

The logo consists of a blue rounded rectangle containing the text "ProcessIT Innovations" in white. The background of the entire cover features a light gray grid of small dots, with a large, flowing, blue wave-like shape in the center. This shape is composed of many thin, overlapping lines and contains numerous blue circles of varying sizes, some of which are larger and more prominent than others.

**ProcessIT
Innovations**

ProcessIT Innovations Annual Report 2013

A Research and Innovation Centre

ProcessIT Innovations is a research and innovation centre which, along with universities, IT companies, the primary industry in northern Sweden and its supplier companies, works to develop competitive new IT and automation solutions for the process and manufacturing industries.

ProcessIT Innovations is run as an innovation network, and its strategic concept is to create projects in the most efficient way possible where researchers and IT companies, along with process industries and their supplier companies, can tackle the IT and automation challenges that this primary industry is facing.

The aim is to enhance regional and national primary industries, as well as to strengthen the regional IT and supplier companies' international competitiveness as well as establish a leading European research and development centre in the field of automation.

The expected results are:

- new products and services from existing or newly established companies
- improvements in competitiveness for primary industry
- strong and relevant research programmes
- new business opportunities for primary industry and its suppliers
- regional growth through the expansion of existing and newly established companies.

STRONG 2013

Business year 2013 has been a very successful year for ProcessIT and its partners on account of the launch of two very comprehensive initiatives.

This includes the national strategic innovation area Process Industrial IT and Automation, PiiA, and the extensive European initiative Arrowhead, Europe's largest research project in the development of automation for manufacturing, energy and process industries.

ProcessIT Innovations has actively contributed to both of these initiatives in order for them to be realized. These investments are extremely large, with a budget of SEK 220 million for Process Industrial IT and Automation and about SEK 615 million (EURO 68 million) for Arrowhead.

VITAL NETWORK

The strength of ProcessIT Innovations' strategic idea lies in the commitment and capability of the players involved in the innovation system.

The business community in the region is responsible for the ProcessIT Innovations initiative. Today, the process and manufacturing industries, its supplier companies, IT companies and the universities of Umeå and Luleå are involved. Since 2004, when ProcessIT Innovations won the VINNOVA's VINNVÅXT award, four additional coastal municipalities and the counties in Västerbotten and Norrbotten have become involved in the collaboration.

More information can be found at:
www.processitinnovations.se

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“It’s a question of economics, environmental and social sustainability.”



Sustainable development our guiding principle

Sustainable development is a question of the careful utilisation of our raw materials, minerals, forests, water and wind.

We have a common responsibility to one day be able to return what we have borrowed from future generations.

ProcessIT Innovations has achieved great success in the meeting between new technologies and traditional enterprises. Smart intelligent technology solutions emerge when high-class research meets the needs of primary industry. It is a characteristic of ProcessIT Innovations that we should be proud of.

SUSTAINABLE DEVELOPMENT

In these meetings, the pursuit of sustainable development is an important basis. It is about economic sustainability, about environmental sustainability and social sustainability.

A current example entails reducing the ground pressure of forestry machines during harvesting. Researchers at Umeå University are working with extremely advanced simulations that provide manufacturers of forestry machines with greater know how into how tracks on harvesters and forwarders need to be designed in order to protect the woodland. It is amazing what this new simulation technology can mean.

Another example is how researchers from Luleå University have keenly contributed to the Arrowhead

platform, Europe's largest research project in the development of automation for manufacturing, energy and process industries where a significant part concerns sustainable development.

EQUALITY

Sustainable development also embraces issues of equality and a holistic view of our entire region. We also need to invest in quality childcare, varied leisure time and an opportunity for the entire family to live and work in our region in order to develop strong basic industries and for technology companies to become viable. A situation where we fly in and fly out personnel is nothing to strive for.

A holistic approach to equality is fundamental in order for businesses, industries and universities to forge strong skills and be able to show increased productivity.

