

Jernkontoret research and development activities

I. Jernkontoret as association

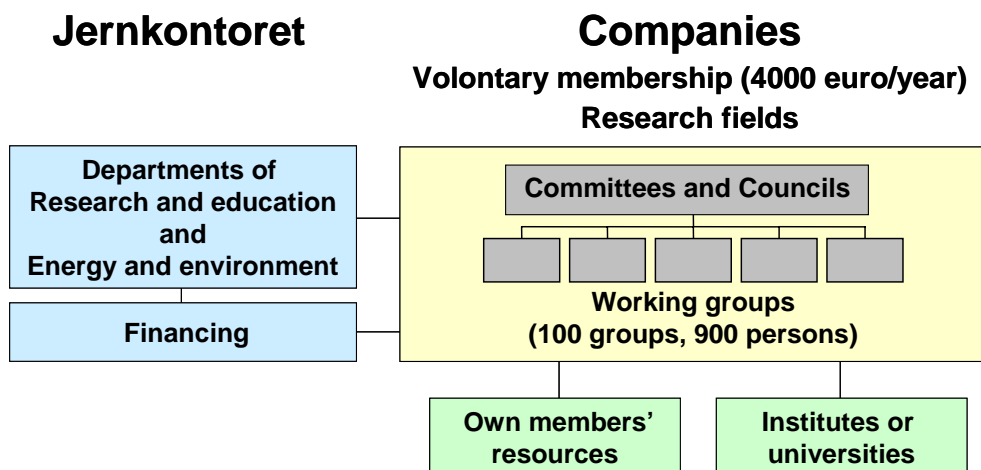
Jernkontoret represents the interests of the Swedish steel industry in matters such as trade regulations, statistics, branch lobbying in e.g. energy and environment and R&D. Its first by-laws were approved in 1747 by King Fredrik I. This makes Jernkontoret Sweden's oldest branch association and one of the oldest in Europe. During its first year Jernkontoret started the advisory service and technical research activities that have substantially contributed to its central position within the Swedish iron and steel industry.

II. Jernkontoret's Research and development in the Swedish steel industry

Swedish steel producers have a strong focus on competence. Today, every tenth employee within the Swedish steel industry is either a Doctor of Engineering, a Master of Engineering or a technician. Approximately SEK 800 million is invested annually in R&D, which is approximately two per cent of the Swedish steel industry's turnover.

The main part of the R&D expenditure, some 80–90 %, is carried out within the various steel companies, while the remainder, 10–20 %, is cooperate research. The result is that there is a wealth of new products launched with virtually every Swedish-based steel company involved.

III. The organisation chart of Jernkontoret's Nordic research



IV. Jernkontoret´s Joint Nordic steel research

Jernkontoret conducts extensive technical cooperate research together with the steel producers in the Nordic countries. The current organisation dates back to the 1920's. The steering of the research is organized through eleven technical groups (TO – teknikområde):

- TO 21: Ore-based metallurgy
- TO 23: Electric arc furnace – Ladle metallurgy
- TO 24: Casting and solidification
- TO 31: Strip and plate
- TO 32: Bar and profile
- TO 33: Wire
- TO 43: Stainless steels
- TO 44: Non-destructive testing and measuring techniques
- TO 45: Analytical chemistry
- TO 51: Energy and furnace technology
- TO 80: Powder metallurgy

The technical groups decide on research projects to be carried out , seek financing and follow the development of the on-going research activities. Each project has a project group consisting representatives from steel companies, suppliers, customers and from the various organizations carrying out the research.

V. Most common research organizations are:

- University departments,
- MEFOS - Metallurgical Research Institute AB,
- Swedish Institute for Metals Research (SIMR),
- Swedish Corrosion Institute (KI)
- Steel producers in the Nordic countries.

This close co-operation between the steel industry and the research organization from start of a project to accepting of the final report is a very efficient way for introduction of research results for practical application.

The R&D activities involve more than 900 persons. The total annual turnover (member fees, external financing and in kind) was for 2003 about 160 MSEK.

The environmental research that is not linked to process development or improvement is a separate organisation within Jernkontoret. The steering group is the Environmental Policy Group which organizes the research in two sub-groups, the Environmental Council and the Product Ecological Council.

VI. Evaluation of current research activities

Evaluations of the Jernkontoret's research show that the joint organisation is efficient in generating results of immediate use to the industry. A recent evaluation of the government funded cooperate research projects shows a high return on capital spent. The total pay back was five times, with a lever effect of eleven.

Reference:

John Olof Edström: Statsstödd gemensam forskning inom Sveriges stålindustri – satsningar och resultat. Utredning genomförd på uppdrag av Jernkontoret, juni 2003.

VII. Example of network within the joint Nordic steel and metals research

During 1999 – 2003 a research programme on heating and metalworking was carried out. A total of 28 different research projects were carried out. Each project had a project group consisting of representatives from the steel industry and the research organizations. The projects comprehended 234 meetings in 33 project groups and steering committee. About 200 persons participated.

The mean frequency of participation within the project groups was 70,3 %. The largest companies (which together represent some 90 % of the steel industry's total turnover) had a frequency of participation of:

Sandvik Materials Technology	80 %
Outokumpu Stainless	70 %
Ovako Steel	70 %
Rautaruukki	88 %
SSAB Svenskt Stål	88 %

Following companies participated in the research programme.

AB Sandvik Materials Technology	Mustad & Sön A/S
ABB Automation Technologies	Outokumpu Fabrication Techn. AB
Advanced Process Control AB	Outokumpu Poricopper Oy
AGA Gas AB	Ovako Steel AB
Autofina Chemicals Inc.	Pacwire AB
AvestaPolarit AB	Petterssons Järnförädling
Bodycote CMK AB	Rautaruuki Steel/Fundia
Control Technology Centre Ltd.	Sarlin Furnaces AB
CSM Materialteknik AB	Scana Steel Söderfors AB
DDS A/S	Scania AB
EFD Induction AB	SKF Service AB
Erasteel Kloster AB	Skylbergs Industri AB
Fagersta Stainless AB	Springwire Sweden AB
Grytgöls Bruk AB	SSAB
Gryts Bruk, AB	Sydgas AB
Haldex Garphyttan AB	Turco France
Henkel Norden AB	Uddeholm Strip Steel AB
Hofors Energi AB	Ugnsbolaget Tabo AB
Hörle Tråd AB	Vattenfall AB
Imatra Steel Oy Ab	Wirsbo Stålrör AB
MIDROC Electro AB	Volvo Lastvagnar AB
Morgårdshammar AB	Åkers Sweden AB

VIII. Web pages; Main research instances of the proposed MISTRA research programme

- HiK – University of Kalmar
<http://www.hik.se/english/>
- IVL Swedish Environmental Research Institute Ltd.
<http://www.ivl.se/en/>
- KTH - The Royal Institute of Technology
<http://www.kth.se/eng/>
- MEFOS - Metallurgical Research Institute AB
<http://www.mefos.se>
- MiMeR - Minerals and Metals Recycling Research Centre
<http://www.km.luth.se/kmp/default.asp>
- Minpro AB
<http://www.minpro.se>
- SIMR - The Swedish Institute for Metals Research
<http://www.simr.se/HEMSIDA/IMEnglish.nsf?OpenDatabase>
- Gjuteriföreningen - The Swedish Foundry Association
<http://www.gjuteriforeningen.se/eng/>