

# Embedded Systems for Telemedicine in Sweden, Finland, and Denmark

# 'Practical market insights on your product'

The use of Information and Communications Technology (ICT) in healthcare is widespread in Denmark, Sweden and Finland (Scandinavia). There are established national telemedicine strategies in Scandinavia to promote the segment across regions. Besides the state support and initiatives, the industry (for example, software developers) contributes to further development and higher acceptance of telemedicine. The share of embedded systems used in telemedicine is small compared to other industrial applications. Nevertheless, telemedicine is seen as a high-potential segment and is expected to drive the demand for more complex embedded systems.

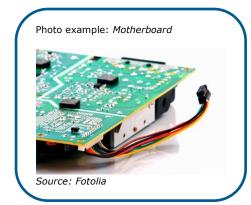
## **Product definition**

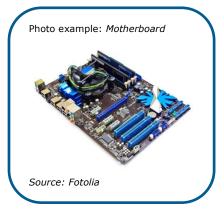
In Telemedicine or e-Health the typical embedded systems used are: motherboards, single board computers and system on module. The product range includes microprocessors (HS-code 85421355), microcontrollers (HS-code 85421360), microcomputers (HS-code 85421966), digital signal processors (HS-code 8541500), peripheral systems (HS-code 85422161), network subsystems (HS-code 85421200), interfaces (HS-code 85422970), memories and memory peripherals (HS-code 8542320), memories for other uses (HS-code 85421940) and other system solutions (HS-code 8542500). In most cases, the embedded software is an integral part of the embedded hardware and is sold as one product.

Embedded systems are used in many applications, including Telemedicine or e-Health. The typical functions of embedded systems in Telemedicine include storage of administrative and medical patient data, use of computers during consultations, the transfer of administrative patient data to reimbursing bodies, transfer of lab results from the laboratory, transfer of medical patient data to other carers and e-Prescribing. However, telemedicine is getting more complex every day. The new generation/evolving functions of embedded systems in telemedicine are real-time communication, adaptive scheduling, resource management, multitasking, and the transfer of data from sensor to destination.

The major suppliers of embedded systems in Europe are <u>Advantech</u>, <u>Intel</u>, <u>Kontron</u>, <u>DATA MODUL</u>, <u>Micron Technology</u>, <u>Congatec</u>, <u>Emerson Networks</u> among others. Software and service providers specifically for e-Health in Sweden, Finland and Denmark are <u>Vivago</u>, <u>9Solutions</u>, <u>Ekahau</u>, <u>PhysioTools</u>,

<u>Stanley Healthcare, Viewcare, Danish Medical Data Distribution, LBN Medical among others.</u>





# **Product specifications**

# Quality:

High product quality and compliance with international and the European standards on safety, as well as with national legislation and practices are key for European companies. Product safety is essential, since in many cases people's lives depend on the system, in particular in the e-Health application.

In addition to ISO 9001, RoHS and REACH standards (see "Buyer requirements"), Danish, Swedish and Finnish (Scandinavian) customers expect a high level of reliability in embedded systems. They require product testing to be conducted by the supplier; Automated Optical Inspections (AOI) and In-Circuit Tests (ICT) are the most common tests although more sophisticated testing methods are also used.

Although defect rates of 500 ppm might be acceptable for non-critical applications, defect rates of 50 ppm or less are expected for higher quality suppliers. As these requirements are influenced by different factors, each supplier must negotiate the specific requirements with the customer.

Embedded systems are characterised by the interface, platform, peripherals, and other tools. Embedded systems may also vary in terms of system complexity. Complex embedded systems may include connectivity to a network, a touch screen, real time computing, etc. New generation telemedicine requires real time communication and adaptive scheduling.

Embedded systems are used in highly innovative environments/industries. The ability to offer a customised product design is a key driver in this product category. Customised solutions are required in telemedicine. Customisation may include integration or development of software for existing hardware assemblies, presenting cost benefits for DC exporters because of easier/no shipping.

#### Labelling:

Products marketed in Scandinavia must be labelled in accordance with EU requirements and must provide product information as listed below.

