SMART

POHJOIS-SAVO
The capital of Pohjois-Savo region, **KUOPIO**, is a university town with a population of approximately 120,000, located by lake Kallavesi. The Kuopio region, including the growing and vibrant **SIILINJÄRVI** of 22,000 people, is one of Finland’s most dynamic growth centres when measured by metrics of vitality and competitive variables.

With a population of 21,000, **VARKAUS** is a modern industrial town located in the southern part of the region. The town’s success is based on international activities particularly in the energy technology and wood processing industries.

With its population of 21,500 people, **IISALMI** is an important hub for the northern part of the county. The Iisalmi region and particularly **VIEREMÄ** are known for their internationally esteemed machine industry, strong wood industry and varied food production industry.

**SUONENJOKI** is famous for its strawberries. The region’s strawberry fields and seasonal greenhouses produce one third of the whole country’s strawberries and raspberries. Finland’s largest jam factory also operates in the region.

The top professionals and varied natural resources of Pohjois-Savo offer great opportunities for growth and the development of innovative products and services.
Top-notch training and expertise

The University of Eastern Finland is one of Finland’s largest research universities. With 15,000 students, the university employs nearly 2,800 people. This multidisciplinary university offers degrees in over 100 major subjects. There are four departments: the Department of Philosophy, the Department of Natural Science and Forestry, the Department of Health Sciences and the Department of Economic Sciences.

The University of Eastern Finland emphasises collaboration between different disciplines in its activities. The core interdisciplinary fields of research are centred around four global challenges: aging of the population, lifestyles and health, learning in a digital society, encountering different cultures, mobility and borders, and environmental change and dwindling natural resources.

The Savonia University of Applied Sciences is one of Finland’s biggest and most varied universities of applied sciences. The organisation trains top professionals in seven areas: Design, Business, Sustainability, Travel and Hospitality, Music and Dance, Technology, and Social Welfare and Healthcare. These varied training programmes offer the opportunity to complete a degree either as a full-time student, part-time alongside work, or flexibly at the Open University of Applied Sciences.

The training units are located in Kuopio, Iisalmi and Varkaus. In total, the Savonia University of Applied Sciences has 500 employees and nearly 6,000 students.

Additionally, region has an expansive network of professional training. Savo Consortium for Education and Ylä-Savo Vocational College are responsible for versatile vocational training of youth and adults.
Success stories in the machine and metal industry include forest machinery (Ponsse), specialty vehicles (Profile Vehicles), hydraulic pile driving machines and hydraulic cylinders (Junttan, Hydroline) and mining machinery (Normet). Various global leaders in energy technology (Andritz, Foster Wheeler), mechanical wood processing (Keitele Group, Lunawood, Stora Enso) as well as in the chemical and mining industry (Yara) also operate in the county.

The county has over 200 export businesses whose product and service innovations are top-notch within their respective industries. These globally well-known brands include Bella fiberglass motorboats, Amphion and Genelec sound systems as well as Myontec smartwear solutions.

Pohjois-Savo has plenty of top-notch international expertise in the technology industry. These businesses accounted for 40% on the county’s export activities and 20% of its employees.

In Pohjois-Savo, six areas of development with strong international know-how and business activities have been identified, where through the advancement of technological solutions and expertise, the vitality and competitive edge of the economy can be ensured. These areas are: machine and energy technology, wood processing, the food industry, wellbeing technology, tourism, and, spanning across the others, water and biorefinery.

The regional economy currently relies on the machine and energy technology, wood processing and food industries. The success of these industries is vital to the region, and investments are made to ensure there is expertise and available workforce in these areas as well as to ensure the renewal of the industries. The prerequisites for functional services and construction are mainly the result of development in these industries and in export activities. The wellbeing industry as well as water processing and biorefinery are new, rising areas of business, and by strengthening these, Pohjois-Savo aims to make its economy more versatile.
Innovation for client needs
Product innovation aims at developing products according to client needs while creating added value. Using digital solutions, the client or end user of a product can be included in the development process. Unique and superior products set you apart from your competitors. Innovation should result in a quick return of investment. Product development is streamlined by a collaborative effort with clients and the manufacturing network.

