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An autonomous future
Leading a revolution
The road to autonomy
The Smart Digital Reality

II. Our business
Hexagon at-a-glance
Fast tracking innovation
Futureproofing solutions
Customers served
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Smart Mines
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Smart Autonomous Mobility
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A shared purpose
I. Our story
Global leader in sensor, software, and autonomous solutions committed to empowering an autonomous future
Leading a revolution
From automation to autonomy

Efficiency

Automation

Autonomy

Autonomy is the ultimate form of putting data to work
The road to autonomy
Enabled by our unique set of core capabilities

We digitally **CAPTURE** and **POSITION** the physical world

We fuse the physical and digital worlds and leverage the power of algorithms to achieve **AUTONOMY**

We digitally **DESIGN** assets, **SIMULATE** real-world scenarios, and deliver situation awareness with **LOCATION INTELLIGENCE**
The Smart Digital Reality™
Our unique point of leverage – convergence of the physical and digital

**DIGITALLY ACCESSIBLE**
Seamless digital access to any physical world data

**INFINITELY CONNECTED**
Able to draw and act on multiple data sources simultaneously

**AUTONOMOUSLY INTELLIGENT**
Able to make unaided decisions and become smarter over time
II. Our business
Hexagon at-a-glance

Our focus is on autonomy
Leveraging data to its fullest potential is the outcome we want – moving beyond automation to autonomy

Our commitment is to innovation
With nearly 4,000 employees in R&D and more than 3,700 active patents our technology leadership is clear

Our value is strategically vital
Efficiency, productivity and quality results in scalable sustainability – fewer resources, less waste, less pollution

Our stability is consistently proven
Sales growth from €500 million in 2000 to €3.9 billion in 2019 with approximately 20,000 employees across 50 countries
Fast tracking innovation

We invest heavily in R&D to accelerate innovation, spending 10–12% of net sales.

Did you know?

Not only is Hexagon one of the world’s largest R&D spenders but also a High-Leverage Innovator – the 9% of global companies which financially outperform industry peers while spending less on R&D.

– The 2018 Global Innovation 1000 study, PwC

The Data Leverage Gap is where Hexagon innovation is focused.
Futureproofing solutions

One of our major R&D initiatives is the continuous development and implementation of a technology framework called Xalt, which is being actively deployed and will eventually underpin all of our solutions—making them faster, easier to use, more connected, and autonomously intelligent.

Xalt framework:
• Artificial intelligence
• Edge computing
• Mobility
• Advanced visualisation
• Enterprise integration
Customers served
Ecosystems vs. markets
Our mantra: Do **well** to do good

We believe growth doesn’t have to be at the expense of the planet.

When we do well – boosting efficiency, productivity, and quality outcomes at *scale* – we do good for the planet.

**Scalable Sustainability**

Sustaining growth for our businesses, as well as this ecosystem we all share.
III. Our solutions
# Core Capabilities overview

The foundation for our Smart Solutions Portfolio

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**REALITY CAPTURE TECHNOLOGIES**

Digitalise the physical world with measurement, 3D models, monitoring, and surveillance

**POSITIONING TECHNOLOGIES**

Locate, track, navigate and/or control anything, anywhere (machines, objects, vehicles, etc.)

**AUTONOMOUS TECHNOLOGIES**

“Autonomise” any task, process, or workflow – or entire operation

**DESIGN AND SIMULATION TECHNOLOGIES**

Replicate real-world scenarios in virtual environments with computer-aided design, simulation, and predictive modeling

**LOCATION INTELLIGENCE TECHNOLOGIES**

Enable active, geo-referenced, situational intelligence for any application
Smart Solutions Portfolio overview

By putting data to work, our smart solutions empower increasingly autonomous, connected ecosystems that drive sustainable value creation.
Smart Factories

that learn and adapt quickly to changing conditions in real time, pursuing perfect quality with optimised design, requiring fewer inputs and producing zero waste.

Did you know?

