

Deep Dive Boston and Copenhagen

Comparison of technological performance of Boston and Copenhagen



Comparison of Boston and Copenhagen: Content

- List of Gamechanger fields and technologies
- Technology profiles
- Development of gamechanger technologies
- Development of gamechanger fields
- Top patent holder
- Research connections between Boston and Copenhagen

List of Gamechanger fields and technologies

Industry



- Additive Manufacturing
- Machine-to-Machine Communication
- Machine Vision
- Digital Twin
- Photonics
- Robotics
- Chip Manufacturing
- Smart Factory & Predictive Maintenance
- EUV Photolithography

Digitization



- Big Data
- Blockchain
- Cloud Technology
- Cyber Security
- Neural Networks & Deep Learning
- Internet of Things
- Encryption Technologies
- 3D Image Modelling
- Graphic Processor Technology (GPU)
- AI in Fintech
- Generative AI
- Quantum Computing

Health



- Small Molecules
- Biomedical Imaging & Analysis
- Bio- and Medtech sensors
- Computer Aided Surgery
- AI in Drug Discovery
- Antibiotics
- Antibody Drug Conjugate
- Gold Biotech
- Gene Therapy
- Red Biotech
- Messenger RNA
- Microbiome
- Patient Data
- Vaccines
- Biomarker
- Bioprinting
- CAR-T
- Genome Editing/CRISPR
- Immunotherapy
- Precision Medicine
- Reprogramming Stem Cells

Energy



- Fuel Cell
- Bipolar Batteries
- Lithium Batteries
- Silicon Photovoltaic
- Wind Energy
- Nuclear Fusion Reactors
- Organic/Tandem/Perovskite PhotoVoltaic
- Sodium Salt Battery
- Solid State Battery
- Hydrogen Electrolyzer
- Green-Blue Hydrogen Production

Mobility



- Road Traffic Interaction
- Connected Cars
- Autonomous Driving
- Electric Road Vehicles (BEV)
- Lidar, Radar, Sonar
- Flying Drone
- Maglev & Hyperloop
- Active Traffic Control
- Vertical Take-Off and Landing (VTOL)
- Cosmonautics
- Satellite Technologies
- Electrical, Solar, Fuel Cell Aircraft

Materials



- Advanced Coatings
- Superconductor
- Advanced Materials
- Biopolymers
- Graphene
- Metamaterials
- Nanomaterials
- Carbon Nanotubes

Infrastructure



- 3D Printed & Robotic Automated Building
- Smart Grid & Smart Meter
- High Voltage Direct Current Superhighway
- 5G
- Smart City
- Smart Home

Agriculture & Nutrition



- Meat Analogue
- Green Biotech
- Digital Agriculture / Precision Farming
- Water Purification / Treatment
- Functional Food / Nutraceuticals
- Plant Protein Processing
- Vertical Farming

