GN Foundation

Danish Sound Cluster

Analysis on the DANISH SOUND INDUSTRY 2022

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Analysis on the Danish Sound Industry 2022
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INTRODUCTION

For the last couple of years, our members, and others, have been asking "when will the next industrial analysis on the sound industry be available?" Well, here it is. We'd like to thank you for your patience, and also thank the GN Foundation for funding this analysis.

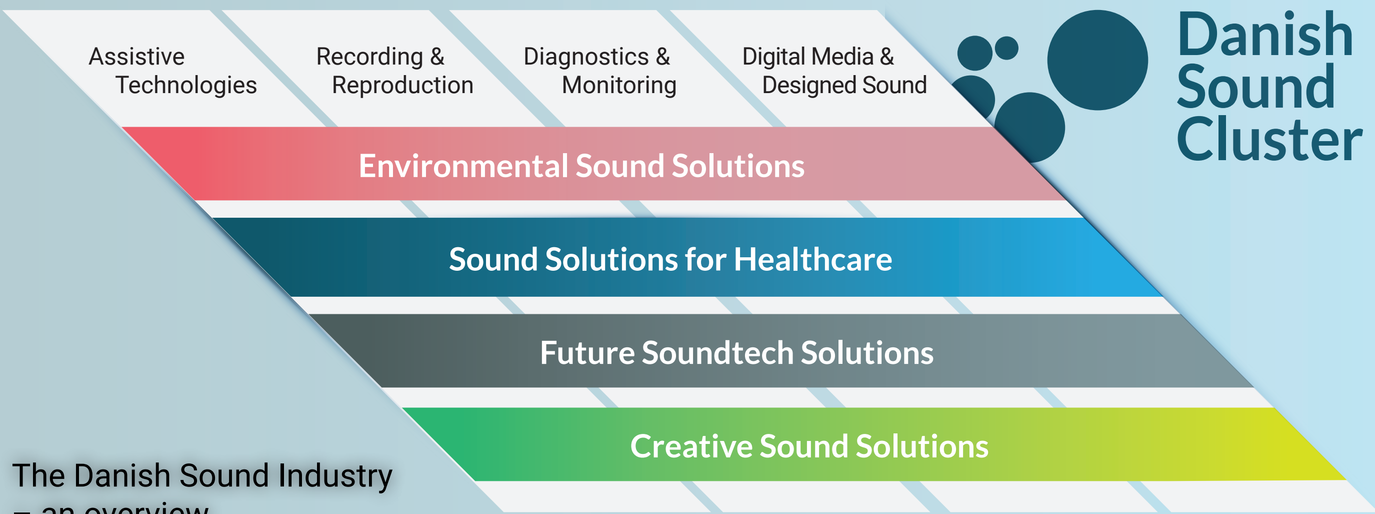
Denmark has for decades been recognised as one of the world's top tier areas for sound technology, and the industry here comprises many experts from across the globe as well as home-grown talent.

The Danish Sound Industry is versatile, varied and far reaching. From one-man start-ups to huge corporates with thousands of employees, from start-ups to companies established more than 100 years ago, we've been in contact with 600 companies spread across the entire country to compile this report.

It's an industry covering a wide range of very different professional areas including microphones, consumer and professional audio, broadcasting, consultancy, hearing aids and other healthcare areas, ultrasound, measurement equipment, acoustic materials and more.

Despite the challenges of Covid-19, the industry has seen robust growth in recent years and is today stronger than ever. We're confident that Denmark will continue to be one of the world's leading areas for sound technology and solutions.

Danish Sound Cluster



The Danish Sound Industry
– an overview

A special thank you to the **GN Foundation** who has granted the fonds to make this work possible.

BACKGROUND

Formed in 2020, Danish Sound Cluster is the successor to Danish Sound Network who, in 2018, published its industrial analysis for 2013 – 2017.

The industry is much changed since 2018, so a new analysis is now needed, and has been requested by our members and those in the wider industry for some time. That's why, rather than an update of the previous report, we've prepared this analysis in response to the needs of today's sound industry. We've done this with the help of GN Foundation who gave us the financial support to do this work.

After contacting numerous companies and people from the industry, we feel it's clear that the Danish Sound Industry today is internationally focused. Exports constitute a major part of industry revenue, and among every kind of Danish company, international employees are commonplace.

We also see a lot of interest from international companies who want to work with our industry – at Danish Sound Cluster a significant number of international businesses are involved with our activities, and we even have international companies in our membership network. That's why, to make

...the industry employs 52,000 people and has a revenue of more than DKK 70 b.

sure we reach all our partners across the world, we've prepared this analysis in English.

The content in this analysis focuses on the overall figures for the whole industry and, with around 700 companies involved in "sound", some details have been left out. We identified 600 companies where sound is the primary business or where certain parts of the business focus on sound. You'll find more details on the methodology at the end of this report.

Our aim is to give all interested parties an overview, and answer the question, "what is the Danish Sound Industry". The findings are primarily based on public figures from annual reports, websites and other accessible data. Minor parts of the findings are based on qualified estimates. This is an industry-only report - activities at universities and GTS will be part of a different report.

The history of the Danish Sound Industry is more than 100 years old, and the geographical distribution is still influenced by the historical facts.

Our industry doesn't often make the headlines, but it does have an important impact on the Danish economy, with 52,000 employees, a revenue of DKK 70b, and exports worth more than DKK 60b, representing 4% of national exports.

DANISH SOUND CLUSTER

Our network has existed since 2008, and in 2020 we were granted a 4-year contract with the Danmarks Erhvervsfremmebestyrelse (The Danish Business Authorities) and Undervisning og Forskningsstyrelsen (The Danish Agency for Education and Research) to operate a cluster focusing on the Danish Sound Industry.

The cluster's strategic goal is to support and encourage more innovation in the Danish Sound Industry.

A formal association with a board elected from our members, the cluster has more than 100 members, mainly Danish businesses. Daily operations are carried out by the 6 members of staff.

Danish Sound Cluster works within all aspects of sound. We operate 4 advisory boards which include representatives from international companies, universities, industry, broadcasting etc. Each with the purpose of defining the professional strategic direction in our key cluster areas.

Our main activities include:

Knowledge dissemination – webinars, seminars, workshops etc.

Networks – for members according to their needs

Innovation projects – in collaboration with knowledge institutions and industrial partners

Entrepreneurship – providing a network, start-up incubator programme and professional sparring

International activities – including partnering in new international projects

Communication – activity updates and other relevant information

Danish Sound Day – the annual main event for the industry

To get updated information please refer to www.danishsoundcluster.dk

Decibel BØRN OG UNGE MED HØRETAB	HARMAN A SAMSUNG COMPANY	steelseries	IDUN audio	ICE power	iac acoustics
ent Loudspeakers	Harmoniq Audio	meTecno Bausysteme GmbH	Keybird	Jan Abildgaard Pedersen Consult ApS DSP Innovation, Courses, DSP and Audio	INVISIO®
DPA MICROPHONES	HBK HOTTINGER BRÜEL & KJÆR	MidwifeVR		N ear	NIRAS
DTU	HINDENBURG SYSTEMS	DMR®	Treble	sound hub denmark	Roku
YNAUDIO	GRUNDFOS	Troldtekt	SOUND®FOCUS	SOUNDBOKS	PURIFI
ophon SAINT-GOBAIN	GREENWAVES TECHNOLOGIES	Jabra GN	sonova HEAR THE WORLD	SGW Patent Patentrådgivning	Platin
erklang AFRY	GRAS Sound & Vibration	AD NYE VEJE AALBORG UNIVERSITET	SONISTO	SDU Syddansk Universitet	
Enkl Sound	GOmeasure TEST EQUIPMENT	FORCE TECHNOLOGY	sonion	SCANSPEAK	PASCAL
LCOM GN	ReSound GN	VIBRAKUSTIK Audio Test & Measurement	SONIC EDGE s( )e BIG SOUND	RumAkustik	OLE WOLFF
ex Acoustics	GN	AARHUS UNIVERSITET	Søuld	RTX WIRELESS WISDOM	NORTHERN STRUCTURES
eracoustics	Demant		oticon MEDICAL	EPOS	oticon