Each year, Hexagon technology touches:

- 75% of cars produced
- 90% of aircraft produced
- 85% of smartphones produced

We have expertise in and connect all stages of the manufacturing lifecycle:

DESIGN AND ENGINEERING (CAE)
Optimise designs and ensure manufacturability

PRODUCTION (CAD/CAM)
Deliver on design intent and product quality with minimal waste

METROLOGY HARDWARE/SOFTWARE
Capture real-world data for positioning and inspection

SUSTAINABLE VALUE CREATION
• Fewer inputs
• Zero waste
• Perfect quality

PRIMARY APPLICATIONS
• Automotive
• Aerospace
• Electronics
• Medical
• Heavy industry
• Power & energy
Smart Industrial Facilities
that ramp up quickly while operating safely
and reliably throughout a more sustainable,
longer-term lifespan

Did you know?
Over half of all oil, gas,
and chemicals products
worldwide are delivered
more efficiently due to
Hexagon technology.

We have expertise in and connect all stages
of the engineering lifecycle:

ANALYSIS
Automating manual, time-consuming tasks into
seamless processes

ENGINEERING & SCHEMATICS
Intelligent facility engineering

3D DESIGN & VISUALISATION
True workflow-managed integration

PROCUREMENT, FABRICATION & CONSTRUCTION
Saving valuable production time

PROJECT CONTROLS & PORTFOLIO MANAGEMENT
Budgeting/forecasting for optimal performance

ASSET INFORMATION MANAGEMENT
Enabling electronic organisation of facility data

SUSTAINABLE
VALUE CREATION
• Rapid startup at lower cost
• Safe, efficient operations
• Longer lifespan

PRIMARY
APPLICATIONS
• Oil and gas
• Power
• Shipbuilding
• Pharmaceutical
• Chemical
• Metals and mining
**Smart Mines**

that are efficient to operate, while maximising safety and minimally impacting the environment throughout the life of a mine.

**Did you know?**

Hexagon is the **only company** to solve surface and underground challenges with proven technologies for **planning, operations, and safety**

We have expertise in and connect all stages of the mining lifecycle:

**PLANNING**
Geology, engineering and production suites for exploration, modeling, design, scheduling, & operation

**OPERATIONS**
Fleet management, machine guidance, & operator assist

**SAFETY**
Collision avoidance, vehicle intervention, fatigue monitoring and personal protection

**ENTERPRISE**
Connecting processes and converting data into real-time information for proactive mine management

**SURVEY & MONITORING**
Slope stability monitoring and mine measurement systems

**SUSTAINABLE VALUE CREATION**
- Minimum impact
- Safety prioritised
- Maximum efficiency

**PRIMARY APPLICATIONS**
- Base metals
- Precious metals
- Energy minerals

**SHEER SPEED, MAXIMUM EFFICIENCY, MINIMAL IMPACT**

**Hexagon**

[Image of mining operations]
Did you know?

Nearly one-quarter of the world’s greenhouse gases come from agriculture, forestry and land use changes, and Hexagon is working with the industry to lower this impact simply by putting data to work.

We have expertise in and connect all stages of the agriculture lifecycle:

**CULTIVATION**
Optimising and automating entire crop cycle (planning, soil preparation, planting and cultivation)

**HARVESTING**
Optimisation and automation of logistics operations, from harvest to transportation

**ORIGINAL EQUIPMENT MANUFACTURER (OEM)**
Custom solutions for machines, tractors and agricultural implements tailored to each partner’s needs

Smart Farms

that cultivate data in ways that will optimise inputs and drive higher yields while lowering costs

SUSTAINABLE VALUE CREATION
• Optimised inputs
• Higher yields and less waste
• Lower costs

PRIMARY APPLICATIONS
• Sugar cane
• Forestry
• Grains
Smart Autonomous Mobility
that is reimagining autonomous transportation
with sustainability in mind – ensured safety,
clean and more efficient

Did you know?
Hexagon has delivered more
safe, reliable autonomous driving
research vehicles than any other
company in the world.

