

# MAPS:

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Vacuum valves play a key role in the global digital transformation and VAT's market and technology lead creates sustainable growth opportunities.

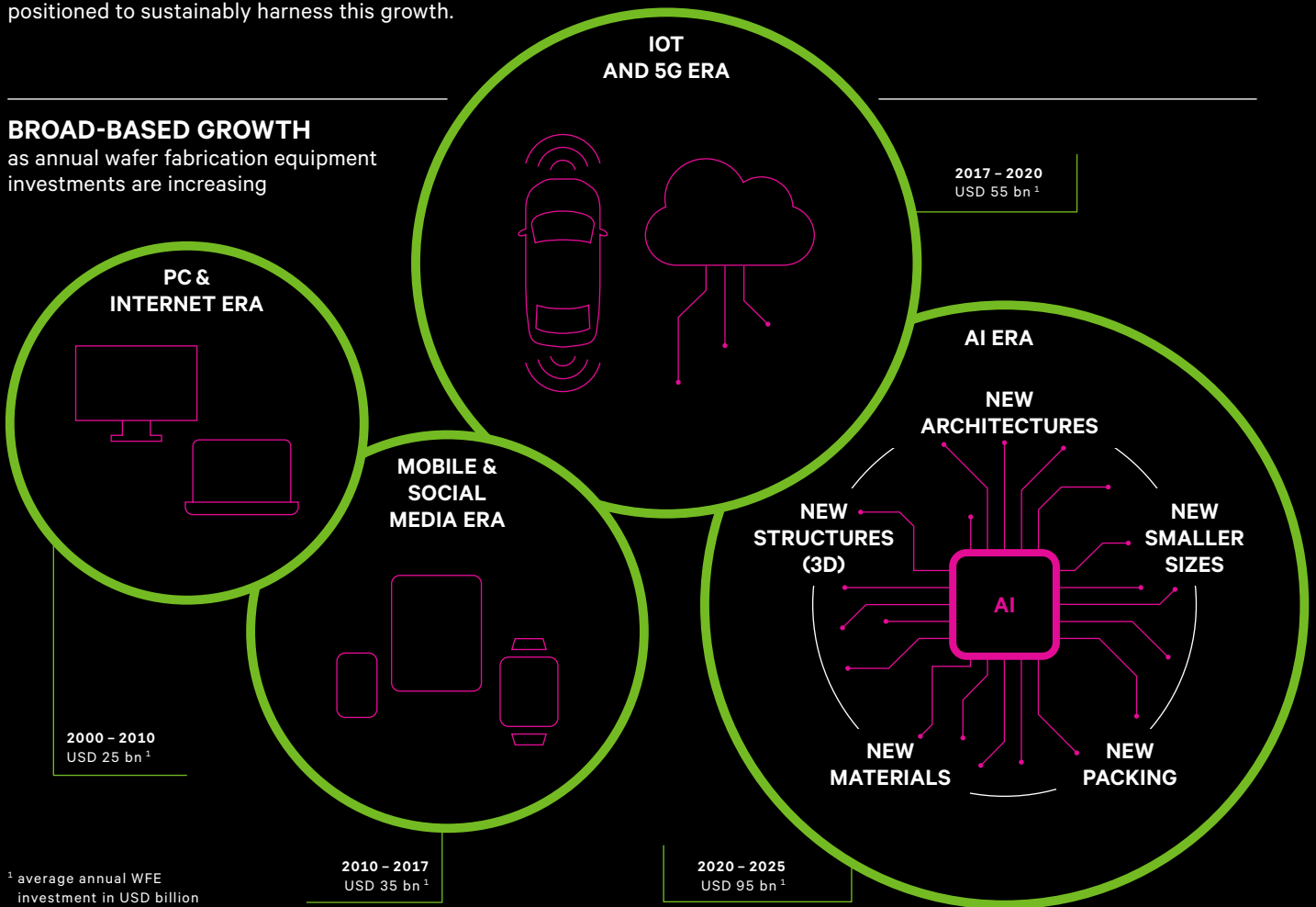
The world is being profoundly changed by the rapid development of digital technologies. The Internet of Things, cloud computing, wireless communications everywhere, and accelerating use of artificial intelligence promise to improve the quality of life for people all over the world. The following pages show how VAT's advanced vacuum valves contribute to this unprecedented development.

# HARNESSING LONG-TERM MEGA-TRENDS

Megatrends such as digitalization, renewable energy generation, and population growth and aging will drive demand for semiconductors and other vacuum-based manufacturing for years to come. VAT, through its technology and market lead is best positioned to sustainably harness this growth.

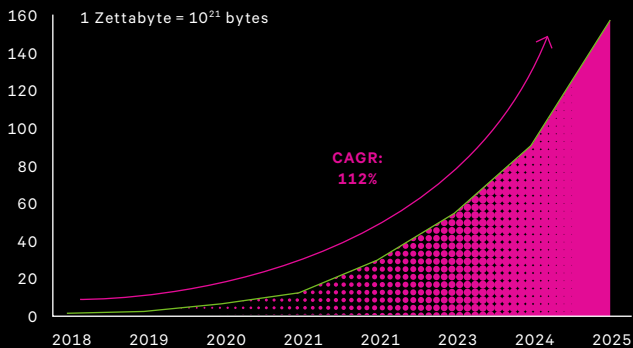
## BROAD-BASED GROWTH

as annual wafer fabrication equipment investments are increasing



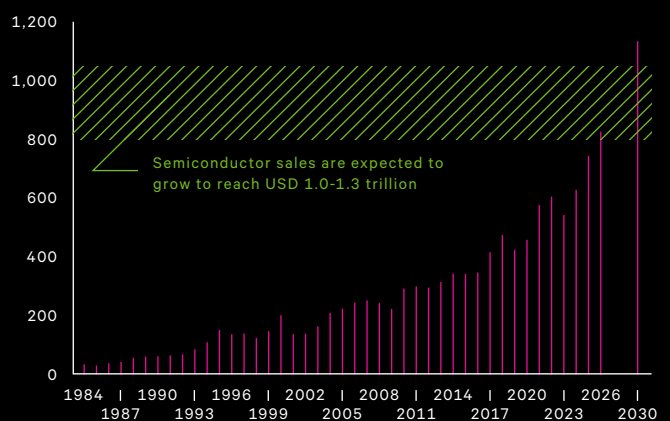
## THE WORLD IS IN A STAGE OF EXPLOSIVE GROWTH IN DATA GENERATION

Amount of data created worldwide (in zettabytes)



