



Differentiate. Innovate.

**The IP creator for novel
materials**

Corporate presentation. September 2023

XLON: HEIQ

**SWISS
TECH
INSIDE**



HeiQ was born on a hike



[' haɪkju]

Hike

High Quality Materials

IQ Intelligent Materials

After a week of hiking in the Swiss Alps, our companions began to distance themselves from us because our T-shirts were really smelly.

So, we thought: “ We will use science to help brands manufacture clothes that smell fresh all week long!”



Carlo Centonze
Co-founder & CEO



Dr. Murray Height
Co-founder & Chief Innovation Officer





Differentiate. Innovate.

OUR DRIVING FORCE IS:

To make every-day products more sustainable whilst delivering superior levels of hygiene, comfort or protection

HeiQ is a publicly listed company on the London Stock Exchange Main Market
XLON : HeiQ





HeiQ at a glance



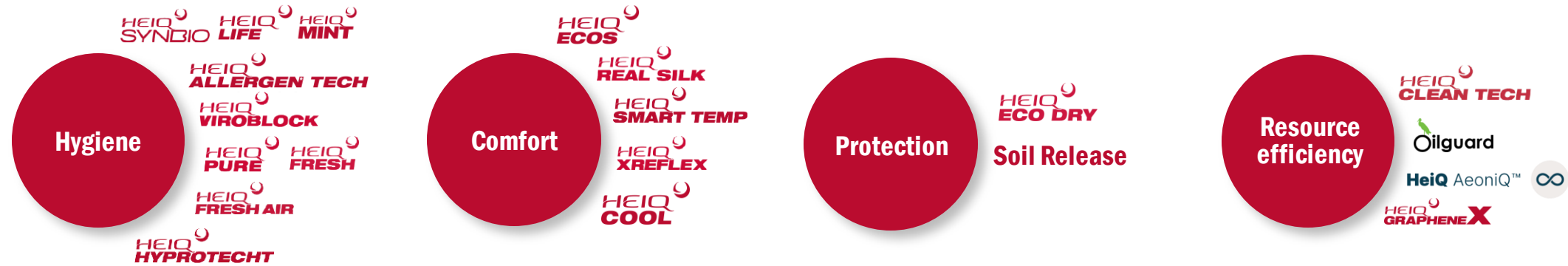
GLOBAL & DIVERSE

CAPABLE & AWARDED

BRANDED & TRUSTED



HeiQ's 4x4 offering: 4 functions in 4 forms



Pioneering Sustainable materials

We aim at making all materials a better product and to multiply our impact by delivering better sustainability & ESG downstream along the value chain.



OEKO-TEX
suited products

Swiss
Environmental
Award



IKEA Democratic
Design Award



Client-led, lean innovation model for rapid-deep co-creation



.01

By applying a client-led R-D-M innovation methodology

Innovation from lab to consumer

.02

By informing ourselves through 7 IP technology platforms

.03

Leveraging our boundless research network of universities, innovation advisory board & PhD's

.04

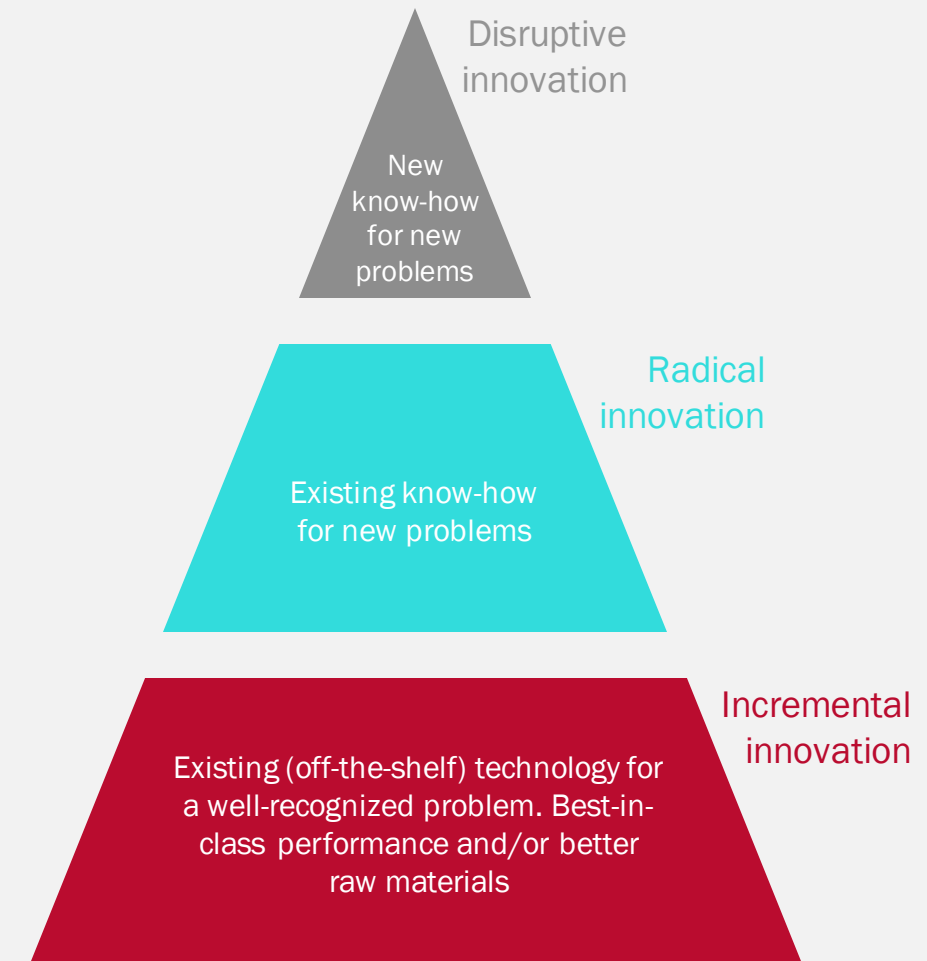
With a +50 strong internal R&D team around the globe in 8 hubs assembling and **rapidly deploying new products**