ProcessIT Innovations is an important player in the creation of future sustainable primary industries, also on a national level. This became particularly evident in the establishment of the new national

strategic area Process Industrial IT and Automation. In 2013, it was one of the first five programmes supported by VINNOVA, Formas and the Swedish Energy Agency to set up one of Sweden's future strong innovation areas.

One of the prerequisites for this national initiative has been all the successful projects and collaborations that ProcessIT Innovations has been responsible for.

MAJOR SKILLS

It is with great pleasure that I can declare that Anders OE Johansson will be programme director of the national initiative Process Industrial IT and Automation.

Anders OE Johansson has, as director of ProcessIT Innovations, been heavily involved in the success the initiative has enjoyed during the last ten years.

At the same time, I offer a warm welcome to John Lindström, who takes over the responsibility of director with Per Levén. Under their management, with our project office and a well-developed network of primary industries, companies and researchers, ProcessIT Innovations will continue to be an important player in the future to promote the needs of the primary industry.

*Magdalena Andersson,
Västerbotten County Governor
Chair of ProcessIT Innovations*

Major investment in Swedish industry

With nearly a quarter of a billion Swedish Kronor, Process Industrial IT and Automation signifies an injection for Swedish process industry. The investment is of great significance for those participating in the ProcessIT Innovations network.



"We can link companies with more partners."

Per Leven,
CSO, ProcessIT Innovations

this initiative it will influence the direction of the whole of Sweden," says Anders OE Johansson, who will become programme manager of the new investment.

COLLABORATION GROWS

During the past ten years as CEO of ProcessIT Innovations, Anders OE Johansson has been able to see how collaboration in northern Sweden between primary industries, technology companies and the universities in Luleå and Umeå has grown with an increasing number of participating parties.

ProcessIT has also grown from strength to strength on a national level becoming a leading player and forming one of the key foundations stones of the strategic innovation programme Process Industrial IT and



"We collect more resources within innovation projects."

John Lindström,
CEO, ProcessIT Innovations

The national initiative Process Industrial IT and Automation, PiiA, involves the collaboration of several players, a larger network of contacts both national and international and new opportunities to finance projects with the calls on the horizon.

This stated Anders OE Johansson, John Lindström and Per Levén during a conversation about the importance of the new national strategic innovation area Process Industrial IT and Automation, which is one of the five strategic innovation programmes that was started in 2013 under the guidance of VINNOVA, Formas and the Swedish Energy Agency.

ESSENTIAL INVESTMENTS

"The strategic innovation programmes represent the most important investment in Swedish industry in the coming years. If we succeed with



"The most important investment in Swedish industry."

Anders OE Johansson,
National Program Manager, PiiA

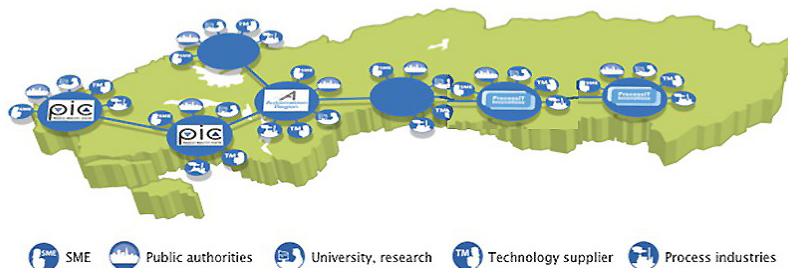
Automation. As this new national initiative gathers momentum, ProcessIT will gain even more opportunities to contribute towards businesses, industries and universities in northern Sweden acquiring the space to grow.

John Lindström from Luleå University of Technology and Per Levén from Umeå University will take over the helm when Anders OE Johansson moves over to the new venture.

A CENTRE POINT

"We will continue to be a centre point for small supplier companies that have great applications, yet do not really know who to collaborate with in order to reach the next level. The same applies if there is a high risk in a project, we can be an initial place to start from," explains Per Levén, CSO of ProcessIT Innovations.