GN Audio

Growing the professional market

While businesses in other industries saw their revenues shrink throughout the Covid-19 crisis in 2020, GN Audio bucked that trend. With the world demanding work-from-home solutions for online meetings, and corresponding growth in the enterprise headset market, GN Audio grew fast, reporting 43% organic growth by the end of the 2020 fiscal year. The market is still healthy, and GN Audio continues its success, as hybrid working has become the norm for many.

Through 2021 and in 2022, knowledge workers were still looking for work-from-home opportunities, with 48% of global workers considering changing to a job offering hybrid working. An even larger group of knowledge workers (59%) would not consider an employer who expects staff to come into the office full-time.

A Microsoft survey from 2021 lists the main reasons people still want the opportunity to work from home; to avoid commuting time, to have a better work-life balance, and to be able to focus and be more productive.

One of the main drivers for GN Audio's success is its ability to adapt to certification requirements (Open Office, Teams etc.) and ecosystem-partners, which underlines its relevance in B-2-B channels.

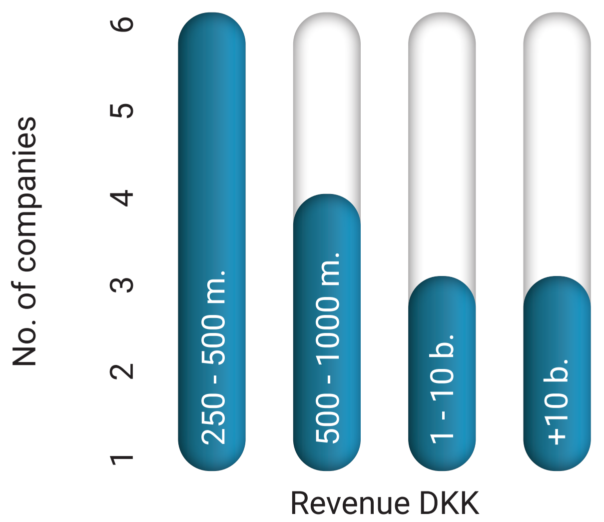
Products like the Jabra Evolve2 65 headset and the Panacast family were launched in 2021 to help businesses and employees navigate the flexible and hybrid working. Product development activities were scaled up, and around 100 new engineers were hired in 2021 for new development projects.

THE DANISH SOUND INDUSTRIAL LANDSCAPE

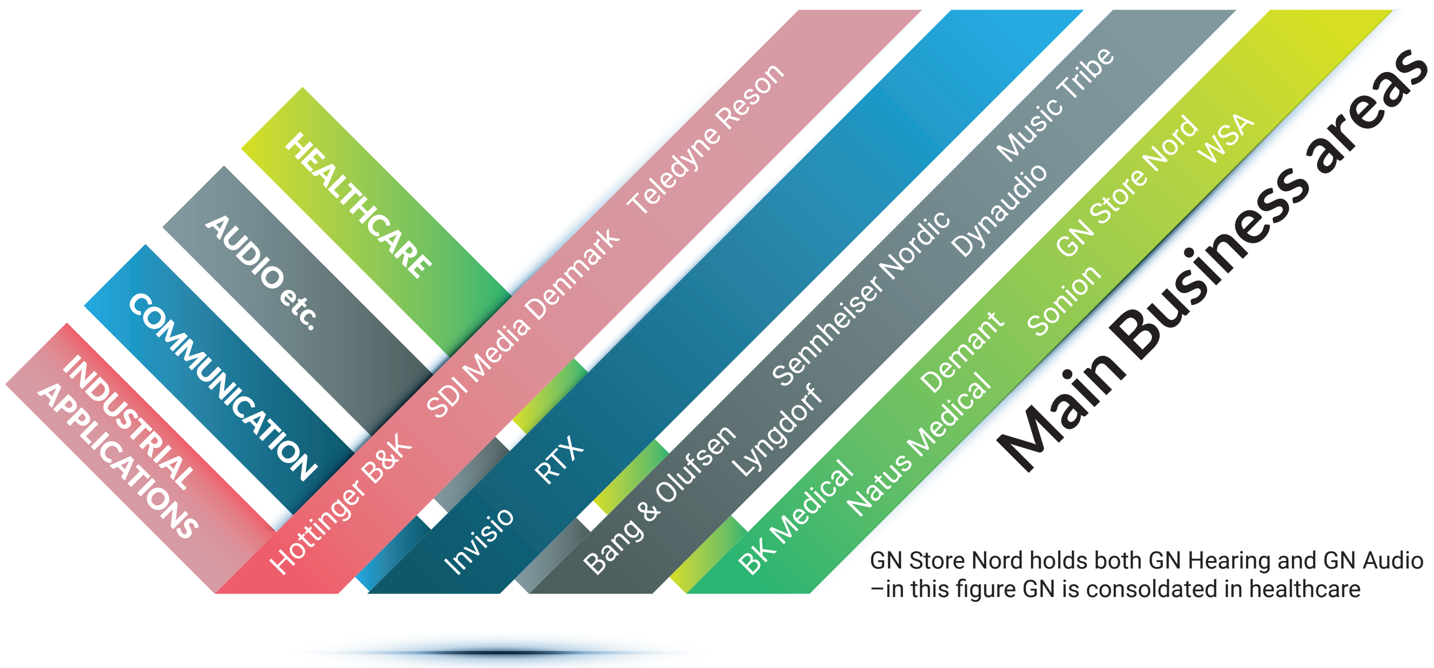
Every industry has its own characteristics. Most industries operate with a 20/80 ratio meaning that 20% of the companies generate 80% of the revenue and jobs in that industry.

The sound industry is a little different; dominated by a limited number of larger companies, with a 3/90 ratio, so 3% of businesses deliver 90% of all activity. There are 16 companies with a revenue of DKK +250m, and 47 companies employ more than 20 people.