.05

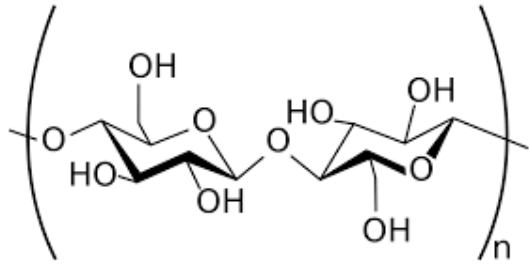
Financed with research leverage through multi-country government grants for R&D

.06

With consumer validation & value capturing ingredient branding

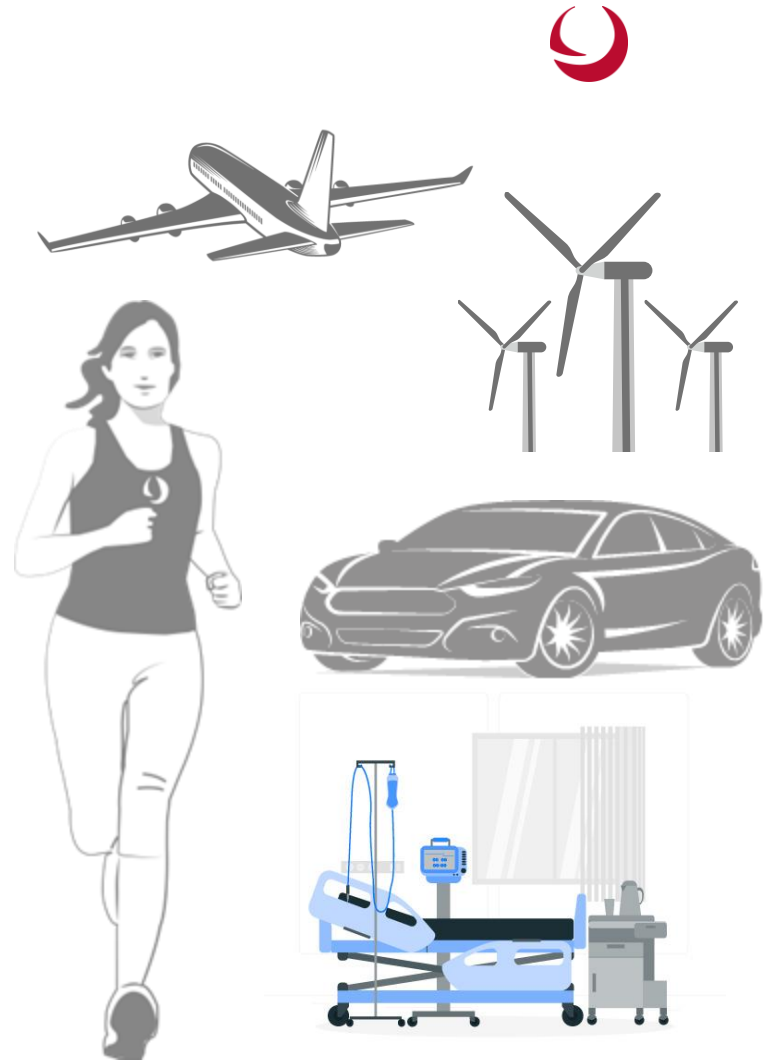
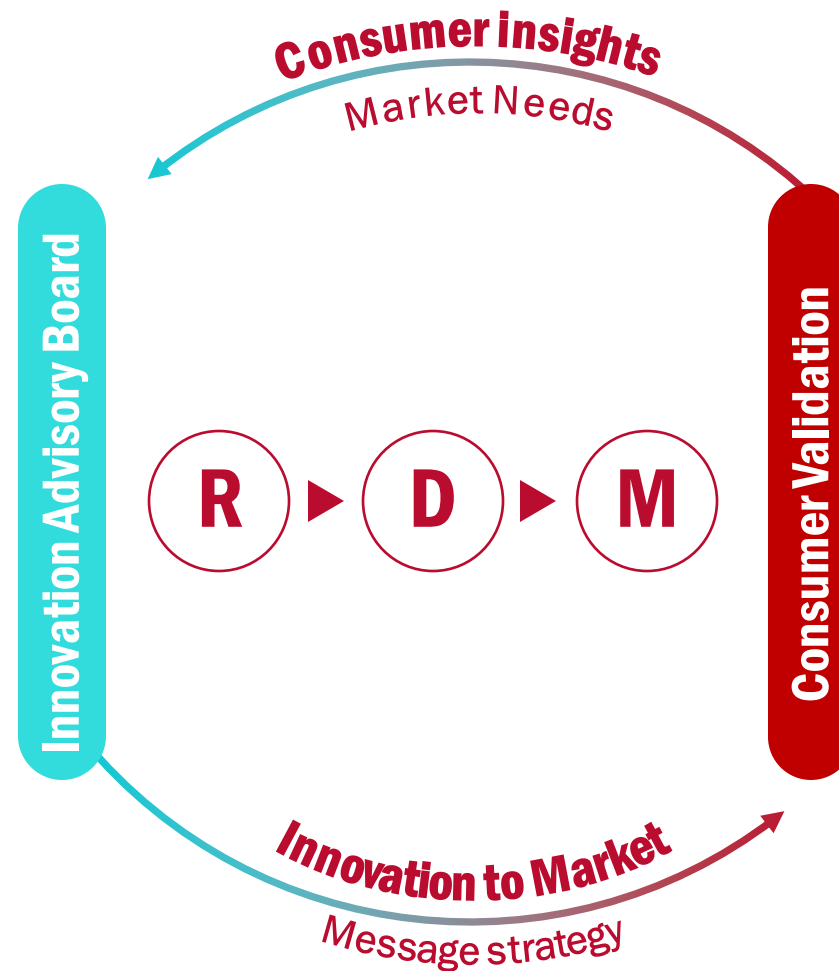