"By means of the strategic innova-



VINNOVA, the Swedish Energy Agency and Formas fund Process Industrial IT and Automation as one of five strategic innovation programmes, with a funding for 2014 - 2016 amounts to SEK 220 million. The programme resides at SICS, Swedish ICT Västerås with a basis in several environments in the country, of which ProcessIT Innovations is one.

tion programme PiiA we can collect more resources that companies can benefit from in the new innovation projects. This will provide support in skills development and the long-term supply of expertise,” says John Lindström, the new CEO of ProcessIT.

A national initiative will result in more funds and activities becoming available. This means that the area will become more visible, which in turn will lead to even more investment and increased capital.

“The networks we work in are becoming bigger which means that at ProcessIT we can connect our participating companies with more relevant parties,” explains Per Levén.

“Many of the players we work with are global so it is positive that we are now able to take a larger and wider approach,” says John Lindström.

“ProcessIT has an extremely good position. We have worked with these issues for ten years and now have good prerequisites in place to take another major step,” continues Per Levén.

The three clearly demonstrate that expectations are high for the coming

years. Through strong national coordination it will be possible to identify more common issues, strengthen the resources and networks, and develop new offers and services, for example, greater technological roadmaps.

NEW BUSINESS MODELS

Consequently, John Lindström and Per Levén are both looking forward to what’s to come.

“We will continue to work with wood, pulp and paper. The manufacturing industry and mining are also important. We are also looking at new business models and training expertise,” says John Lindström.

“We are also taking the initiative to develop the whole innovation system. An important element for us is to take care of major industry challenges,” says Per Levén.

Clearly ProcessIT Innovations is in a strong position to help increase the level of innovation in Northern Sweden and together with Process Industrial IT and Automation to act for strong collaboration on national and international levels.

“ProcessIT has an extremely good position. We have worked with these issues for ten years and now have good prerequisites in place to take another major step.”

*Per Leven,
CSO, ProcessIT Innovations*

Facts about Process Industrial IT and Automation

In 2013 Process Industrial IT and Automation was chosen as one of five strategic innovation programmes by VINNOVA, the Swedish Energy Agency and Formas.

VISION

In 2022 Sweden will be the global leader within Process Industrial IT and Automation

FINANCING

SEK 220 million for the period 2014-2016.

ORGANISATION

The programme resides at SICS, Swedish ICT Västerås. Several environments in Sweden form the basis including ProcessIT Innovations in Umeå and Luleå, Automation Region in Västerås and Process Industrial Centre in Lund and Linköping.

MANAGEMENT TEAM

The programme manager is Anders OE Johansson, and the management team comprises Helena Jerregård from SICS Swedish ICT Västerås AB, Bernt Nilsson from Process Industrial Centre in Lund and Per Levén, CSO for ProcessIT Innovations, Umeå University.

Greater impact with Arrowhead

Arrowhead is Europe's largest research project in the development of automation for manufacturing, energy and the process industries. The project brings together 79 partners with a budget of over SEK 600 million. The initiative is coordinated from Luleå University of Technology.



Fredrik Blomstedt, deputy managing director of BnearIT participates as an entrepreneur in Arrowhead. Jerker Delsing, is project coordinator and professor at Luleå University of Technology.

With a turnover total of EUR 68 million and 79 participating parties from 16 different countries, Arrowhead is an impressive investment in automation in the manufacturing, energy and process industries. The initiative began in March 2013 and will last for four years.

POSITIVE FEEDBACK

"The project has involved a lot of hard work for the university. I'm glad to hear that we received positive feedback for this initial period, especially as it comes from recognized experts in the research field of automation," says professor and project coordinator Jerker Delsing at Luleå University.

Jerker Delsing emphasizes that automation in the process industry is a key issue for the future in the EU. Arrowhead has been started as part of the European Technology Platform ARTEMIS to ensure a common automation standard and promote Europe as a world leader in the field.

