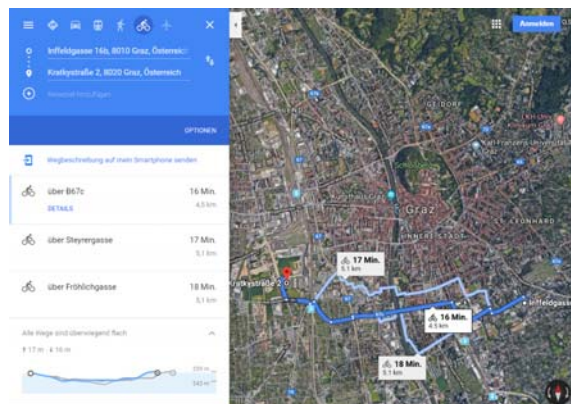# STMicroelectronics Company presentation
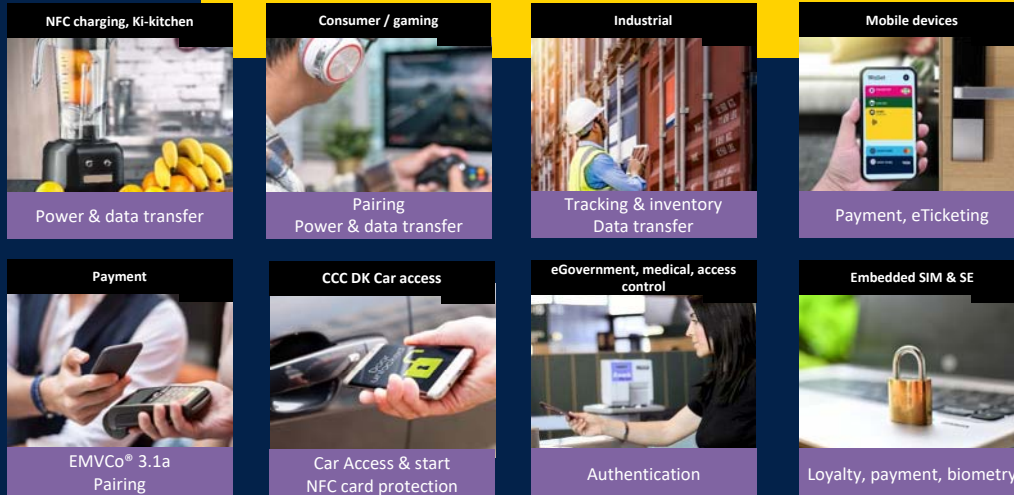
TU Graz Hidden Champions 2023
Oct 24th 2023

STMicroelectronics GmbH Austria

NFC and UWB Competence Center Graz
SpaceOne | Kratkystrasse 2 | 8020 Graz

ST Graz main areas of activity: NFC and UWB

NFC charging, Ki-kitchen

Power & data transfer

Consumer / gaming

Pairing
Power & data transfer

Industrial

Tracking & inventory
Data transfer

Mobile devices

Payment, eTicketing

Payment

EMVCo® 3.1a
Pairing

CCC DK Car access

Car Access & start
NFC card protection

eGovernment, medical, access control

Authentication

Embedded SIM & SE

Loyalty, payment, biometry

ST Graz Main Activities over the product life cycle

Product Development
Convert Marketing requirements to product specification for design

Application and System Validation
FPGA based HW Validation, FW Validation, RF Performance, Interoperability, Standard Compliance (NFC forum, EMVCo, ISO), Validation PCB development
EMC pre-scans: FCC, IC, ETSI, ARIB

Eco-system Development
FW Drivers and Middleware development. Demo kits like Eval Boards, Reference Designs (e.g. EMVCo)

Customer support
Automotive, Payment, Access, Gaming, Mobile

Standardization
Contribute and observe NFC Forum, CCC, WPC, CSA…

UWB technology
Business Line Mgmt and Product Definition

We are creators and makers of technology

One of the world's largest semiconductor companies

Over **50,000** employees of which **9,000+** in R&D

$16.1 billion revenues in 2022

Over **80** sales & marketing offices serving over **200,000** customers across the globe

14 main manufacturing sites

Signatory of the United Nations Global Compact (UNGC)
Member of the Responsible Business Alliance (RBA)
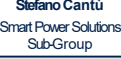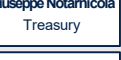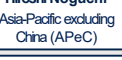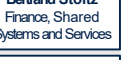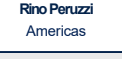
As of December 31, 2022   2