We enable, accelerate and deploy
autonomous mobility:

ENABLE
Provide comprehensive autonomy
development solutions with all necessary
hardware/software components for
autonomous driving designs in complex
environments

ACCELERATE
Facilitate a seamless workflow between real
and simulated worlds to optimize, verify and
validate

DEPLOY
Quickly scale from prototype and R&D phases
to production

SUSTAINABLE
VALUE CREATION
• Greater safety
• Improved productivity
• Maximum efficiency

PRIMARY
APPLICATIONS
• Personal and public transport
• Unmanned (aerial, ground, marine)
Hexagon’s technologies helped build:

- **The world’s longest railway tunnel** (Gotthard Base Tunnel, Swiss Alps)
- **The world’s tallest tower** (Burj Khalifa, Dubai)
- **The world’s widest suspension bridge linking two continents** (Yavus Sultan Selim Bridge, Istanbul)

Did you know?

We have expertise in and connect all stages of the asset lifecycle:

**DESIGN & ENGINEERING**
- Feasibility analysis; estimation and project planning; surveying, mapping; procurement and contracting

**CONSTRUCTION & DELIVERY**
- Computer-aided design (CAD); building information modeling (BIM) planning and scheduling; project controls; digital layout; machine automation; construction management; progress documentation, as-built

**OPERATIONS & MAINTENANCE**
- Asset management, repairs, renovation, and monitoring & surveillance

SUSTAINABLE VALUE CREATION
- Optimised resources
- Less rework
- On plan, on time, on budget

PRIMARY APPLICATIONS
- Heavy construction
- Buildings
- Surveying
Smart Cities & Nations

where governments, industry, and citizens work together to build safe and vibrant communities that promise the highest quality of life and sustainable economic vitality

Did you know?

Over half of the earth’s geospatial imagery is either collected, processed or used with Hexagon’s solutions (sensors/software/solutions) and almost 1bn people on the planet are protected by Hexagon’s public safety solutions.

Our solutions power cities and nations, keeping them safe and resilient:

DIGITAL CITY
3D digital capture (above and below ground) of city environments and surrounding landscapes to enable management, positioning and monitoring of infrastructure and other asset

PUBLIC SAFETY
Call-taking, dispatch, major incidents, investigations, & law enforcement

DEFENCE SOLUTIONS
Image exploitation, geoprocessing, location data analysis and intelligence creation

LOCATION INTELLIGENCE
Real-time geospatial visualisation and analysis for any application (including crowdsourcing citizen reporting and participation)

SUSTAINABLE VALUE CREATION
• Always safe
• Highest quality of life
• Sustainable economic growth

PRIMARY APPLICATIONS
• Public safety
• Utilities
• Transportation
• Land management
• Defence & intelligence
• Geospatial content
IV. Our experts
Mapping Hexagon’s domain expertise

Smart Solutions experts

- **Smart Farms**
  - **Agriculture**
  - Cultivation, harvesting and transport logistics solutions

- **Smart Mines**
  - **Mining**
  - Life of mine solutions

- **Smart Factories**
  - **Manufacturing Intelligence**
  - Design and engineering, production, and metrology solutions

- **Smart Industrial Facilities**
  - **PPM**
  - Design, construction and operation solutions

- **Smart Autonomous Mobility**
  - **Autonomy & Positioning**
  - Autonomous vehicle and positioning solutions

- **Manufacturing Intelligence**
  - Autonomous vehicle simulation software

- **Smart Buildings & Infrastructure**
  - **Geosystems**
  - Life of heavy infrastructure project solutions
  - Life of building solutions

- **PPM**
  - Building construction solutions

- **Smart Cities & Nations**
  - **Safety and Infrastructure**
  - Public safety, utilities, and transportation solutions

- **Geospatial**
  - Geospatial products, solutions and applications for any industry and defence, aviation, maritime and transportation-specific solutions

- **Geosystems**
  - Reality capture technologies and solutions
  - Digital city/nation mapping content and services
V. Our approach
Purpose is good.

Shared purpose is better.

We see customers as co-creators of the smart solutions we deliver.

Putting data to work to boost efficiency, productivity, and quality outcomes is a purpose that we share with you.
Thank you.