ENGINEERING & TECHNOLOGY

2024 Supplier Summit

JABIL

Agenda

- Intro & Engineering Overview

- Automotive & Transportation E&T

- Digital Commerce E&T

- Cloud & Data Center E&T

- Healthcare E&T

- Summary

Business Segments

REGULATED INDUSTRIES

Focusing on **regulated markets.**

- **Automotive & Transportation**

- **Healthcare & Packaging**

- Renewables & Energy Infrastructure

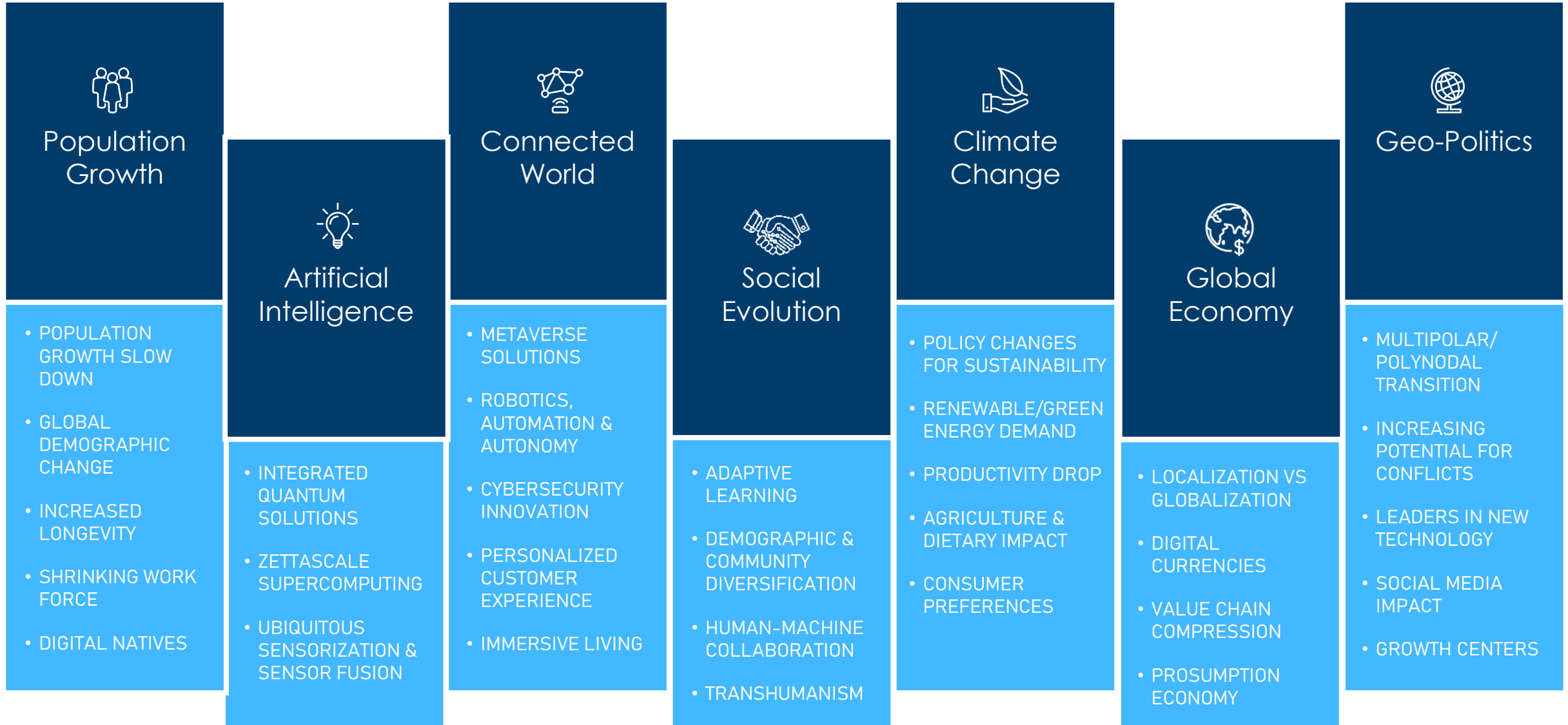## INTELLIGENT INFRASTRUCTURE

Focusing on **AI infrastructure.**

- **Cloud & Data Center Infrastructure**

- Networking & Communications

- Capital Equipment

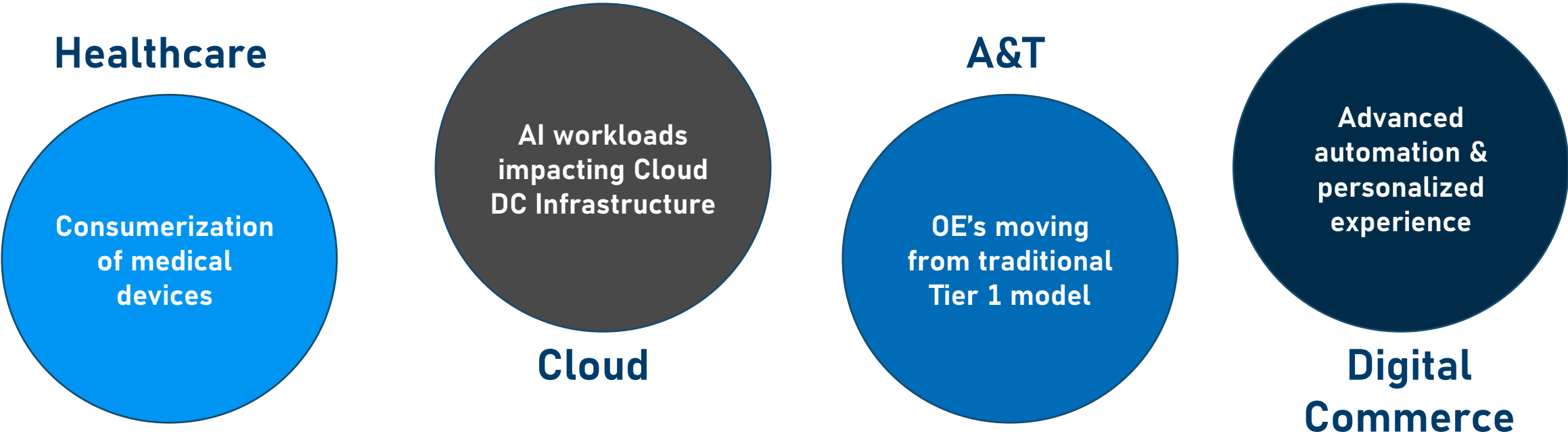## CONNECTED LIVING & DIGITAL COMMERCE

Focusing on **multiple end-markets.**

- Connected Living

- **Digital Commerce**

  - Warehouse Automation

  - Robotics

  - Robots / Humanoids

Global Mega Trends 2040

Population Growth
- POPULATION GROWTH SLOW DOWN
- GLOBAL DEMOGRAPHIC CHANGE
- INCREASED LONGEVITY
- SHRINKING WORK FORCE
- DIGITAL NATIVES

Artificial Intelligence
- INTEGRATED QUANTUM SOLUTIONS
- ZETTASCALE SUPERCOMPUTING
- UBIQUITOUS SENSORIZATION & SENSOR FUSION

Connected World
- METAVERSE SOLUTIONS
- ROBOTICS, AUTOMATION & AUTONOMY
- CYBERSECURITY INNOVATION
- PERSONALIZED CUSTOMER EXPERIENCE
- IMMERSIVE LIVING

Social Evolution
- ADAPTIVE LEARNING
- DEMOGRAPHIC & COMMUNITY DIVERSIFICATION
- HUMAN-MACHINE COLLABORATION
- TRANSHUMANISM

Climate Change
- POLICY CHANGES FOR SUSTAINABILITY
- RENEWABLE/GREEN ENERGY DEMAND
- PRODUCTIVITY DROP
- AGRICULTURE & DIETARY IMPACT
- CONSUMER PREFERENCES

Global Economy
- LOCALIZATION VS GLOBALIZATION
- DIGITAL CURRENCIES
- VALUE CHAIN COMPRESSION
- PROSUMPTION ECONOMY

Geo-Politics
- MULTIPOLAR/ POLYNODAL TRANSITION
- INCREASING POTENTIAL FOR CONFLICTS
- LEADERS IN NEW TECHNOLOGY
- SOCIAL MEDIA IMPACT
- GROWTH CENTERS

Shifting Value Chain

New Technologies & Evolving Customer Needs Driving Change

Healthcare

Consumerization of medical devices

AI workloads impacting Cloud DC Infrastructure

Cloud

A&T

OE's moving from traditional Tier 1 model

Advanced automation & personalized experience

Digital Commerce

New opportunities for Jabil engineering and our supply partners

Integrated Design Engineering at Any Scale

We design **products**, **processes,** and **equipment** for **low volume/high mix** and **high-volume** production.