Collaborative development within a network
As a prerequisite of maintaining profitability and a competitive edge, production methods must be developed to enhance profitability. Profitability is improved e.g. with automation, robotisation, effective welding and assembly techniques, the application of digital solutions and by developing methods of leadership.

New entrepreneurs and growth partnerships
Creating added value is crucial. The aim is to create customer-oriented service concepts, recognise customer needs and respond to them. Product and service innovation must be sped up. Entrepreneurship is strengthened via growth partnerships with larger companies operating in the market. Businesses in the industry are supported with investments in training and development as well as in making new areas more attractive.

International energy technology and expertise
Productive energy production creates added value for the customer, which is at the core of an energy technology provider’s business idea. In developing energy technology, project skills, planning, understanding of the production and service chain, understanding of the energy technology of different fuels as a well as installation skills are emphasised. Growth and new entrepreneurship arise from a skilled network of partners and subcontractors. The digital product and client documentation, effective delivery processes and quality and cost levels of the partnership network will be improved.

World-class technologies

MACHINE AND ENERGY TECHNOLOGY

Growth in the industry requires an increased capacity and development of the wood processing logistics and robotics. By developing measuring technologies and information network-based services, operations such as forest evaluation, marketing and the analytics of wood materials and products can be enhanced. In product innovation, chemical and mechanical wood processing as well as other related activities create a basis for wood-based biorefinery, other new products and a new circular economy.

In developing the industry, customer-oriented service and project skills in developing construction and production are key. Automation is also a growing trend in the wood processing industry. The circular and bio economies create business opportunities for both wood-based and other materials.

Wood as a material creates additional value in large-scale construction projects. This requires that wood construction networks be developed. We need planning skills in wood construction, digital planning and project management, wood product development, combining different building materials and managing the lifecycle costs of wood construction projects. The aim is to increase the use of wood as a building material in public development projects. Growth and new entrepreneurship arise from a skilled network of partners and subcontractors. The digital product and client documentation, effective delivery processes and quality and cost levels of the partnership network will be improved.

WOOD PROCESSING

Savonian wood is relied on across the world

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The entrance to the Jätkäsaari area in Helsinki is getting a new, unique wooden building complex called Wood City. The wooden buildings are constructed using LVL wooden veneer panels manufactured by Stora Enso in Varkaus. New, innovative construction methods have made wood a viable building material for projects traditionally dominated by concrete and steel.
The primary goal of the industry is to support food export activities and food culture as well as strengthen the Savonians’ pride in their local food production chain. Food production in the county (milk, berries and fish) provides opportunities for the development of products aiming both for health and indulgence. In product innovation, the development of food products and agriculture is both market and customer-centred. The goal is to build good practices and global examples with the various products and areas of production.

Ethical production has become an important competitive factor in the food industry, and this is taken into account throughout the entire production chain. Accountability and transparent operations also require quality development, where expansive, farm-specific data sources are used. Developing packaging processes is also a key issue for the industry. With smart packaging, the freshness and quality of products can be monitored, customers can be provided with information on products and the production chain can be tracked. This type of development can help food processing businesses stand out in the market, and it can also be beneficial for export activities.

**Knowledge-based wellbeing**

In the health sector, wellbeing technology is expected to see the greatest growth. Pharmaceutical research, development and production activities have long been carried out in Kuopio. In implementing new innovations, software and information technology data analysis and AI, virtual and augmented reality, measuring and sensor technology, automation, information networks, logistics and marketing activities are used.

The local manufacturing of pharmaceutical products and developments in other areas of pharma logistics have resulted in considerable changes in the production methods. The industry requires the same technologies as innovation, in addition to IoT, robotisation and Lean methodologies. Through the developing of services and pharmaceutical logistics, the services are enhanced and quality improved. New growth and entrepreneurship can be seen in the areas of personal health monitoring technologies and other monitoring services.