The largest companies



Companies only partly involved are not included



GN Store Nord holds both GN Hearing and GN Audio –in this figure GN is consoldated in healthcare

GEOGRAPHY

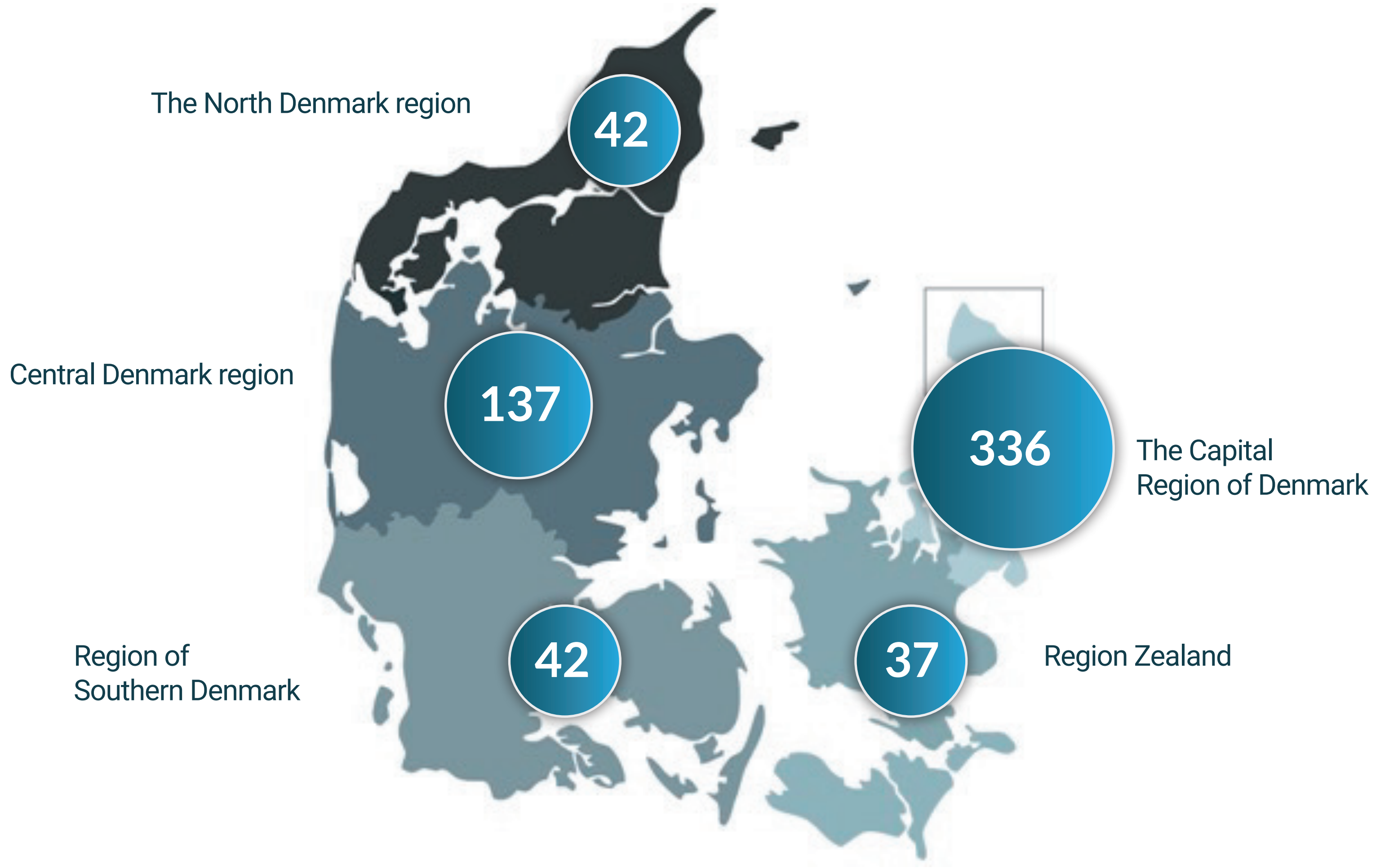
Our Danish sound industry analysis includes 600 companies with 52,000 employees between them. Both the number of companies and the number of employees are unevenly distributed across the country.

Region	Capital	Zealand	Southern	Central	North
Companies	336 57%	37 6%	42 7%	137 23%	42 7%
Companies / 100,000 inhab.	18.2	4.4	3.5	10.3	7.2
Employees	40,000 79%	7,348 14%	193 0%	2,721 5%	444 1%

Note: The figures for Region Zealand are 95% due to the location of Sonion, with the majority of people employed abroad.

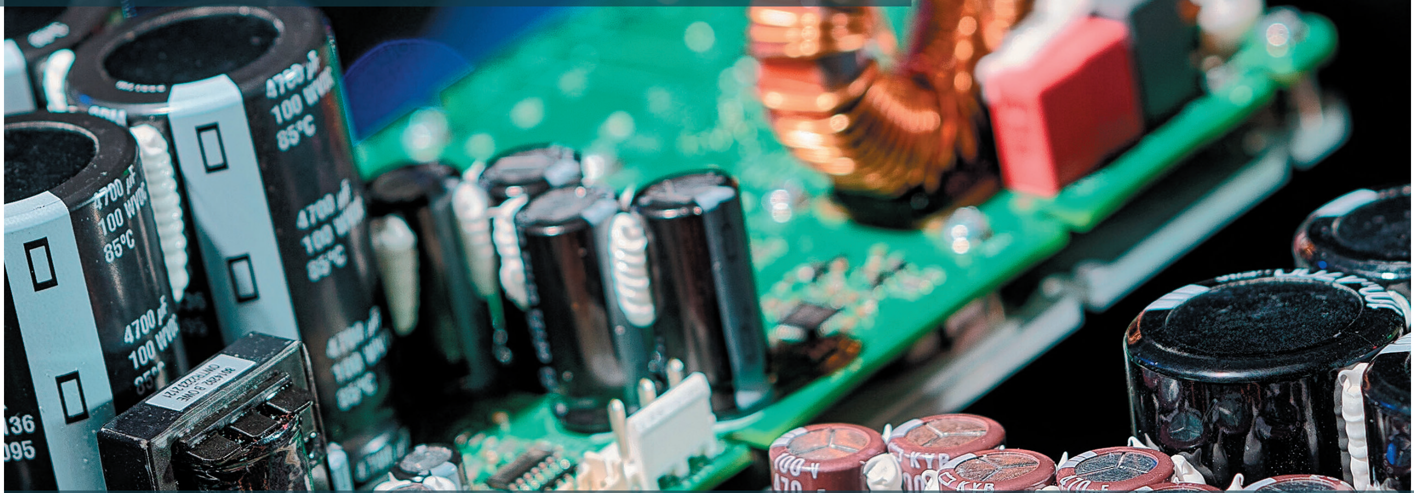
The historical background of the hearing aid companies located in the Capital Region of Denmark area dominates the picture even today. Of all sound industry businesses, 57% are in the Capital Region of Denmark and 23% in the Central Denmark Region with 6 -7 % of companies operating in each the remaining regions.

The level of employment is unevenly distributed. This is because the Capital Region of Denmark accounts for 79% of sound industry staff, primarily driven by the 3 big hearing aid companies which employ 70% of people in the industry. Even without the “big 3”, most of the industry’s employees still work in the Capital Region of Denmark.



ICEPOWER

From Class D amplifiers to outsourced product creation



In the 1990's Class D amplifiers were introduced to the market. They are often known as digital amplifiers, but this isn't entirely correct because they convert input signals to impulses, shifting the sample frequency at which they operate up to extremely high frequencies. That means that they use smaller power transformers, which take up less space.

ICEpower was started in 1999 as a joint venture with Bang & Olufsen. From the beginning it became one of the leading companies providing amplification solutions, especially for the high-end market and within the HIFI and pro markets. ICEpower's amplifiers have also been used in the automotive industry (BMW, Aston Martin etc.), and today it has a successful OEM business. Collaborations with prestigious and high-quality audio brands have made ICEpower a well-known brand, adding further value and advantage for its customers.

