- Temperature update
- Estimated discharge time for packed container at import terminal
- Import documentation cleared
- Container selected for inspection
- ATA packed container at import terminal
- Packed container discharged at import terminal
- Estimated gate out of packed container from terminal import
- Gate out packed container from terminal import
- ETA packed container at stripping location
- ATA packed container at stripping location
- Seal removed
- Packed container stripped at inland location
- Empty container ready for pick-up
- Empty container picked up from stripping location
- ATA empty container at depot
- Container tracking ended

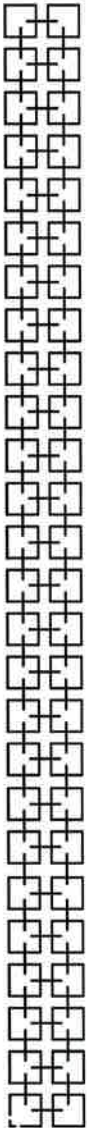
Not exhaustive list of milestones managed by platform

STRUCTURED AND UNSTRUCTURED DOCUMENTS

- Packing List
- Bill of Lading
- Export Documentation
- Advance Declaration
- Pre-Paid Invoice
- Certificate of Origin
- Shipping Instructions
- ISF
- Geography Specific Certificate
- Dangerous Goods Declaration
- Cargo Specific Certificate
- Customs Clearance
- Commercial Invoice
- Import Documentation

Not exhaustive list of documents managed by platform

TRADELENS BLOCKCHAIN BUSINESS NETWORK



TRADELENS AND BLOCKCHAIN

Blockchain addresses the underlying challenges inherent in collaborating across a distributed, fragmented supply chain ecosystem



SHARED LEDGER

Append-only distributed system of record shared across business network

A network of industry participants maintains a distributed, permissioned ledger with copies of document filings, relevant supply chain events, authority approval status, and full audit history; every change results in a new, immutable block



SMART CONTRACT

Shared business logic governing what transactions may be written to the ledger

Cross-organizational business processes, such as import and export clearance, are pre-programmed and built into Blockchain and distributed to and executed on the network, preventing any member from changing the business logic



PRIVACY

Ensuring appropriate visibility; transactions are secure, authenticated and verifiable

Cryptography enables permissioned access so only the parties participating in a specific shipment can submit, edit or approve related data

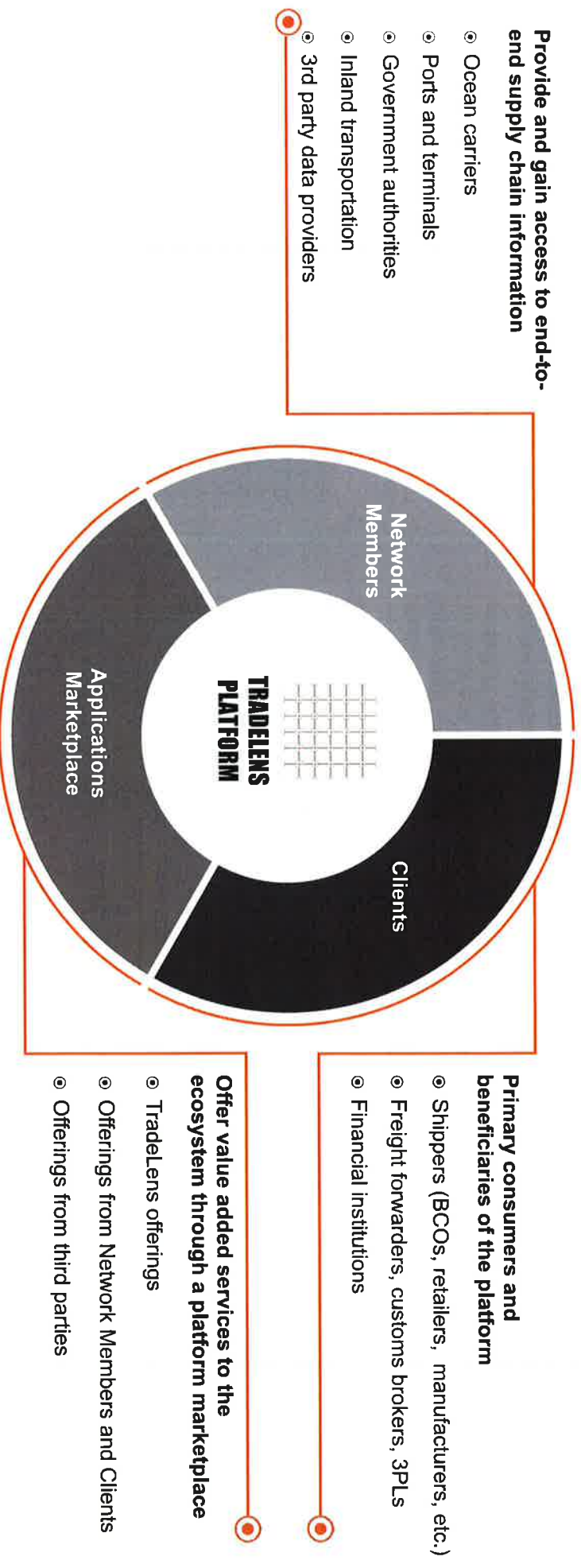


TRUST

Transactions are endorsed by relevant participants

Information such as documentation filings and authority approvals can only be changed if endorsed by the parties taking part in the shipment; full audit history maintained on the Blockchain