Global presence

- Research & Development
- Main Sales & marketing
- Front-end manufacturing
- Back-end manufacturing

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ST Executive Committee

Jean-Marc Chery
President &
Chief Executive Officer

Marco Cassis Analog, MEMS & Sensors Group	**Marco Monti** Automotive & Discrete Group	**Remi El-Ouazzane** Microcontrollers & Digital ICs Group	**Jerome Roux** Sales & Marketing	**Fabio Gualandris** Quality, Manufacturing, & Technology	**Lorenzo Grandi** Finance, Purchasing, ERM & Resilience, CFO	**Rajita D'Souza** Human Resources & Corporate Social Responsibility	**Steven Rose** Legal Counsel & Public Affairs	President & CEO Office
Alexandre Balmefrezol Imaging Sub-Group	**Stefano Cantù** Smart Power Solutions Sub-Group	**Ricardo De-Sa-Earp** General Purpose Microcontroller Sub-Group	**Michael Anfang** EMEA	**Fabrice Gomez** Back-End Manufacturing & Technology	**Franck Freymond** Audit*, ERM & Resilience		**Frédérique Le Grevès** Europe & France Public Affairs	**Alberto Della Chiesa** Supply Chain
Alessandro Cremonesi ** System Research & Applications,Innovation	**Edoardo Merli** Power Transistor Sub-Group		**Henry Cao** China	**Michael Hummel** Analog & Power Front-End Manufacturing & Technology	**Giuseppe Notarnicola** Treasury		**Giuseppe Notarnicola** Italy Public Affairs	**Claudia Levo** Integrated Marketing & Communications
Matteo Lo Presti Analog Sub-Group			**Hiroshi Noguchi** Asia-Pacific excluding China (APeC)	**Laurent Malier** Digital Front-End Manufacturing & Technology	**Bertrand Stoltz** Finance, Shared Systems and Services		**Bertrand Stoltz** Asia Pacific Public Affairs	**Chouaib Rokbi** Digital & Information Technology, Corporate Development
Andrea Onetti MEMS Sub-Group	** Reports dotted line to the other Presidents Product Groups		**Rino Peruzzi** Americas	**Nicolas Yackowlew** Product Quality & Reliability	**Geoff West** Global Purchasing			

* Reports to the Chairman of the Supervisory Board Audit Committee and dotted line to the CEO

Our vision

ST stands for

life.augmented

Everywhere microelectronics
makes a positive contribution to people's lives,
ST is there.

Our value proposition for all stakeholders

For our **shareholders**	For our **customers**	For all **stakeholders**
Return value in line with our objective	**Provide differentiating enablers**	**Committed to sustainability**
Sustainable and profitable growth	**Independent, reliable & secure supply chain**	**Our values: Integrity – People – Excellence**

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Our technology starts with you

At ST, we create
technology that starts with
You

Our employees	Our customers	Our partners

1
0

5

Making **driving** safer, greener, and more connected

Enabling the evolution of **industry** towards smarter, safer, and more efficient factories & workplaces

Making **homes & cities** smarter, for better living, higher security, and to get more from available resources

Making everyday **things** smarter, connected, and more aware of their surroundings

1
1

Trends and markets
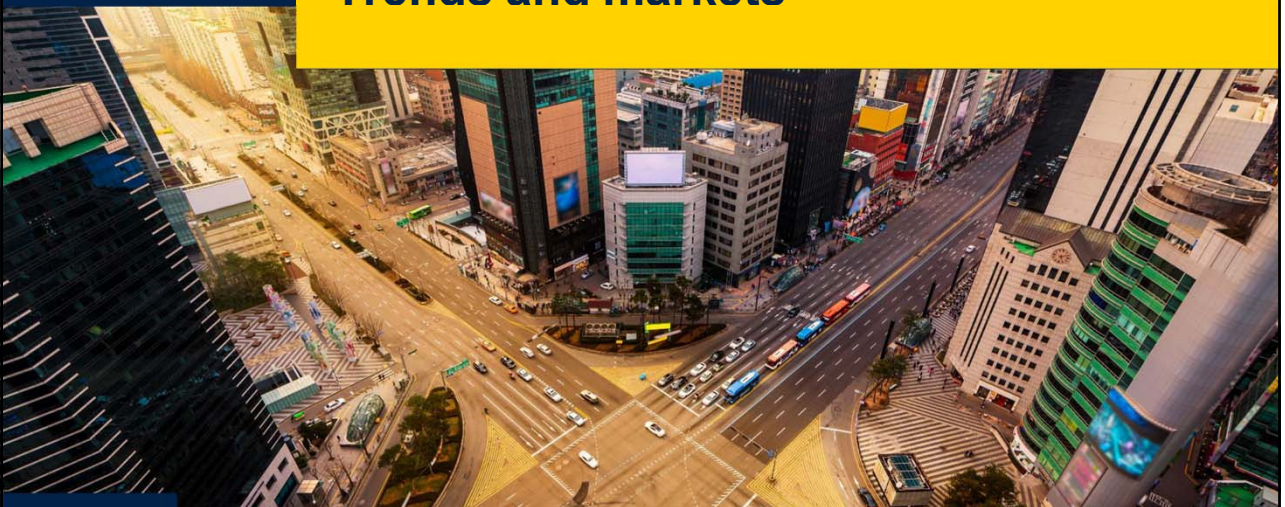
Our strategy stems from key long-term enablers