ProcessIT Innovations is also involved in the work to build a single European network where researchers and large international corporations and small technology companies can participate.

DISCOVER EXPERTISE

One of the specialised engineering companies involved in the venture is BnearIT with offices in Luleå and

Kiruna.

"Contact with Luleå University of Technology is something we value highly. This means we can take advantage of the expertise that exists in the academic world," explains Fredrik Blomstedt, deputy managing director and technical expert at BnearIT. As a consulting firm, it is not always easy to know just where research stands, but through partners, for example in Arrowhead, a transfer of expertise can take place which is very rewarding," says Fredrik Blomstedt.

"The fact that we are able to showcase ourselves in different contexts is something we also consider an important aspect of the cooperation," continues Fredrik Blomstedt.

"It's not easy to open all the doors yourself. Through Arrowhead we get helping hand," says Fredrik, and notes that a very open atmosphere typifies project meetings and collaborations held within the network.

TANGIBLE RESULTS

Tangible results have already been achieved after the first year. Participation in Arrowhead has led to new collaborations for BnearIT, who has received numerous inquiries from companies in northern Sweden for discussions about service development and system development. Yet results can also be attained on an international level where talks have been held with stakeholders from other European countries.

As BnearIT has also been tasked to act as project manager for one of the on-going work projects, this has made it possible to participate very

actively and quickly see the results of different decisions.

“We have seen that we can achieve a much greater impact if we work together than if we are spread all over Europe. Arrowhead also includes a number of large international companies such as Siemens, Honeywell and Schneider, but there are smaller companies as well, which includes BnearIT with its 30 or so employees. However, despite the difference in size, the number of employees and turnover all participants in Arrowhead are on the same level,” assures Fredrik Blomstedt.

DIALOGUE WITH COMPANIES

“All of our interaction with the major companies has been good, no one looks down on us because we are a smaller company. But we have also worked for a long time in the field, and we are specialists in service-oriented systems,” explains Fredrik Blomstedt.

Jerker Delsing is convinced that working over the coming years in Arrowhead will be very important for participants such as BnearIT. However, the entire international innovation system will also develop through Arrowhead. Already during the first year in 2013, the initiative has offered workshops where standardisation in the field is set for all the world's industrial operations.

“We have received many favourable testimonies and met great interest from the outside world,” says Jerker Delsing.

The overall goal of Arrowhead is to increase European competitiveness in automation for the manufacturing, energy and process industries. This means for example that when an integrated sensor in a bearing on a railway carriage warns that it is about to fail, this should be possible to communicate to the whole chain, not only to the driver of the locomotive and the Swedish Transport Administration - but directly to the supplier of a new bearing. This requires new and supporting technologies.

Brief facts about Arrowhead:

68

EUR 68 million

79

partners

4

4-year project
starting in 2013

ProcessIT.EU

a Centre of Excellence

ProcessIT.EU is an initiative that ProcessIT Innovations has helped to found. In 2013 it was honoured by the EU's joint technology initiative ARTEMIS with the special seal of quality Centres of Innovation Excellence, CoIE.

To receive a distinction such as a Centres of Innovation Excellence by ARTEMIS is a strong sign of quality for successful results and innovations within embedded systems for the process industry. “I am very grateful for this ARTEMIS Label, it is very important for the national work in Sweden and Finland, but also when we hold discussions on a European level with different technology partners,” said Anders OE Johansson, former CEO of ProcessIT Innovations, in conjunction with accepting the certificate and plaque for ProcessIT.EU.

CENTRE OF EXCELLENCE
ProcessIT.EU now forms a centre of excellence with a focus on automation solutions primarily in process industries in a number of European industrial segments. For ARTEMIS, a Centre of Innovation Excellence is a group that unites many countries and many organisations, and which links together R&D players and companies, which through effective planning and cooperation can achieve significant success for innovation on selected markets.