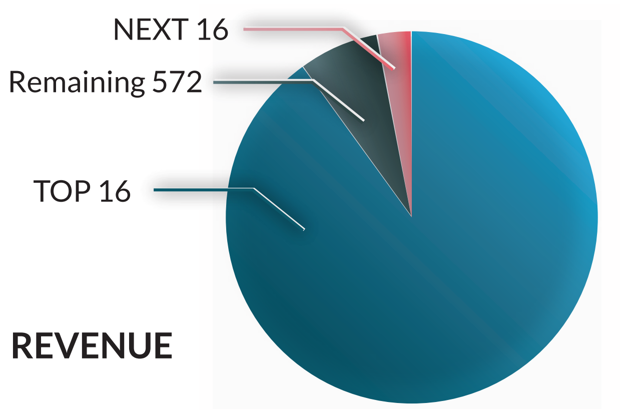
ICEpower's dependency on Bang & Olufsen ended in In 2016 when it was acquired by Danish Equity Fund, giving it the opportunity to realise it's full potential. Today, ICEpower's focus is developing finished goods for categories such as home automation, pro audio rack amps and active loudspeakers, and customized electronic solutions for the audio industry. With the aim of becoming "the preferred partner for outsourced product creation to the leaders of the audio industry", ICEpower is now a project-focused business with a large portfolio of audio products for the wider market.

In recent years, ICEpower has grown significantly, and investments in development activities and its employees are paying off. It reported a growth in net profit of 37% from 2019 to 2020 (from DKK 5.973m to DKK 8.160m) and 6 % in 2020/2021 (to DKK 8.65m). And the future is looking just as bright for ICEpower as they continue to demonstrate how engineering excellence can improve audio quality, sustainability, and pricing, compared to electronic manufacturing suppliers in Asia.

TOP TIER COMPANIES

Denmark's sound industry is dominated by 16 companies, with a combined revenue of at least DKK 250m. They account for more than 90% of the revenue and staff within the industry.

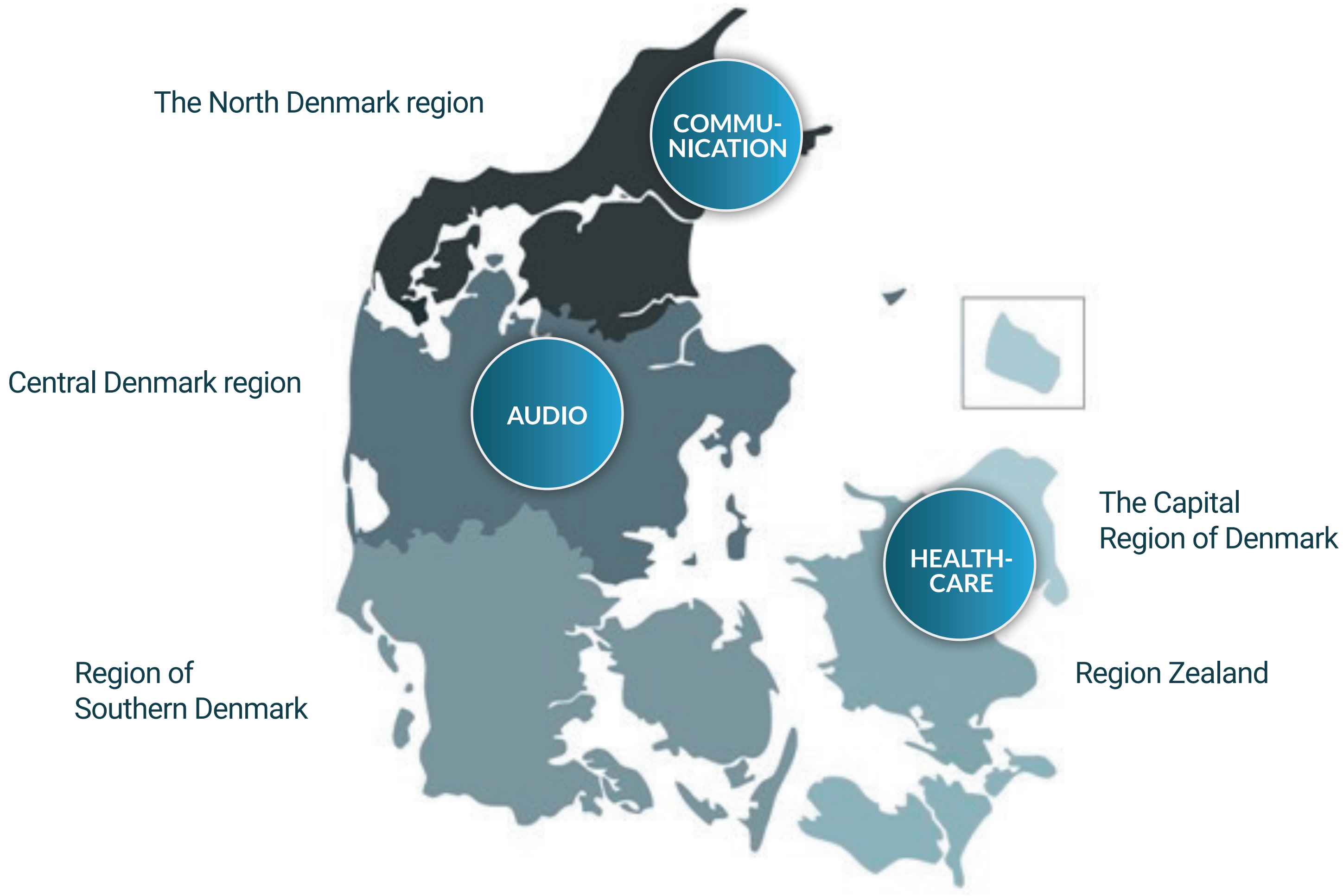
Of these companies, 10 are based in the Capital Region of Denmark and represent 80% of the revenue and employ 73% of the total industry. These businesses focus mainly on Healthcare and Industrial Applications.



The Central Denmark Region is home to 4 of the top 16, accounting for 7% of industry revenue and 4% of staff. All 4 companies operate within consumer and professional audio.

Region Zealand and the North Denmark region each have 1 company within the top 16, with none based in Region of Southern Denmark

The next 16 companies only represent 2.3% of the total industry revenue, emphasising how top-loaded the industry is.



SMEs

The official EU SME definition is:

- < 250 employees
- And < EUR 50m in revenue
  or < EUR 43m in total balance
- Ownership by a non-SME
  must not exceed 25%

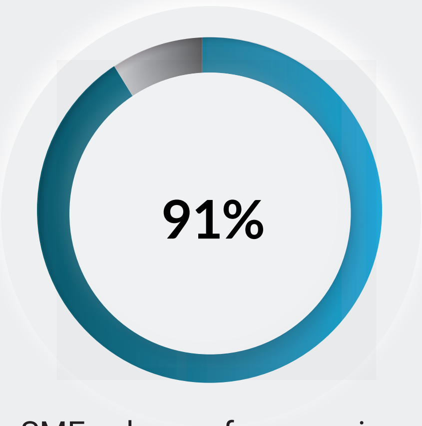
Using this definition for our industry gives us 548 SMEs representing 91% of all sound companies in Denmark. But this doesn't give us a completely true picture. On the contrary, the total number of people employed by SMEs is 2,700, or an average of only 7 employees / SME (much lower than the EU upper threshold of 250). The majority of sound industry SME's are really "micro companies" with less than 10 employees.