THE TRADELENS ECOSYSTEM





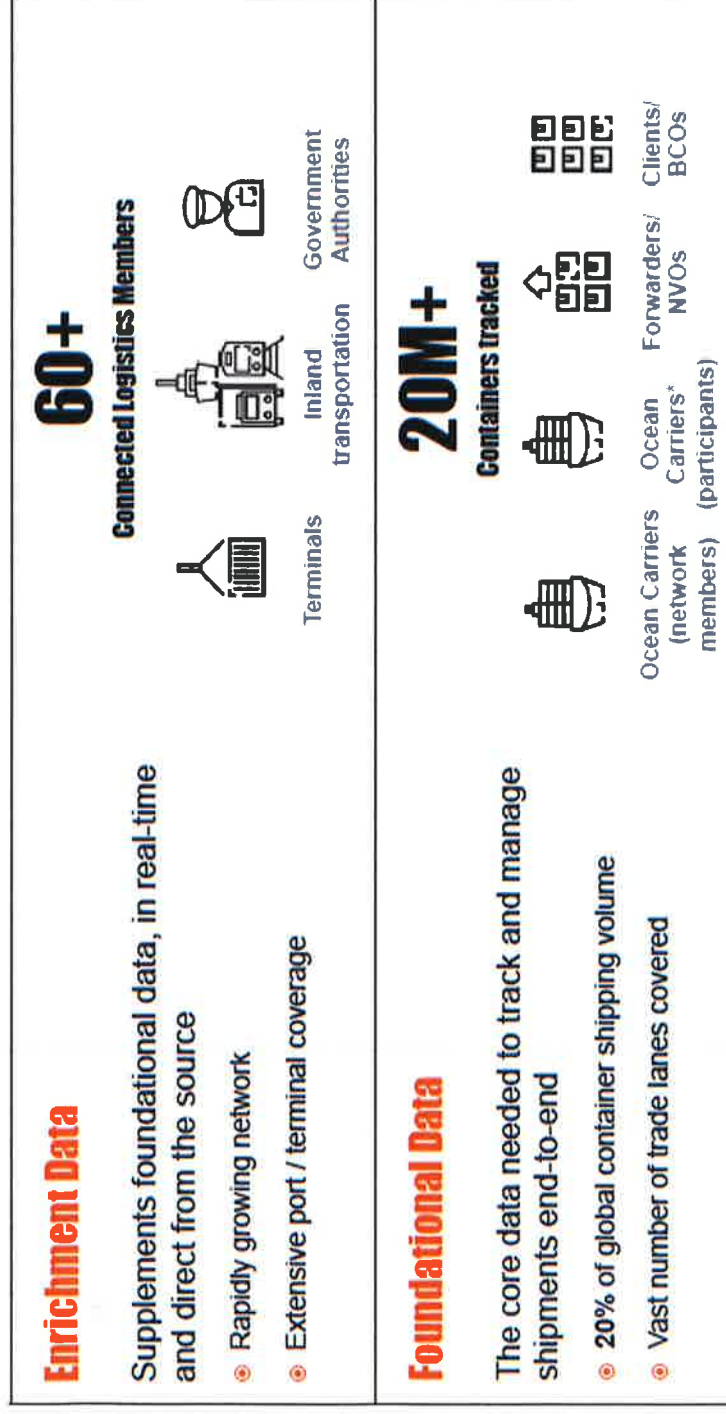
TOGETHER WE CAN MOVE THE INDUSTRY FORWARD

- ◉ **Blockchain changes the game**
Never before could disparate entities securely and confidently process paperwork filings digitally
- ◉ **Designed from the ground up as an industry platform shaped by the ecosystem**
The platform is designed to be open to all industry players; an Industry Advisory Board will be formed to ensure we continuously improve based on ongoing, regular input and feedback
- ◉ **We are moving fast**
We know that speed and scale are critical and building the network is the key to success
- ◉ **Strong support from IBM, Maersk, and participants**
IBM and Maersk, together with the Tradelens participants, have the global reach, executive support, and ability to execute in markets around the world

WHY IBM AND MAERSK ARE INVESTING IN THIS PLATFORM

- + **Lead rather than react**
The digital transformation of global shipping, like other industries before it, is going to happen one way or another, and both companies want to lead the way rather than react to that change
- + **Grow the pie**
For Maersk, a more efficient trading ecosystem will drive economic growth, resulting in increased demand for shipping services
- + **Accelerate Blockchain adoption**
IBM believes in and is investing in Blockchain and sees the global supply chain as a significant opportunity to drive more widespread adoption
- + **Improve performance**
As a large network member, Maersk expects to realize significant cost savings and improved customer service by connecting to the platform

TRADELENS NETWORK OVERVIEW



Tradelens Platform



**500M+ Events
Captured**

* Ocean carrier who are not network members can provide data as requested by their customers.