HeiQ's proven R D M innovation methodology



Scientific world

Raw material for ideas



Market & Megatrends

Raw material for needs

Research (R) - Development (D) – Marketing (M)

HeiQ's Innovation Advisory Board



Prof. Dr. Uwe Pieleles
(Chairman)

University of applied Sciences & Arts (FHNW), Switzerland

Material Sciences and Bionanotechnology



Prof. Dr. Martin Loessner

ETH Zürich
Switzerland

Microbiology & food sciences



Prof. Dr. Clemens Holzer
Eng. Dr. Mont.

Montan University
Austria

Polymer science & processing



Prof. Dr. Andreas Widmer

University Hospital
Basel

Immunology and Infectious Diseases



Prof. Dr. Hyung Gyu Park

POSTECH South
Korea

Nanotechnology & process engineering



Prof. Dr. Thierry Pelet

HMCARE
Switzerland

Molecular biology & virology



Dr. Wey Yang Teoh

Malaya University
Malaysia

Nanotechnology & Photocatalysis



Prof. Dr. Hans Marcus Textor

ETH Zürich
Switzerland

Surfaces and Interfaces of biomaterials



Dr. Frank Hermanutz

Senior researcher, German
Institutes of Textile and Fiber
Research Denkendorf
Germany

Biopolymers & wet-spinning



**Prof. Dr. med. Hendrik
Tevaearai**

EMBA HSG
Switzerland

Cardiology & medical sciences



Dr. Jochen Kenndorf

CEO of Dr. Kenndorf GmbH &
Co. KG, Germany

High performance wound care products



**Assoc. Prof. Dr.
Alessandra Sutti**

Deakin University
Australia

Biomaterials & Materials Science



Dr. Paul Collins

Cycling
Australia

Engineering & sports physiology



Dr. Nico Bruns

Univ. of Strathclyde
Glasgow, UK

Macromolecular Chemistry



Dr. Irene Preis

General & occupational
medicine, Germany

Allergology & Environmental Medicine



**Prof. Dr.
Andreas Meyerhans**

Pompeu Fabra
University Barcelona

Infections with non-cytopathic viruses



Dr. Werner Kunz

University of Regensburg,
Germany

Physical and Theoretical Chemistry

HeiQ's boundless Research network

30+ partnership with subject matter expert universities and institutes around the world

15+ committed Innovation Advisory Board members

40+ engaged PhD's and Bachelors on HeiQ projects

Leverage by multimillion government grants each year in 7 countries

Fast, cheap proof of concept of Radical & Disruptive Ideas!



University of Applied Sciences and Arts
Northwestern Switzerland





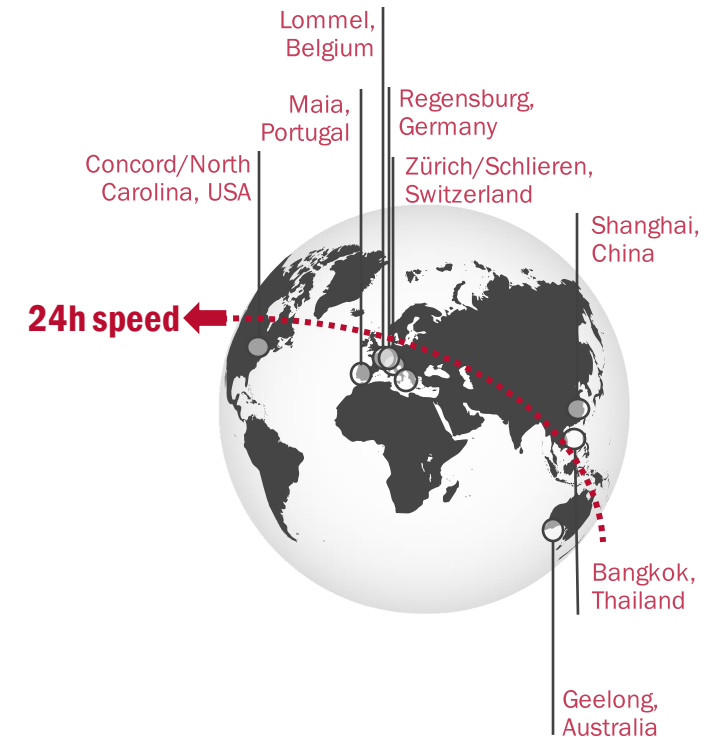
HeiQ's 8 development hubs for rapid innovation

- ◆ **20+ PhD's** in HeiQ's global **60+ FTE around-all-time-zones** innovation team
- ◆ **8 specialized lab facilities** for product development, application & testing services
- ◆ **Top-of-the-line capabilities** for analytic, testing & innovation services