## END-MARKET GROWTH FUELS IC VOLUMES

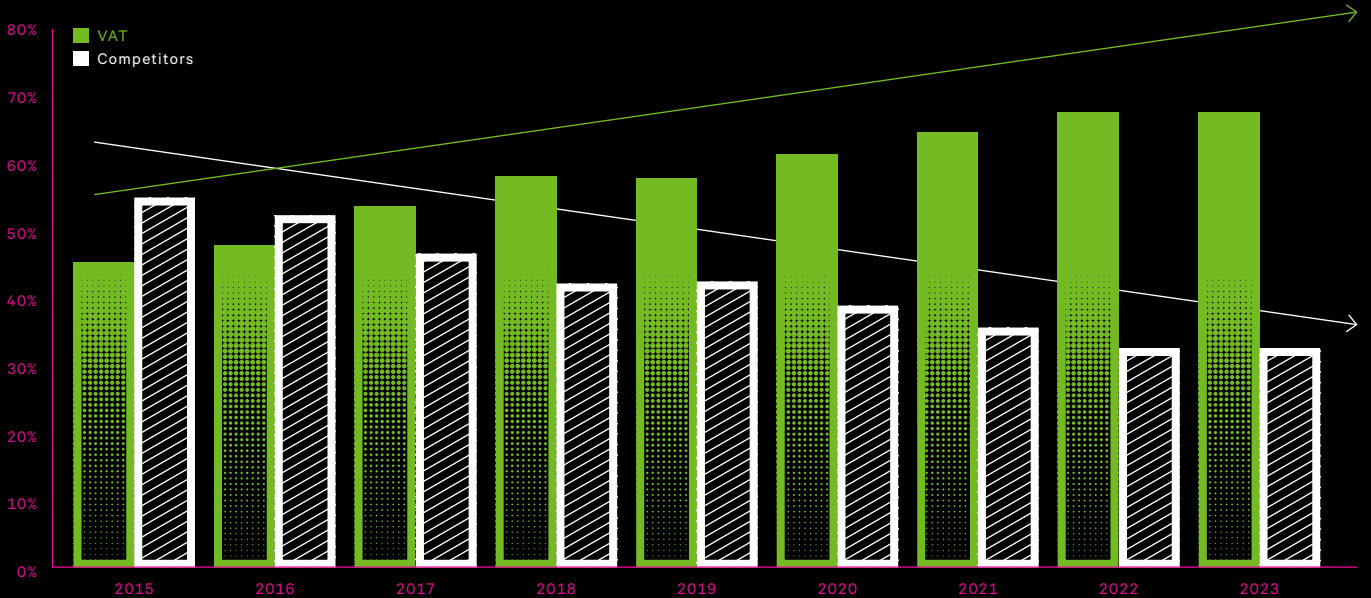
in USD billion



# Smaller and more powerful semi-conductors become ever more complex, allowing VAT to leverage its technology leadership

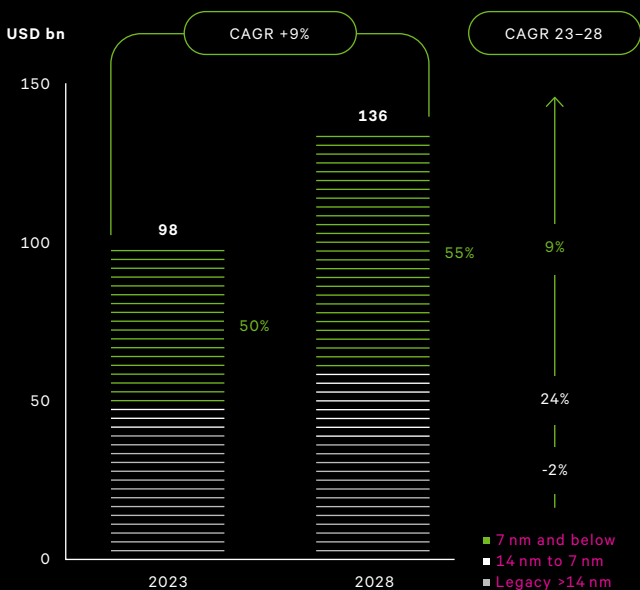
## UNDISPUTED MARKET LEADER

Market share Semi and related<sup>2</sup>



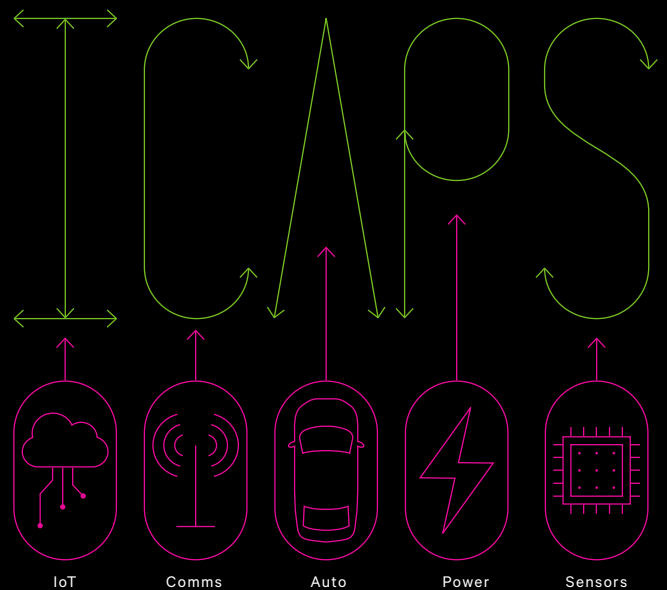
Source: 2 Technisights Inc. February 2024