6

Our Reach: The Full Product Lifecycle

INNOVATE

Research & Insight

DESIGN

Create Concept

DEVELOP

Manufacture-ready

SOURCE & PLAN

Forecast & Procure

MANUFACTURE

Operational Excellence

DELIVER

On-Time Delivery

SERVICE

After-Market Support
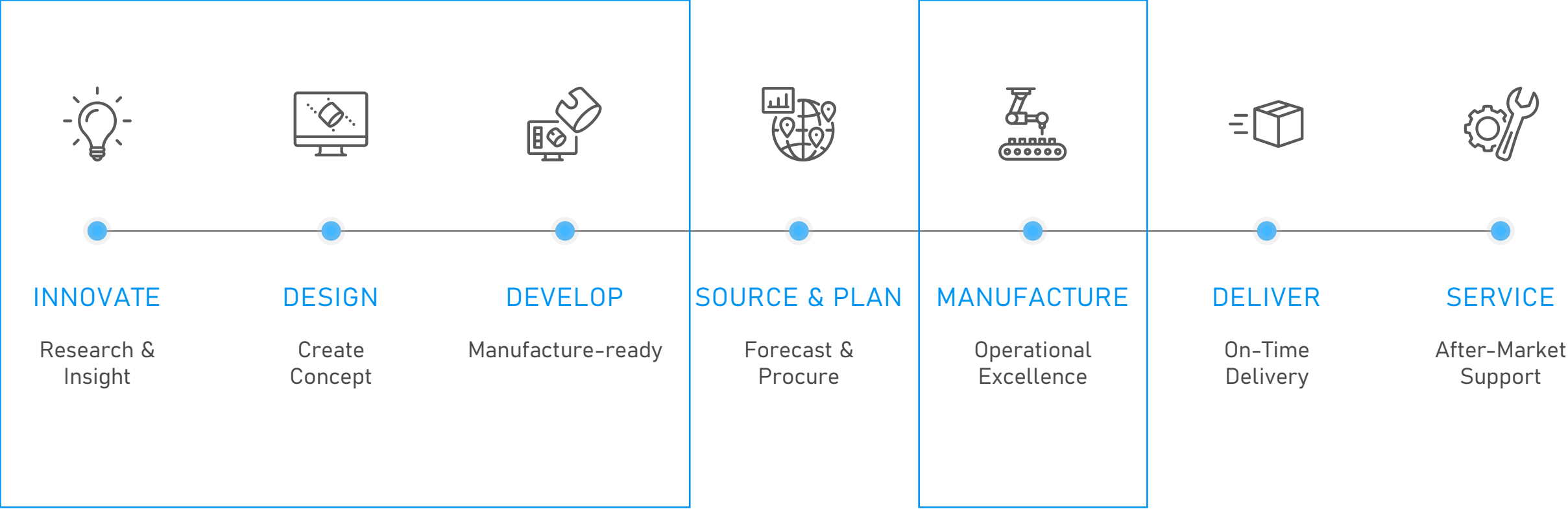
Diverse Design & Development Footprint

Key

- Design
- Engineering Services
- Test Development

Map Labels:

Americas: Burlington, USA | San Jose, USA | Kentucky, USA | Lexington, USA | Austin, USA | Memphis, USA | Guadalajara, Mexico | St. Petersburg, USA

Europe: Wrocław, Poland | Jena, Germany | Dublin, Ireland | Kwidzyn, Poland | Bray, Ireland | Uzhgorod, Ukraine | Hasselt, Belgium | Tiszaújváros, Hungary | Paris, France | Osijek, Croatia | Vienna, Austria

Asia: Beijing, China | Suzhou, China | Shanghai, China | Wuxi, China | Taipei, Taiwan | Huangpu, China | Hsinchu, Taiwan | Taichung, Taiwan | Ho Chi Minh, Vietnam | Penang, Malaysia | Singapore

AMERICAS

Location	Services
Austin, USA	Design
Burlington, USA	Design | Engineering Services
Guadalajara, Mexico	Engineering Services | Test Development
Kentucky, USA	Engineering Services
Lexington, USA	Design | Engineering Services
Memphis, USA	Engineering Services
San Jose, USA	Design | Engineering Services
St. Petersburg, USA	Design | Engineering Services | Test Development

EUROPE

Location	Services
Bray, Ireland	Design | Engineering Services
Dublin, Ireland	Engineering Services
Hasselt, Belgium	Design | Engineering Services
Jena, Germany	Design | Engineering Services
Kwidzyn, Poland	Test Development
Osijek, Croatia	Engineering Services | Test Development
Paris, France	Design | Engineering Services
Tiszaújváros, Hungary	Engineering Services
Uzhgorod, Ukraine	Test Development
Vienna, Austria	Design | Engineering Services
Wroclaw, Poland	Design | Engineering Services

ASIA

Location	Services
Beijing, China	Design
Hsinchu, Taiwan	Engineering Services
Huangpu, China	Engineering Services | Test Development
Ho Chi Minh, Vietnam	Engineering Services | Test Development
Penang, Malaysia	Engineering Services | Test Development
Shanghai, China	Design | Engineering Services | Test Development
Singapore	Engineering Services | Test Development
Suzhou, China	Engineering Services
Taichung, Taiwan	Design | Engineering Services | Test Development
Taipei, Taiwan	Design | Engineering Services
Wuxi, China	Design | Engineering Services | Test Development

Business Models

Business Model	Product IP Ownership	Product Architecture Definition	Product Specification Finalization	Engineering Services	Manufacturing Development	Manufacturing
Build to Print	Customer/ 3rd Party	Customer/ 3rd Party	Customer/ 3rd Party	Customer/3rd Party/ JABIL	Customer/ 3rd Party/ JABIL	JABIL
Build to Print+	Customer/ 3rd Party	Customer/ 3rd Party	Customer/ 3rd Party	JABIL	JABIL	JABIL
Build to Spec	Customer/ 3rd Party	Customer/ 3rd Party	JABIL	JABIL	JABIL	JABIL
Build to Function	Customer/ 3rd Party	JABIL	JABIL	JABIL	JABIL	JABIL
Platform Solution	JABIL	JABIL	JABIL	JABIL	JABIL	JABIL
Component	JABIL	n/a	n/a	JABIL	JABIL	JABIL

Automotive & Transportation

Engineering & Technology

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Jabil Automotive & Transportation

Jabil Automotive & Transportation
FY25E: $4.2B

- HEALTHCARE & PACKAGING
- CAPITAL EQUIPMENT
- MOBILITY
- DIGITAL COMMERCE
- RENEWABLE ENERGY INFRASTRUCTURE
- NETWORKING & COMMS
- CLOUD & DCI
- CONNECTED LIVING
- AUTOMOTIVE & TRANSPORTATION
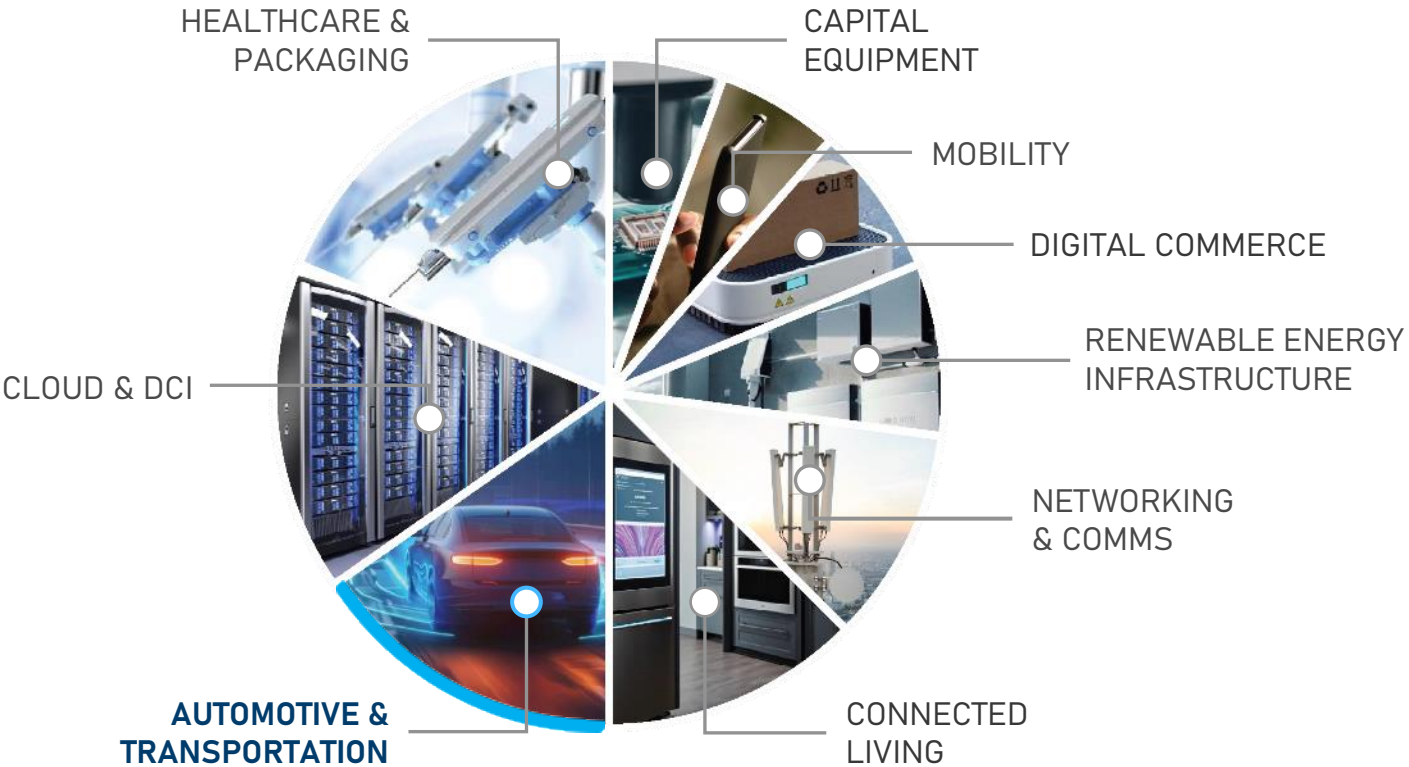
Markets
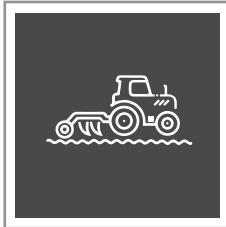
- AUTOMOTIVE
- CONSTRUCTION, MINING, AND AGRICULTURE
- COMMERCIAL TRUCK & BUS
- RAIL
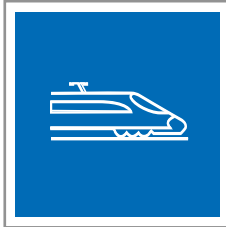
A&T Trends Creating Opportunity for Jabil