CROSS-BORDER
A Centre of Innovation Excellence primarily aims to create new self-sustaining enterprises that can in turn create jobs. In order to be successful, this type of centre comprises a range of stakeholders in an appropriate environment and who nurture a culture of collaboration and work across borders through different forms of partnership. An ARTEMIS Label is a quality mark from ARTEMIS Industry Association as recognition for the results of innovation in embedded systems.

Unique possibility for the pulp and paper industry

Anders Kyösti, SCA Munksund, Susanne Rutqvist and Hans Thorén, SCA Obbola, as well as Anders Jonsson, ProcessIT Innovations, all agreed, when they summarise the three years of collaboration, that ProcessIT Innovations gives the pulp and paper industry the opportunity to develop.

‘SCOPE North’ is an initiative within ProcessIT Innovations for automation issues, IT solutions and embedded computer systems in the pulp and paper industry. The initiative has been extremely successful with a total of 16 sub-projects during the period from 2011 to 2013 and brings together a broad participation from pulp and paper mills in northern Sweden, researchers, and supplier companies.



Susanne Rutqvist, SCA Obbola

GLOBAL COMPETITION

The pulp and paper industry’s current situation is one of fierce global competition. Yet demand is still good for products of packaging paper from SCA in Munksund outside of Piteå and SCA Obbola outside of Umeå, comment the four.

“Paper for packaging is needed in a world of increased trade,” says Anders Kyösti.

However, even if an increase in internet shopping for example means more individual packages, inter-

national competition is a constant challenge. New efficient technical solutions for optimisation and automation are something that the industry has a great need of.

“We cannot be complacent,” says Susanne Rutqvist, SCA Obbola.

NEEDS INVENTORY

In order to identify the technical solutions that are currently relevant, ProcessIT Innovation has launched a needs inventory where pulp and paper mills have listed the improvements they currently see as the most prioritized. Combined the inventory has resulted in nearly 70 ideas that ProcessIT, in talks with the industry, suppliers and researchers, has been able to choose from to develop further.

CONTINUOUS DEVELOPMENT

“We need to develop. Competi-

tion is extremely fierce and without development we will stand still,” says Anders Kyösti.

All four at the table agree on the need to continually refine process automation.

“Measurement technology is one such area where we see the importance of developing more refined methods, one example is the need to measure purity online in the process,” says Susanne Rutqvist.



Hans Thorén, SCA Obbola

Fundamental to the collaboration in ProcessIT is the exchange of knowledge between stakeholders. This is a possibility that everyone involved sees as positive.

“We find it very useful that through ProcessIT we have a link between the research community and our processes. Many of our ideas

“Many of our ideas would never have been realised without this collaboration”

would never have been realised without this collaboration. We do not have the time in the same way as ProcessIT has,” adds Hans Thoren.

EXCHANGE OF KNOWLEDGE

Anders Jonsson, project manager at ProcessIT Innovations, emphasizes that the exchange of knowledge not only adds value to the industry, but also is significant for researchers at universities. Researchers involved



Susanne Rutqvist, Hans Thorén, SCA Obbola, Anders Kyösti, SCA Munksund, and Anders Jonsson, ProcessIT Innovations, meet for a conversation about what the industry program 'Scope North' has meant.

in the projects have appreciated the contact with primary industry.

"In addition, ProcessIT can also channel the dialogue with sub-suppliers which is very valuable," says Anders Kyösti.

This openness that the pulp and paper industry has introduced in

ter. The ability to reconcile the needs of the industry at an early stage has proven to be very valuable for sub-suppliers.

"This closeness also allows our engineers to develop, they become part of a network with new areas of contact that ensure a good future," says Susanne Rutqvist.

employees out in the industries.

Increased expertise and education are important, not least to provide everyone in the network with an understanding of the extreme availability requirements that the pulp and paper industry has on their processes. It is therefore important that



Anders Jonsson, ProcessIT

allowing suppliers and researchers to become a part of the development of different processes is an important basis for the collaboration within ProcessIT.

"It is actually unique that researchers and suppliers are able to test products and services in live factory environments," says Anders Jonsson.