## STRONG GROWTH OF LEADING-EDGE SEMICONDUCTORS<sup>3</sup> ...



Source: 3 Technisights Inc. December 2023

## ... BUT ICAPS PRESENT A HUGE OPPORTUNITY IN LARGER NODE APPLICATIONS

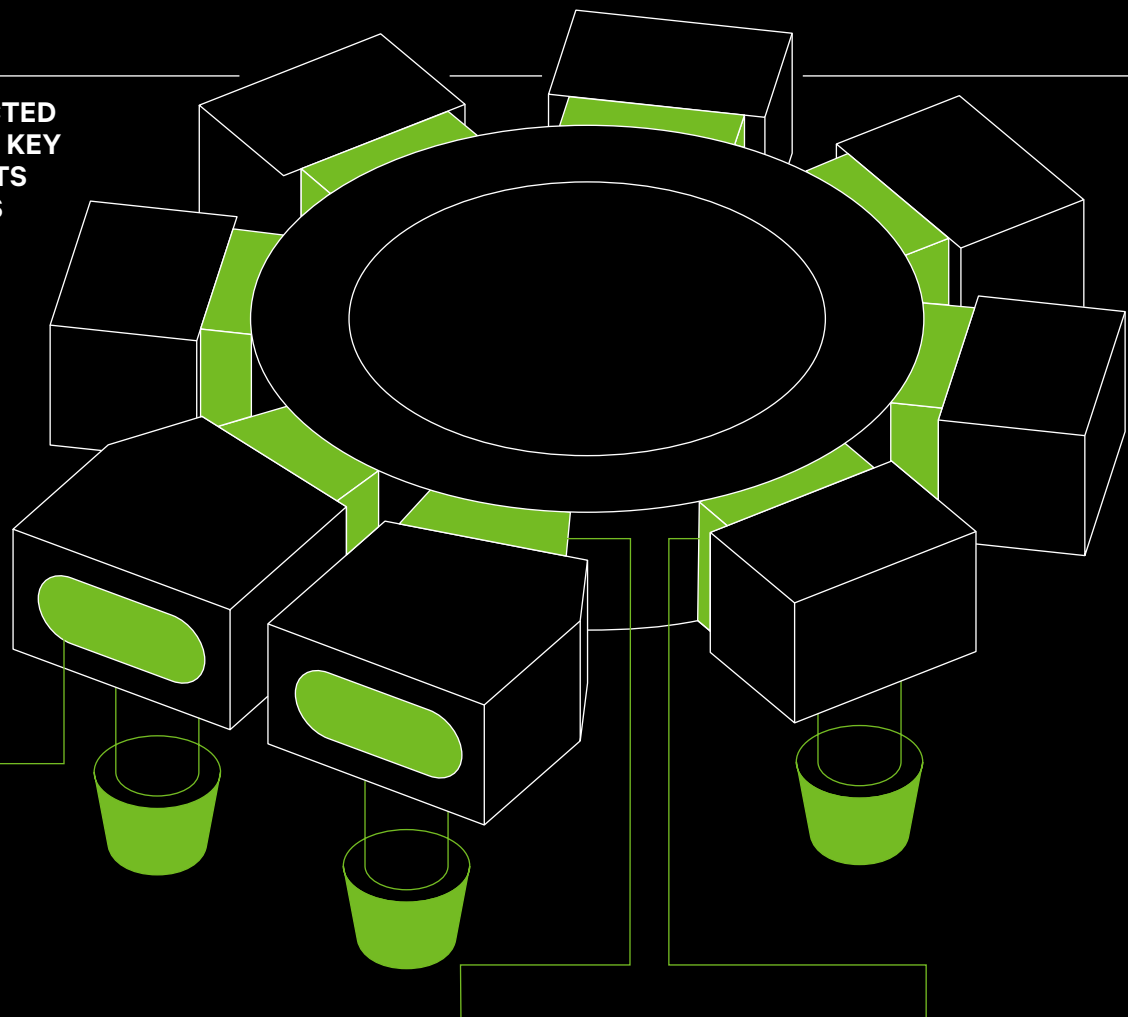


# VAT VALVES AND SOLUTIONS ARE CRITICAL TO THE SEMICONDUCTOR PRODUCTION

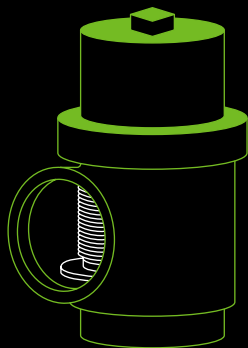
In partnership with our customers, VAT leverages its technology leadership to provide innovative, high-value vacuum solutions – from vacuum design in the wafer path to vacuum solutions around the process module.

**GROWTH EXPECTED IN ALL OF VAT'S KEY VALVE PRODUCTS AND OFFERINGS**

Increasing complexity in semiconductor production benefits VAT

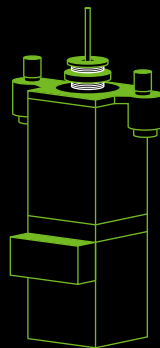


## VALVES



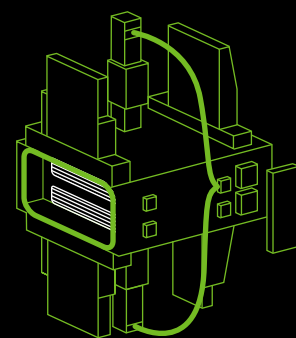
Market share growth in Control, Transfer and Isolation Valves