**Growth through new products and export activities**

- **Toripha**, Suonenjoki
- **Finnforel**, Varkaus

**Knowledge-based wellbeing**

- **Toripha** will launch Finland’s first industrial scale HPP (high pressure processing) plant in the autumn of 2018 in Suonenjoki.

- **Medikro**, Kuopio

**Wellbeing Technology**

- **Bittium**, Kuopio

**Knowledge-based wellbeing**

- **Saimaan Tuore** aims to become Finland’s best-known brand of fish products by 2020 and plans to establish new nurseries abroad.
Pohjois-Savo, primarily Kuopio, has a hub of water expertise that is varied, multidisciplinary and is formed by a number of different organisations and businesses. Their strengths are water microbiology, water chemistry, groundwater and mining water expertise as well as water purification and monitoring technologies. The water industry in Kuopio has particular know-how in mineral industry waters, including the research of risks to the environment and bodies of water that the mining and refinery of minerals have, as well as the dissolution of minerals into natural water reservoirs. Product innovation in the water industry focuses on risk management, the development of purification methods that can be industrially applied, environmental safety and on health impacts. The core areas of application include mining, industrial and agricultural water processes. Production methods are developed for monitoring and optimising water and purification processes. Additionally, digital services are developed for control and monitoring activities as well as for achieving real-time operations. Growth and new entrepreneurship are expected to arise with the new applied purification and analysis methods being developed at the water industry’s technology and development hub.

An expansive network of water expertise

Finnpulp Oy, a company originating in Finland, is preparing to build a massive softwood pulp mill in Kuopio. According to the plans, the mill will be located amongst some of Finland’s largest forests and its annual production capacity will be 1.2 million tons per year. It will utilise the world’s most modern production technology.

Biorefinery refers to new ways of using biological materials, the locally most significant of which is wood. The development of the biorefinery industry requires expertise in various fields, including pharmacy, medical science, pharma development, nutritional science, biochemistry, physics and bioinformatics. Biorefinery offers new opportunities to traditional medical know-how and for new applications e.g. in food production. Potential applications include new, wood-based materials in pharmaceuticals, as food additives, as animal fodder and in smart packaging for food products.

A large number of different molecules can be separated from wood, some of which are extremely difficult and expensive to manufacture synthetically. In addition to energy production, various uses for wood molecules can be found e.g. in surfacing, pesticides, filtering and purification materials, food additives, pharmaceutical products and water purification.

Versatile wood

Biopallo’s fast technique is based on a closed aerobic method, where a reactor will decompose different types of refuse into sanitised, harmless compost within 24-48 hours. Following a short (1-4 month) period of post-composting, the compost can be used either for improving soil quality or be further refined into organic fertilisers or planting beds.

The only phosphate mine in Western Europe and Finland’s largest open mine operates in Sillingeri.
Internationalisation, nature tourism and events

A competitive edge for the travel industry is sought through internationalisation and attractive, high-quality products and packages offered in the international market. The strengths of the travel industry can be found in nature.

Nature tourism is at the core of development. This provides opportunities for nature tourism products e.g. in fishing, development of routes, waterway travel, hunting, foraging, hiking etc. Event travel is also strongly featured in the development. Culture and cultural travel products belong in the field of content travel.

Sales and marketing emphasise digitalisation and embrace all the new tools and opportunities it brings.

Development requires resources, visibility, new talent, international marketing practices, cultural knowledge and a vision of what is needed to achieve true internationalisation. As a result, inter-county collaboration is developed under the brand Suomi Lakeland.

Tahko Ski Lift Pitch is a startup event that pairs entrepreneurs with investors in a ski lift chair, on the stunning slopes of the Tahko Ski Resort in Kuopio.

Read more: www.tahkoslp.com