The SMEs aggregated revenue is DKK 3.6b, or an average of DKK 6.6m/SME. SMEs have a typical export of 33% of their revenue

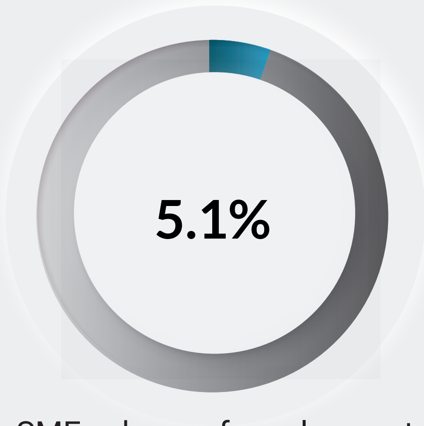
These figures once again emphasize how the biggest companies dominate the industry.

Most SMEs are privately owned, typically by the management and board.

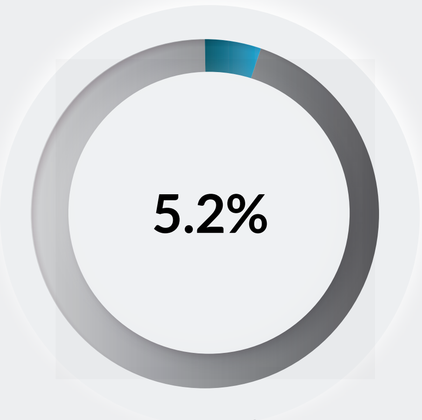
SMEs may not represent more than 5% of industry activity, but they are still an important part of the sound industry. They are often more agile in their innovation and can also target more niche markets compared to the big corporate businesses. They are also more evenly distributed across Denmark than the corporates.



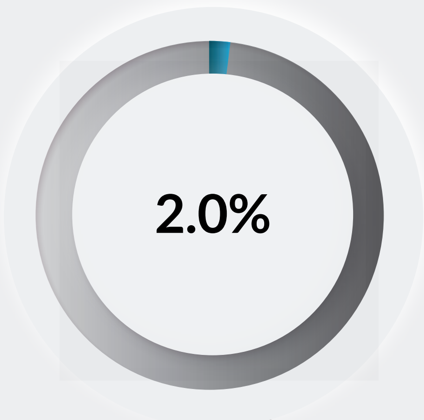
SMEs share of companies



SMEs share of employment

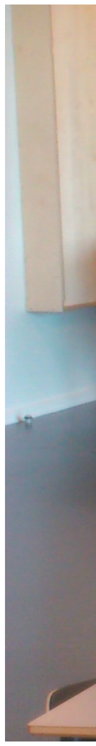


SMEs share of revenue



SMEs share of export

ENTREPRENEURSHIP



What defines an entrepreneurial company? There is no common, agreed definition but most consider a company entrepreneurial by its maturity, for example, up to 4 years old. In truth, an entrepreneurial mindset is perhaps most important, and some companies can be considered entrepreneurial for many years. We have not applied an exact definition here but have considered companies to be entrepreneurial based on whether they are CVR number registered, their maturity, revenue and staff levels.

We estimate that the number of businesses with a CVR number that still have an entrepreneurial mindset account for 10 – 15% of the industry, or 60 – 90 companies across the country. We can add to this those start-ups currently working to establish themselves.

Entrepreneurial contributions are not reflected in the public data used. Their contributions are most often visible in innovation, and fast-growing companies maturing from entrepreneurs into larger companies. We find sound industry entrepreneurs all over Denmark, but most of them are centred around universities and the dedicated incubators.

Lydens Hus is a dedicated incubator for "sound" in Copenhagen, and is part of Denmark's biggest incubator, Symbion.
It covers both technology and content driven entrepreneurs.

Sound Hub Denmark offers a dedicated sound incubator at their co-working and maker space in Struer, The City of Sound.
Their powerhouse and collaborative community for sound innovation also attracts more mature companies.

DTU
(Technical University of Denmark)
is an internationally recognised centre for sound technology.
It runs several incubator activities for start-ups connected to the University.

Entrepreneurship is also found around Aalborg and Aarhus universities and their associated incubators. Sonic College in Kolding also runs programs for entrepreneurs.

SOUND HUB DENMARK

A global powerhouse for innovation and growth with sound

Sound Hub Denmark A/S is the world's first international sound technology and innovation hub. It's well on its way to being recognised as a global powerhouse for sound innovation. Established in 2018, it boasts a +3000m2 home within an original Bang & Olufsen factory building in Struer, The City of Sound.

Sound Hub fosters business acceleration in a professional co-working environment with in-house cutting-edge measurement, workshops and test facilities. It's a unique resource for the sound industry in Denmark, open to individuals and companies large or small. Here they can access a complete range of resources and professionals (industry-based and in-house), mentors, industry leaders, institutions and universities.

Every year Sound Hub welcomes a large number of internationally oriented start-ups, SMEs and corporates to the community - all with the ambition to be world-class within their field. Whether within health, welfare, gaming, AI or sustainable solutions for a better world, Sound Hub supports businesses where sound is a part of the challenge or the solution.

Start-ups and SMEs benefit from competence building, reviews, peer training, indicative measurements and test validations, 1:1 matchmaking with experts, as well as introductions to globally recognised audio companies - services that are much sought after. All this is in addition to growing interest in Sound Hub's SoundTech incubator, internationally oriented acceleration programs, workshops and stays. A community connecting with sound enthusiasts innovating with sound, in a country known for sound, it's an environment with global appeal.

EMPLOYMENT AND R&D

Employment

The Danish Sound Industry, including those working in international subsidiaries of Danish companies, employs almost 52,000 people. The majority of these work for the hearing aid companies and their main suppliers. These figures also cover related activities carried out by hearing aid companies and, counted together, account for 80% of the sound industry workforce.

The 600 companies within the industry represent numerous different business types and activities, but during the last year they have been united by one thing - a shortage of qualified staff at every level.

87
Average/ Company

47,480
Top 16 companies

1.35M
Revenue / employee

51,972
Employees

Research and Development

Most companies invest in research and development, but the level of investment varies significantly from business area to business area. For instance, R&D investment is limited within trading companies and consultancy, but business areas such as hearing aids, consumer and professional audio and industrial applications all tend to invest heavily.

As the top 16 companies dominate the overall figures, these businesses are responsible for approximately 90% of both revenue and R&D investment.

Total R&D
5.2b
DKK

7%
of revenue

Universities etc.