Environment



- Sustainable Packaging
- Battery & Fuel Cell Recycling
- Carbon Capture

Human-Machine-Interaction

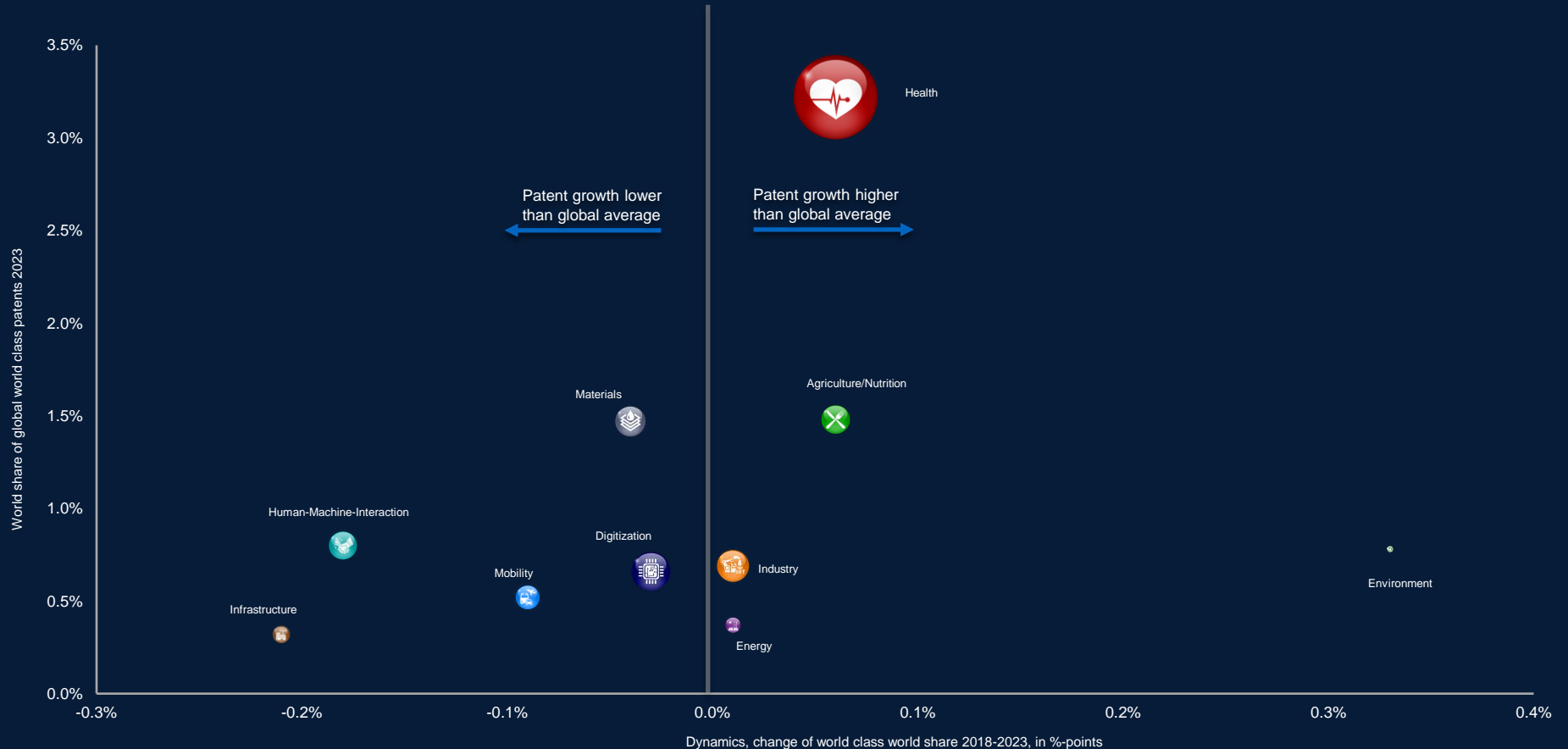


- Human Signal Recognition
- Biometry
- Emotion Recognition
- Brain Interaction
- Eye Tracking
- Human Behavior Recognition
- Avatar
- Face Recognition
- Speech Recognition
- Gesture Recognition
- VR & AR, XR, Metaverse

Tech profile Boston

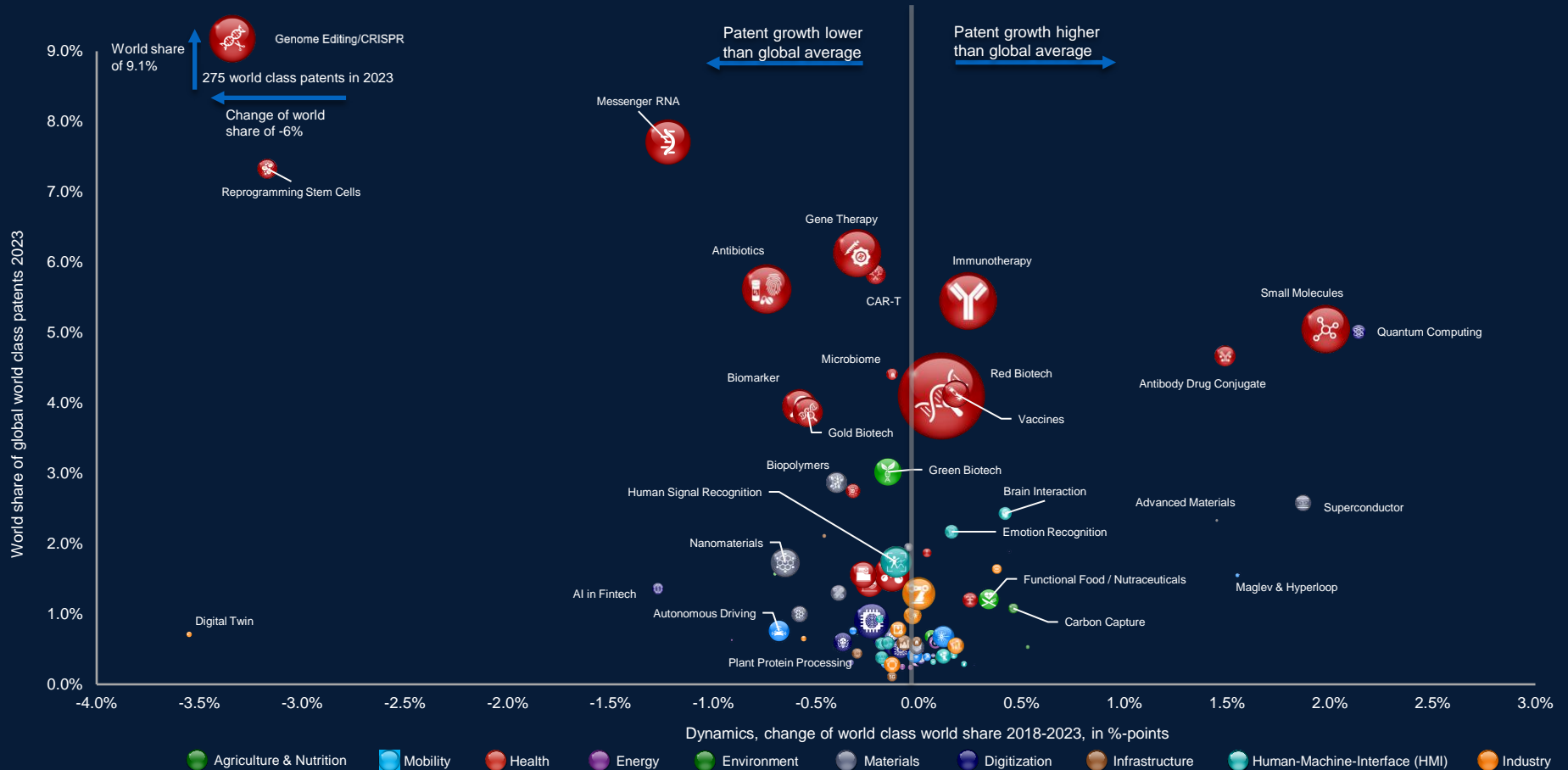
Boston: Technology Profile for 10 Gamechanger fields

EconSight has identified 10 Gamechanger fields that will shape the future in profound ways, driving innovation and redefining what is possible.