The information in the label must also be electronically readable. Examples of suitable label technologies include:

Bar Codes

- Data Matrices
- Radio Frequency ID

Embedded systems are typically labelled with the description of content, including the following types of information:

- type of product,
- model type,
- quantity,
- net and gross weight (in kilograms),
- supplier/manufacturer name
- supplier/manufacturer location,
- serial number,
- various environmental logos,
- country of origin based on assembly.

# Photo example: Labelling Source: Fotolia

Photo examples:

Source: Fotolia

Packaging

#### Packaging:

- Typically, the buyer defines the preferred type of packaging
- Packaging must protect products from damage and protect consumers from possible injuries by avoiding the use of prohibited chemicals or materials.
- Packaging for products marketed in Scandinavia, must meet certain EU requirements. Make sure that your packaging:
  - has minimal weight and volume;
  - has low levels of hazardous substances and materials in the packaging material;
  - is recyclable.
- Embedded systems are typically packaged in plastic bags and cardboard boxes.

# **Buyer Requirements**

To assure the durability and safety, products *must* comply with the relevant EU regulations and standards. Compliance with 1) *must* requirements, 2) *common* requirements and 3) *niche* requirements, is a basic necessity for *all exporters* in the electronics and electrical engineering sector. Below, you will find all standards that apply to **embedded systems**. Familiarise yourself with guidelines on the application of all *must*, *common*, and *niche* requirements.

# Requirements you must meet

#### 1. CE marking

- For intra-European trade, all embedded systems must be marked with the CE mark. This shows that the product was assessed before commercialisation and that it meets EU safety, health and environmental protection requirements. For embedded systems, the most important Directives on CE marking are:
  - Electromagnetic compatibility (EMC Directive 2004/108/EC).
  - Low voltage equipment (LVD 2006/95/EC),

- Ecodesign for Energy related products (Directive 2009/125/EC), which are not standards but implementing measures,
- RoHS (see below).

For software used in medical devices, the following Directive on CE marking is important:

Medical devices Directive (93/42/EEC)

#### **Considerations for action:**

- Apply for CE marking for all your products, before approaching potential customers in Sweden, Finland and Denmark.
- The European Commission page on CE marking is a useful starting point to find out how the legislation on CE marking is relevant to you; it illustrates the key steps you need to take to comply and have your products CE marked.
- Check information for relevant standards and guidelines on the application of LVD, EMC and Ecodesign in the <u>Buyer Requirements</u> section on CBI's Market Intelligence platform.
- Familiarise yourself with standards that apply for embedded systems <u>here</u> (LVD) and <u>here</u> (EMC)
- Familiarise yourself with implementing measures on ecodesign here
- Read more about CE marking for <u>low voltage equipment</u> and <u>electromagnetic</u> <u>compatibility</u> in the EU Export Helpdesk
- If your target customer industry is medical devices, check the conformity of your products with the Directive <u>here</u> and on The European Commission page <u>here</u>. Apply for the CE marking for software that is used in medical devices.

#### 2. Chemicals

 Use of certain chemicals is restricted by the EU and is regulated through several Directives and Regulations.

**Considerations for action:** Exporters of electronics and electronic components have to meet the requirements under both RoHS and REACH.

Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS). The Directive sets maximum levels for lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE) in electronic equipment (0.01% by weight for cadmium and 0.1% for the other substances). The Directive covers all embedded systems with the exception of the products mentioned in Annex III to the Directive. Since 2013, CE marking has been required in relation to RoHS compliance of final products. This includes technical documentation and a declaration of conformity.

#### **Considerations for action:**

- Make sure that you provide the EU buyer with all information required in relation to chemicals used in embedded systems. Fill out this information in the form required by your EU buyer, e.g., by providing information in Material Safety Data Sheets (MSDS) or software in which you declare the chemical content of your product (e.g. <u>BOMcheck</u> – a collective data system developed by a group of large electronics companies to collect chemical composition information from suppliers).
- Provide the EU buyer with technical documentation and a declaration of conformity for the products supplied.
- **REACH Regulation**. This legislation restricts the use of certain dangerous chemicals (as per <u>Annex XVII of the Regulation</u>) and sets requirements on indicating information about the chemicals used. Manufacturers are required to provide information on the properties of chemical substances used to their buyers.