A.C.E.S. Trends 2030

ADAS/Autonomous
96% of new cars with advanced assistance features*

Connectivity
98% of cars shipped with embedded connectivity

Electrification
38% of light vehicles sold with BEV powertrain

SDV/Centralized Architecture
50% Centralized architectures to deliver high computing power

Technology / Products

- Domain Control Unit
- ECU
- LIDAR
- Camera
- Image Processing Unit

- Telematics Control Unit/V2X
- Gateway Module
- Cockpit Domain Control Unit
- Advanced Projection
- In-Vehicle Infotainment
- Cockpit Information Display

- High Voltage Traction Inverter
- Integrated Unit
- Battery Management Unit
- EV Level 2 Charger (AC)
- On Board Charger (ACDC)
- High Voltage DCDC Converter
- EV Rapid Charger (DC)
- Control Unit (EV PT DCU)
- Pwr Dist/Battery Junction Box

- High Performance Computer
- Zonal Controller

Automotive Electronics TAM : 4.5% CAGR
Targeted ACES TAM : 18.4% CAGR

$ Billions

2024
- $43 (ADAS)
- $60 (Connectivity & Infotainment)
- $39 (Electrification)
- $4 (SDV)
- $177 (Non-ACES)

2030
- $64 — ADAS: 7% CAGR
- $76 — Connectivity & Infotainment: 4% CAGR
- $87 — Electrification: 14% CAGR
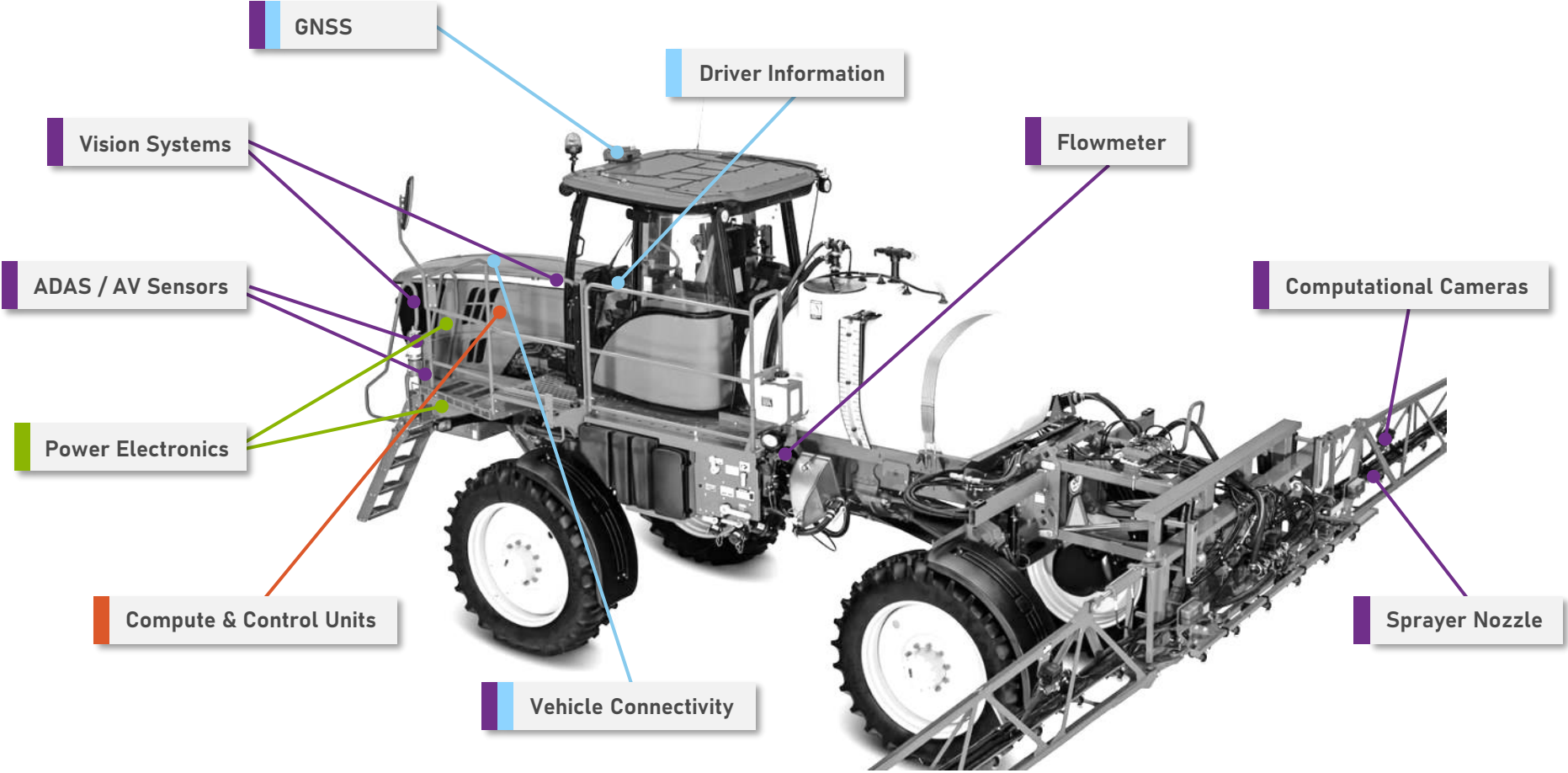- $44 — SDV: 51% CAGR
- $147 — Non-ACES: -3% CAGR
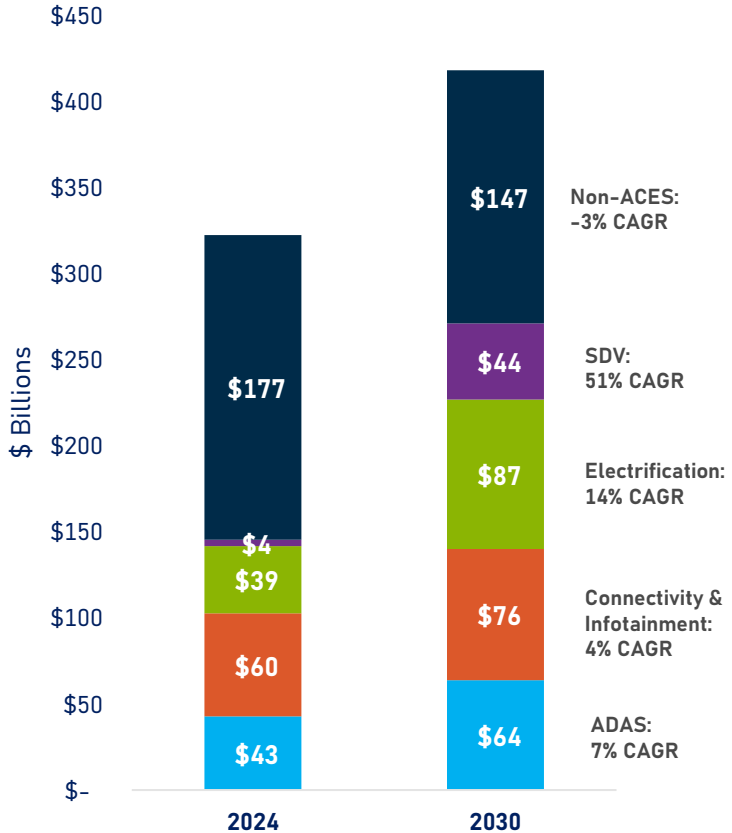
*examples = lane keeping, emergency braking, adaptive cruise control, blind spot detection

Source : TechInsights Jan 2024 Electronics System Demand

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Automotive

Vision Systems

Vehicle Connectivity

Driver Information

Infotainment

ADAS / AV Sensors

Charging Solutions

Compute & Control Units

Energy Management

EV Power Electronics

ADAS/AV

Connectivity & Infotainment

Electrification

Software-Defined Vehicle / Centralized Architecture

Precision Agriculture

GNSS

Driver Information

Vision Systems

Flowmeter

ADAS / AV Sensors

Computational Cameras

Power Electronics

Compute & Control Units

Sprayer Nozzle

Vehicle Connectivity

- Autonomous & Precision Farming
- Connectivity & Infotainment
- Electrification
- Software-Defined Vehicle / Centralized Architecture

Product Portfolio

ADAS/AV   **Connectivity & Infotainment**   **Electrification**   **SDV/Centralized Architecture**

Electrification

- High Voltage Traction Inverter
- Integrated Unit (eg. OBC/DCDC/Inverter/BMS/BJB)
- Battery Management Unit (BMS Master)
- EV Level 2 Home / Public Charger (AC)
- EV DC Fast Charger
- On Board Charger (ACDC)
- High Voltage DCDC Converter
- Vehicle Control Unit (EV PT DCU)
- Power Distribution / Battery Junction Box