Boston: Technology Profile for 100 Gamechanger technologies

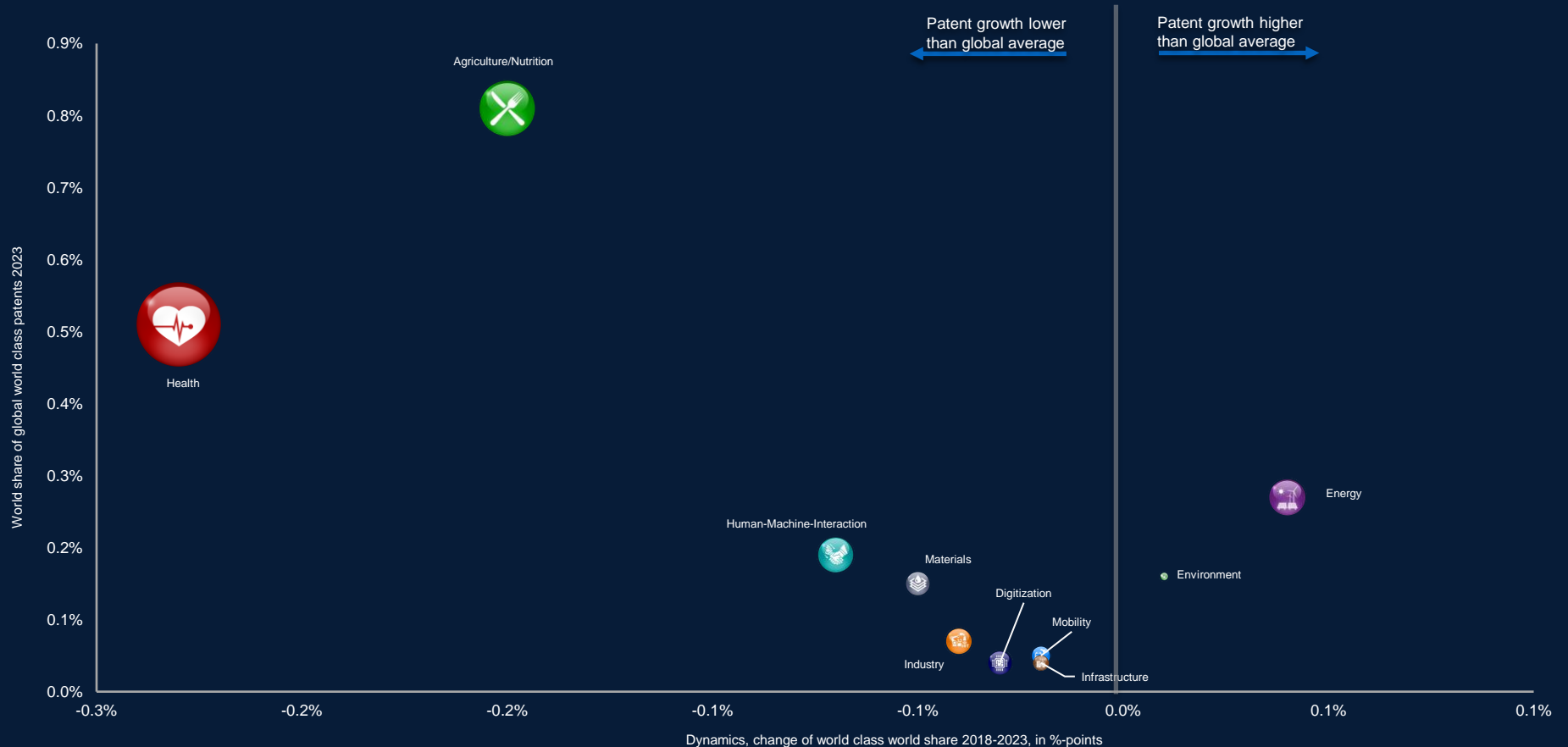
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Tech profile Copenhagen