Smart Mobility	Power & Energy	Internet of Things & Connectivity
Helping car manufacturers make driving safer, greener, and more connected for everyone	Enabling industries to increase energy efficiency everywhere and the use of renewable energy	Supporting the proliferation of smart, connected IoT devices with products, solutions & ecosystems

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Smart mobility

ST provides innovative solutions to help our customers make driving safer, greener and more connected for everyone

Increase safety for road users & driver comfort and convenience.	Road crashes carry a high human toll and cost **$500B+** every year
Affordable, desirable electric vehicles	Electric vehicles sales* from ~10 million in 2021 to **~30 million** in 2025
Cleaner, greener Internal Combustion Engines (ICE)	ICEs in over **80%** of new vehicles produced 2021-2025

Sources: www.asirt.org, Strategy Analytics
* Excluding Mild Hybrid EV

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Power & energy

ST technology and solutions enable customers to increase energy efficiency everywhere & support the use of renewable energy sources

Rising demand for and usage of electrical energy

Over **30**% global electricity demand increase from 2020 to 2030

Decrease carbon emissions to reduce global warming impact

45% CO_2 emission reduction from 2010 to 2030 to limit warming to 1.5°C

Increase use of renewable energy

Electrical energy from renewal sources from **~10%** in 2020 to **~20%** in 2030

Sources: IEA, IPCC, BP

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Internet of things & Connectivity

ST provides sensors, embedded processing, connectivity, security and power management, as well tools and ecosystems

Cloud connected and data-enabled services

More than **20 Billion** IoT connected devices per year by 2025

Digital security for all data

IoT security services market over **$12 billion** by 2025

Cellular accelerating the connection of objects to the IoT

Four billion cellular IoT connections by 2025

Source: ABI, Ericsson, GSMA   13

Our strategy

We address four end markets

| Automotive | Industrial | Personal electronics | Communications equipment, computers & peripherals |

Our strategic objectives

Automotive	Industrial	Personal electronics	Communications Equipment, Computers & Peripherals
Lead in **car electrification**	Lead in **embedded processing**	Lead in **selected** high-volume **smartphone** applications with differentiated products or custom solutions	Address **selected** high-volume **applications** with differentiated products or custom solutions
Lead in **car digitalization**	Lead in **Power & Energy Management**	Leverage **broad portfolio** to address high-volume applications	Leverage **broad portfolio** to address high-volume applications
	Lead in **Sensors**		
	Accelerate in **Analog**		

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Products and technologies

10

Our products and solutions enable customer innovation

Dedicated Automotive ICs	Analog, Industrial & Power Conversion ICs	GP MCU & MPU, Secure MCUs, EEPROM