ADAS/AV & SDV

- Image Processing Unit
- ADAS/AV Domain Control Unit
- ADAS ECU
- LiDAR Solid State (Scanning/Flash)
- Camera
- LiDAR Rotating
- High Performance Computer
- Zonal Controller

Connectivity

- V2X / eCall
- Instrument Cluster
- Audio / Entertainment
- HUD (Traditional Windscreen PGU / Combiner)
- Telematics Control Unit (TCU)
- Hybrid TCU/V2X
- Gateway Module
- Cockpit Domain Control Unit
- In-Vehicle-Infotainment
- Cockpit Information Display
- Advanced Projection (HUD/3D/AR)
- Telematics Control Unit (TCU)
- Hybrid TCU/V2X
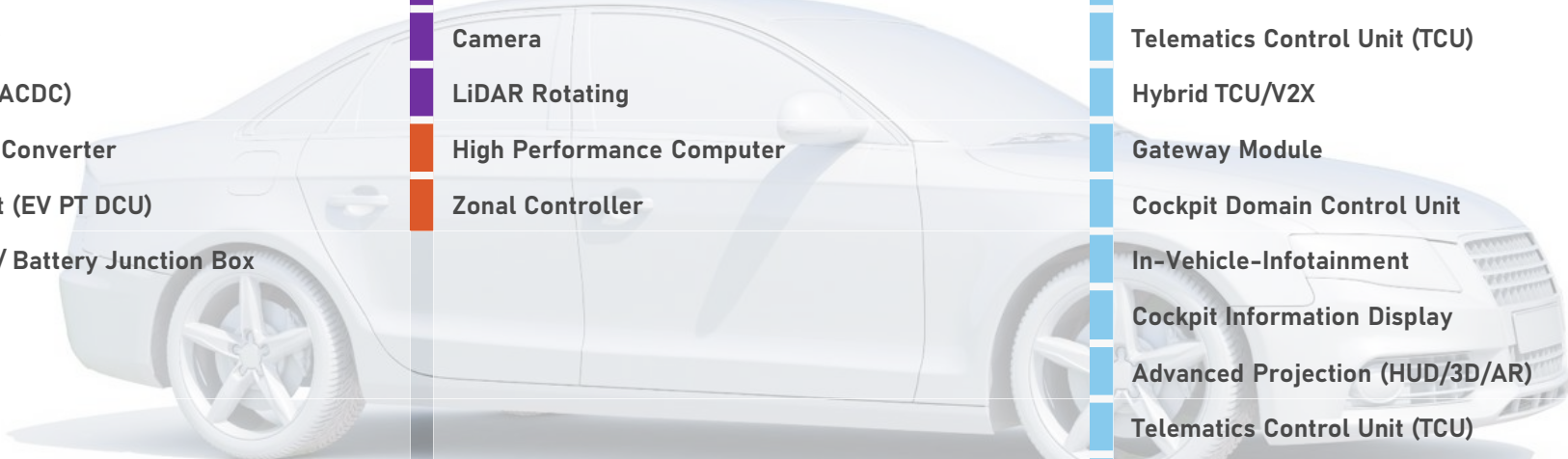
Digital Commerce

Engineering & Technology

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Jabil Digital Commerce

Jabil Digital Commerce
FY25E: $2.3B

Markets

HEALTHCARE & PACKAGING

CAPITAL EQUIPMENT

MOBILITY

DIGITAL COMMERCE

RENEWABLE ENERGY INFRASTRUCTURE

CLOUD & DCI

NETWORKING & COMMS

AUTOMOTIVE & TRANSPORTATION

CONNECTED LIVING
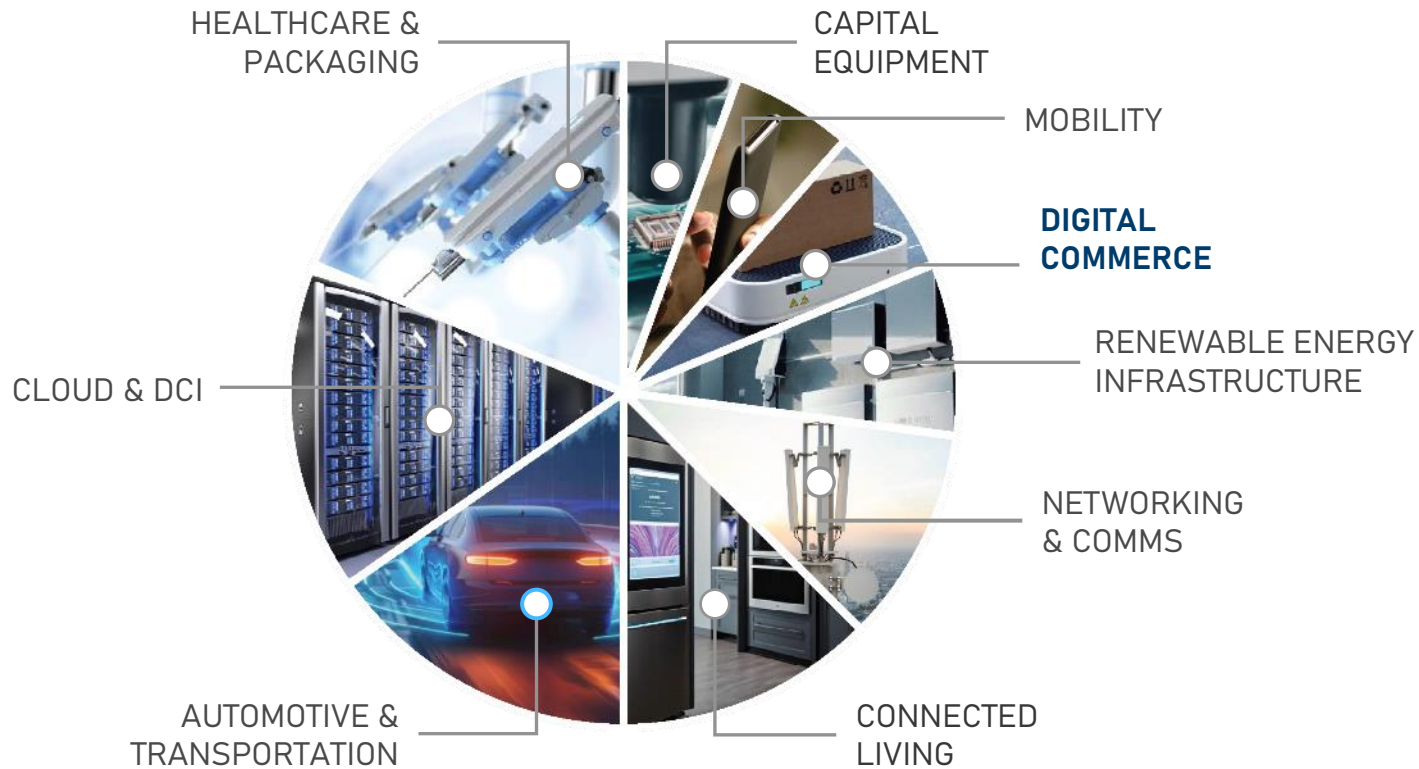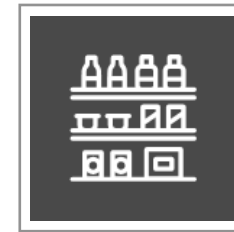
IN WAREHOUSE

IN AISLE

AT CHECKOUT

ON THE GO

Trends Creating Opportunity for Jabil

Trends 2028

In Warehouse
26% of warehouses will have some form of automation by 2027 and growing significantly

In Aisle
95% of Walmart shelves will be digital and connected through a unified commerce strategy

At Checkout
51% of Americans are now using contactless payment

On the Go
80% of customers more likely to choose a business with Grab & Go services

Technology

- Battery
- Optics
- LIDAR / VSLAM
- Actuators

- Solar Powered IoT Devices
- Process Automation – High Speed

- Payment SOM
- Android Hardening
- Large Mechanical Integration
- Sensors/ Cameras

- Automated/Robotic Arms
- Large Mechanical Integration
- Payment Solutions
- Self Service Kiosks

Products

- Humanoids
- AMR/AGV
- Material Handling Systems

- Robotics / Optics
- DSLs (Digital Shelf Labels)

- Self Service Checkouts
- Android Point of Sales
- Vision based Frictionless Checkouts