## MOTION COMPONENTS



Growth through migrating pneumatic products into mechatronic solutions

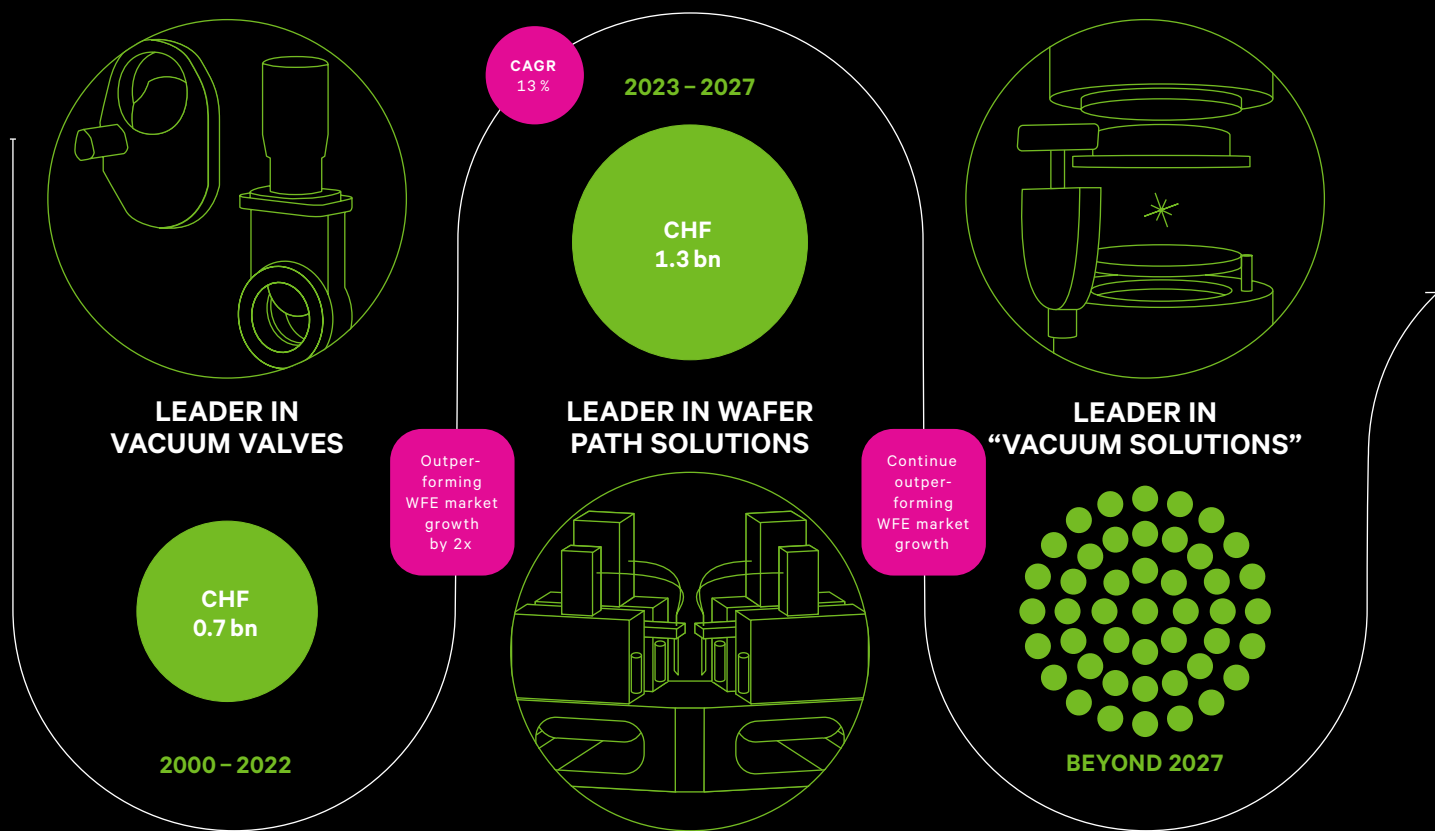
## ADVANCED MODULES



Growth through complex integrated systems for leading-edge platforms

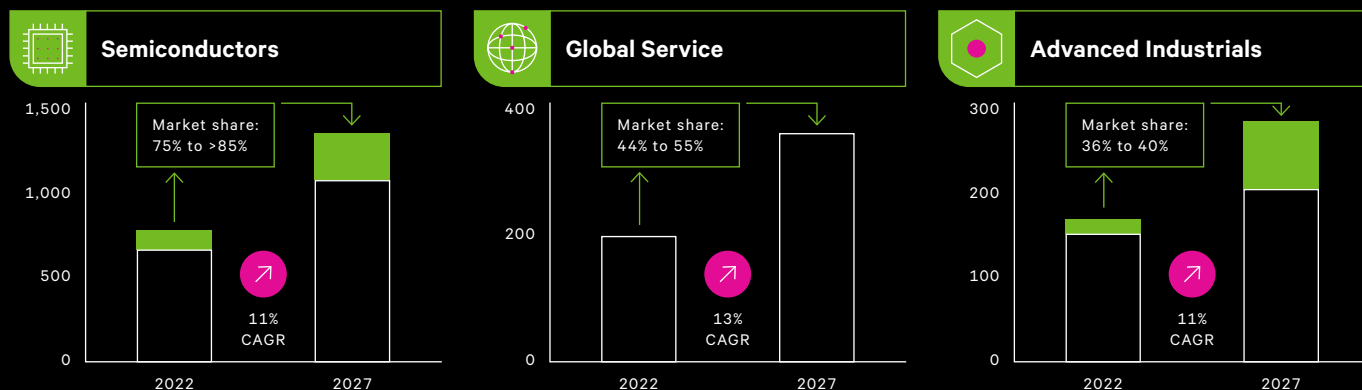
# Establishing the Semiconductor Solutions Group leverages the existing customer relationship, the technology and market leadership in the coming years

SSG AIMS TO OUTPACE THE MARKET IN THE NEXT FIVE YEARS AND GROW IN CONNECTED SOLUTIONS BEYOND 2027



## SALES AND MARKET SHARE TO GROW IN ALL OUR BUSINESSES





in USD million



# GLOBAL SERVICE OFFERS A BROAD PORTFOLIO OF SERVICE PRODUCTS

VAT's Global Service offering makes it the preferred service provider for valve-related services and vacuum components in the Semiconductor, Display and Solar industries for OEMs and end-users.

## BU GLOBAL SERVICE PRODUCT SECTORS

 <b>Spares &amp; Repairs</b>	 <b>Gates</b>	 <b>Upgrades &amp; Retrofits</b>	 <b>Subfab</b>
<ul style="list-style-type: none"> <li>· Spare parts &amp; spare part packages for OEMs and end customers</li> <li>· Fixed Price Refurbishment (FPR)</li> <li>· Valve repairs and refurbishments in local Service Centers</li> </ul>	<ul style="list-style-type: none"> <li>· Various types of Gates and Sealings</li> <li>· In-house Competence Center for Sealing technology</li> <li>· In-house production of Gates incl. vulcanization</li> </ul>	<ul style="list-style-type: none"> <li>· Upgrade and retrofit of control valves, gate valves and transfer valves for OEMs and end customers</li> <li>· Upgrade and retrofit of motion components</li> </ul>	<ul style="list-style-type: none"> <li>· Wide range of isolation and gate valves for forelines and abatement systems in various processes</li> <li>· Portfolio spread with new safety valve (OSV) and new materials (Aluminium)</li> </ul>
<p><b>MISSION</b> Delight our customers by optimizing performance of Installed Base</p>	<p><b>MISSION</b> Ensure maximum production quality with high-performance gates</p>	<p><b>MISSION</b> Improve customer performance in yield, uptime and throughput</p>	<p><b>MISSION</b> Ensure a reliable and safe subfab operation at reasonable TCO</p>