DEDICATED TEAM OF SCIENTISTS OFFERING

 Product development  Analytics  Customized solutions  Testing services

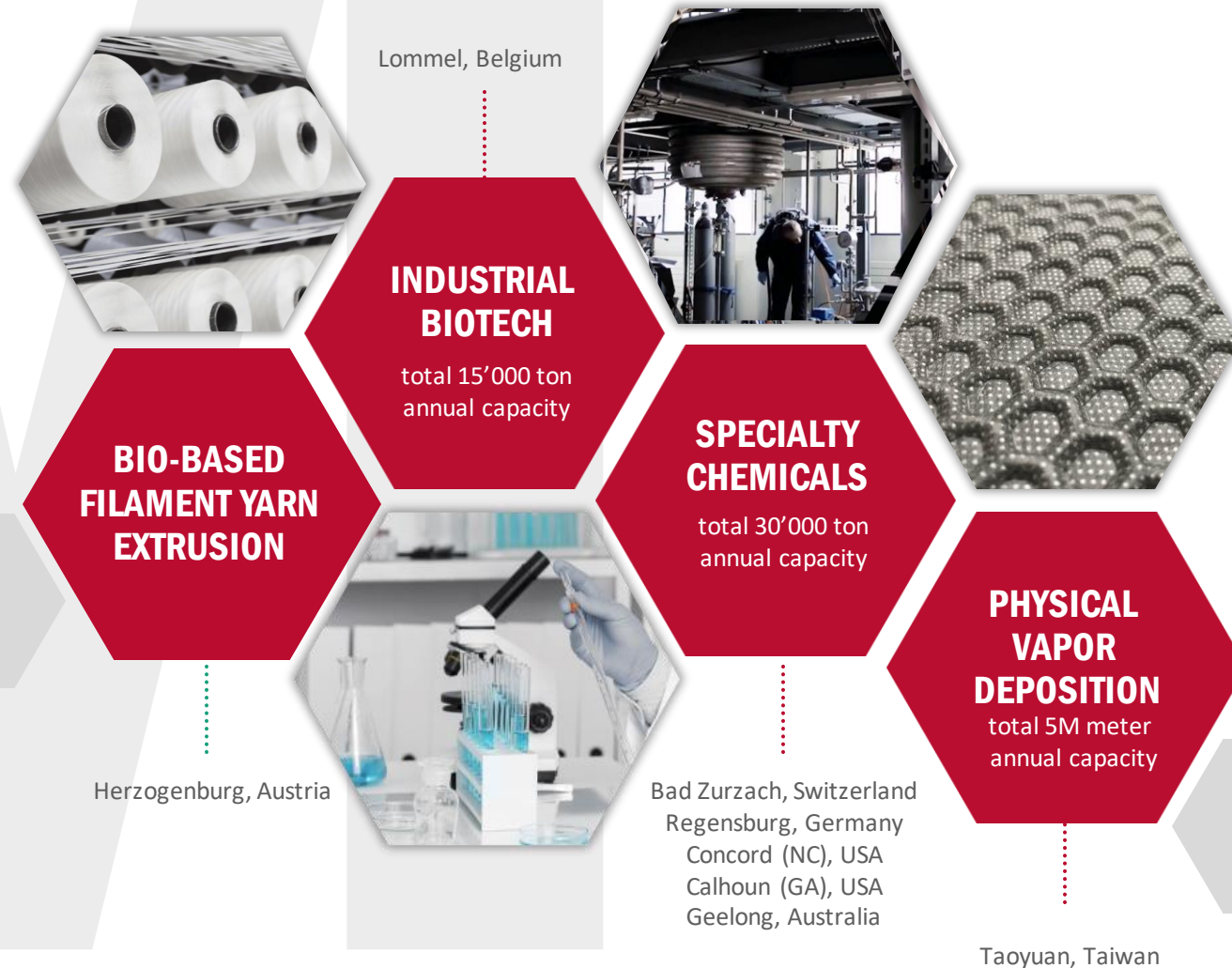
TECHNOLOGICAL CAPABILITIES





Lean manufacturing capability for speed to market

Expertise in scale-up of unique materials, manufacturing process from lab through industrial scale production.

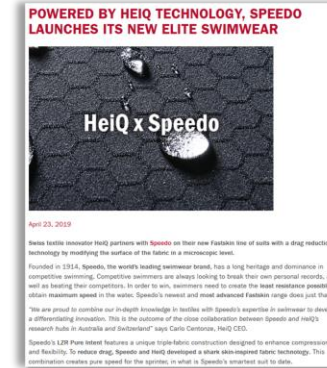




«Swiss Tech Inside» strong ingredient brand

Marketing support as a key factor for speed to market

- HeiQ launches technologies together with a marketing package, capturing added value at the point-of-sale
 - Mode-of-action graphics
 - Videos
 - Tested and legally vetted marketing claims
- Ingredient branding by trademark licensing
- Strong portfolio of 200+ distinctive trademarks