- Autonomous Coffee Makers
- Ghost Kitchen
- Autonomous Vending Kiosks
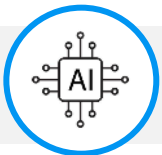
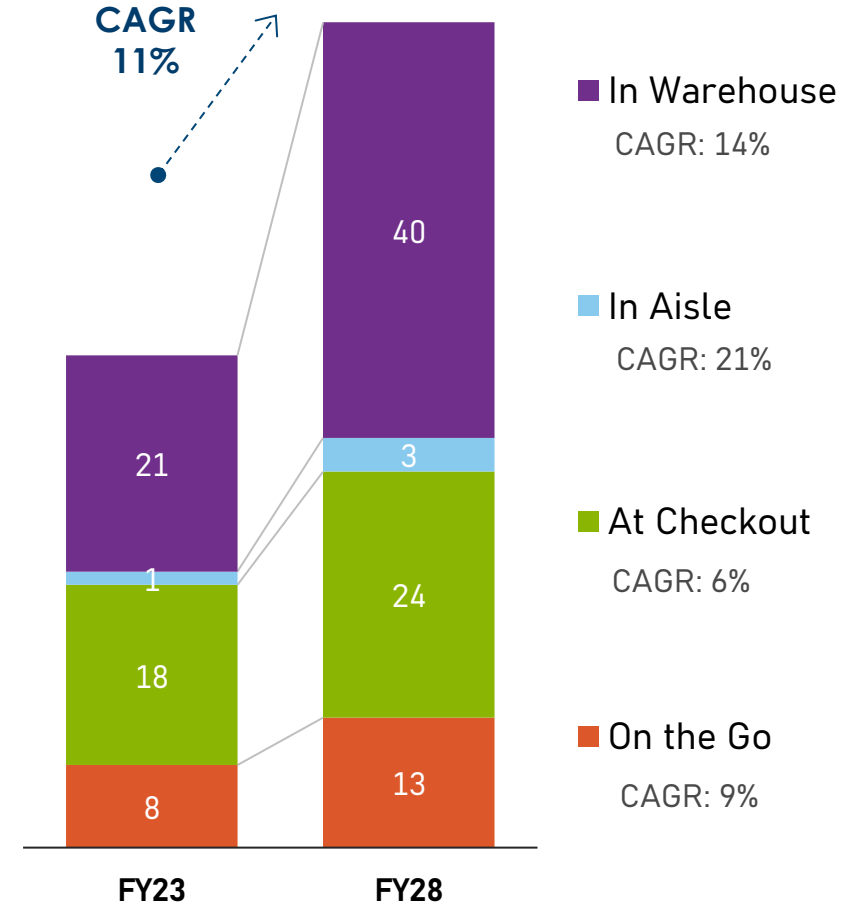**Geo-Politics** **AI Influences** **Delivery/BOPIS** **Inflation** **Interest Rates** **Demand**

Overall Market, $b

CAGR 11%

FY23:
- In Warehouse: 21
- In Aisle: 1
- At Checkout: 18
- On the Go: 8

FY28:
- In Warehouse: 40
- In Aisle: 3
- At Checkout: 24
- On the Go: 13

In Warehouse CAGR: 14%
In Aisle CAGR: 21%
At Checkout CAGR: 6%
On the Go CAGR: 9%

Digital Commerce 2028 Outlook
Powering Retail & Warehouse Automation

IN WAREHOUSE	$	CAGR
AGV, AMR, PPR	$8.1b	18%
Humanoid	$3.6b	105%
ASRS	$5.2b	14%
Scanners, Sensors, Printers	$12b	7%

IN AISLE	$	CAGR
Digital Shelf Labels	$3.3b	21%
Shelf Data & Analytics		

AT CHECKOUT	$	CAGR
Self Service Checkout	$1.1b	5%
Handheld Scanner		
Printer		
Payment Terminal	$21b	7%
POS Solutions	$3b	15%

ON THE GO	$	CAGR
Smart Vending Machine	$9.4b	17%
ATM	$2.1b	–6%

SERVICES & SOLUTIONS
Logistics as a Service
Software Services

Product Portfolio

In Warehouse | In Aisle | At Checkout | On the Go

In Warehouse

- AMR (Autonomous Mobile Robot)
- Humanoid Robots
- Scanners/Sensors
- AGV (Autonomous Guided Vehicle)
- PPR (Pick & Place Robot)
- ASRS (Automated Storage & Retrieval)

At Checkout

- Self Service Checkout
- Scanners/Optics
- POS (Point of Sale)
- Payment Terminal
- Printer

In Aisle & On the Go

- Camera/Optics
- Badger/In aisle Robot
- DSL/ESL (Digital/Electronic Shelf Label)
- Smart Vending
- ATM
- Self Service Kiosk
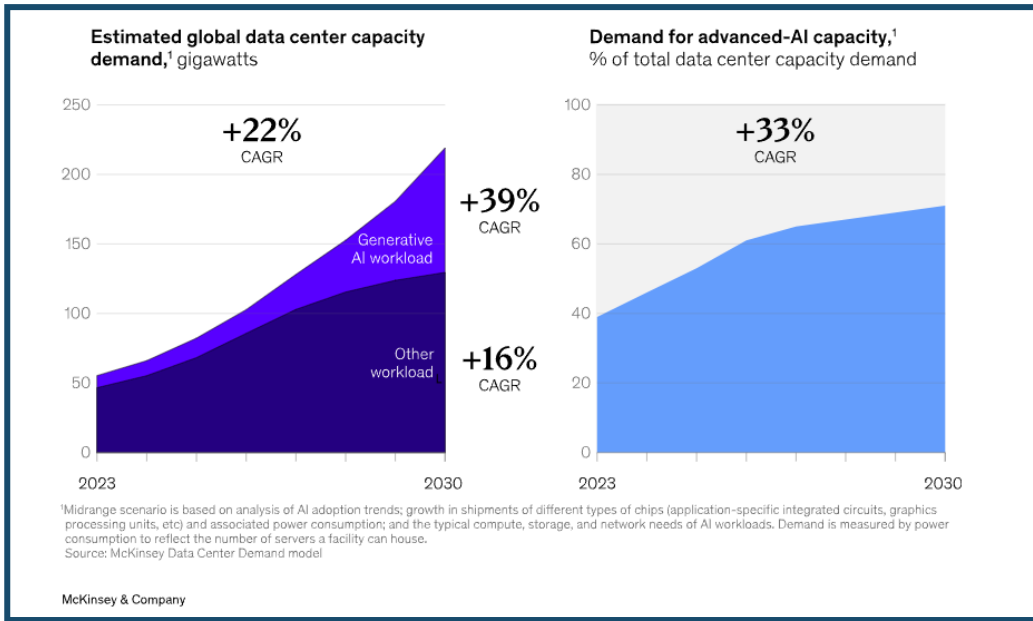
Cloud & Datacenter Infrastructure

Engineering & Technology
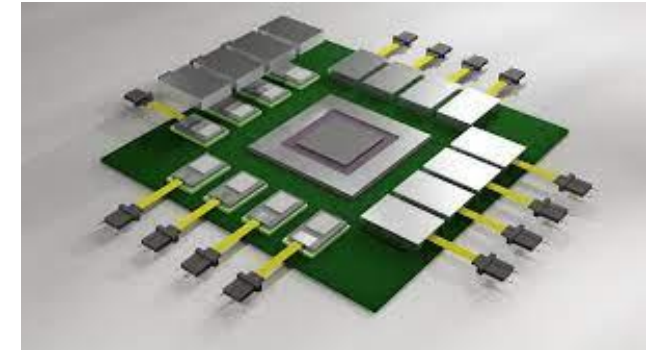
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Jabil Cloud & Data Center Infrastructure

Jabil Cloud & DCI
FY25E: $5.1B

- HEALTHCARE & PACKAGING
- CAPITAL EQUIPMENT
- MOBILITY
- DIGITAL COMMERCE
- RENEWABLE ENERGY INFRASTRUCTURE
- CLOUD & DCI
- NETWORKING & COMMS
- AUTOMOTIVE & TRANSPORTATION
- CONNECTED LIVING