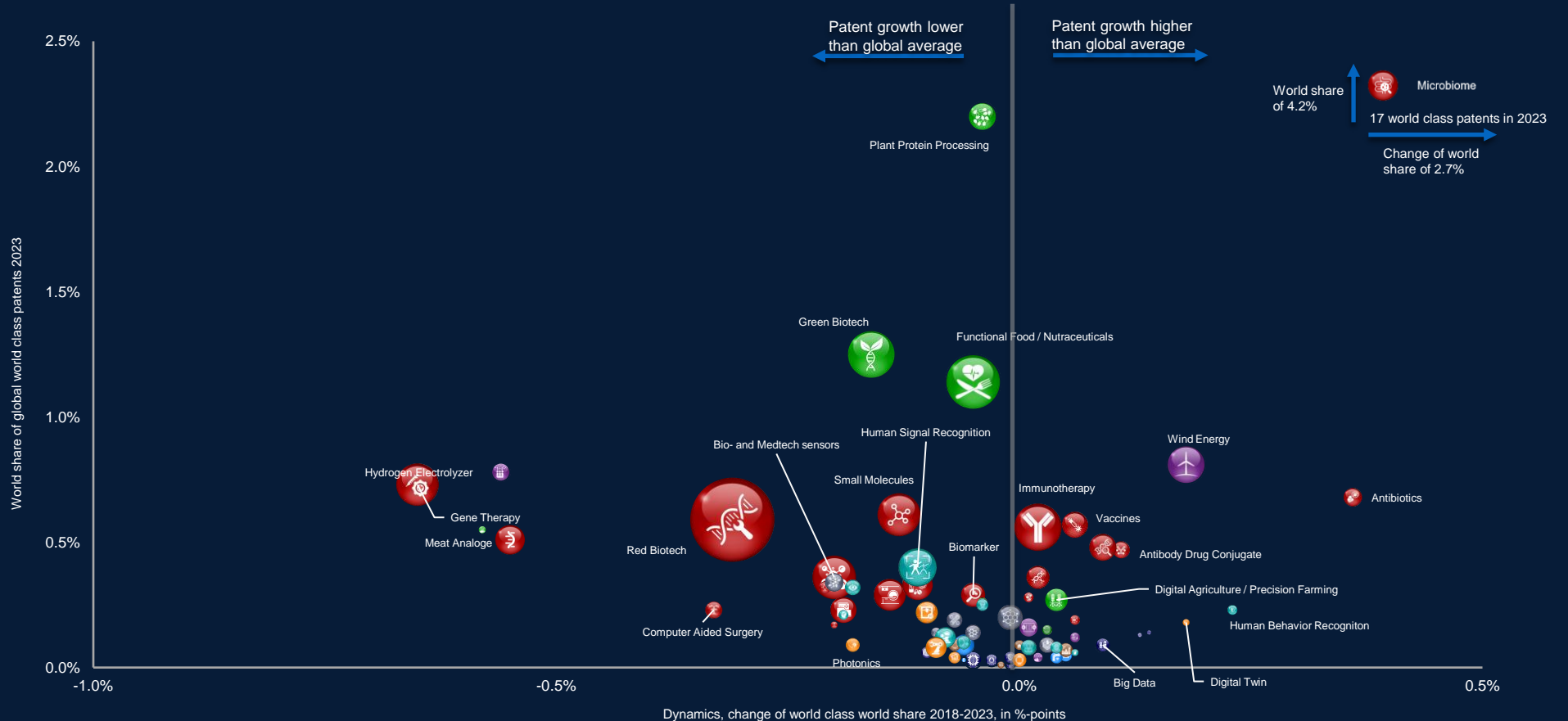
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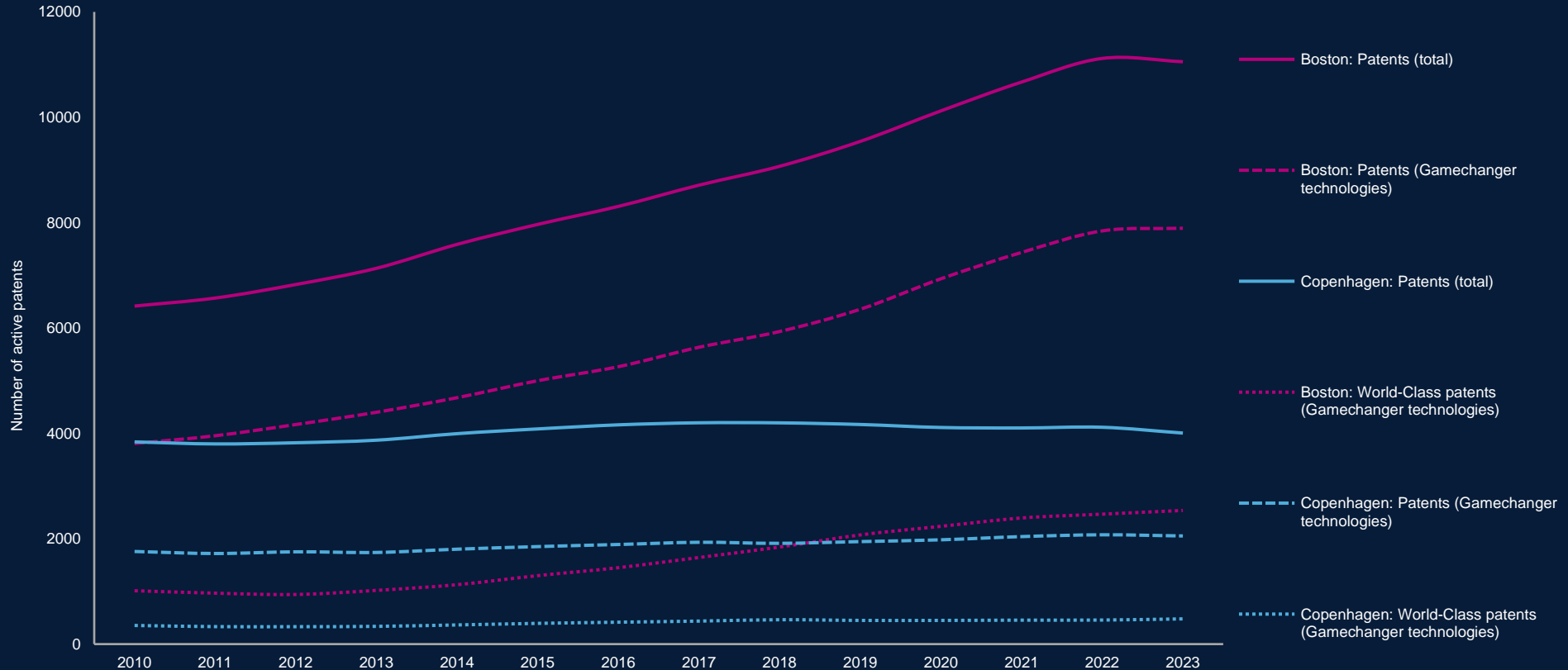
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Development of gamechanger patents