Discrete & Power Transistors	MEMS & Optical sensing solutions	ASICs based on ST proprietary technologies
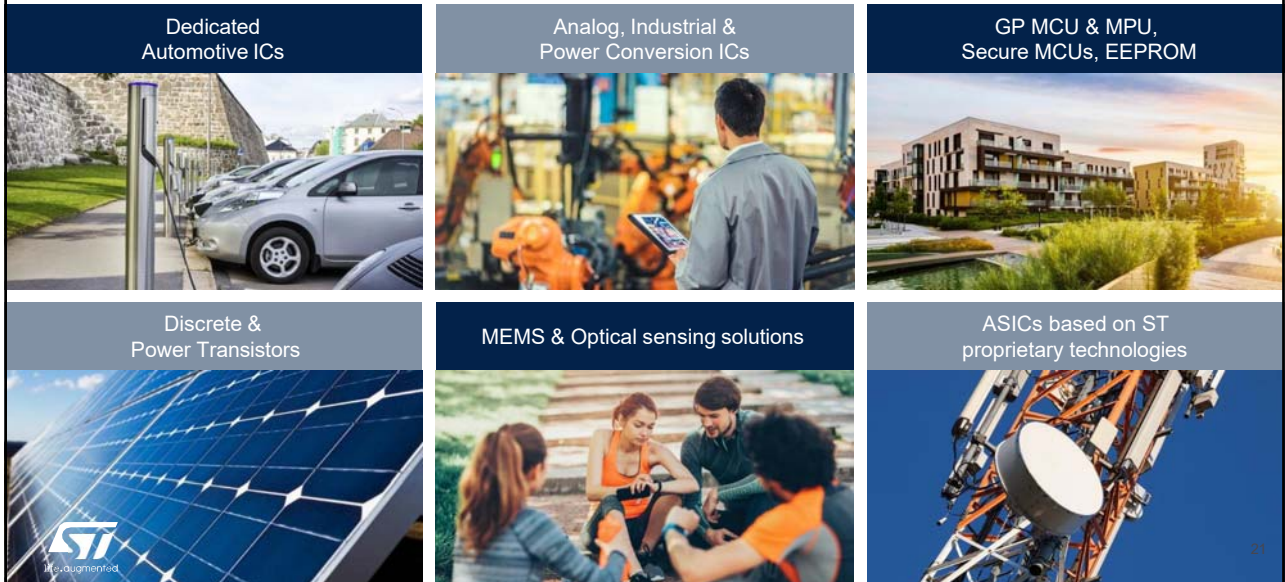
ST product portfolio enabling strategic trends

Dedicated Automotive ICs	Discrete & Power Transistors	Analog, Industrial & Power Conversion ICs	GP, Connected MCU, MPU Secure MCU, EEPROM	MEMS & Optical sensing solutions	ASICs based on ST proprietary technologies
SPC5	STPOWER	STSPIN	STM32	iNEMO	RF-SOI
Stellar	SIC	VIPerPlus	STSECURE	Flight Sense	FD-SOI
ADAS	IGBT		ST25		Bi-CMOS

Smart Mobility   **Power & Energy**   **Internet of Things & Connectivity**

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Manufacturing and R&D

We offer quality, flexibility, and supply security

Sweden
Norrköping

France
Crolles
Rousset
Tours
Rennes

Italy
Agrate
Catania
Marcianise
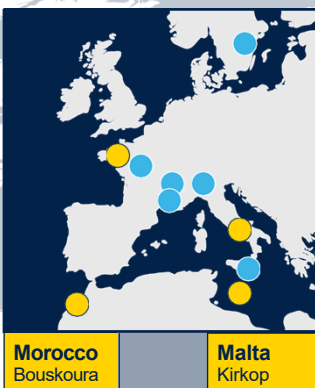
Morocco
Bouskoura

Malta
Kirkop

China
Shenzhen

Philippines
Calamba

Malaysia
Muar

Singapore

Front-End (Wafer fabrication)
Back-End (Assembly & Test)

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We are drivers of your innovation

Advanced R&D centers around the world for close collaboration with operations, customers, and partners

9,000+ people working in R&D and product design

~12% of revenues invested in R&D in 2022

~200 active R&D partnerships

~**19,500** active and pending patents
~**600** new filings in 2022

Open innovation with startups in **15** Proof of Concept centers
70 startups engaged in our programs in 2022

25

Recognized as a top global innovator

STMicroelectronics recognized as Top 100 Global Innovator 2022

STMicroelectronics recognized as one of the Top 100 Global Innovators 2023 by Clarivate

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Our commitment to quality

Quality is embedded in our culture

Our quality culture is driven by a commitment to continuously improve, a prevention mindset & our STRIVE for Excellence values

S trength
T eamwork
R esilience
I nnovation
V alue
E xpertise

★ STRIVE
FOR EXCELLENCE
Find out more at www.st.com/quality

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Quality is a key business enabler for ST

