Si.
Swedish Institute.

Topic suggestions for seminars in connection with the exhibition

Smart Industry – unlocking the potential

Contents:

Topic suggestions for seminars on smart industry and new materials

Sweden has expertise in many areas related to smart industry and new materials. Below are themes to be used as inspiration by Swedish embassies and consulates when planning an event. There are experts and specialists available in each area that can contribute to the process of further developing the right seminar content for a specific audience. Suggestions for organisations that diplomatic missions can contact are listed under the respective seminar point.

1. Innovation when big corporations and start-ups meet

Both large companies and start-ups are important in the pursuit of future innovations. The big companies want new solutions and ideas. Start-ups want resources in the form of capital investments and customers. When they interact, both the driving force and the speed of innovation increase. Several initiatives that bring together large established enterprises with start-ups exist in Sweden. One of those initiatives is Ignite Sweden.

Suggestions for seminar focus:
- How do you eliminate obstacles and create the right conditions for collaboration between big companies and start-ups that accelerate the digitalisation of industry?

- How does the national initiative Ignite Sweden work?

Experts:

www.ignitesweden.org

2. 5G enables digitalisation of industry

5G enhances and simplifies digitalisation. It comes with better performance and capacity as well as faster response times. Several exciting projects with 5G in industry are up and running, including in one of Boliden's mines in northern Sweden where nine stakeholders collaborate to test how mobile applications in a heavy industrial context can contribute to increased security and improved productivity. Mining represents one of the world's most inaccessible work environments, and success here means there's a great likelihood for success in other industries as well.

Suggestions for seminar focus:
- What does 5G mean for the digitalisation of industry?

- Experiences from the digitalisation of the Boliden mine in Kankberg.

- Digitalisation requires cooperation between industries and suppliers. How do you reach agreements such as Service Level Agreements that make it natural to share information with each other?

- How can the experiences from the 5G project in the Kankberg mine be applied to digitalisation in other industrial sectors and contexts?

Experts:

www.sics.se

3. Initiative for the strategic supply of skills

In order to take advantage of the opportunities that globalisation, digitalisation and sustainable development offer, new technical and leadership skills are in demand. The issue of skill supply is a challenge that no company or industry can solve on its own. In Sweden, many different collaborative initiatives are in place to ensure industry's short- and long-term skill supply. It involves everything from internship programmes that inspire young people to choose a technical career, to developing industry-relevant educations that match the needs of businesses.

Suggestions for seminar focus:
- What kind of skill is needed in the future? How can we work to secure the future need for higher technical skills? What is the role of companies and industry?

- How do we get more young women to be interested in technology?

- Tekniksprånget – How does the collaborative initiative that inspires more young people to become engineers work? How is it used to capture the interests of young women? What are the success factors and what have the effects been?

- Teknikcollege – How does it work and what role do companies have in the development of the programmes?

Experts:

www.teknikspranget.se

www.teknikcollege.se

4. Sustainable production

Industry resource utilisation needs to be redirected towards increased sustainability and a more circular economy, which will generate solutions to society's challenges, but also bring competitive advantages and opportunities for sustainable growth.

A report on the subject:
www.vinnova.se

Suggestions for seminar focus:
- What does sustainable production mean?

- What's the status of Swedish industry in terms of sustainable production?

- What are the greatest opportunities and challenges with the transition to sustainable production?

- What is the role of government in terms of long-term instruments, regulatory frameworks, research and development initiatives, as well as procurement that promote the transformation into a fossil-free and circular economy?

- Rapid technological development meets with people and an organisational culture – how do you get the whole company on board?

Experts:
www.vinnova.se

5. Automation and robotics – a Swedish future industry

Automation is a Swedish future industry of great importance for competitiveness and for the major issues of resource use, energy and the environment. The term automation covers all systems concerning measurement and control of the manufacturing processes where productivity, quality, environmental management and human interaction are in focus. These are areas where Swedish companies and institutions of higher learning hold leading positions.