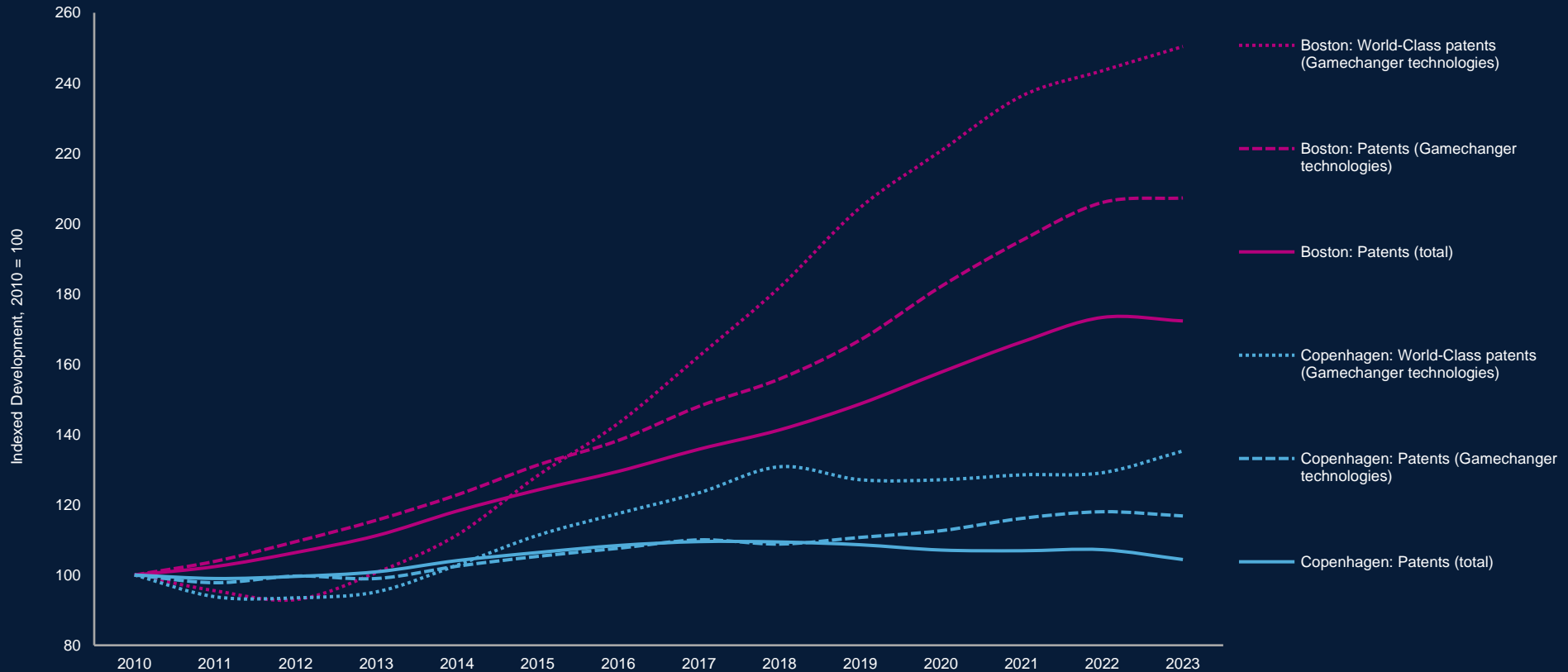
Copenhagen vs. Boston: Technology Development in Gamechanger Technologies

Development of total patents, patents in Gamechanger Technologies and world-class patents in Gamechanger Technologies



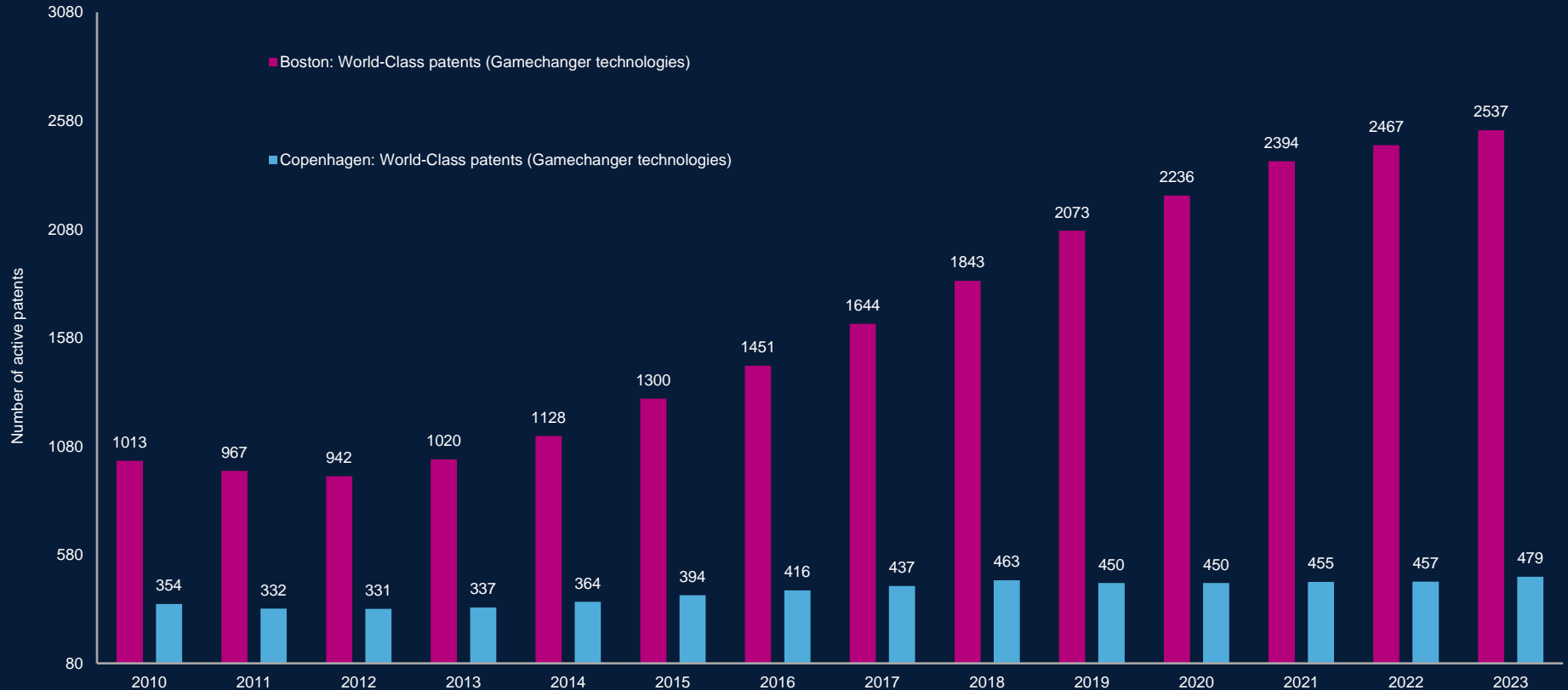
Copenhagen vs. Boston: Technology Development in Gamechanger Technologies