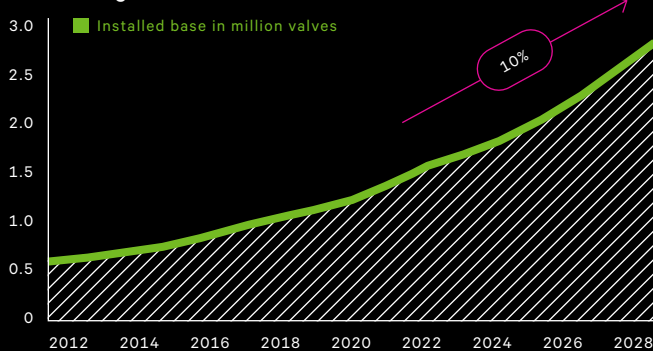
## A RECURRING REVENUE STREAM

Over the lifespan of a valve, services can generate sales of up to 5x the original valve sales price

# 5x

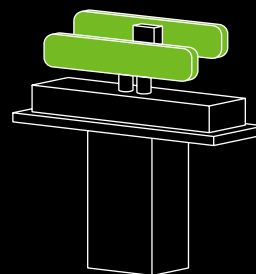
Adjacencies offer additional service opportunities both in VAT products and upgrades and retrofits

## VAT REPAIRABLE VALVE INSTALLED BASE and annual growth rate

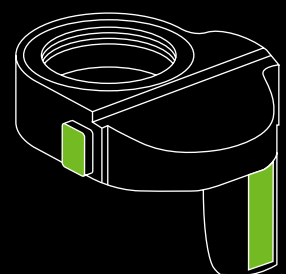


### Repairable valves

#### Transfer valves



#### Control valves

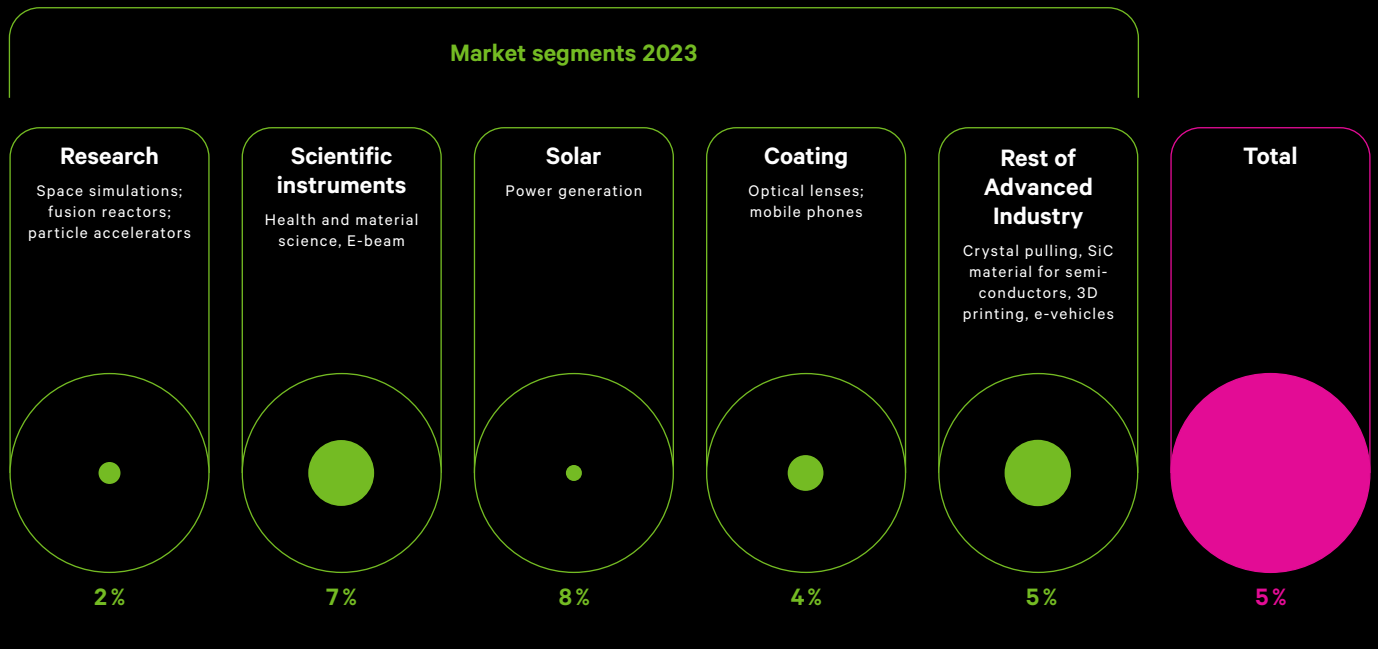


# ADVANCED INDUSTRIALS TAP NEW OPPORTUNITIES

Our Advanced Industrials business continues to develop VAT's core vacuum technologies to address attractive non-semiconductor industrial markets where vacuum-based manufacturing is becoming more important.

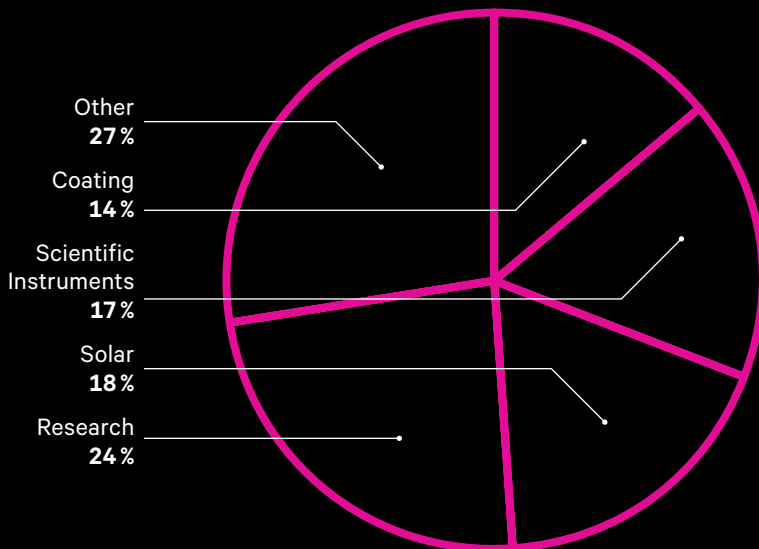
## SERVING AN EXPANDING AND GROWING ADVANCED INDUSTRIAL BASE

relative market segment size and expected market growth (CAGR 2022 – 2027)