The closeness between industry, suppliers and researchers means that the journey from prototype to finished product will be much shorter.

EDUCATION

The implemented needs inventory also points towards the importance of education, something ProcessIT Innovations has taken the initiative to through several skills enhancement courses.

"ProcessIT has meant a great deal here, not least for expansive courses about the technology and conditions of the pulp and paper industry," says Hans Thoren.

"Yes, specialist training has been in place for some time, but for us it has been more difficult to find training courses for those who are not directly in the process," agrees Anders Kyösti.

To increase the expertise among all stakeholders is essential. Anders Jonsson agrees and stresses the importance of continual learning. Therefore, ProcessIT Innovations will continue with its approach to find methods to train in real time, in parallel with the current work of

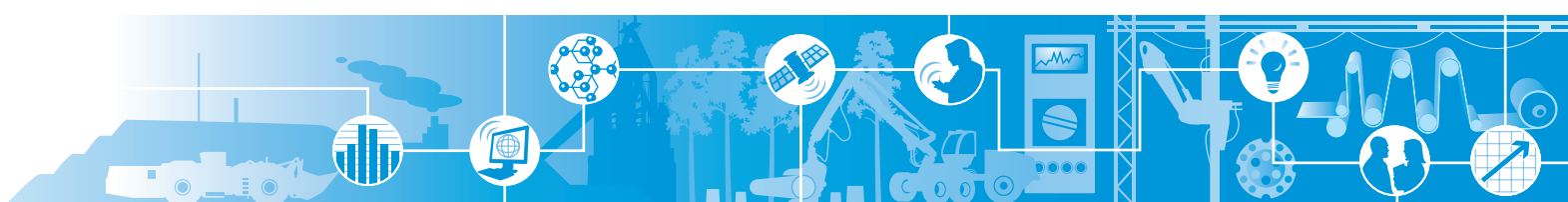


Anders Kyösti, SCA Munksund

the systems are robust and that the models that researchers and suppliers develop are also robust.

That ProcessIT Innovations has contributed to the national initiative in the strategic innovation field Process Industrial IT and Automation is also something that stimulates.

"It's ideal as it means that ProcessIT remains in place, while we also have an extended national initiative that we can be part of," says Anders Kyösti.



Strong partnerships

Collaboration with trade and industry, universities and community organisations is a cornerstone of ProcessIT Innovations. A joint innovation system can be formed based on the rich variety of raw materials and resources available in the region, which can become one of Europe's strongest within industrial IT.



ABB is a leading supplier of products and systems for power transmission process and industrial automation.

www.abb.se



Boliden is a leading global mining and smelting company and the third largest supplier of copper and zinc in Europe.

www.boliden.se



Komatsu Forest is one of the world's largest manufacturers of forestry machines with it head office and technology centre in Umeå.

www.komatsuforest.se



LKAB is a world leading high-tech minerals group and producers of processed iron ore products for the steel industry.

www.lkab.com



SCA is an international paper company that manufactures absorbent hygiene products, packaging solutions and printing paper.

www.sca.com



Skellefteå Kraft is one of the largest producers of electric power in Sweden.

www.skekraft.se



Smurfit Kappa Kraftliner Piteå is Europe's largest kraftliner mills and is a part of the Smurfit Kappa Group.

www.smurfitkappa.com



SSAB is a leading manufacturer of high-strength sheet metal and tempered steel.

www.ssab.com



VINNOVA is a government agency that promotes sustainable growth through the funding of needs-oriented research and development of effective innovation systems.

www.vinnova.se

Investing in your future



EUROPEAN UNION
European Regional Development Fund

The companies make up a key part of the innovation system ProcessIT Innovations. With new services and products in the IT field, they contribute to the continued growth in the process and manufacturing industries. Here are a number of the companies and organisations that have participated in projects and activities within ProcessIT Innovations during 2013 (subject to possible misprints).