CURRENT NETWORK STATUS – AS OF APRIL 2019

Shipping Events

+ 500M per year + 10M per week

- **Live:** The Network Member is connected to the Platform and providing data
 - **In Process:** The Network Member engaged and/or integration is in process
- Some members engaged under Early Adopter Program and/or trial agreements

Ports and Terminals

Terminal Location	Operator	Status	Terminal Location	Operator	Status	Terminal Location	Operator	Status
Algeciras, Spain	Port of Algeciras	•	Hong Kong	Modern Terminals	•	Onne, Nigeria	APM Terminals	•
Algeciras, Spain	APM Terminals	•	Houston, TX USA	Port of Houston	•	Philadelphia, PA USA	Packer Terminals	•
Apapa, Nigeria	APM Terminals	•	Hull, UK	MCP	•	Pipavav, India	APM Terminals	•
Auckland, New Zealand	PortConnect	•	Immingham, UK	MCP	•	Pecem, Brazil	APM Terminals	•
Avonmouth, UK	MCP	•	Itajaí, Brazil	APM Terminals	•	Pyeongtaek, South Korea	KL-NET	•
Bahrain	APM Terminals	•	Incheon, South Korea	KL-NET	•	Poti, Georgia	APM Terminals	•
Barcelona, Spain	Port of Barcelona	•	Izmir, Turkey	APM Terminals	•	Pohang, South Korea	KL-NET	•
Bilbao, Spain	Port of Bilbao	•	Kwangyang, South Korea	KL-NET	•	Pusan, South Korea	KL-NET	•
Brisbane, Australia	Patrick Terminals	•	Lazaro, Mexico	APM Terminals	•	Santos, Brazil	APM Terminals	•
Buenos Aires, Argentina	APM Terminals	•	Liverpool, UK	MCP	•	Sydney, Australia	Patrick Terminals	•
Busan, South Korea	Port of Busan	•	Los Angeles, CA, USA	APM Terminals	•	Singapore, Singapore	PSA	•
Callao, Peru	APM Terminals	•	Maasvlakte II, Netherlands	APM Terminals	•	Tangier, Morocco	APM Terminals	•
Cotonou, Benin	APM Terminals	•	Manila, Philippines	ICTSI	•	Tauranga, NZ	PortConnect	•
Elizabeth, NJ, USA	APM Terminals	•	Melbourne, Australia	Patrick Terminals	•	Teesport, UK	MCP	•
Felixstowe, UK	MCP	•	Montreal, Canada	MGTP	•	Ulsan, South Korea	KL-NET	•
Fremantle, Australia	Patrick Terminals	•	Mobile, AL USA	APM Terminals	•	Valparaiso, Chile	TSP	•
Göteborg, Sweden	APM Terminals	•	Mumbai, Brazil	APM Terminals	•	Valencia, Spain	Port of Valencia	•
Grangemouth, UK	MCP	•	Napier, NZ	Napier Port Authority	•	Visakhapatnam, India	JM Baxi	•
Gunsan, South Korea	KL-NET	•	Newcastle, UK	MCP	•	Xiamen, China	Port of Xiamen	•
Halifax, Canada	Halterm Canada	•						

Ocean Carriers

Ocean Carrier / Short Sea	Status
Maersk Line	•
Safmarine	•
Sealand	•
Hamburg-Süd	•
Pacific International Lines	•
KMTC	•
Seaboard	•
Namsung	•
Boluda Lines	•

Government Authorities

Authority	Status
Australia Home Affairs	•
Bahrain Customs	•
Canada Customs	•
Dutch Customs	•
Ghana / GCNET	•
Saudi Arabia Customs	•
Peru Customs	•
Singapore Customs	•
Turkey Customs	•