## ADVANCED INDUSTRIALS MARKET SALES BREAKDOWN

Share of 2023 sales of CHF 194 million



## ADVANCED INDUSTRIAL SALES GROWTH 2023

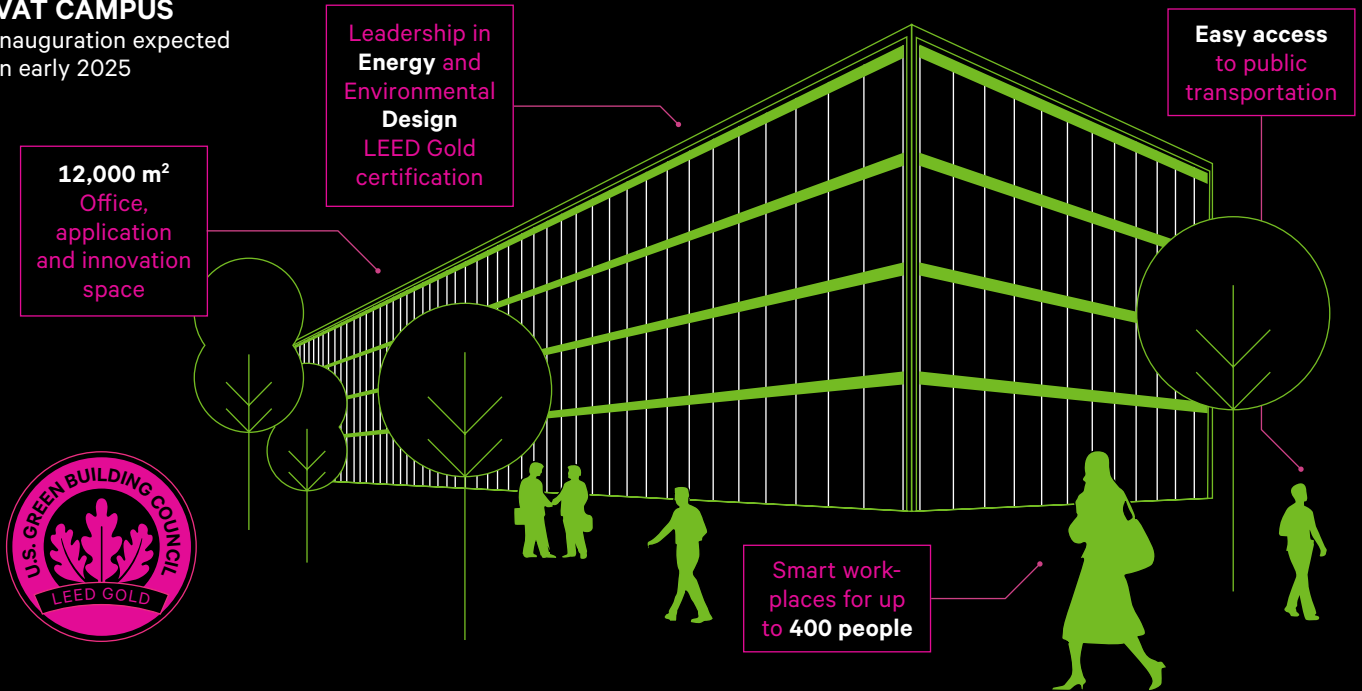


# INNOVATION – INVESTING INTO FUTURE SUCCESS

The new Innovation Center represents the heart of VAT's innovation engine. Building on 60 years of innovation heritage, it is designed to accelerate our customer-centric innovation, drive global collaboration and fast development cycles to increase the speed to market for leading-edge vacuum solutions.