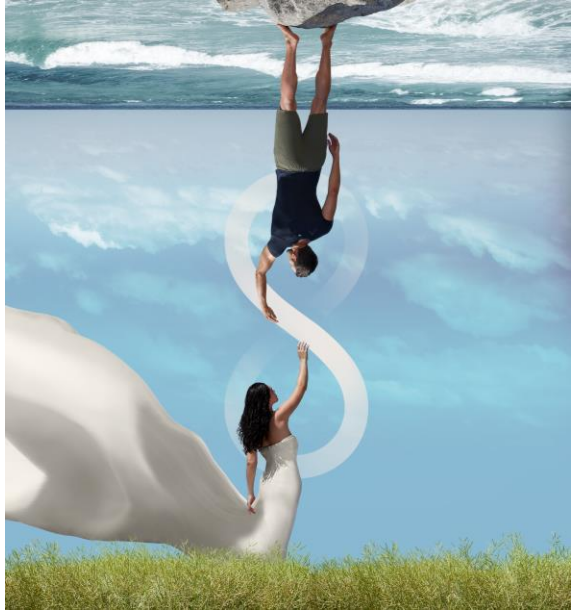


- Trademark license
- Hangtag
- Tech explanation Graphic
- Claims validation
- Benefit video
- Sewn label



- Joint press release
- Online / offline events
- Claims guidance
- Graphic design support
- Technology video
- Social media Campaign
- HeiQ owned media





Progress update – HeiQ AeoniQ™

Textile game-changer to replace polyester & nylon fibers

TECHNOLOGY HIGHLIGHT

- World's first climate-positive circular & biodegradable cellulosic filament yarn
- Made from cellulosic agri-waste, bio-tech or circular cellulose biopolymers that decarbonize the atmosphere
- For every ton of Polyester substituted by HeiQ AeoniQ up to 5 tons of CO₂ are reduced (carbon credits)
- Market potential: Global polyester & nylon annual production: 80 million metric tons, \$135B market, CAGR >5%,
- Potential tech licensing & franchise to accelerate market adoption.



HUGO BOSS



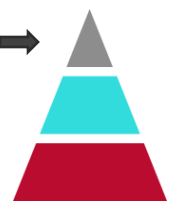
PROGRESS TO DATE

- USD 5m Investment by HUGO BOSS (implied valuation US\$200m) + 7-digit milestone payments
- USD 2.5m Investment by MAS/ USD 100m offtake
- Pilot commercialization plant operational
- Due diligence with multiple Fortune 500 brands
- Exclusive distributorship with The LYCRA Company
- Renewcell® Circulose® feedstock
- Selection in the ISPO Textrends Awards
- HUGO BOSS garment performance capsule collections launched Jan/Jun/Sep 23

NEXT MILESTONES

- In negotiation
 - Equity investment and development partnership with Mills & Brands
 - Economic aid from the Ministry of Economy of EU countries
- Gigafactory with 30'000 tons annual capacity to be completed by 2025

Disruptive innovation →

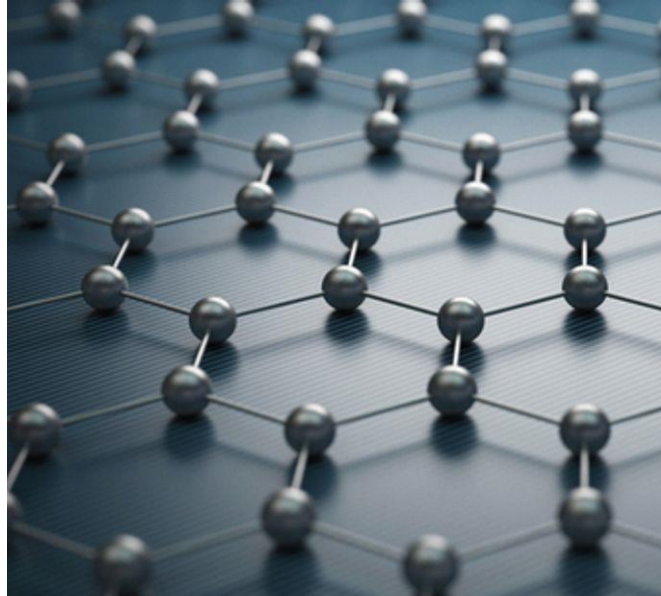


Progress update – HeiQ GrapheneX™

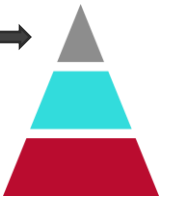
Highly porous graphene membrane for batteries
& electronics

TECHNOLOGY HIGHLIGHT

- Proprietary technology platform to directly synthesize porous graphene films
- Atomically-thin, extra strong, flexible, stretchable, resistant, fully permeable and conductive material
- Distinctive properties, enhanced performance across a wide range of applications
- Highly scalable and cost-effective process.
- Resolve the technical challenges for numerous industries:
- Electronics vents
 - Electrodes for next-generation lithium batteries
 - Total market of all applicable sectors: US\$150bn, CAGR >25%



Disruptive
innovation →



HEIQ
GRAPHENE^X

PROGRESS TO DATE

- **Sourcing completed for pilot commercialization plant** systems to execute process scale-up
- **Successful prototypes** demonstrating performance benefits enabled by HeiQ GrapheneX materials for initial target solid state battery & electronic vent applications.
- **Battery pilot proof of concept achieved with excellence**
- **Fourth Patent Application filed.**

NEXT MILESTONES

- **Pilot plant on-track to be commissioned by end 2023.**
- JDA with battery & electronic vent leader
- Strategic research collaboration to further develop porous graphene materials as electrodes in next-generation lithium metal batteries, including next round of advanced prototypes.