Markets

Enterprise

Hyperscalers

Financial Services

Engineering Engagements
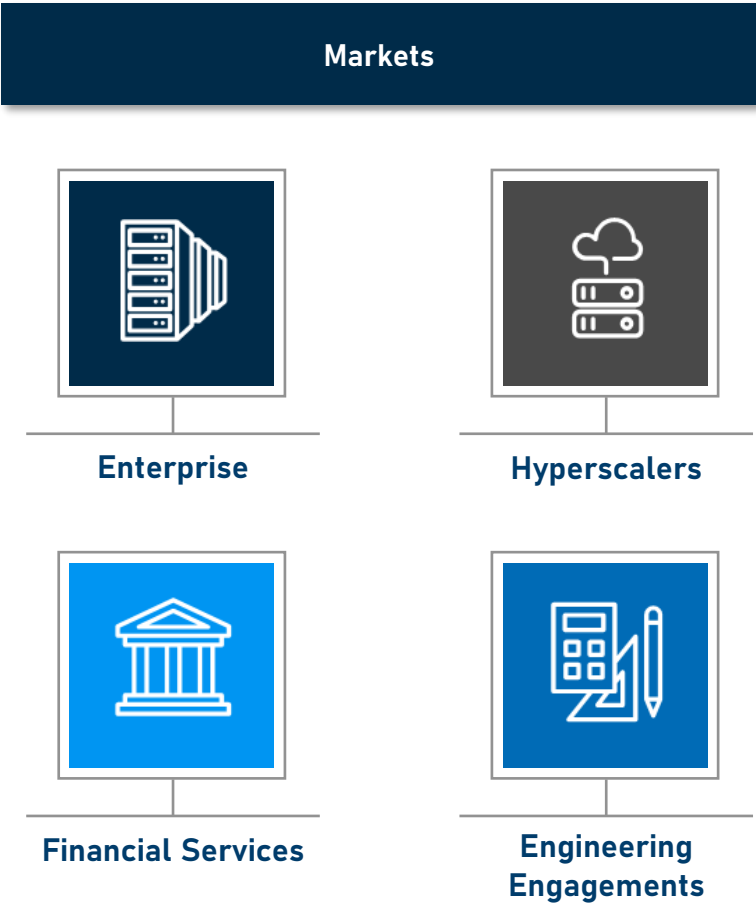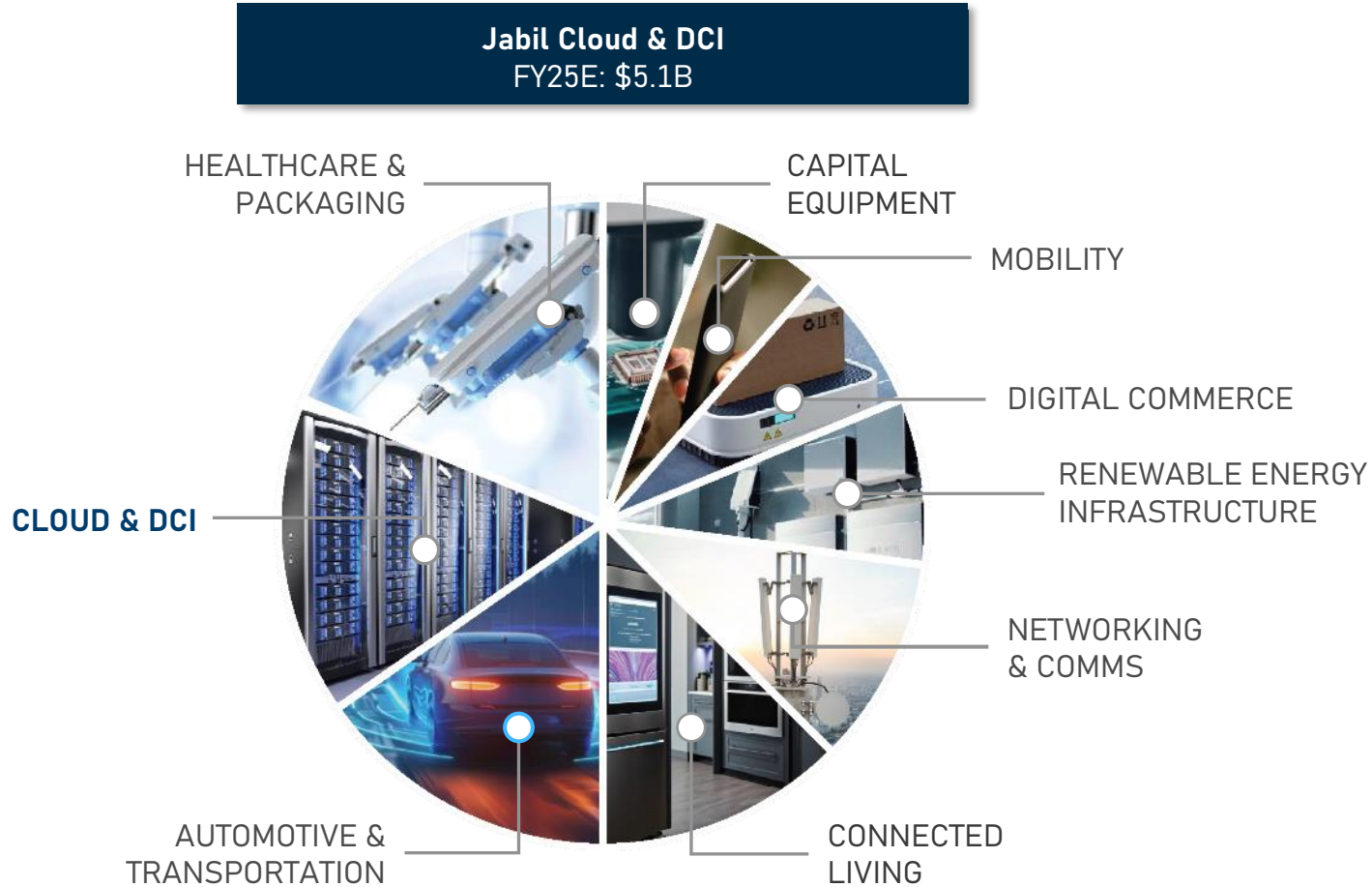
AI Workloads Are Increasing DC Infrastructure Demands

Estimated global data center capacity demand,[1] gigawatts

Demand for advanced-AI capacity,[1] % of total data center capacity demand

+22% CAGR
+39% CAGR
Generative AI workload
Other workload
+16% CAGR

+33% CAGR

[1]Midrange scenario is based on analysis of AI adoption trends; growth in shipments of different types of chips (application-specific integrated circuits, graphics processing units, etc) and associated power consumption; and the typical compute, storage, and network needs of AI workloads. Demand is measured by power consumption to reflect the number of servers a facility can house.
Source: McKinsey Data Center Demand model

McKinsey & Company

NLP's Moore's Law: Every year model size increases by 10x

NLP model size and computation are increasing **exponentially**

Worldwide Server Infrastructure Spending for G-AI Training and Inferencing ($M)

The AI Progression

Today

Training — Inferencing

CSP & HPC — Enterprise — EDGE

Wave 1 (2017) — Wave 2 (2020) — Wave 3 (2027+)

AI's Impact on Cloud Servers and Data Centers

2U now sweet spot vs 1U
(CPU/GPU TDP increasing)

1U

2U
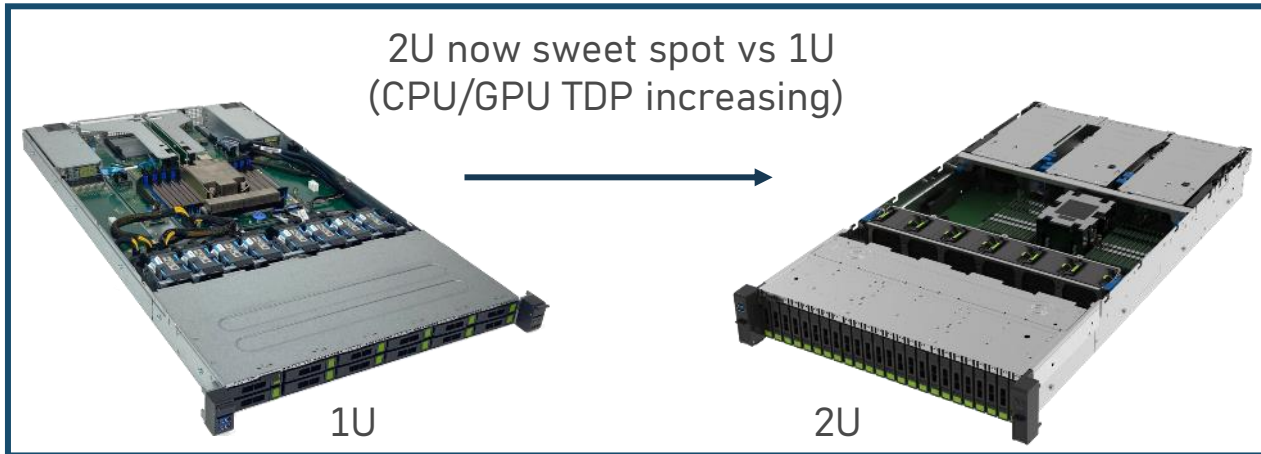
Increased bandwidth driving interfaces faster

Scale Out vs Scale Up

Liquid cooling is here!
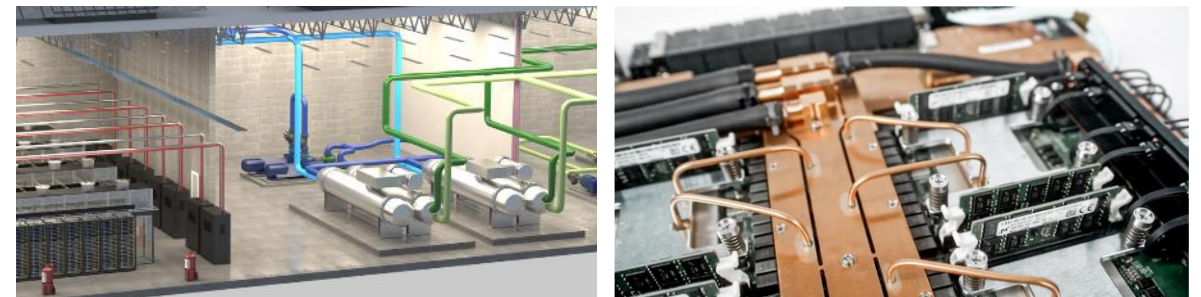
Current Product Portfolio

Intel Cloud Platforms

WHITLEY

1U FORM FACTOR

JC-100 Mt. Elbert

- 1U x 30.5"
- 2x Xeon SP ICX
- 10x 2.5" / 4x 3.5" + 2x 2.5"
- SAS / SATA / NVMe
- 2x M.2 NVMe

JC-102 Mt. Princeton

- 1U x 32"
- 2x Xeon SP ICX
- EDSFF/LFF/GPU
- 2x M.2 NVMe

2U FORM FACTOR

JC-200 Mt. Massive

- 2U x 31"
- 2x Xeon SP ICX
- 24x 2.5" / 12x 3.5"
- SAS / SATA / NVMe
- 2x M.2 NVMe

EAGLE STREAM

J312-S Nocona

- 1U x 30.5"
- 2x 250W Xeon SP SPR
- 12 front SFF drives
- SAS / SATA / NVMe
- 2x M.2 NVMe
- 2 Gen5 (FHHL, HHHL)
- 1 OCP 3.0 Gen5

J311-S Mustang

- 1U x 31.3"
- 1x 350W Xeon SP SPR
- 12 front SFF drives
- SAS / SATA / NVMe
- 2x M.2 NVMe
- 2 Gen5 (FHHL, HHHL)
- 1 OCP 3.0 Gen5