Kiruna

LKAB
Midroc Automation
Softcenter

Gällivare/Malmberget

Boliden
Expandum
GeoVision
LKAB
RTC

Kalix

Billrud Karlsborg
Electropolis
Electrotech

Luleå

Alent Drying
BnearIT
DaMill
D-Flow Technology
Eistec
EPN Partners
InternetBay
IUC Norrbotten
Luleå kommun
Luleå tekniska universitet
Länsstyrelsen
MBV Systems
Midroc Automation
Mine Tec
NEAVA
Norrbottens handelskammare
Optac
Optimation
Rubico
SSAB Luleå
Svensk Verktygsteknik
Swerea-MEFOS
Tieto

Piteå

Corrvision Technology
Interactive Institute
Optimation
Piteå kommun
SCA Packaging
Munksund
Smurfit Kappa
Kraftliner
SunPine

Boliden

Boliden

Skellefteå

Adopticum
Argentum
Boliden Rönnskärswerken
Data Ductus
Explicit
Fotonic
GreenExergy
IUC Bothnia
Luleå tekniska universitet
Optronic
Skellefteå kommun
Skellefteå Kraft
SP Träteck

Umeå

Acino
Algoryx Simulation
Anchor Management
CodeMill
Eagerbee
FältCom
Interactive Institute
KnowIT/Candao
Komatsu Forest
Ladokenheten
Logistikgruppen
Länsstyrelsen
Normmejerier
Oryx Simulations
Regionförbundet Västerbotten
Reqsys
SCA Obbola
SeaFlex
Skogforsk
Space-Time Communication
Svenska Försäkringsfabriken
T3
TRIMMA
Umbio
Umeå kommun
Umeå universitet
Volvo IT
Volvo Lastvagnar

Lycksele

Cartesia

Vindeln

Indexator

Örnsköldsvik

BAE Systems
Dömsjö Fabriker
Eurocon
Eurocon Optimation
Kompetenslänken
MoRe Research
M-Real
Processum
ProTak
PulpEye
SEKAB E-technology
Umeå universitet

Mellansel

Häggblunds Drives

Väja

Mondi Dynäs

Sandviken

FindIT

Smedjebacken

Ovako Bar

Sundsvall

Mittuniversitetet

Hudiksvall

Företagsutbildarna

Västerås

ABB Corporate Research

Stockholm

SICK AB
VINNOVA

Storung

Nordkalk

Karlstad

Billrud Korsnäs Gruvön
Företagsutbildarna

Göteborg

Chalmers tekniska högskola

Olofström

Volvo Cars

Kemi, Finland

Digipolis – Kemi Technology Park

I samverkan mellan ProcessIT Innovations och Digipolis har följande företag deltagit:

Outokumpu Stainless Oy, Tornio
Outokumpu Chrome Oy, Kemi gruva
Stora-Enso Oyj Fine Papers, Kemi
Efora Oy, Kemi
Talvivaara Oyj, nikkellgruva, Sotkamo
Rambooms Oy, Lahti
Mionex Oy, Kemi

Narvik, Norge

Forskningsparken i Narvik
Narvik Composite

ProcessIT wins the BSR Innovation Award



Happy and proud for the ARTEMIS Label, from the left Seppo Saari, research director Digipolis, Anders OE Johansson, former CEO, ProcessIT Innovations, and Jonas Gustafsson, researcher at Luleå University of Technology. Photo: Hasse Ferold.

ProcessIT Innovations has been selected as the Baltic Sea region's premier innovator in the field of cross-border innovation and was awarded the International Baltic Sea Region Innovation Award 2013.

The prize was awarded on 29 May 2013, during the BDF Summit, a summit meeting for collaboration in the Baltic Sea region. In total there were 13 qualified nominees involving organisations from more than ten countries.

GLOBAL PLAYER

An important argument in the jury's selection was the fact ProcessIT Innovations has established an international platform with the potential to become a global player in the process industry. The jury stated that ProcessIT had built up a close collaboration with Finland, which has led to a strong European consortium and Europe's largest automation projects.