Progress update – HeiQ Synbio

Synbiotic technology as solution for multi-resistant bacteria & hospital-acquired infections

TECHNOLOGY HIGHLIGHT

SYNBIOTIC CLEANING USP

- Backed by a study published by Charite Hospital Berlin to be more effective than conventional disinfectant and cleaning procedures
 - Reduces antimicrobial resistance by up to 99.9%
 - Reduces hospital surface pathogens by up to 90% more than disinfectants
 - Reduces costs associated with hospital acquired infection by up to 75%
 - Reduces days of treatment with antibiotics by up to 86%

MARKET POTENTIAL

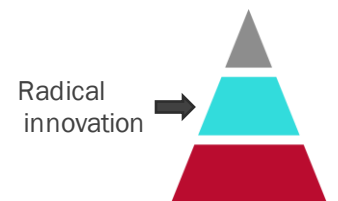
- Hospital and household cleaners market size total: US\$55b, CAGR 5.2%

PROGRESS TO DATE

- Breakthrough publication by Europe's leading University Hospital (Charité Berlin)
- Announced imminent **major shift on EU detergent legislation** in favour of including probiotic cleaning in cleaning protocols
- Extended the number of recurring buying Hospitals in BENELUX
- On-boarded a market leading Facility Management Company as launch partner for several products
- Sales volumes through private label customer Greenspeed accelerating nicely

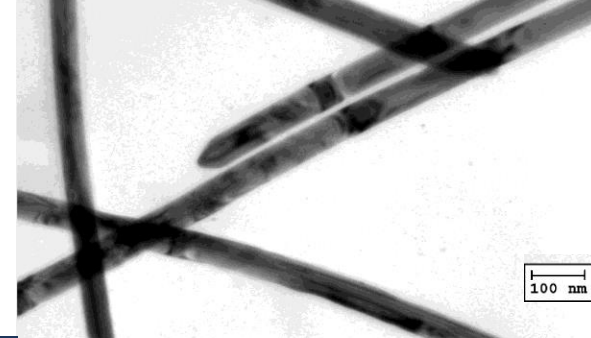
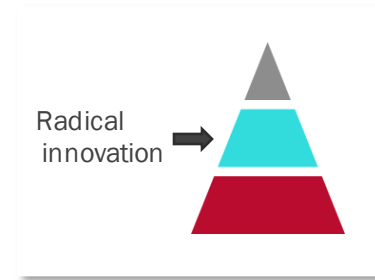
NEXT MILESTONES

- First medical device **synbiotic skincare against acne**
- Synbio wound-care project in partnership with pharmaceutical company
- Worldwide exclusive distribution right for synbiotic ingredients in negotiation with leading specialty ingredient supplier
- Negotiating with a market leading supplier for a JV for the cosmetic industry
- Global distribution of HeiQ Synbio Clean Pro (international buying platforms)
- Investment in plant with higher capacity & cosmetic ISO



Technology launch – HeiQ ECOS®

Silver Nanowire technology for lowE Coatings



TECHNOLOGY HIGHLIGHT

- Silver nanowires with diameter 30-40 nm.
- Invisible, transparent, conductive, heat-reflecting
- APPLICATIONS:
 - Transparent heating (e.g., rear windshield of cars,
 - Radar & infrared shielding (e.g., for camouflage nets, drones)
 - Transparent heat reflection (e.g. greenhouses, single glazed windows).

OPPORTUNITIES:

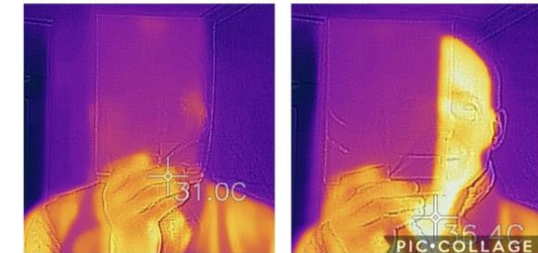
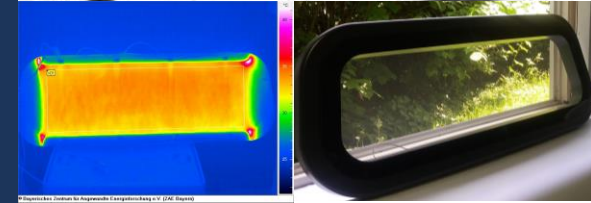
- Rapidly rising energy prices (heat reflection for saving energy)
- Increased defence need and investments by countries