**Considerations for action:** List all chemicals, including raw materials and additional materials, used in your production process. Check the candidate list of <u>Substances of Very High Concern</u>.

Waste of Electrical and Electronic Equipment (WEEE). If you want to
export embedded systems to Sweden, Finland or Denmark, be aware that
your EU producers are obliged to participate in product take-back schemes.
This does not directly affect exporters from developing countries, but specific
requirements on the design may be set in order to facilitate the reuse and
recycling set out by WEEE.

**Considerations for action:** To have a better understanding of WEEE requirements, familiarise yourself with information published on <a href="mailto:the EU Export Helpdesk">the EU Export Helpdesk</a>.

# **Common Buyer Requirements**

Quality management systems (QMS). If you plan to export to Sweden, Finland or Denmark, all products must meet buyers' quality demands. ISO 9001 and 14001 are designed to make sure that the manufactured and/or exported products to Europe meet the needs of customers. Compliance with VDE (a European standard with several variations) is often also required by Scandinavian buyers.

#### **Considerations for action:**

- Apply for ISO 9001 as quickly as possible and plan for ISO 14001.
- Familiarise yourself with VDE requirements.
- Consider forming a Quality Assurance team within your company that will assure the high product quality required by EU buyers.
- Corporate Social Responsibility (CSR). Scandinavian buyers increasingly look for products that have been manufactured with due respect for human rights, labour conditions and the environment. Bigger EU companies even develop their own CSR policies and require suppliers to conform to these requirements. In particular, workers' health and safety are sensitive topics in Europe, and buyers want to avoid reputation loss.

# **Considerations for action:**

- Understand what CSR policies are required by your customers by checking websites of electronic companies in Sweden, Finland and Denmark.
- An important initiative for the electronics sector is the <u>EICC Code of Conduct</u>.
   Most large electronics companies have implemented this code and require their suppliers to act in accordance with it.
- <u>SA 8000</u> is a certification standard for social conditions. Although this
  certification is not a requirement, the standard is publicly available, so you
  may want to be aware of the most important issues.
- Consider implementing OHS Occupational Health and Safety that deals with aspects related to labour conditions. These requirements are not mandatory, but they will definitely give you an advantage over other DC exporters.

# **Niche Buyer Requirements**

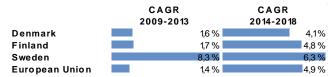
#### **Ecolabels**

 There is a growing niche market for environmentally friendlier/greener electronics. Green electronic assemblies can be sold under ecolabels to a third party, such as the "<u>EU Ecolabel</u>". **Considerations for action:** Familiarise yourself with the "<u>EU Ecolabel</u>" or other European ecolabels. See if your customers need to have your products labelled. Consider selling your components to the manufacturers of ecolabelled products.

#### **Macro-Economic Statistics**

Sweden, Denmark and Finland are economically stable countries with GDP forecasts on the European level. Out of the 3 Scandinavian countries, Sweden has seen outstanding economic growth even during the European economic slowdown years in 2009-2013, and recorded a Compound Annual Growth Rate (CAGR) of 8.3%. In 2014–2018, Sweden is expected to outperform Europe's GDP and to see a 6.3% CAGR, followed by Finland and Denmark with 4.8% and 4.1% CAGR respectively.