Inland Transportation

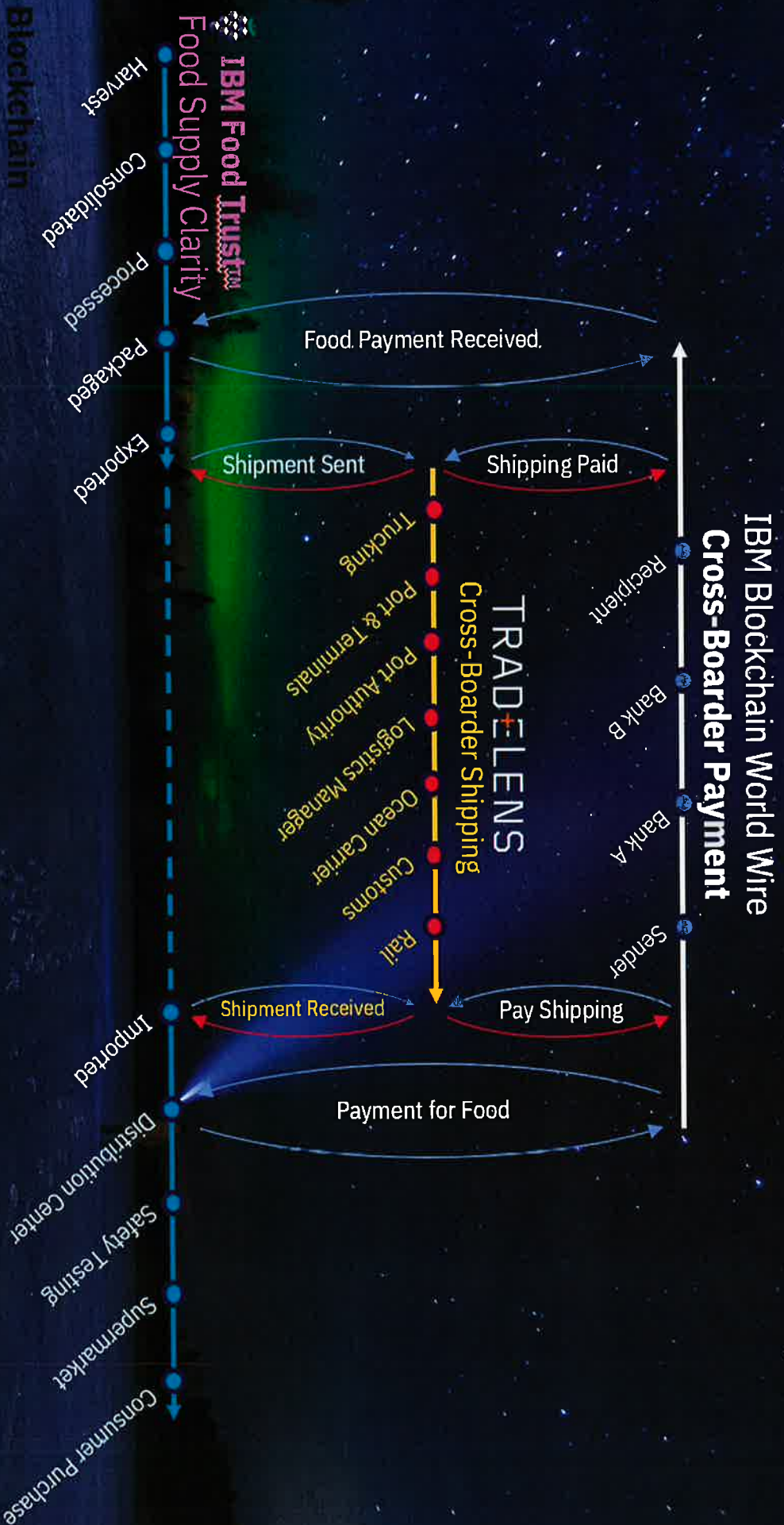
Transportation Provider	Status
Anoctrans	•
CN Rail	•
IMCC	•

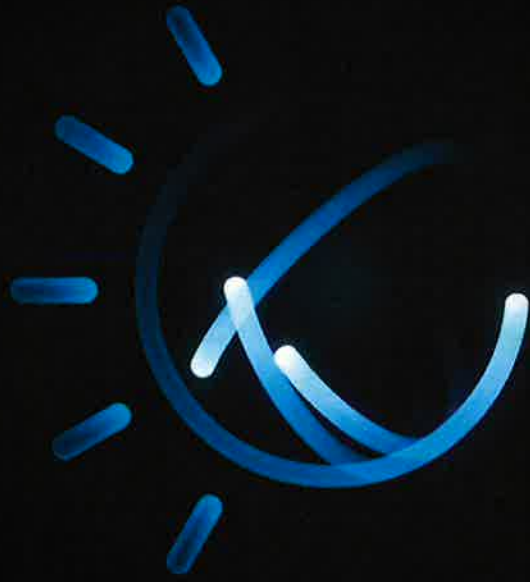


CONTAINER JOURNEYS PER YEAR



Imagine when enterprise Blockchain Networks work together...





Innovation that matters
me
for our company
my part of
and for the world

Takk for oppmerksomheten