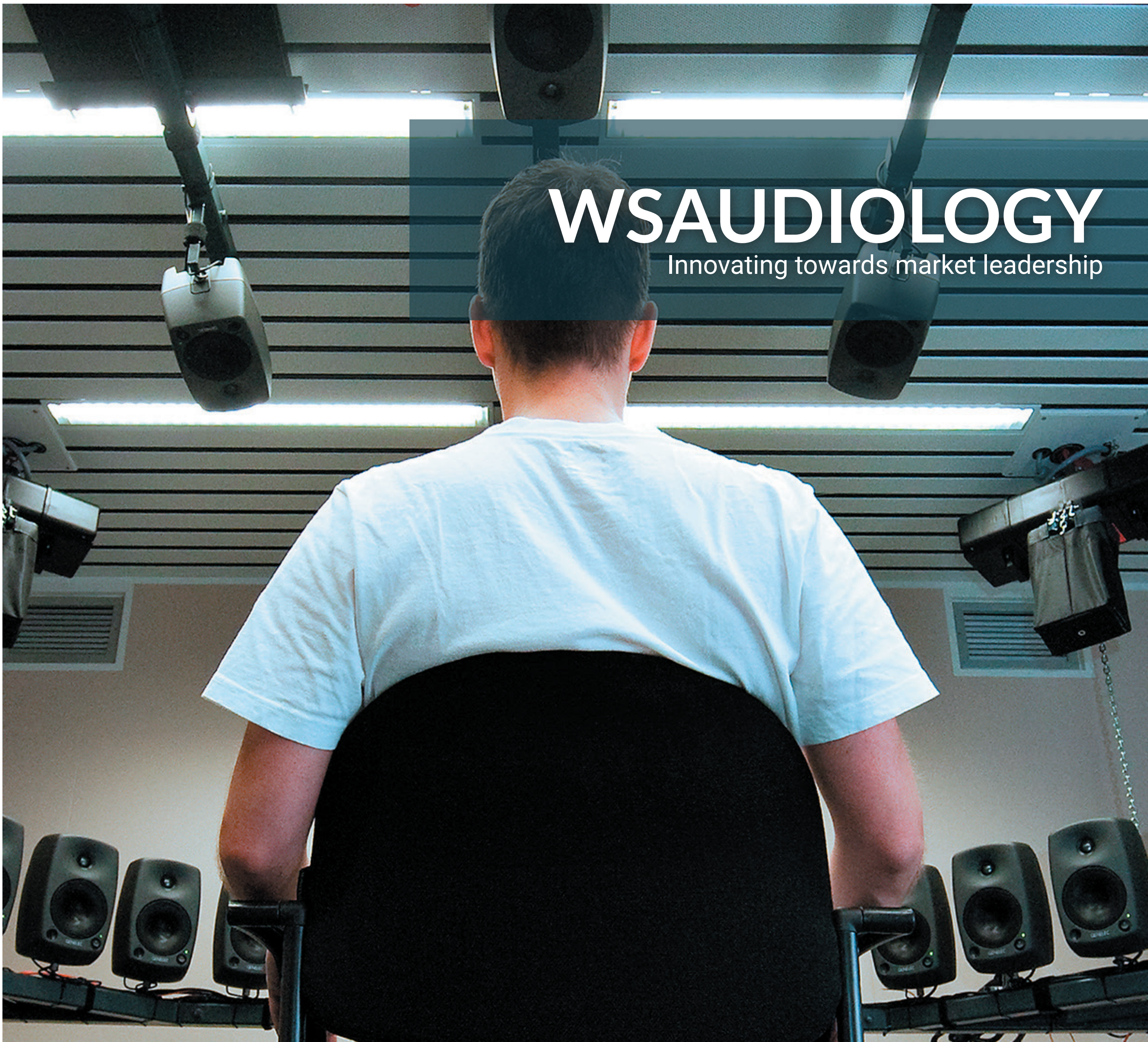
Along with R&D investment in the industry, Danish universities are making a significant contribution to innovation and new competencies. All are recognised as being among the world leaders in sound technology.

The Danish government-approved Research and Technology Organisations (GTS) are also contributing to overall R&D activities.

We have not included the contributions in this analysis.

WSAUDIOLOGY

Innovating towards market leadership



WSAudiology is one of the world's leading hearing aid manufacturers – being present in more than 125 countries globally. Born from a merger between Widex and Sivantos in 2019, the combined businesses have more than 140 years of experience improving the lives of people with hearing loss – utilizing many years of technological innovation.

The merging of company cultures has been a challenge, but with the help of more than 1000 employees, new joint values have been defined. 'Going beyond together', 'Pioneering for better solutions', and 'Passion for impact' are headlines and mantras for everyone.

2021 was a good year for WS Audiology. Organic revenue grew by 22%, passing the EUR 2b mark in revenue and delivering an EBITDA of EUR 464m, a 40% increase compared to the year before.

What led to this success? One influential strategy was the immense investment brand and product innovation. Activities focused on defining new customer journeys and features and making digital connectivity as pleasant and easy as possible for users. Online hearing diagnostics and remote fitting were also a focus for investment.

This year is also looking good. Q2 2022 results show strong growth in revenue (20%, organic growth 13%) and earnings (EBITDA margin 23%). Both the Signia AX and the Widex portfolio have contributed to this growth.

MARKET CAPITALISATION

We estimate that the market capital for all companies within our analysis is DKK 244b.

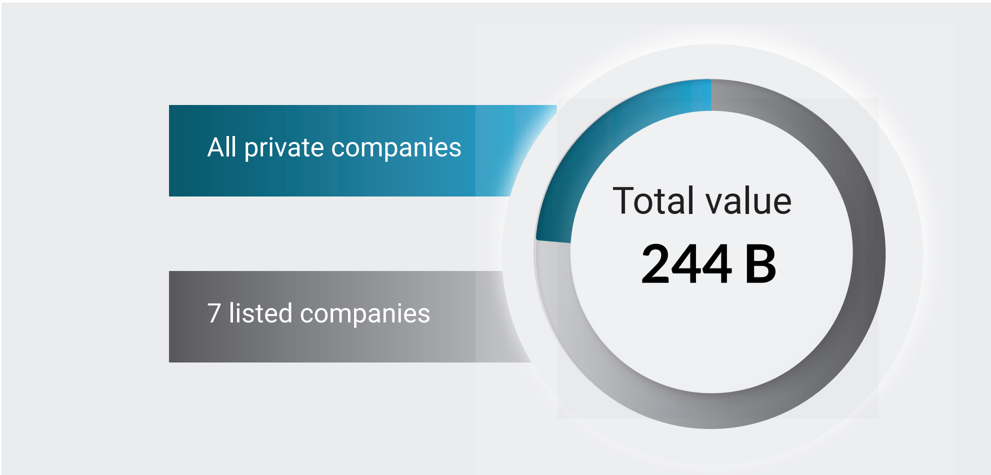
There are 7 companies listed on public stock exchanges (Copenhagen and NYSE) with a combined market capital of DKK 162b. That's two thirds of the sound industry's total market capital.

The listed companies:

- GN Store Nord A/S
- Demant A/S
- Bang & Olufsen A/S
- Dantax A/S
- RTX A/S

And partly included:

- Rockwool A/S
- Unity Software Inc.



Subsidiaries of listed international companies are not included here but estimated as any other non-listed company.

The remaining companies within our analysis have an aggregated market capital of DKK 81b. This equates to an average market capital of DKK 139m, covering businesses from small start-ups with limited value to large cooperates (family owned, or private equity funds owned), valued on a par with the most valued listed companies.

4.7M
Market cap/ employee

410M
Average value/ company

87%
Value of the "top 3%" companies

FINANCIAL KEY FIGURES

There is a huge amount of variety in the business types and models you can find across the Danish sound industry. This variety is reflected in the overall figures for the industry.