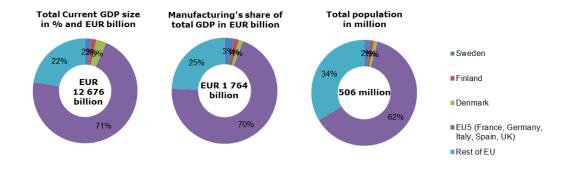
Figure 1: GDP (current prices) Compound Annual Growth Rate (CAGR) for 2009-2013 and estimate for 2014-2018 for Denmark, Finland, Sweden and the EU



Source: IMF 2014, World Economic Outlook Database

Sweden, Finland and Denmark hold 2%, 2% and 3% shares of total GDP, respectively. The manufacturing share of total GDP in these 3 countries is also relatively low and lies at 3%, 1% and 1% in Sweden, Finland and Denmark respectively. The population of the EU was estimated at 506 million in 2013 and Sweden, Finland and Denmark contribute 2%, 1% and 1% to the total EU population.

Figure 2: Key 2013 macroeconomic indicators for Sweden, Finland, Denmark, the EU and selected countries, in € billions (population in millions)



Source: IMF and OECD 2014

# **Trade Statistics**

#### **Production and consumption**

Regardless of differences in production volume of embedded systems in Sweden, Finland and Denmark compared to other EU countries, there are opportunities for DC exporters. The demand for embedded systems is fostered by a very strong ICT sector and high R&D investments in the hi-tech segment and eHealth.

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Figure 3: Production of embedded systems in Sweden, Finland, Denmark, value in € million

Source: Eurostat Prodcom (June 2014)

\*Production of embedded systems in Sweden in 2011 and 2012 is not available

- Annual production value of embedded systems stands at about €32 million in Finland (2012), €145 million in Denmark (2012), and €21 million in Sweden (2010).
- Production of embedded systems in Denmark increased by 10.7% CAGR in 2008-2012. Denmark stands out with its higher production value compared to the other two countries. Denmark is known for well-developed LifeScience segments (including eHealth), energy segments, ICT (in particular software development) and the country's high innovation level. Denmark's strong technical background and the availability of skilled labour are the drivers for the leading position in software development, ICT and eHealth.
- Production of embedded systems in Finland increased by 17.3% CAGR in 2008-2012. Finland is known for its high productivity and innovation rates and is strong in ICT, power and energy, but also healthcare and other industries. Finland's hi-tech environment is fostered by the mobile and gaming segments and outstanding new technology testing opportunities.

Despite the insignificant production value of embedded systems in ICT, Sweden is a leader in production development by converting new technology into products.

# **Considerations for action:**

- Relatively low production of embedded systems in Sweden, Finland and Denmark, but strong software development, testing and innovation opens up opportunities to DC exporters in these countries.
- Regardless of the size of production of embedded systems in Sweden, Finland and Denmark, all three countries are equally interesting for DC exporters for the following reasons:
  - o high labour costs,
  - o strong r&d and innovation,
  - o developed ict segment and software development,
  - strong hi-tech industry driving the demand for complex embedded systems.
- Consider a go-to-market approach through an alliance with local developers
  of embedded systems in Sweden, Finland and Denmark. Find out who are the
  leading market players through local directories, associations or international
  trade shows.

500 12000 Sweden, Finland,
Denmark and Europe
average and Germany (€ million) 10000 400 8000 300 હ 6000 200 Europe total 4000 100 2000 0 0 2008 2009 2010 2011 2012 Sweden Finland Denmark Europe

Figure 4: Apparent Consumption of embedded systems in Sweden, Finland, Denmark, value in € million

\*Apparent consumption (Production + Imports - Exports)
Source: Eurostat Prodcom (June 2014)

Telemedicine is well-accepted by users in Sweden, Denmark and Finland.
Currently the share of embedded systems used in telemedicine is small, but
the importance of this application is growing. The telemedicine application
requires more complex solutions, often with two processors in one interface.
Telemedicine is seen as a segment with high potential, driving the demand for
more complex embedded solutions.

**Considerations for action:** Depending on your product offering, initially target the companies that are active in telemedicine. Carry out research on the internet and find out which companies are supplying this emerging industry, and consider offering your products and/or services to them. Look for this information through specialised associations in <a href="Sweden">Sweden</a>, in <a href="Finland">Finland</a> and in <a href="Denmark">Denmark</a> or international tradeshows (for example, <a href="Medica">Medica</a>).