## VAT CAMPUS

inauguration expected in early 2025



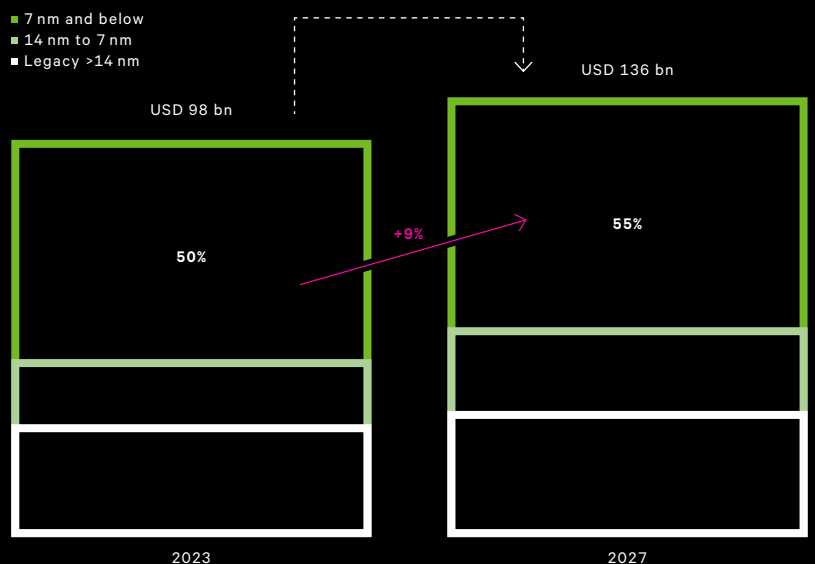
## RECORD R&D INVESTMENTS

in CHF million



## SMALLER NODES REQUIRE MOST ADVANCED VALVES

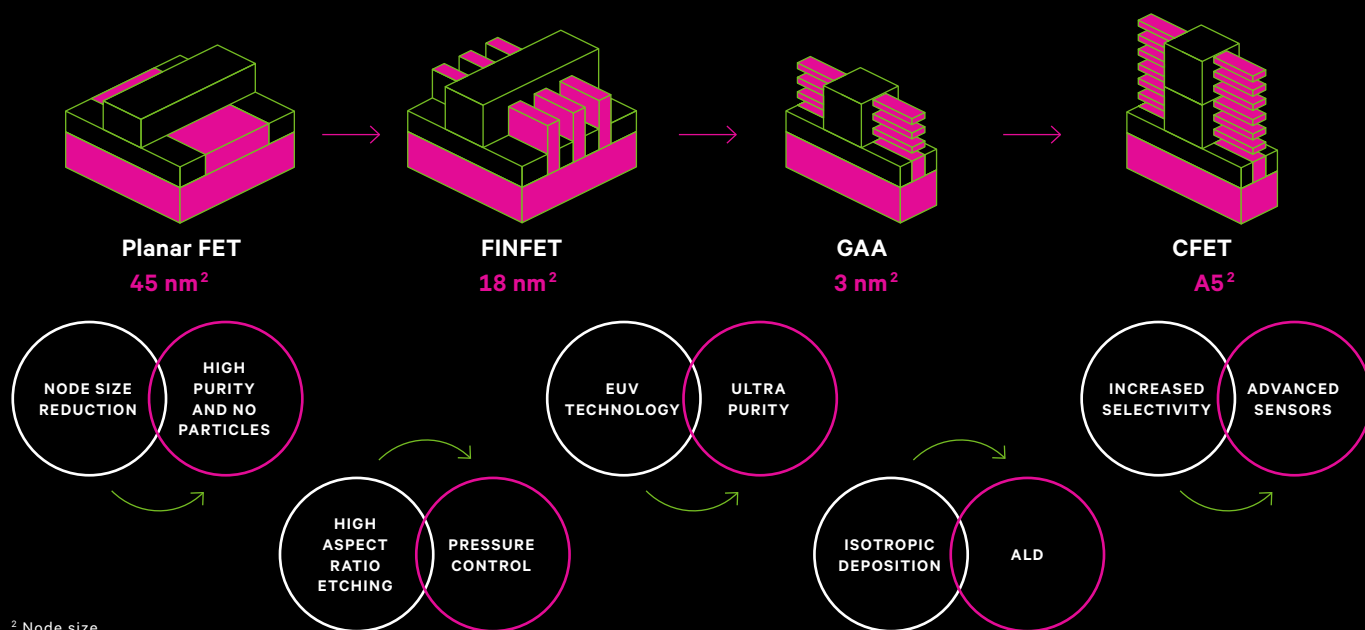
Share of Wafer Fab Equipment spend by node size <sup>1</sup>





# Investing in future technologies and pushing the boundaries for vacuum applications for nearly 60 years is one key success factor of VAT.

## TECHNOLOGY INFLECTIONS DRIVE VAT'S INNOVATION



<sup>2</sup> Node size

## INNOVATION FOR TOMORROW'S INDUSTRY CHALLENGES



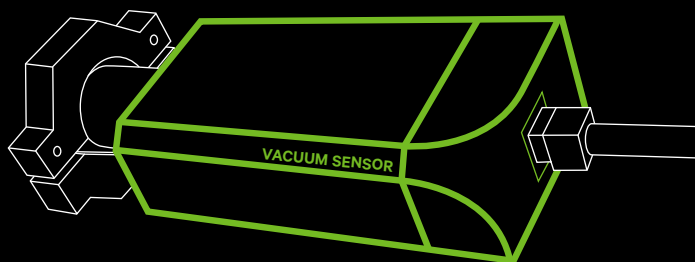
### PRECISION DELIVERY ALD Valve

Atomic Layer Deposition (ALD) processes are required to fill the nanometric gaps with high precision across the wafer. They require high speed valves to manage process gas flows with a repeatability in the order of a millisecond.

### PROCESS CONTROL Microelectromechanical Systems (MEMS)

Future leading edge chip manufacturing processes will require advanced pressure controls. VAT's MEMS technology allows

the integration of new types of pressure sensors, bringing our control valves to the next performance level.



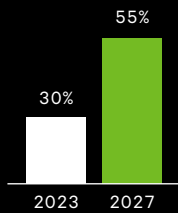
# THE VALUE OF A GLOBAL FOOTPRINT

With manufacturing, technology, application and supply hubs close to all its major customers, VAT can move quickly and cost-effectively to meet their rapidly changing needs.

## BUILDING AN INCREASINGLY FAST AND FLEXIBLE GLOBAL VALUE CHAIN



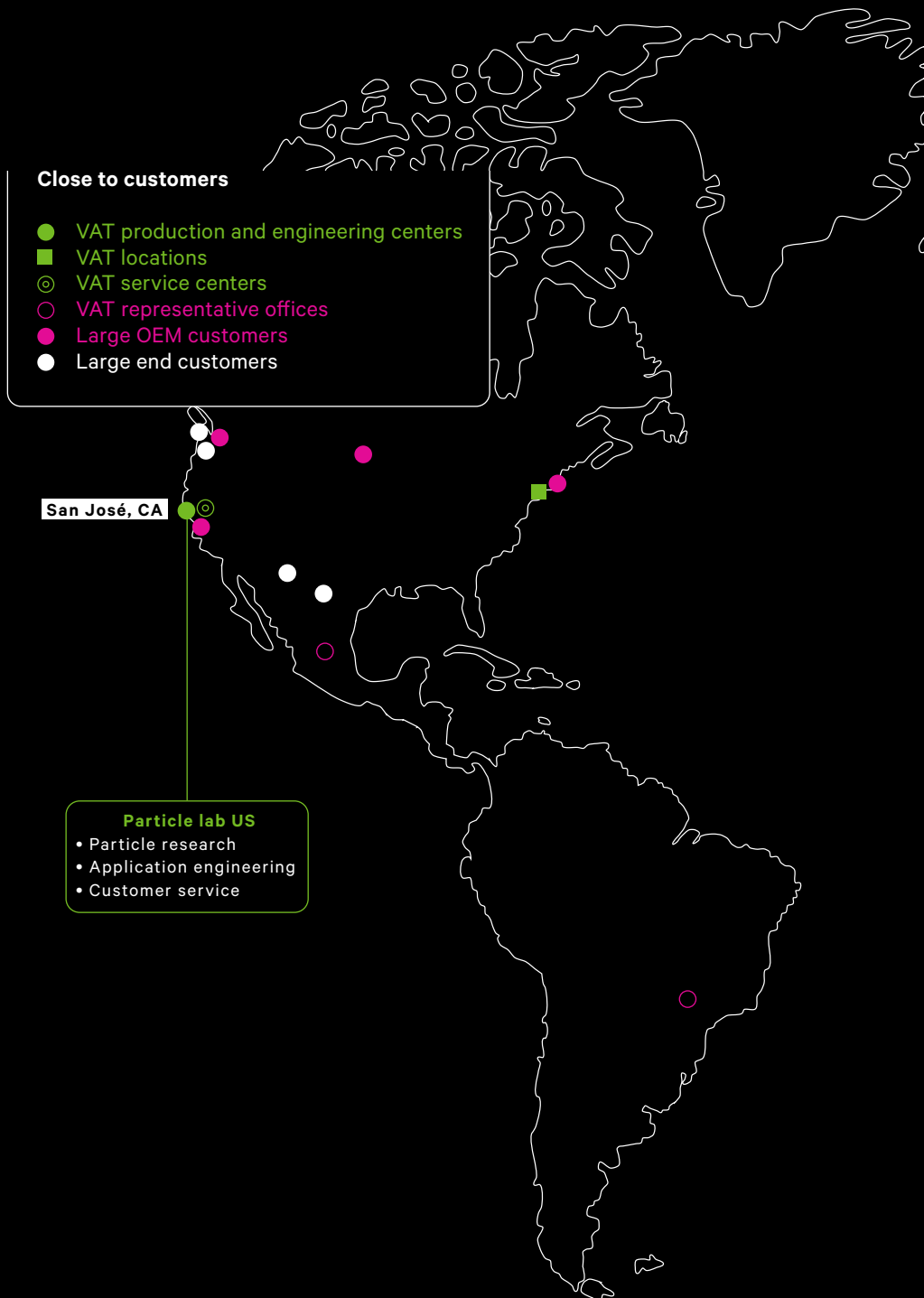
**25% flexible factory** workforce group-wide at top of business cycle