Our quality vision	Our quality mission
Elevate ST quality to the highest levels, positioning it as a valuable asset for our customers	Ensure ST products meet the highest quality and reliability requirements of customers in the markets we address

Our quality strategy

★STRIVE
FOR EXCELLENCE

- Deploy a mindset and culture of quality
- Focus on quality performance at our customers
- Innovate for advanced quality and reliability
- Drive structured result-driven improvement programs

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Our people

Our technology starts with our people

Americas ~800
Others ~1,100
Mediterranean ~5,600
Asia ~20,000
Italy ~12,000
France ~12,000
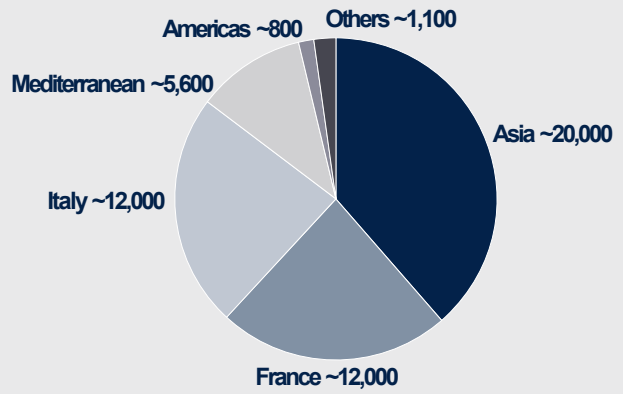
Manufacturing	~ 65.5%
Research & Development	~ 17.5%
Marketing & Sales, Divisional Functions, Administration & General services	~ 17%

As of December 31, 2022   41

Sustainability

Sustainability has been engraved in our business model and culture for 30 years

1987	**Creation of ST.** Business **conduct & ethics policy**
1993	First **environmental policy**
1995	First **environmental decalogue**
1997	First **environmental report**, ISO 14001, EMAS
2000	Signatory of the **UNGC 10** principles
2001	Creation of **ST Foundation**
2002	Establishment of a **reforestation** program
2007	**Conflict Minerals** program
2011	**Sustainable Technology** program
2012	**ISO 50001** energy management
2014	5th **Environment, Health & Safety Decalogue**
2016	ISO 22301 **Business Continuity** 1st certification
2019	**2025 CO$_2$ goal achieved**
2020	Commitment to be **Carbon Neutral by 2027***
2021	New **Sustainability Charter** published
2023	**26th annual Sustainability report**

*on scope 1 & 2 and partially scope 3

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Our approach to sustainability

Sustainable technology	Sustainable way		Sustainable company
We create technology for a sustainable world	**We prioritize people**	**We protect the planet**	**We generate long-term value for all stakeholders**
• Designing responsible products and technologies	• Ensuring people health, safety, & well-being	• Committing to carbon neutrality*	• Embedding risk management
• Managing the lifecycle of our products in sustainable way	• Role model in labor & human rights	• Leading environmental management system	• Monitoring and developing the extended supply chain
• Responsible minerals sourcing	• Fostering diversity & inclusion	• Reducing water usage & addressing local scarcity risks	• Promoting STEM in all our eco-systems
• Eco-design devices - power-efficient & low-carbon	• Offering great employee experience	• Reducing waste & promoting a circular economy	• Monitoring & transparently reporting our progress

*on scope 1 & 2 and partially scope 3

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We will be carbon neutral by our 40th anniversary

Milestones

- Compliance with the 1.5°C scenario by 2025 – recognized by SBTi
- Carbon neutral on scope 1 & 2 and partially scope 3 by 2027
- Sourcing 100% renewable energy by 2027

- Collaborative programs and partnerships for carbon neutrality throughout our ecosystems

In 2022
- 62% renewable energy
- 45 projects saving an additional 24GWh of energy

Net CO_2 emissions

Renewable Energy

CO_2 offset

100%

0%

2018   2027

47
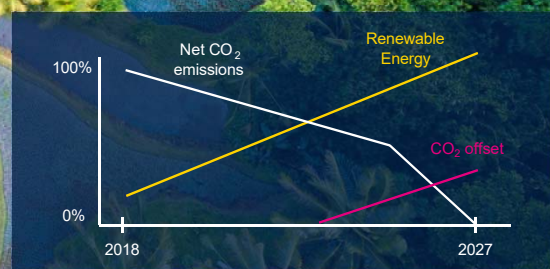
Our technology starts with You

Find out more at www.st.com

life.augmented