# **Import and export**

Denmark, Sweden and Finland offer equal opportunities to DC exporters of embedded systems. Denmark is particularly strong with respect to imports of embedded systems and enjoyed increasing import levels even in the European economic slowdown years (2012-2013). The re-export of embedded systems in Finland is not as significant as in Sweden and Denmark.

100 1.2 EU+EFTA, DCs Rest 80 World (€ million) 0.8 60 40 0.4 20 0.2 Total, ₹ 0 2009 2010 2011 2012 2013 Philippines ■ Malaysia Mexico Indonesia ■ Thailand Brazil ■ India Turkey Total EU+EFTA **D**Cs Rest of World

Figure 5: Imports of embedded systems to Sweden, value in € million

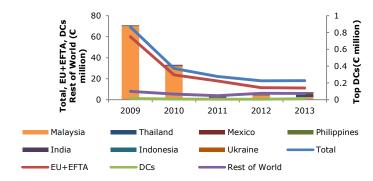
Source: Eurostat (June 2014)

Figure 6: Exports of embedded systems from Sweden, value in € million



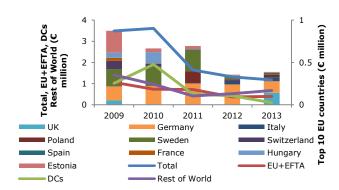
Source: Eurostat (June 2014)

Figure 7: Imports of embedded systems to Finland, value in  $\boldsymbol{\varepsilon}$  million



Source: Eurostat (June 2014)

Figure 8: Exports of embedded systems from Finland, value in € million



Source: Eurostat (June 2014)

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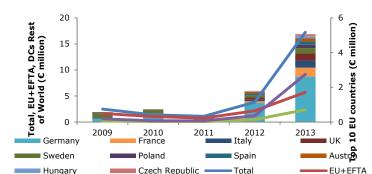
EU+EFTA

Figure 9: Imports of embedded systems to Denmark, value in € million

Source: Eurostat (June 2014)

— DCs

■ Indonesia



Rest of World

Figure 10: Exports of embedded systems from Denmark, value in € million

Mexico

Rest of World

Source: Eurostat (June 2014)

— DCs

- The import volume of embedded systems by Sweden, Finland and Denmark is almost equal. The share of imports of embedded systems from DCs ranges between 6 and 7% (2013) for Sweden, Finland and Denmark, while most embedded systems are imported from other European countries.
- In Sweden and Finland, imports from DCs saw a decline in 2009-2013 (CAGR of -18% and -28% respectively), caused mainly by the economic situation in 2012 and 2013 in the Euro zone. Total imports and imports from the EU were also negative.
- In Denmark, total imports were strong even in the crisis years and demonstrated a CAGR of nearly 25% in 2009-2013. Imports from DCs were growing twice as fast as imports from the EU (CAGRs of 54% and 26% respectively).
- The experts foresee that the trend of separating software and hardware and a shift towards outsourcing the production of hardware overseas will elevate the importance of DCs in the supply chain.
- China remains the biggest importer of embedded systems to Sweden, Finland and Denmark. Imports from Thailand, Indonesia, Malaysia, India, and Mexico saw the strongest growth in Scandinavia in 2009-2013, benefiting from technical know-how in embedded systems and the availability of skilled people in the countries.

## Considerations for action:

 Sweden, Finland and Denmark offer equal opportunities to DC exporters. Be aware of the strong competition with European producers of embedded systems. Work on minimising the entry barriers and maximising your competitiveness. To achieve this ensure that you have:

- o a value proposition,
- a product that fulfils the european quality standards,
- o knowledge of the local language and/or outstanding business english,
  - good understanding of scandinavian business culture.
- Regardless of the geographical position, exporters with strong technical backgrounds and good reputations in the production of embedded systems have significant advantages. Work on continuous quality improvement as this is critical in the telemedicine application.
- Sweden is the biggest exporter of embedded systems out of the 3
   Scandinavian countries, followed by Denmark. In Sweden, over 60% of exports go to Europe. In Finland and Denmark, Europe accounts for approximately 30% of embedded systems exports.
- Denmark saw the strongest growth of total exports of embedded systems out
  of the 3 Scandinavian countries, up by CAGR 62% in 2009-2013. Exports of
  embedded systems to Europe have increased by a CAGR 36% over the last 5
  years, with an exceptional export performance in countries with a strong
  (automotive) manufacturing basis such as Hungary, the Czech Republic,
  Austria, France, and Spain.
- Finland's key cooperation partners are Germany, UK, Italy, and Poland, and all of these export destinations except for Germany saw significant growth in 2009-2013.