There are several collaborative initiatives and innovation programmes aimed at securing and strengthening Sweden's position in automation, including the cluster Automation Region, which combines business, government, research and education in automation. There's also the strategic innovation programme Process Industrial IT and Automation (PiiA), which will enhance the process industry's use of digital technology and their implementation of digital business and operational models.

Suggestions for seminar focus:
- How does Sweden work to speed up the digitalisation of industry? What are the challenges and opportunities?

- How does automation and robotization affect the workforce, and how are the competence needs of companies affected?

- In what areas is Sweden at the forefront and how can the nation's competence create value for other countries?

Experts:

www.automationregion.com

www.sip-piia.se

6. 3D printing and additive manufacture

Additive manufacturing, or 3D printing, is expected to revolutionise the manufacturing processes of industry. 3D printing makes it possible to create physical objects from a digital three-dimensional design. It can be done with many different types of materials and can be used to manufacture anything from individually adapted medical dressings to advanced metal details with reduced spillage.

Leading companies in Sweden's manufacturing industry recently joined forces and started Amexci. It is a major collaborative initiative that gathers expertise in additive manufacturing in order to increase the rate of innovation for metal parts and components.

Suggestions for seminar focus:
- What happens on the research front and how far has the development of additive production come in Sweden?
- What is Amexci and how does the collaborative initiative work? What are the success factors and challenges to make the initiative work?

Experts:

www.amexci.com

7. New materials from the forests

An intensive development of new materials from the forest is underway. The materials have a variety of characteristics depending on the intended application. Wood, for example, is made stronger, safer and more malleable. Paper and cardboard are made more elastic and are equipped with built-in intelligence. In the future, it might be possible for us to manufacture batteries, window glass and medical implants with material from the forest.

The strategic innovation programme Bioinnovation is based on the strategic innovation agenda 'A bio-based economy', which will help increase Sweden's competitiveness in the field. The goal is for Sweden to complete the transition to a bio-based economy by 2050. The programme's starting point is to establish cooperation across industry boundaries, primarily in forestry, chemicals and textiles.

Suggestions for seminar focus:
- Insight into the latest research on new materials from the forest.
- What kind of cooperation is required for the vision of a bio-based economy to become reality by 2050?
- Nanocellulose – a completely renewable material derived from wood fibres.
- Active materials add value to the packaging industry.

Experts:
www.vinnova.se

8. The new material graphene

Graphene is a new material that is expected to solve several major societal challenges in health, clean and efficient energy as well as smart and environmentally friendly transportation. Examples of applications are new lightweight materials with unique electrical and thermal properties, new energy transfer and storage capabilities, gas and biosensors, and new packaging materials.

The goal is for Sweden to become one of the world's top ten countries in utilising graphene. The strategic innovation programme Graphene helps to establish graphene in Swedish industry, strengthen knowledge transfer between different sectors and help Swedish graphene-based products reach the market.

Suggestions for seminar focus:
- What role is the material graphene expected to have in the future and how does it affect industry?

- How is Sweden working to become one of the world's top ten countries to utilise of graphene?

Experts:
www.vinnova.se

9. AI in industry

Artificial intelligence (AI) has no single definition or generally accepted demarcation. Simplified, it can be said that it is about the ability of a machine to imitate intelligent human behaviours. Applications of AI have already been of great importance for the development of internet platforms, information retrieval, image recognition and automatic translation, but the practical penetration of AI has largely been limited within the business and public sector in Sweden.

However, in the last decade, access to electronic data and computer power has increased rapidly, which has significantly improved the conditions for AI applications in different areas. There is no doubt that AI will be of major importance to the future of industry.

Suggestions for seminar focus:

- Machine learning and AI in industry – what's happening today and in the future?

- What are the possibilities and challenges of artificial intelligence and how far has Sweden come in the field?

- How does the innovation agency Vinnova work to stimulate the implementation of AI in business and the public sector? Real-life examples.

Experts:

www.vinnova.se