PROGRESS TO DATE

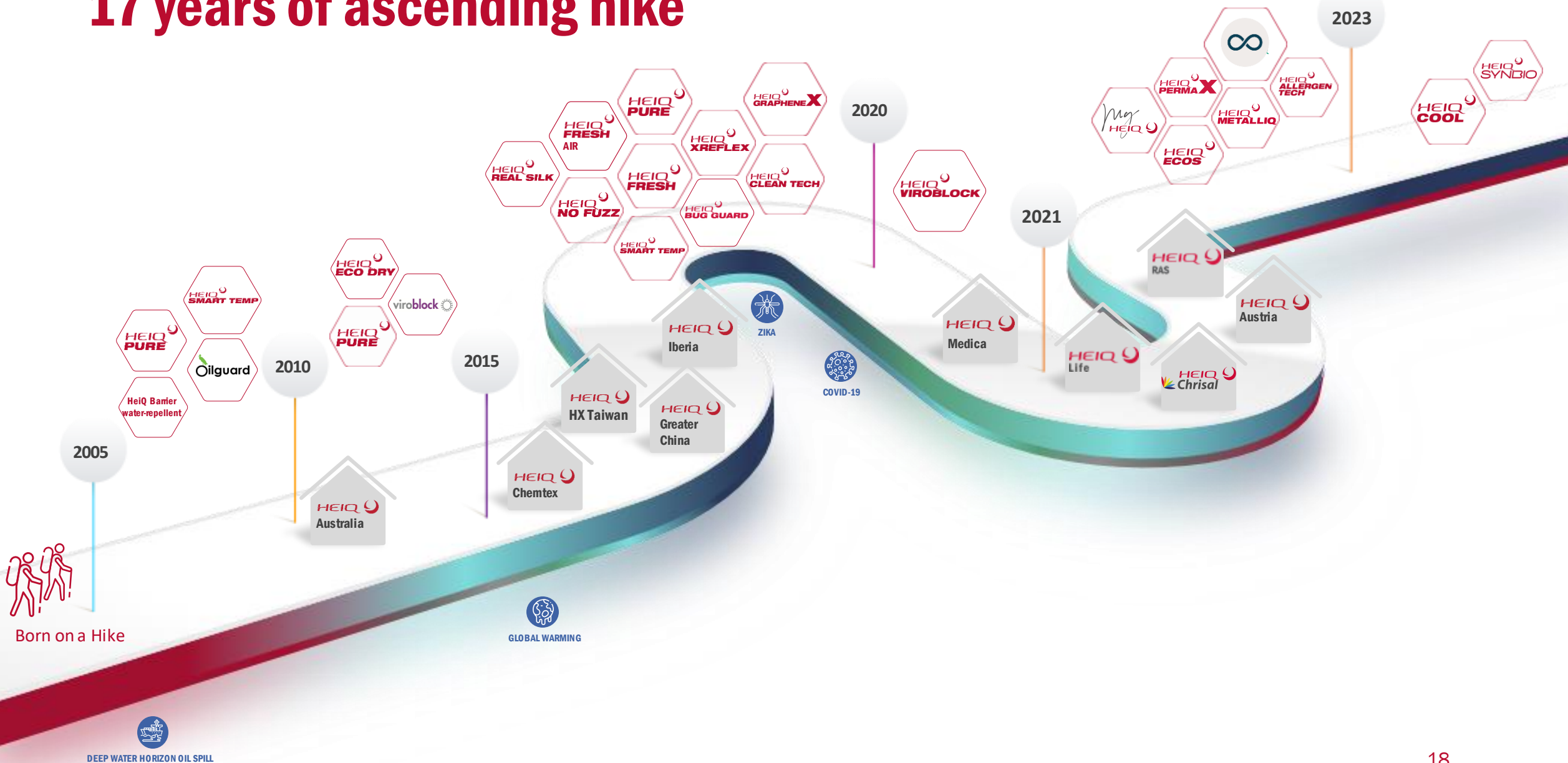
- First products launched to market:
 - HeiQ ECOS HC
 - HeiQ ECOS SURFLINK
- Product performance verified in lab & in real-life use
- Pilot commercialization plant commissioned in Q2
- Successful completion of confidential defence application

NEXT MILESTONES

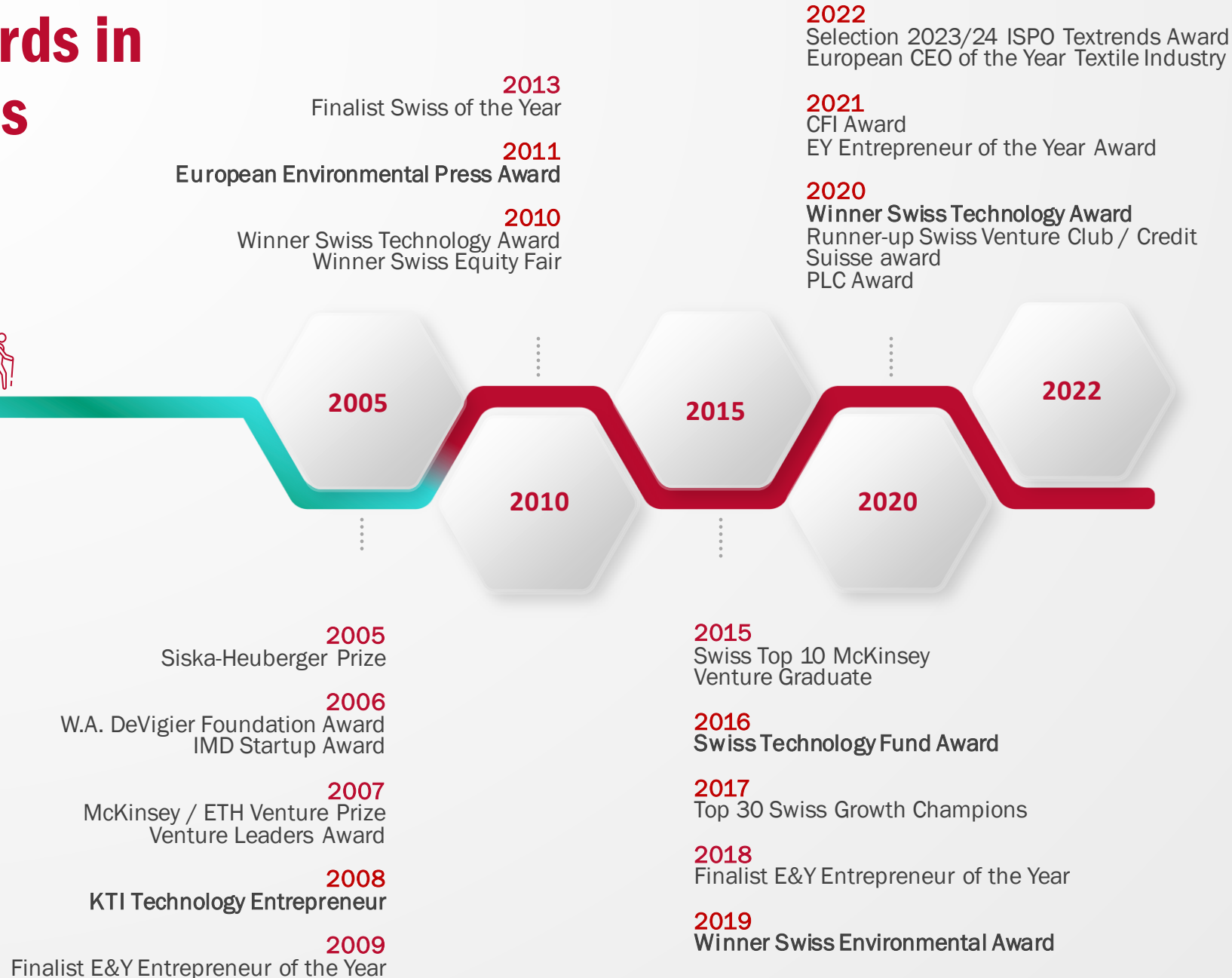
- **Search for a partner among leading European building materials companies for thin, transparent window insulation retrofitting**
- Win a recurring project with manufacturers of military equipment, vehicles and aircraft (IR & Radar shielding)
- Win a project with leading camouflage textile maker to bring the ECOS technology to millions of square meters of camouflage fabric



