

# The Race to Reinvent for Multiplied Innovation

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# A World in Transition

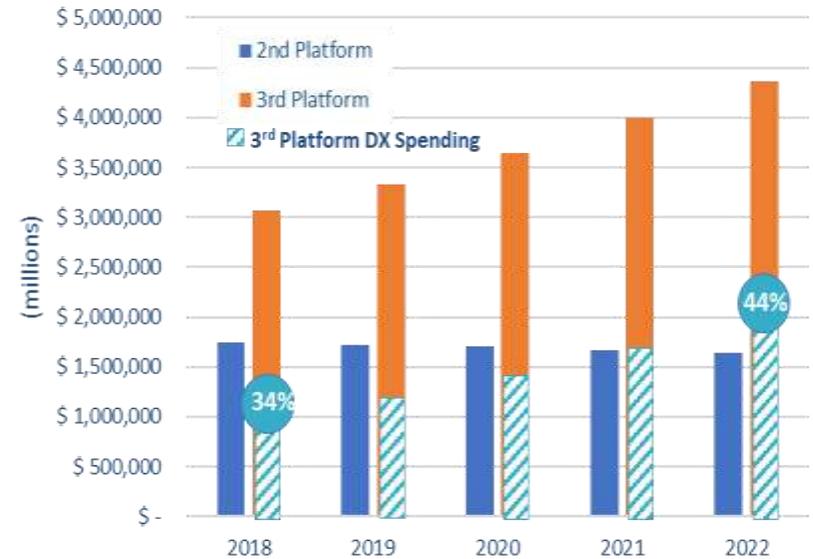


- Economic Slowdown?
- Globalization 2.0?
- Changing Demographics
- Mass Urbanization
- Multiplied Innovation

# ICT Industry's Platform for Growth and Innovation



### 3rd Platform vs. 2nd Platform IT Spending



DX Spending



CAGR 16.6%

**\$7.5 Trillion**

# A World of Accelerated Innovation

A person in a light-colored suit and tie is holding a glowing, semi-transparent globe of the Earth. The globe is surrounded by faint, glowing data points and lines, suggesting a digital or technological theme. The background is dark and slightly blurred, focusing attention on the person and the globe.

By 2022,  
**60%** of global **GDP** will be  
**digitized** with growth in  
every industry driven by  
digitally-enhanced  
offerings, operations and  
relationships

# From Experimentation to Multiplied Innovation

## New Technology Foundation

- New Technologies & Delivery Model
- "IT Access @ Scale"
- Cloud
- Mobile
- Social
- Big Data

"Experimentation"

## Networked Innovation

- Platforms & Communities
- "Innovation @ Scale"
- AI
- IoT
- Blockchain
- Natural Interfaces

"Multiplied Innovation"



# Cloud Everywhere for Everything

By 2022, nearly 40% of core IT spending will be cloud related, rising to 80% or more by 2028

**By 2019,**

**60%** of all European CIOs will be implementing a new IT foundation as part of an organization-wide DX platform strategy

By 2022, the top five cloud "megaplatforms" will host 95% of IaaS/PaaS deployments; by 2022, over 1M apps and services will be available in the top five SPs' marketplaces

**By 2024,**

**90%** of all G1000 companies will mitigate lock-in through multicloud/hybrid technologies and tools

# The Coming Apps Explosion

500  
million

new logical apps are created by 2023, a  
*number equal to the installed base of apps  
built over the past 40 years*

By 2022, 90% of all new apps will feature microservices architectures; 35% of all production apps will be cloud-native

By 2022, 3 out of 4 new apps will feature a majority of content sourced from other developers and accessed from a code repository or external services

By 2027, a new class of developers producing code without custom scripting expands the developer population by 50%, accounting for 30% of the developer population

# AI's Ubiquity Transforms Business, Work and Life

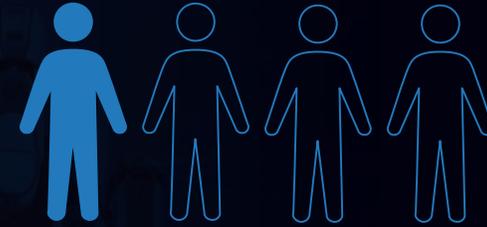
By 2024, AI-enabled user interfaces and process automation will replace one-third of today's screen-based apps

In 2019,

By 2022, 30% of enterprises will use conversational speech tech for customer engagement

spending on **Artificial**

**Intelligence** worldwide  
with drive for new capabilities



By 2027, 500 million people will use a single intelligent assistant across 90% of their connected devices

By 2025, AI-based assistants and bots shift toward end-user ownership, allowing us to take personalized, pluggable app interfaces from job to job and situation to situation

# IoT as the Nerve Center of Everything

Many AI-infused developments....