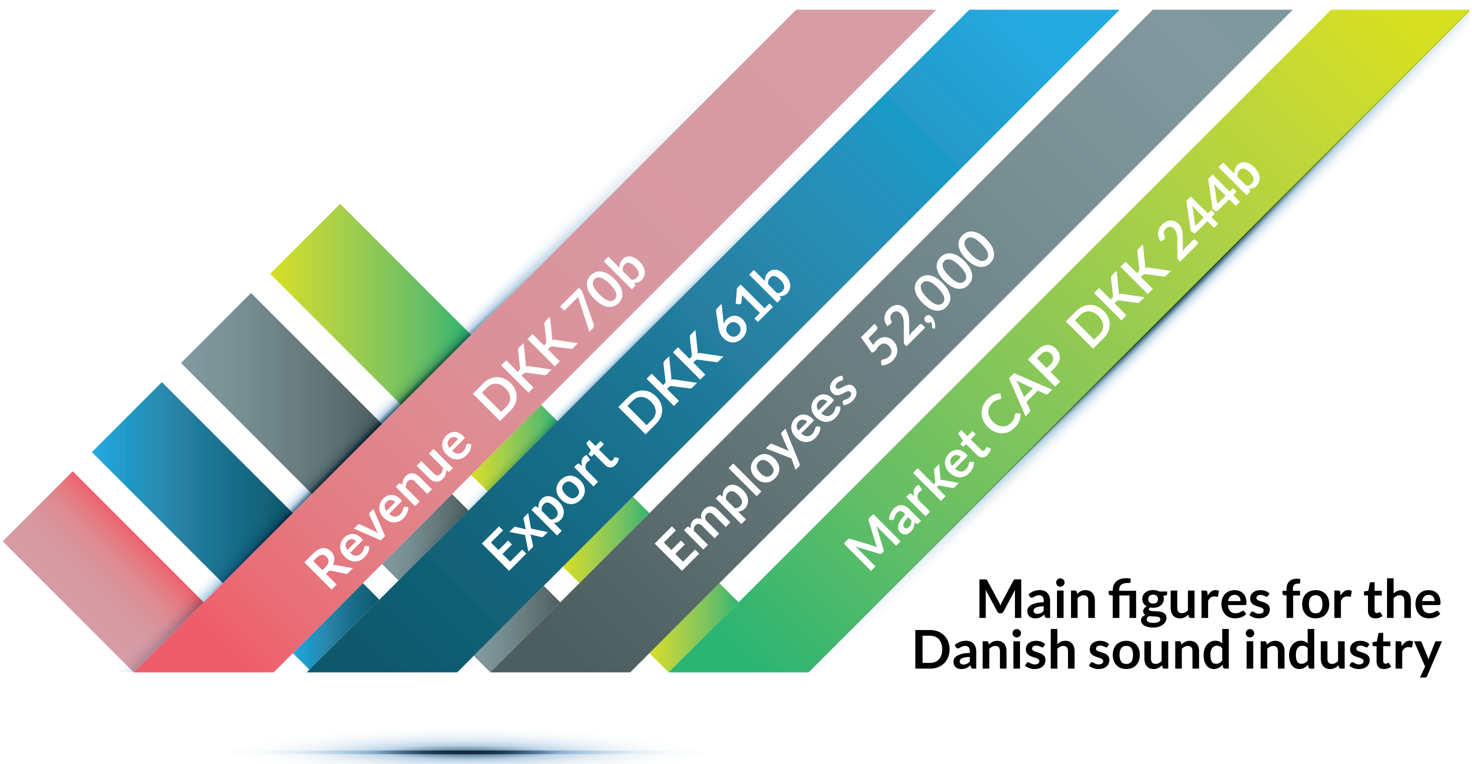
From our analysis, however, some key indicators can be extrapolated.

Financial figures:

- The aggregated gross margin is 61.7%
- The aggregated pre-tax profit is DKK 4.003m, ranging from profit margins exceeding 25% to negative profit
- The average pre-tax profit margin in the industry is 5.7%
- The aggregated profit is DKK 2.624m
- The average profit margin is 3.7%

Other figures per employee:

- The average revenue/employee is DKK 1.35m and ranges from DKK 0.5 – 10m
- The average profit/employee is DKK 770,000 (pre-tax)
- R&D investments/employee is DKK 100,000



Main figures for the Danish sound industry

TROLDTEKT

A sustainable agenda

The construction industry is responsible for around 40% of total energy consumption and 35% of waste generation. That's why sustainable building materials are more important than ever.

Troldtekt have been following a sustainable agenda for more than 10 years, producing acoustic panels based on natural materials – wood and cement.

The panels' open structure absorbs the sound. They have high sound absorption, which gives short reverberation time (echo time), and a short reverberation time makes it easier to understand speech.

Troldtekt is Cradle-to-Cradle certified to gold level and has been adopting Cradle-to-Cradle principles for the past decade. The certification covers all woodwool products as these do not contain harmful substances and meet the requirement of recovery and upcycling. UN's sustainable development goals are also within Troldtekt's sustainability toolbox, and they also provide product data for building certifications such Breeam, the US Green Building Counsel, and DGNB.

Although moving to a sustainable agenda was necessary, this also created positive attention for Troldtekt and has won them several awards, including the Danish Building Environment Award. Proof that a sustainable agenda can make a positive business case and add real value.

Vibeke Pedersen, Head of Engineering at Troldtekt, attributes this success to the early involvement of management, and clearly communicating the sustainability agenda through company values and brand DNA. Long-term goals and investments are crucial, and as a Cradle-to-Cradle certified manufacturer, transparency with customers and partners is also vital.

IMPACT ON THE DANISH ECONOMY

Export

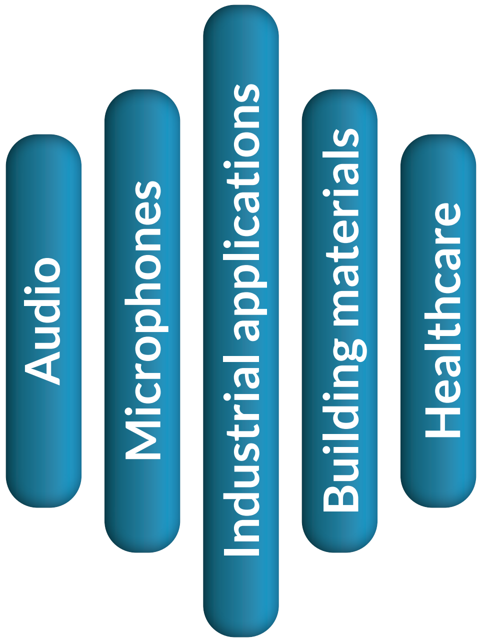
Danish Sound Industry exports are worth DKK 61b - this is 87% of the total industry revenue. Per employee, this averages DKK 1.17m.

There are 13 companies with a revenue of at least DKK 250m, accounting for 93% of the value of total exports.

Danish sound products and services are sold worldwide. The main markets are Europe, North America and Asia, but no single market dominates.

Total Danish exports for 2021 were valued at DKK 1.497b. The Danish sound industry accounts for 4.1% of this figure.

Main export areas

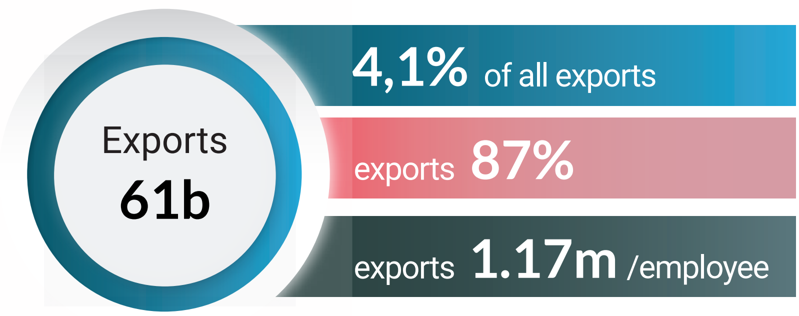


Danish Economy

The aggregated gross profit for the Danish sound industry is DKK 43.1b, with an average margin of 61.7%. In 2021, Danish GDP was DKK 2,497b – meaning that the Danish sound industry accounts for 1.73% of GDP.