#### **Considerations for action:**

- Through the cooperation with local suppliers of embedded systems in Sweden and Denmark, you will indirectly be able to reach out to other significant European markets that are supplied through the country's trade hub.
- Target Finland primarily to meet the in-country demand for embedded systems, since exports don't play as significant a role in Finland as in other Scandinavian countries.

#### **Trends**

The European telemedicine market is expected to be worth over € 5 billion per year by 2015. However, the market is not yet developing on a large scale and there are only a few good examples of solution transfers across healthcare centres. The growing usage of telemedicine services, including the interaction between doctors and patients, is an opportunity both for patients and manufacturers in related industries. (Source: European Commission)

The use of Information and Communications Technology (ICT) is widespread in **Denmark**, and there is an increasing focus on tele-homecare. eHealth in Denmark is seen and implemented as a natural extension of healthcare in general. Denmark avoids regulating eHealth with specific regulations and there is little legislation in terms of eHealth in Denmark. Nevertheless, telemedicine is of high importance in Denmark and is supported by national eHealth strategy plans. The latest National Strategy for Digitalisation of the Danish Healthcare Sector 2013-2017 aims to make the use of telemedicine more widespread in the healthcare sector and encourage the full use of the shared medication record sundhed.dk, among other goals. (Sources: epSOS, Statens Serum Institut)

Besides the Health Portal sundhed.dk, the use of telemedicine in Denmark is supported by a secure health data net MedCom and different electronic patient record systems.

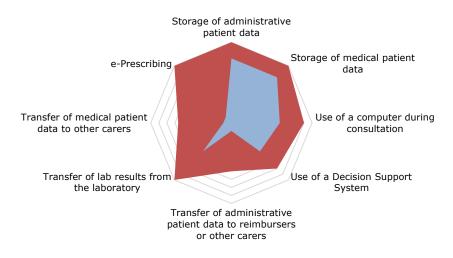
ICT in the following services is particularly strong:

- Storage of administrative and medical patient data,
- Use of a computer during consultation,
- Use of a Decision Support System,
- · Transfer of lab results from the laboratory, and

E-Prescribing.

Figure 11: eHealth use in Denmark and in Europe

# eHealth Use in Denmark and in Europe



Source: empirica, Pilot on eHealth Indicators, 2007 (link)

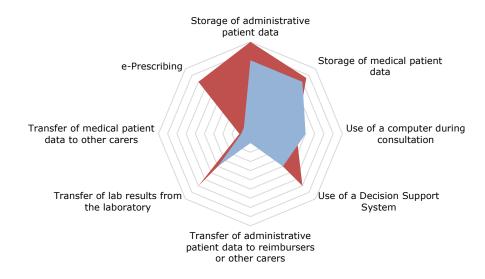
The widespread use of Telemedicine in Denmark is also supported by the industry. Innovative software developers in Denmark have contributed towards the segment via, for example, open source Telemedicine software called OpentTele which was developed by <u>Silverbullet</u>.

The use of ICT in healthcare is advanced in **Sweden** and it exceeds the European average in the following services:

- Storage of administrative and medical patient data,
- Use of a Decision Support System,
- Transfer of lab results from the laboratory, and
- E-Prescribing.

Figure 12: eHealth use in Sweden and in Europe

eHealth Use in Sweden and in Europe



Source: empirica, Pilot on eHealth Indicators, 2007 (link)

Currently one of the main challenges in eHealth is to provide interoperable solutions between different facilities and regions, as the healthcare service is organised regionally in Sweden. The country's telemedicine strategy aims to provide safe, accessible health and social care of high quality based on public need.