17 years of ascending hike



22 awards in 17 years



HeiQ global footprint today



Switzerland (Operational Headquarters)

Schlieren
(R&D & Testing & Sales)
& Zurzach (Production)

HeiQ plc UK

London
Listed holding company (LSE: HEIQ)

HeiQ ChemTex (USA)

Concord, NC & Calhoun,
GA (R&D & Production & Sales)

HeiQ Life (Brazil)

Sao Paulo
(Sales)

HeiQ Chrisal (Belgium)

Probiotic and synbiotics, Lommel
(R&D & Production & Sales)

HeiQ GrapheneX (Switzerland)

Schlieren
(R&D & Production & Sales)

HeiQ Medica (Spain)

Medical Device, Málaga
(R&D & Production & Sales)

HeiQ Iberia (Portugal)

Maia - Portugal
(R&D & Sales)

HeiQ RAS (Germany)

HeiQ Regulatory GmbH
Regensburg
(R&D & Production & Sales)

HeiQ AeonIQ (Austria)

Herzogenburg

HeiQ Greater China

Shanghai (Testing & Sales)
Taiwan (Production & Sales)
Hong Kong (Logistics)

HeiQ Japan

Tokyo (Sales)

HX Taiwan

Taoyuan
(Production & Sales)

HeiQ Life (Hong Kong)





Hong Kong
(Administration)

HeiQ Life (Thailand)

Bangkok
(R&D, Sales)

HeiQ Australia

Geelong
(R&D & Production)

-  Offices, Labs & Production Sites
-  HeiQ sales representatives
-  HeiQ distribution partners
-  HeiQ FTZ warehouses

HeiQ's Leadership



Carlo Centonze
Co-founder
& Group Chief
Executive Officer



Dr. Murray Height
Co-founder,
Group Chief
Innovation Officer
& CEO of HeiQ Pty.
Ltd. (AUS)



Xaver Hangartner
Group Chief
Financial Officer



Hoi Kwan Lam
Group Chief
Differentiation
Officer &
EVP Consumer
Validation



Nico Schweizer
Group Chief
Services Officer



Mike Abbott
EVP BU Textiles &
Flooring
CEO of HeiQ
ChemTex NC (USA)



Robin Temmerman
EVP
BU Lifesciences
CEO of HeiQ
Chrisal (BE)



Tom E. S. Ellefsen
EVP BU
Antimicrobials
CEO of HeiQ Life (TH)



Dr. Mike Mordente
EVP BU Textiles



Dr. Oliver Zech
EVP Innovation
Service
Chairman & CEO
of HeiQ RAS (D)



Robert Liu
General Manager
HeiQ Greater China



Raquel Vaz Vieira
CEO
HeiQ Iberia (PT)



Pedro Herranz
CEO
HeiQ BacCell (ES)



Ming Liang
CEO
HeiQ Taiwan



Kate Maiava
CEO
HX Taiwan

Board of Directors



Esther Dale-Kolb
Chairwoman



Carlo Centonze
Executive
Director



Xaver Hangartner
Executive
Director



Karen Brade
Non-executive
Director



Benjamin Bergo
Non-executive
Director

Differentiate. Innovate.



UK

London
HeiQ plc
Ultimate parent

Switzerland

Schlieren (Zurich)
HeiQ Materials AG
*Operational headquarters
R&D/Testing/Production*

Australia

Geelong
HeiQ PTY
R&D/Production

Austria

Herzogenburg
HeiQ AeoniQ GmbH
R&D/Sales

Belgium

Lommel
HeiQ Chrisal NV
R&D/Production

Germany

Regensburg
HeiQ RAS AG
R&D/Sales

Greater China

Shanghai
HeiQ Materials
Company Limited
Warehouse/Testing/Sales

Japan

Tokyo
Sales

Portugal

Moreira da Maia
HeiQ Iberia
Unipessoal Lda
R&D/Sales

Spain

Pizarra (Málaga)
HeiQ Medica SL
R&D/Production/Sales

Thailand

Bangkok
HeiQ Life
R&D/Production/Sales

USA

Concord & Calhoun
HeiQ ChemTex Inc.
R&D/Production/Sales

Brazil

Sao Paulo
HeiQ Life
Sales

Taoyuan City/Taiwan
HeiQ Company Ltd /
HX Company Ltd
Sales/Production

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