Indexed development of total patents, patents in Gamechanger Technologies and world-class patents in Gamechanger Technologies



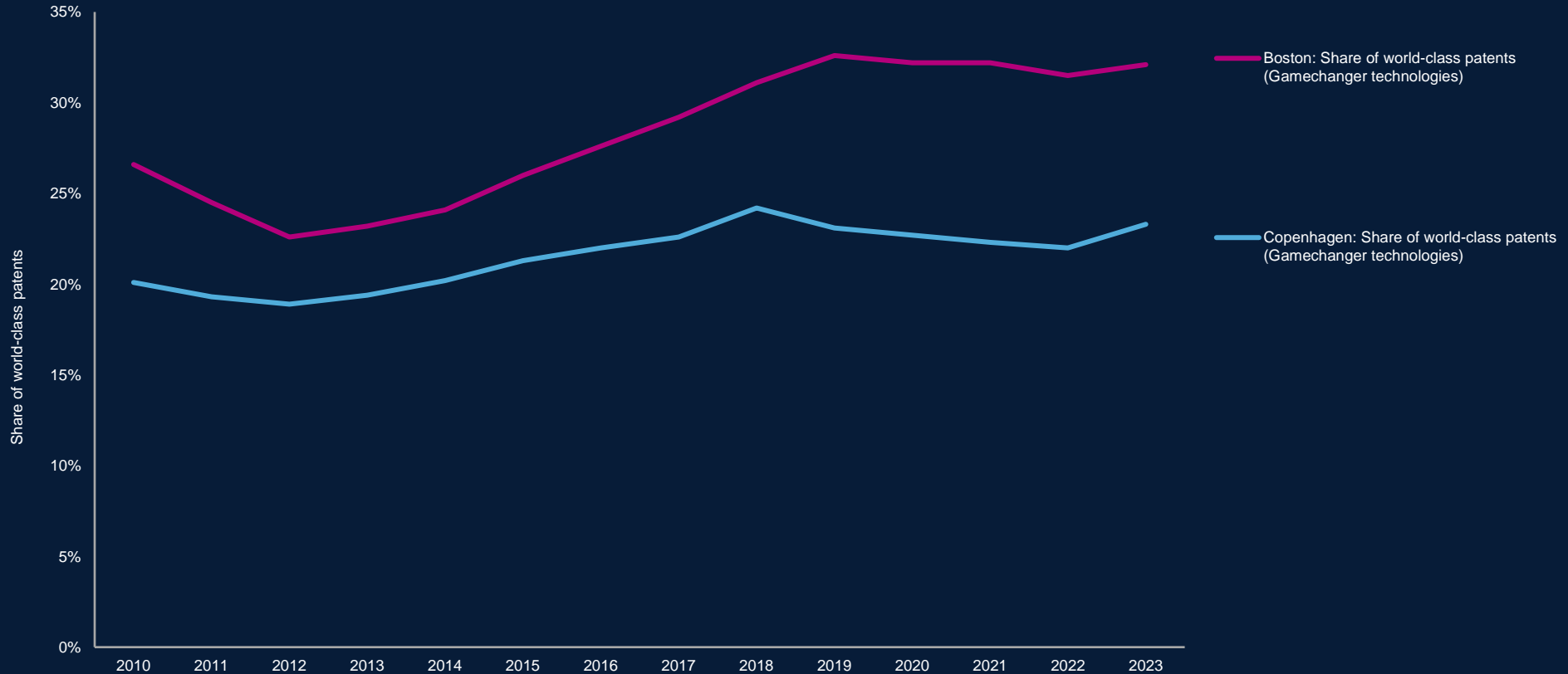
Copenhagen vs. Boston: Technology Development in Gamechanger Technologies