J322-S King Ranch

- 2U x 30.5"
- 2x 350W 4th gen Xeon SP
- 24 front SFF drives
- SAS / SATA / NVMe
- 6 Gen5 (4 FHHL, 1 FHFL, 1 HHHL)
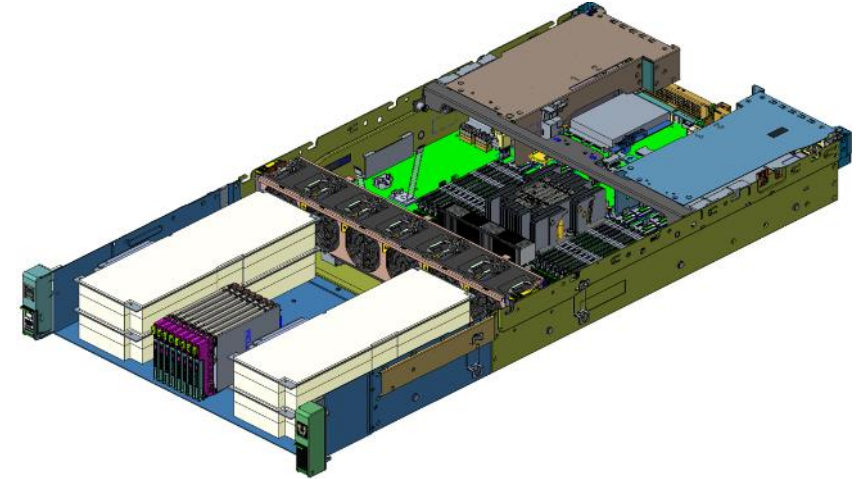- 1 OCP 3.0 Gen5

In The Funnel
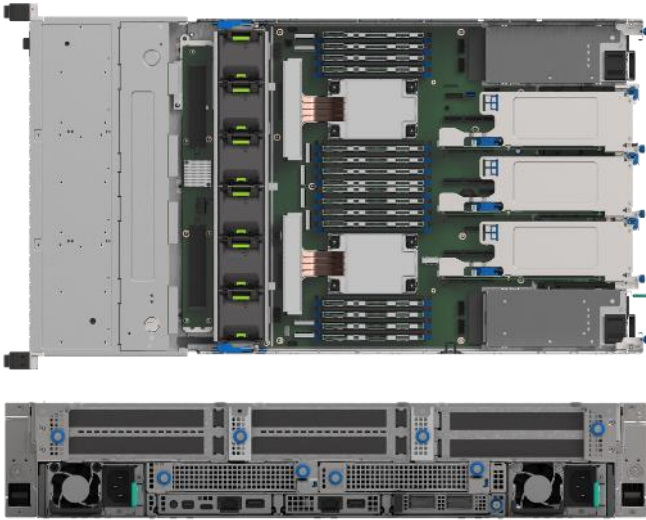
2U 2 socket Intel Birch Stream
- DC–MHS system
- OpenBMC/OpenBIOS
- Enabled for liquid cooling
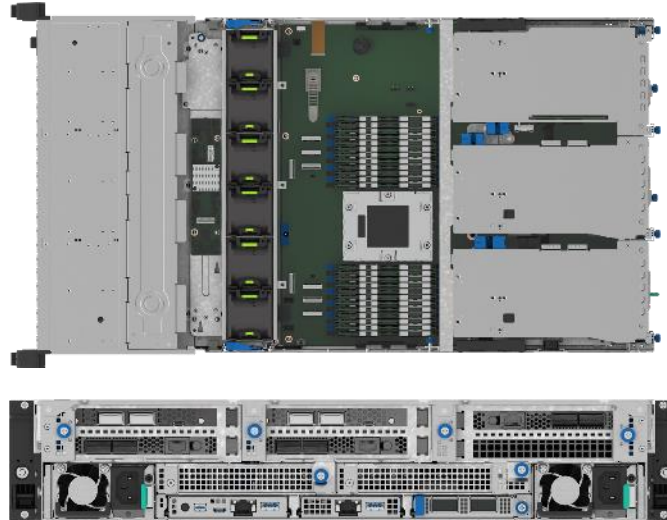
2U 1 socket AMD SP5
- DC–MHS system
- OpenBMC/OpenBIOS
- Enabled for liquid cooling

Flexible AI Focused Chassis
- Optimized for Inferencing with 4x DW FHFL AICs
- Supports all S–DNO DC–MHS motherboard FFs

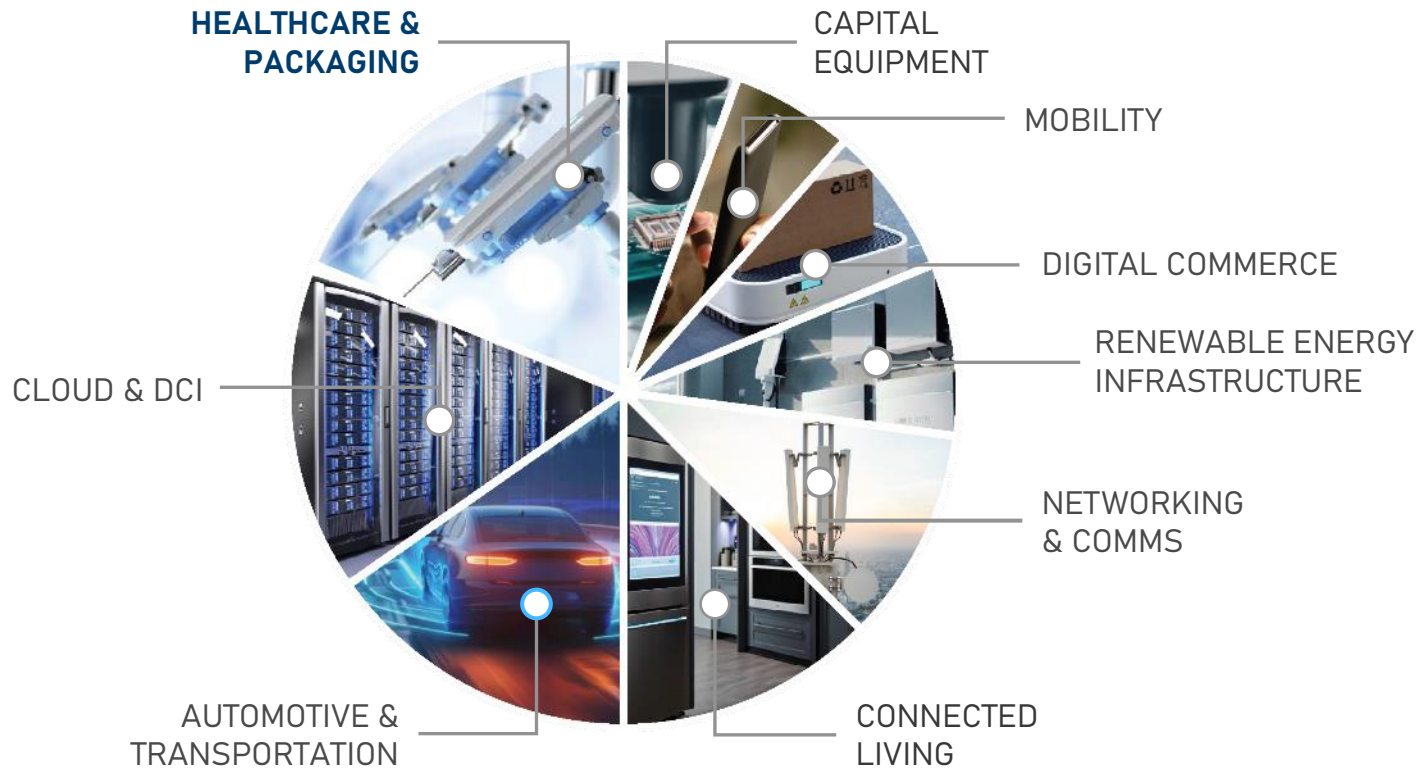# Healthcare

Engineering & Technology

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584,225,000

584,225,000 Lives Touched per Year!

OR

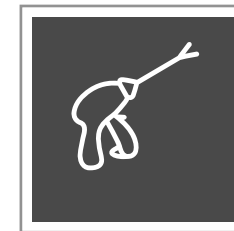# ~19 Lives Touched per Second!

Jabil Healthcare

Jabil Healthcare
FY25E: $5.5B

HEALTHCARE & PACKAGING

CAPITAL EQUIPMENT

MOBILITY

DIGITAL COMMERCE

RENEWABLE ENERGY INFRASTRUCTURE

NETWORKING & COMMS

CLOUD & DCI

AUTOMOTIVE & TRANSPORTATION

CONNECTED LIVING

Core Markets

DIAGNOSTICS

MEDICAL DEVICES

PHARMA

Healthcare Macro Trends

Advancing Smart Connected Care

Established MedTech companies continue to face **challenges from consumer companies** and start-ups in:

- Wearables & Hearing
- AI/data analytics
- Connected solutions

Solution-based business models will bridge strong engagement between medical device companies, healthcare facilities, and patients.