Sweden's strategic plan aims to establish a more efficient, accessible and safe eHealth ICT infrastructure by means of:

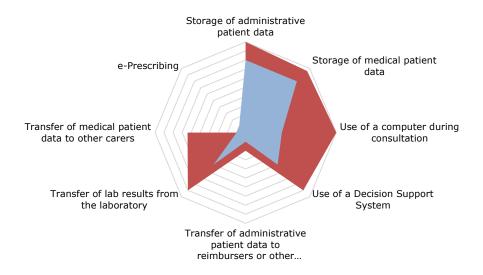
- · bringing regulations in line with extended ICT use,
- creating a common information structure,
- creating a technical infrastructure.

**Finland's** use of ICT in eHealth exceeds the European average in the following services:

- Storage of administrative and medical patient data,
- · Use of a computer during consultation,
- Use of a Decision Support System,
- Transfer of lab results from the laboratory, and
- Transfer of medical patient data to other carers.

Figure 13: eHealth use in Finland and in Europe

eHealth Use in Finland and in Europe



Source: empirica, Pilot on eHealth Indicators, 2007 (link)

Finland promotes Telemedicine through different marketing activities by the <u>Finnish society of telemedicine and eHealth</u>, and it is supported by the industry's innovative approach to hi-tech segments.

# **Considerations for action:**

- Pursue the opportunities in the telemedicine segment in Denmark, Sweden and Finland through a value proposition to local manufacturers of telemedicine devices.
- Approach the local manufacturers of Telemedicine devices at international trade-fairs (e.g., <u>Medica</u>) or other venues.
- Consider sharing your knowledge and take part in pilot projects. Check the
  buyers' websites to see which projects they are currently working on. In
  addition, familiarise yourself with the current telemedicine projects <a href="here">here</a> and
  consider offering your support, if the relevant experience and capacity are in
  place.

For more information on market trends, please refer to <u>CBI Trendmapping for Electronics and Electrical Engineering</u>.

# **Market Channels and Segments**

- The importance of authorised distributors is growing in Europe. OEMs are increasingly shifting the multi-partner cooperation approach to a singleprovider/EMS. An EMS supplier typically provides value-added services that include:
  - o resolving complex logistics problems,
  - o providing local support services,
  - o sourcing hard-to-find components,
  - o providing small volume procurement,
  - $_{\odot}$   $\,$  minimising costs and saving time for OEMs/ODMs.

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**Considerations for action:** As an alternative to the direct contact with manufacturers of telemedicine devices, consider supplying EMS providers in Sweden, Finland and Denmark. Look for local EMS suppliers through local directories and international tradeshows such as <a href="Medica">Medica</a> and <a href="EmbeddedWorld">EmbeddedWorld</a> (look for lists of participants).

Internet blogs are a new sales channel for embedded systems suppliers who
want to attract high-end customers. Manufacturers use the blog to showcase
their expertise by posting about technical topics and discussing them. This
enables direct interaction with a customer's design team. This approach has
proven successful in many markets.

**Considerations for action:** Consider specialised internet blogs in demonstrating your professional skills and experience. You can use these forums as intelligence centres through which to introduce your company and your ideas.

For more information on market channels and segments, please refer to <u>CBI</u> <u>Channels and Segments for Electronics for Electronics and Electrical</u> <u>Engineering</u>.

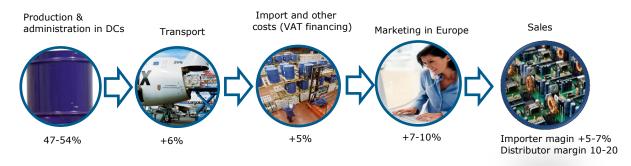
#### **Price**

Embedded systems have a wide price range - from €50 to €1300 in Europe, depending on the specifications and application. Suppliers that are present in several European countries have harmonised their prices; any differences in pricing may occur because of the different logistics, taxes, and other local costs.