Development of world-class patents in Gamechanger Technologies



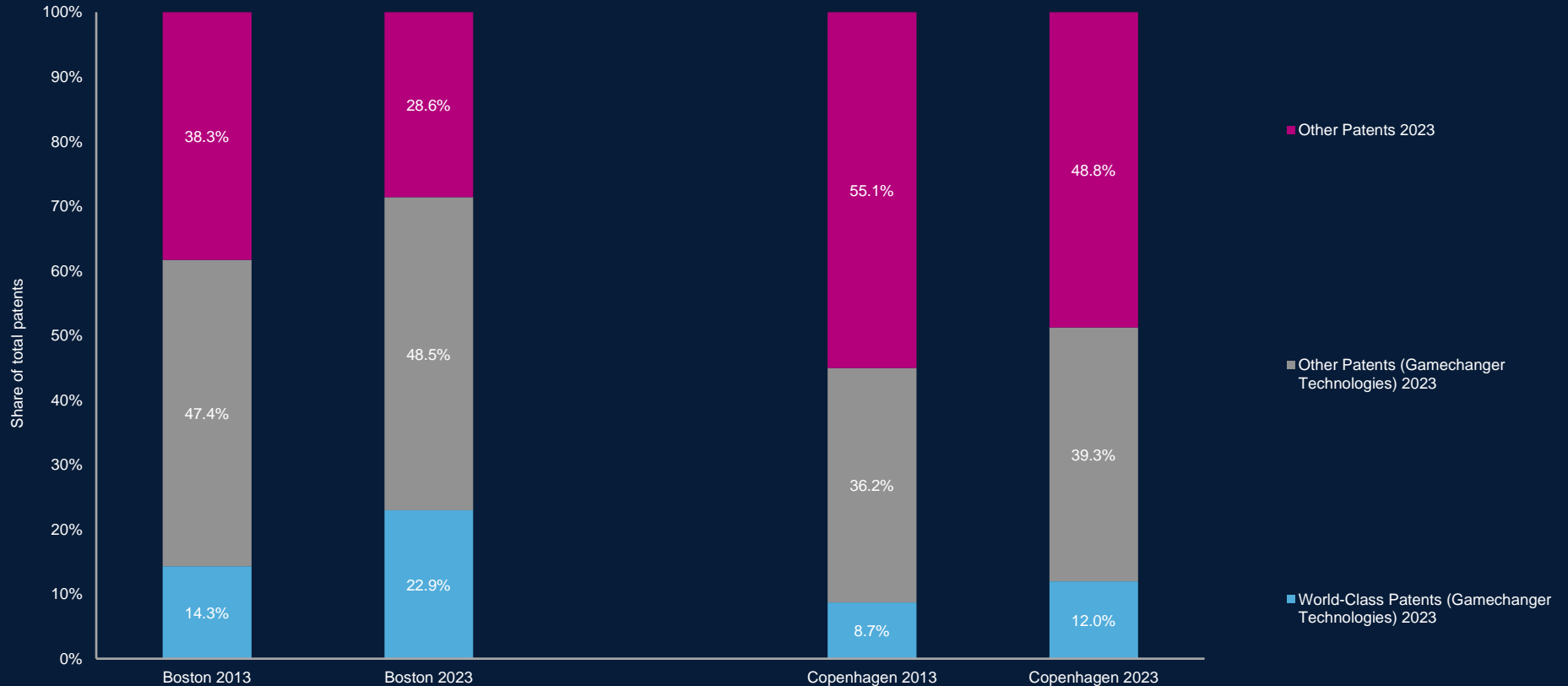
Copenhagen vs. Boston: Technology Development in Gamechanger Technologies

Share of world-class patents in Gamechanger Technologies



Copenhagen vs. Boston: Technology Development in Gamechanger Technologies

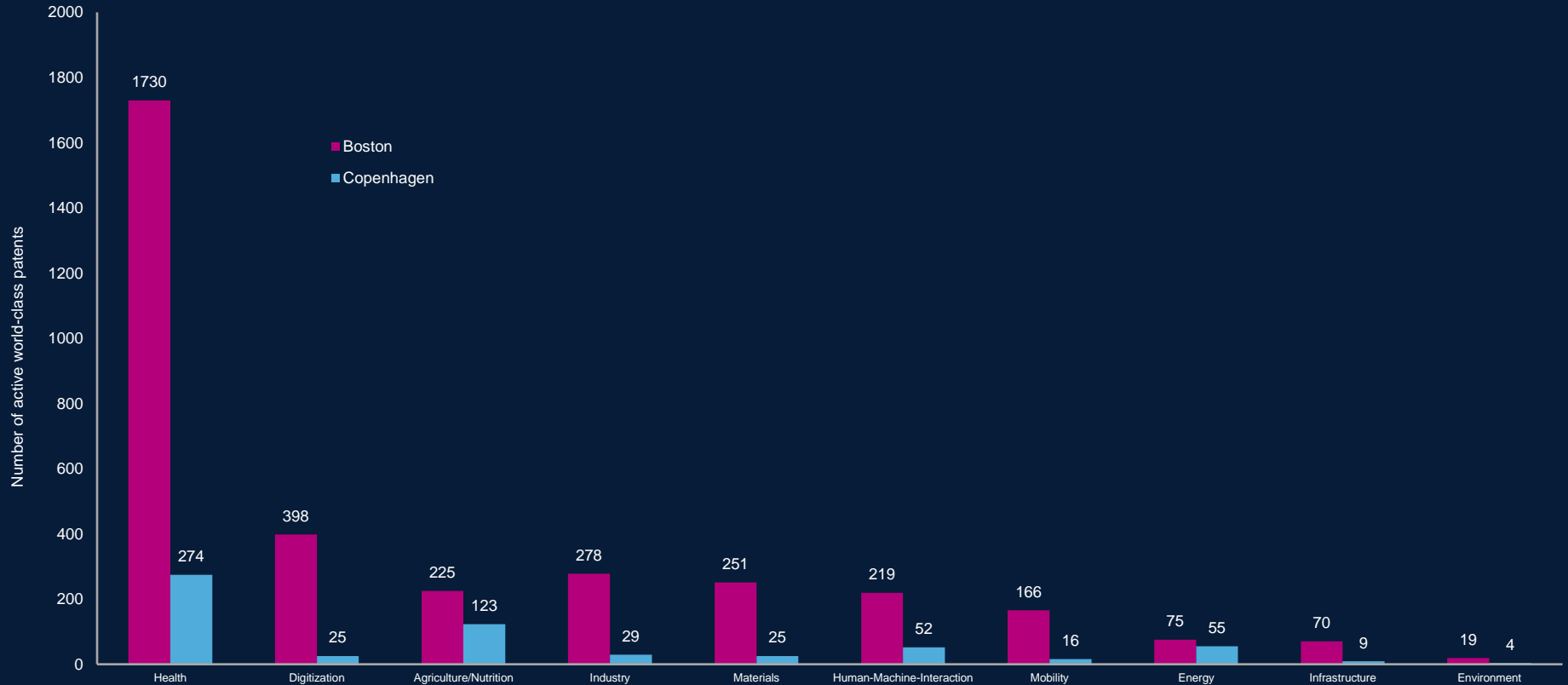
Share of total patents in 2013 and 2023 in %