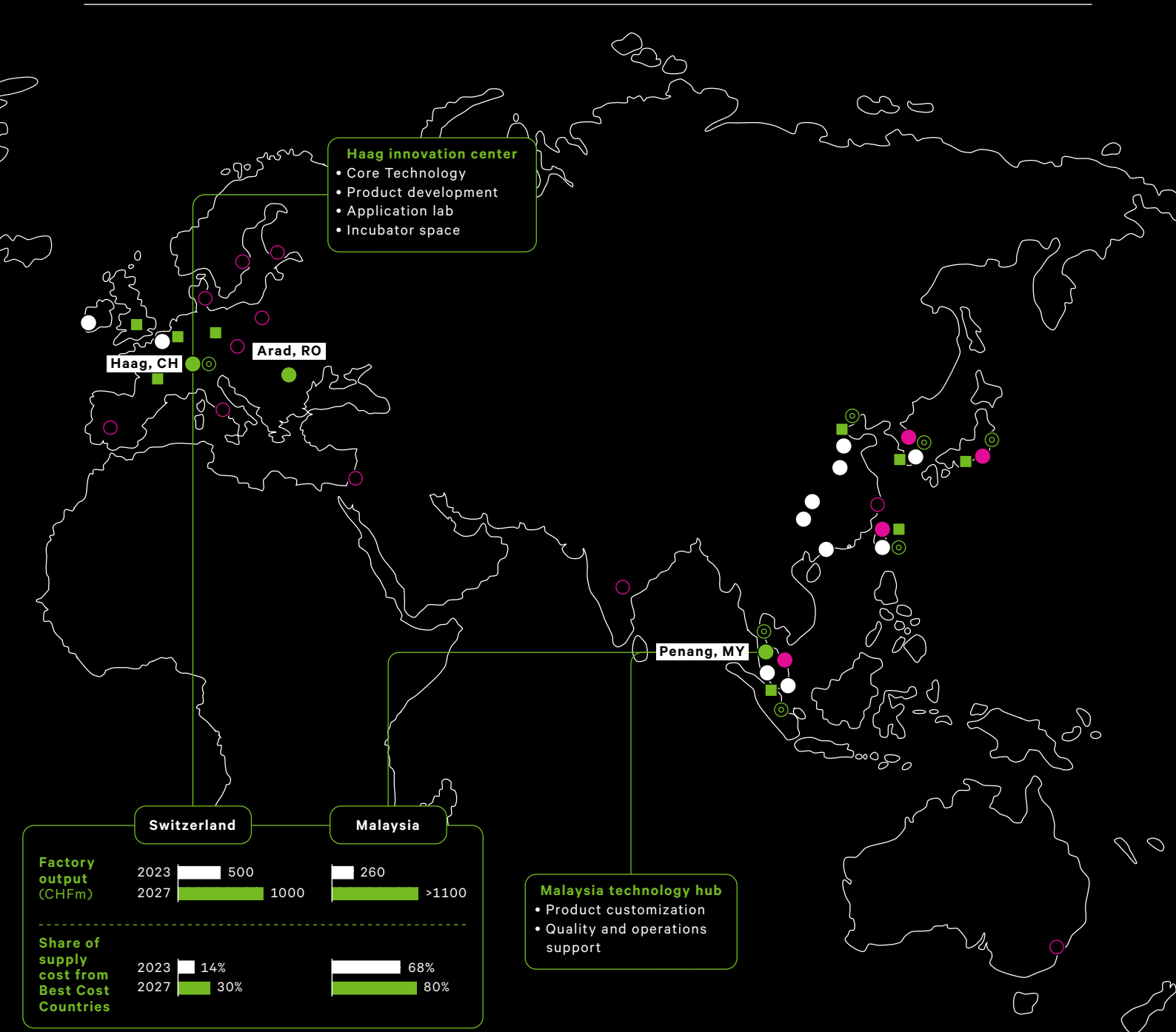
**Best cost country sourcing** is expected to grow substantially by 2027



**75% of our components** are outsourced and around 2/3 of our costs are variable



# Our global footprint gives us cost and supply flexibility so we can stay ahead of the curve as markets change.



# ORGANIZATION VAT GROUP AG

VAT Group is organized and managed in two segments: Valves and Global Service. The Valves segment comprises the two business units Semiconductors, and Advanced Industrials.



The VAT Group is led by the Group Executive Committee (GEC) consisting of the CEO, CFO, COO and EVP for the Semiconductor Solutions Group.