Embedded Systems	OEM volume price range, €
Motherboards	50-150
Single board computer	75-900
System on module	250-1300

Be aware of different costs and value chain margins that add up to the product price. Production and administration costs of the manufacturer usually make up 47-54% of the end price (OEM volume price). Production and administration costs should include all raw material costs, development, labour, and other fixed and administration costs. To develop a unique selling proposition, DC exporters will have to understand their own costs, liabilities and responsibilities, and analyse product market price levels.

Figure 14:



#### **Considerations for action:**

- Strive to keep overall production costs significantly lower than in Scandinavia, to compete with domestic manufacturers.
- Work on production process optimisation and delivery time reduction.
- Make the production process more efficient and flexible by introducing a modular production approach and using different technologies.
- Minimise the risk of damage during production and meet customer requirements in terms of product quality and delivery time.

# **Field of Competition**

See <u>CBI Market Competitiveness for Electronics and Electrical Engineering</u> and <u>CBI Buyers' Black Box</u>, as the market competitiveness of embedded systems in Sweden, Finland and Denmark does not differ significantly from this general overview.

#### **Main Sources**

#### Europe

- Eurostat, URL:
  - http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home
- Eurostat Prodcom, URL:
  - $\underline{\text{http://epp.eurostat.ec.europa.eu/portal/page/portal/prodcom/introduction}}$
- Organisation for Economic Co-operation and Development (OECD), URL: http://www.oecd.org
- German Association for Electrical, Electronic & Information Technologies VDE, URL: <a href="http://www.vde.com">http://www.vde.com</a>
- Medica International Trade Fair for medicine, URL: <a href="http://www.medica.de/">http://www.medica.de/</a>
- Embedded World International Trade Fair for embedded solutions and services, URL: <a href="http://www.embedded-world.de/">http://www.embedded-world.de/</a>
- epSOS European Patients Smart Open Services, URL: http://www.epsos.eu
- Embedded Systems innovation, URL: <a href="http://www.esi.nl/">http://www.esi.nl/</a>
- European Health Telematics Association, URL: <a href="http://www.ehtel.eu/">http://www.ehtel.eu/</a>

# Denmark

- Statens Serum Institut, Denmark, URL: <a href="http://www.ssi.dk">http://www.ssi.dk</a>
- MedCom, Denmark, URL: http://medcom.dk/
- Ministry of Foreign Affairs in Denmark, Invest in Denmark, URL: http://www.investindk.com/
- Danish Society for Clinical Telemedicine, URL: www.dskt.dk

#### Sweden

- Swedish ICT Research Institutes, URL: www.swedishict.se
- The Swedish Trade & Invest Council, URL: <a href="http://www.business-sweden.se/">http://www.business-sweden.se/</a>
- Swedish eHealth Agency, URL: http://www.ehalsomyndigheten.se/default.aspx

# Finland

- Finnish Society of Medicine and eHealth, URL: <a href="http://www.telemedicine.fi/en/">http://www.telemedicine.fi/en/</a>
- National Institute for Health and Wealfare, URL: http://www.thl.fi
- Government Agency Invest in Finland, URL: <a href="http://www.investinfinland.fi/">http://www.investinfinland.fi/</a>

More information

CBI market information: Promising EU export markets.

EU Expanding Exports Helpdesk - <a href="http://exporthelp.europa.eu">http://exporthelp.europa.eu</a> - go to 'trade statistics'. Eurostat - <a href="http://epp.eurostat.ec.europa.eu/newxtweb">http://epp.eurostat.ec.europa.eu/newxtweb</a> - statistical database of the EU. Several queries are possible. For trade, choose 'EU27 Trade Since 1995 By CN8'. Use the guide 'Understanding Eurostat: Quick guide to easy comext'

International Trade Statistics - <a href="http://www.trademap.org">http://www.trademap.org</a> - you have to register

This survey was compiled for CBI by Global Intelligence Alliance in collaboration with CBI sector expert Günther Fandrich

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