Development of gamechanger fields

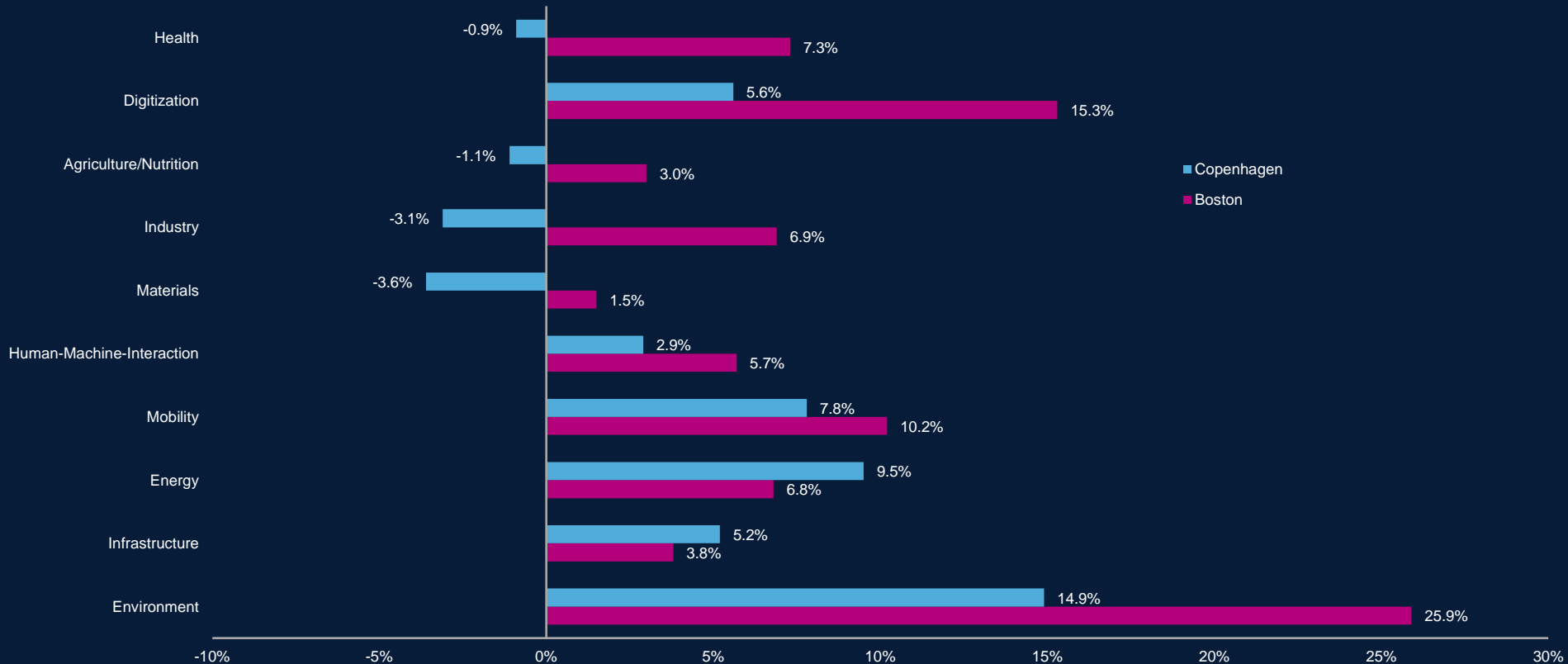
Copenhagen vs. Boston: Technology Development in Gamechanger fields

World-class patents in Gamechanger fields in 2023



Copenhagen vs. Boston: Technology Development in Gamechanger fields

Growth of world-class patents in Gamechanger fields between 2018 and 2023 in % p.a.



Top Patent Holder

Copenhagen vs. Boston: Top Patent Holder Copenhagen

Total Patents, Patents in Gamechanger Technologies and world-class patents in Gamechanger technologies in 2023

Rank	Patent Holder	Patents (Total)	Patents (Gamechanger)	World-Class Patents (Gamechanger)
1	Novo Nordisk	167	86	53
2	Novozymes	183	95	52
3	H Lundbeck	111	96	30
4	Coloplast	142	29	23
5	Roche Holding	28	28	16
6	Haldor Topsoe Holding	191	92	15
7	Evolva Holding	29	22	15
8	3Shape	69	52	12
9	Glycom	49	38	12
10	Zealand Pharma	16	16	12
11	Laboratoires Servier	15	13	12
12	International Flavors and Fragrances	54	34	11
13	Vestas Wind Systems	20	20	11
14	Siemens Energy	60	54	9
15	Genmab	20	20	7

Copenhagen vs. Boston: Top Patent Holder Boston

Total Patents, Patents in Gamechanger Technologies and world-class patents in Gamechanger technologies in 2023

Rank	Patent Holder	Patents (Total)	Patents (Gamechanger)	World-Class Patents (Gamechanger)
1	Mass General Brigham Inc	1137	940	210
2	Massachusetts Institute of Technology	731	560	193
3	Harvard University	545	475	173
4	Dana Farber Cancer Institute Inc	482	473	124
5	Merck and Co Inc	368	353	121
6	Vertex Pharmaceuticals Inc	129	115	55
7	Childrens Medical Center Corp	345	301	49
8	Moderna Inc	40	40	35
9	Enanta Pharmaceuticals Inc	50	40	34
10	Johnson and Johnson	140	58	31
11	Medtronic PLC	100	55	31
12	Novartis AG	56	53	29
13	Editas Medicine Inc	36	36	29
14	Takeda Pharmaceutical Co Ltd	60	58	26
15	Sanofi SA	51	46	25

Research connections between Copenhagen and Boston

Copenhagen vs. Boston: Research connections

Number of patents with inventors in both Copenhagen and Boston