Total corporate tax revenue in 2021 was DKK 1.4b, with estimated income tax paid by sound industry employees ranging between DKK 8 – 10b.

As the Danish Sound Industry is widely regarded to be among the strongest in the world, Denmark continues to attract a lot of international talent. Every year, both students and industry experts join the industry here in Denmark.



CONSUMER AUDIO

A growing but challenged Industry

Consumer audio is one of the world's fastest growing industries. For instance, the TWS (Truly Wireless Stereo) market was estimated at around 25b USD in 2020, with an annual growth rate of 36.1% expected between 2021 and 2028.

The leading manufacturer, Apple, has experienced double digit growth since launching their third generation Airpods. Other globally leading brands include Bose, Sony, Samsung and Sennheiser – all successful in the mid-and high-level price bands with differentiating features. Within entry-level price bands, many new brands are also claiming market share.

Looking at the Danish manufacturers, B&O's On-the-Go category (earphones, headphones, and Bluetooth speakers) grew by 9% to DKK 777m in 2020/2021. The growth was mainly driven by headphones and Bluetooth speakers, while earphones declined. However, during 2021 and 2022 new TWS solutions such as the EQ and EX series were launched, boosting category value to DKK 796m, and growth to 4%.

In their annual report, GN Audio mentions the commoditisation of core technologies and new competition on the market as a challenge but has still seen growth in their consumer business in 2021. This has been mainly driven by new products like Jabra Elite 7 Pro, Jabra Elite 7 Active and Jabra Elite 3, which are all priced between 100 and 199 USD (slightly lower than GN's previous consumer launches).

GN also acquired Steelseries in 2021, joining other Danish manufacturers like EPOS and B&O in the gaming category. "Our combined expertise in serving our customers through industry-defining innovation will make us a formidable team," says René Thule-Svendsen, CEO GN Store Nord and GN Audio.

PATENTS AND PUBLICATIONS IN THE SOUND INDUSTRY

In 2002, the Danish Academy of Technical Sciences published a study on how Denmark compares on leading technology with the world's top 30 tech "hot spots".

The study focused on 11 technology sectors, selected based on their strategic importance for Denmark in the future, and comparable with sectors included within public Danish industry policy.

The methodology measured the number of patents and scientific publications between 1990 – 2016 for Denmark and for the world's top 30 "hot spots" across each of the 11 technical sectors.

Besides the sound tech sector, of the 11 Danish Tech Sectors only 4 scored above the average of the top 30, emphasizing the very strong position Denmark holds within sound tech:

Technology Sector	Relative position compared to average for top 30 worldwide
Wind Turbine Technology	x 8.93
Bio Technology	x 2.70
Food Technology	X 2.19
Sound Technology	**x 1.89**
The remaining 7 Danish technology sectors	0.22 – 0.69

Patents and publications

Denmark also has a strong position with sound technology patents, and the number of Danish patents has been growing over the last two decades.

The relative strengths of Danish patents can be measured as the number of patents/capita, and compared to the top 10 areas worldwide, Denmark has 2.52 times the average.

On patents, the main Danish sound industry contributors are Oticon, WSA, GN Hearing, GN Audio and Bang & Olufsen.

On a global scale, the main players with sound technology patents are among the big, well known technology conglomerates in US, Europe and Japan, which have been especially strong. Chinese companies have entered the arena in recent years and are among today's dominant sound businesses.

Sound	Patents	Publications
Number 2000 – 2016	929	1,567
Percentage of world figures	1.6%	1.1%

Source: The World's Leading Tech Regions - Testing Denmark's Capacity in Tech, ATV January 2021 (https://atv.dk/udgivelser-viden/the-worlds-leading-tech-regions-testing-denmarks-capacity-in-tech)

APPENDIX
Our methodology

For the last 18 months, we've been building a comprehensive database of "sound companies in Denmark". This includes the data from our predecessor "Danish Sound Network" and continues to be updated on a regular basis as we gain more and more insight in the market. The database currently contains almost 1,100 sound companies or organisations (the gross list).

Branche codes have not been used in this analysis. Companies where sound either is the main activity, or represents a separate business area, are all included.

Some larger companies are active within sound, but this activity is only a small portion of the total business. For instance, engineering consulting companies where the sound activity is a small percentage of the total business, or companies producing building materials where one of the product properties is acoustical damping. The following parts of total business have been included:

- Engineering consulting – individual assessment based on number of employees working with sound
- Public broadcasters – estimated at 15%
- Gaming, XR etc. – estimated at 15%
- Building materials – estimated at 15%

Every company on the gross list has been evaluated, and some companies have been eliminated, including:

- Companies NOT having either a Danish CVR or P-number
- Production and sales of musical instruments
- Festivals, concerts, concert organizers etc.
- Other companies with the focus on "content"
- Corporates whose products using sound are a limited part of their product portfolio – e.g., Lego, Grundfos etc.

Several large corporates only publish their group results. For these we are using the consolidated figures including possible subsidiaries. This means that certain "brands" etc. are not directly included (but are only included in the group figures).

The total number of companies within the analysis is 604.
For all companies with more than 20 employees (64 companies) the figures used in the analysis are taken directly from the latest published annual report (www.virk.dk) – typically the annual report for the fiscal year of 2021. Some minor pieces of information were taken from individual company websites etc.

Not all figures have been made publicly available for these 64 companies, for instance, export figures and market capitalisation. Where figures were unavailable, we used the following estimates (estimated part of the total aggregated figures)

- Revenue – estimated to 1,75 times the gross profit (4%)

- Gross revenue – estimated based on a gross margin of 61,7% (calculated as the average for 90% of the industry revenue) (10%)
- Explicit export figures are available for 90% of the total revenue in the industry. A minor number of companies do not publish export figures. Each of these are individually accessed, and the overall picture is that either they have a very high export or a very low export. These companies are assumed to have an export percentage of either 90% or 10% (13%)
- R&D spendings – 7% of the revenue is estimated used for R&D (18%)
- Market capitalisation – estimated individually as either 8 times the profit or 3 times the revenue, depending on the maturity and nature of each company (29%)

We directly analysed 64 companies. For the remaining companies, average figures have been estimated based on samples and available figures:

- Average number of employees is 3
- Revenue/employee estimated at DKK 1.4m
- Export value estimated at 10% of the revenue
- Market cap estimated at DKK 3m/employee

The Danish sound industry is dominated by a small number of large corporates accounting for more than 93% of industry revenue. This justifies the selected method of only deeply analysing 10% of the total number of companies:

- Revenue – Fully analysed companies – 93.4%
- Revenue – Partly included companies (typical 15%) – 3.4%
- Revenue – Estimated small companies – 3.2%

The estimated figures are, of course, not 100% certain, but even a medium deviation will not significantly alter the overall results.

The number of employees are based on "the group" figures. Larger companies are including employees in Danish and international subsidiaries. The number of actual employees in Denmark are a part of the gross figures used.

The regional numbers used include international subsidiaries for larger companies.

The cases included have been selected to represent different focus areas within the sound industry and are also expected to be of more general interest. The cases are based on publicly available material, information from the companies, and are coordinated with the companies portrayed.

The data was collected and analysed from May – September 2022.

The list of included companies will be published on our website.

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