New Care Settings

- **Growth of home testing/monitoring**
- Increased adoption of telehealth and retail sites
- **Transition from hospitals to ambulatory centers**
- **Migration to home dialysis**
- Shortage of healthcare workers
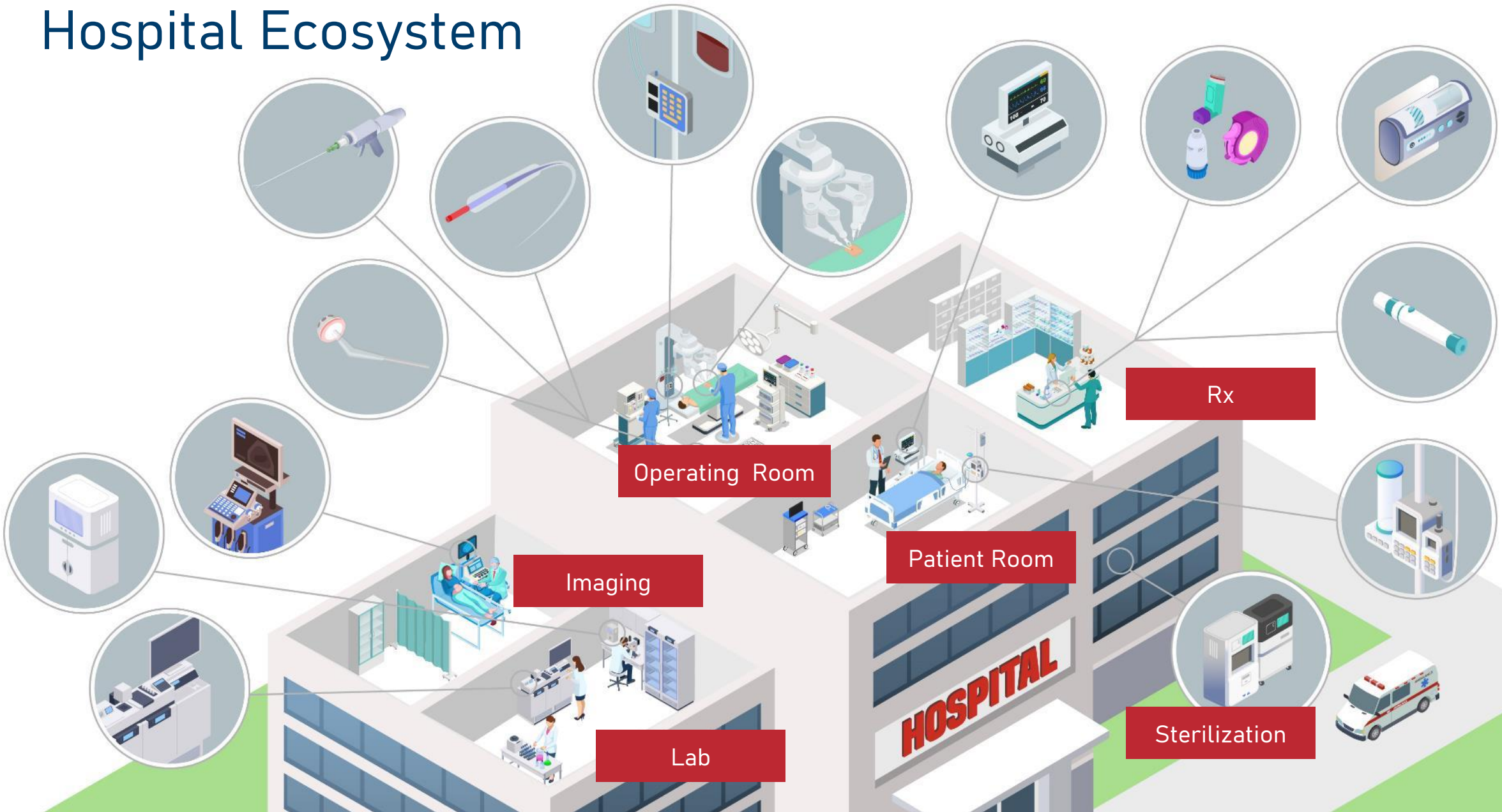- Availability of reimbursement for remote patient monitoring

Improving Chronic Disease Outcomes

- **Population with diabetes will grow to 1b by 2045**
- **Weight loss drugs expected to reach 2b devices by 2030**
- **Growth in biologics market will drive growth in drug delivery market**
- **Expansion of genomics and in vitro diagnostics to diagnosis chronic diseases**
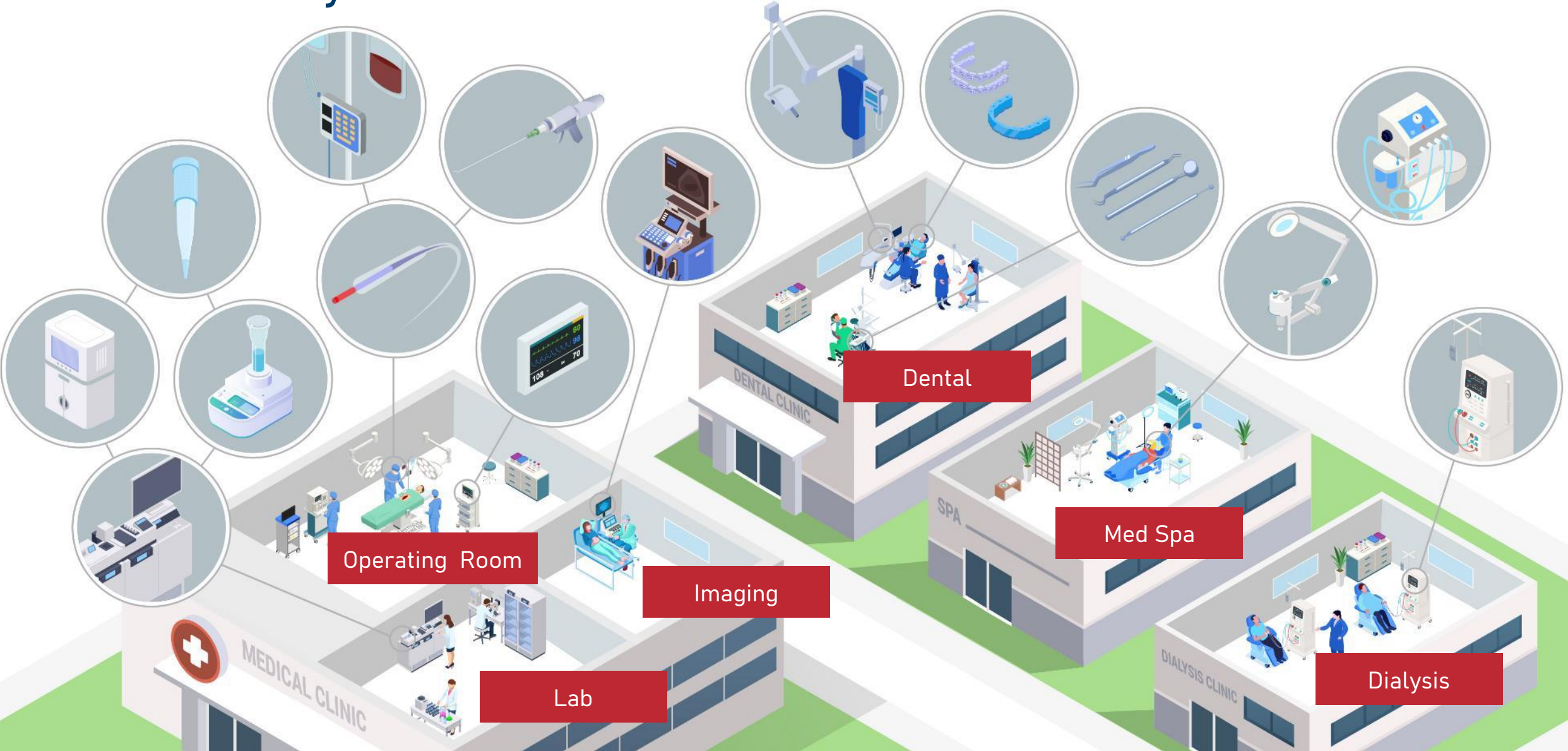- Increased adoption of AI-integrated and connected devices

Healthcare Target Markets

	CLINICAL CHEMISTRY	MOLECULAR LAB	GENOMICS	LIFE SCIENCES	TEST & MEASUREMENT
DIAGNOSTICS	CAGR: 5%	CAGR: 5%	CAGR: 8%	CAGR: 5%	CAGR: 3%
	CARDIOVASCULAR	DIABETES CARE	ENDO SURGICAL	PATIENT MONITORING/ MEDICATION MANAGEMENT	ORTHOPEDICS
MEDICAL DEVICES	CAGR: 5%	CAGR: 6%	CAGR: 8%	CAGR: 9%	CAGR: 5%
	INJECTION DELIVERY	INHALATION DELIVERY	AESTHETICS	DENTAL	RENAL
PHARMA	CAGR: 5%	CAGR: 4%	CAGR: 10%	CAGR: 7%	CAGR: 7%

Hospital Ecosystem

Operating Room

Rx

Patient Room

Imaging

Lab

Sterilization

Clinic Ecosystems

Dental

Operating Room

Imaging

Med Spa

Lab

Dialysis

Home Care Ecosystem

Summary

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What We Are Doing Differently

Deeper Into Design Across Portfolio

Partnerships

Design Offerings

Platform Solutions
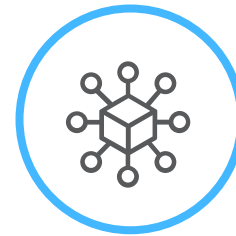
Expanding Product Portfolio

Changing Business Model

JABIL | MADE **POSSIBLE.**
MADE **BETTER.**