- By 2022, 40% of IoT platform vendors will integrate simulation platforms, systems and capabilities to create "digital twins"
- By 2023, organizations using IoT enabled video analytics to replace manual processes will increase workforce productivity by 50%
- By 2025, 60% of frontline IoT devices will be voice-enabled

In 2019

**\$745.2 billion**

**Internet of Things (IoT)**

80 billion  
Devices

will be online worldwide by 2025,  
creating 180ZB of data and 250,000  
unique IoT Apps/Services already by 2020

# 5G will be Transformative for IoT Creating Many New Use Cases



**Factory Robots**



**Autonomous Vehicles**



**Massive IoT Connections  
in Smart Cities**



**Robotic Surgeries**



**4K Surveillance**

5G pilots underway

Already operational in a few clusters

The next 3-4 years will see more widespread roll-out

IoT connectivity technologies based on Licensed (NB-IoT and LTE-M) and Unlicensed (e.g. LoRa) spectrum will co-exist till 5G becomes mainstream

# Retooling the Material World with Robotics

By 2023, 40% of G2000 manufacturers will have digitally connected at least 30% of their robots to a cloud platform to improve operational efficiency and agility

By 2021, 60% of G2000 organizations will have deployed autonomous mobile robots to increase productivity

By the end of 2022, 1% of all households worldwide will have at least one consumer robot in service

In 2019,  
**\$115 billion** in  
spending on  
**Robotics/Drones**  
worldwide as the number  
of **Use Cases** explodes

# Smarter, Easier Security Drives Trust

**Digital risk** will  
become a standard  
reporting mechanism  
as part of financial  
statements **by 2025**

By 2022, more than 60% of security spending will shift to protecting scalable edge infrastructure and applications

By 2022, 50% of servers will encrypt data at rest and in-motion; over 50% of security alerts will be handled by AI-powered automation; and 150M people will have blockchain-based digital identities

By 2023, the number of cybersecurity companies will drop by nearly 40% from 2019

# Blockchain at the Center of the World's Transactions

By 2020, 60% of enterprise blockchain investments will be driven by the need to enable ecosystem business models that rely on the secure exchange of data

2018

The Great Use Case Race

2020

Value Chain Captains as Root Node

2023

Blockchain Standards; Permission-less

By 2019,

Blockchain Embedded in Compute

\$2.85 billion in spending on Blockchain worldwide for testing and production apps

2025

Value Chain Transformation

Securing State, Proving Compliance, Automating Transactions

# Age of Autonomy - Evolving Automation Levels



Human led

Human led  
Machine supported

Machine led  
Human supported

Machine led  
Human governed

Machine controlled

**Job transformation and productivity accelerate:** new jobs born in Chapter 2 become mainstream, and productivity increases far faster than role destruction

**New personal capabilities:**  
AI learns from you and helps you evolve personally and professionally

**New job processes:**  
As “sub-jobs” become automated, new components of jobs will be created and accelerated through collective learning

**Smarter automation addresses more sophisticated problems:** autonomy enables multiplied innovation at scale

# Augmenting Humanity



## Augmented Sensing

The future of our digital senses



## Embedded/Injectable Tech

MIT and Microsoft research made a „smart” tattoo that remotely controls your phone



## Augmented Identity



## Augmented Memory & Cognition

The U.S. Military is developing brain implants to help restore memory



## Augmented Bio-structure

3D printed guides used for complex nerve regeneration may treat spinal injuries



## Augmented Mobility

This \$40,000 robotic exoskeleton lets the paralyzed walk

By 2020, one-third of health/life sciences and consumer product companies will begin to develop the first wave of products and services integrating technologies with the human body



# Essential Insights

1

The era of *multiplied innovation* continues to bring better insights, broader reach, greater trust, and reimagined experiences, with the acceleration of the 3<sup>rd</sup> platform

2

*Reinvention* in the multiplied innovation era is the key to success in the emerging digital economy

3

We are moving to a point with technology where *humanity* and total human well-being could either be *enhanced or greatly diminished*. What is our choice?