CONFIRMATION

"We are extremely honoured to receive the nomination. It feels like an acknowledgment for the work that we have done over that last seven to eight years to increase the capacity of innovation in the process industry," said Anders OE Johansson, former CEO of ProcessIT when the prize was awarded.

BSR Stars and Baltic Development Forum, BDF award the Baltic Sea Region Innovation Award. The aim of the prize is to promote global competitiveness and innovation potential in the Baltic Sea region, through groundbreaking methods and smart solutions to common challenges.



Professor Thomas Gustafsson believes that ProcessIT Innovations has made it possible to increase the number of researchers at Luleå University of Technology. Here together with the researchers: Andreas Johansson, Damiano Varagnolo, Rickard Nyberg, Khalid Atta, Thomas Gustafsson, Anas Alhashimi, Mohammed Obaid, Saleh Sayyaddelshad, Dariusz Kominiak, George Nikolakopoulos and Patrick Höhn.

Stronger research with ProcessIT

“New lab, newly employed doctoral students, more senior researchers - the list is long over how ProcessIT Innovations has strengthened research,” says Thomas Gustafsson, professor at Luleå University of Technology.

Professor Thomas Gustafsson leads the research subject Automatic Control at Luleå University of Technology and has been a member along the ten-year journey that ProcessIT Innovations has made. As a researcher, it is clear that the collaboration within ProcessIT offers completely new possibilities.

FIELD ROBOTICS

“The strong collaboration with ProcessIT Innovations has, for example, been a major influence on the development of our new field robotics lab,” declares Thomas Gustafsson.

The laboratory for field robotics has made it possible to study how large machines and vehicles work in outdoor terrain. Volvo CE has provided a full-sized wheel loader, which can be used as an experimental platform for driverless vehicles.

Researchers have received SEK 2.1 million, from among others the Kempe Foundations, for camera equipment that can measure positions down to a tenth of a millime-

tre. There are only one or two other installations in Europe that can handle the same capacity, which is a necessity in order to automate large vehicles.

In addition to helping to set up laboratory environments, ProcessIT has also contributed by making it possible to employ more researchers by providing financial backing for the risks associated with employing new staff.

MORE RESEARCHERS

“Of the 20 of so researchers who work at Automatic Control today eleven are doctoral students. When ProcessIT Innovations began ten years ago there was only one,” says Thomas Gustafsson.

The research group still continues to grow and in 2014 Thomas Gustafsson expects to employ another senior researcher and a doctoral student.

“We have reached a critical mass and security level from where we can work on long-term research issues and not just be short-term project-

bound,” says Thomas Gustafsson.

The publication rate of research articles has also risen sharply. From approximately five per year ten years ago, in 2013 some forty articles were published.

Thomas Gustafsson also stresses that ProcessIT has been extremely important for researchers to make new contacts in the industry. The group is known as research findings reach out to the industry and that researchers give it credibility to enter into collaborations with ProcessIT Innovations. It provides openings in many directions and currently they are working with companies such as ABB, SSAB, LKAB, Boliden, SCA, Skellefteå Kraft and Volvo CE.

“ProcessIT has given us live cases to test our theories on,” says Thomas Gustafsson.

Inspiration from ProcessIT has also meant that more researchers start businesses where commercial products for, among others, dock cranes, paper machines and coal injection plants have been developed.

Collaboration strengthens the region

“Collaboration is an important basis for the transfer of knowledge and skills between university research and education and the remainder of society. Collaboration is also important to stimulate and realise the commercialisation of new ideas,” says Agneta Marell.

As deputy vice-chancellor for collaboration and innovation at Umeå University, Agneta Marell is directly involved in the activities of ProcessIT Innovations.

She believes that it is important to have a good and deep collaboration between academia, the public sector, industries and companies; collaboration based on both the region and

the university strengthening their development.

ProcessIT Innovations engages eminent researchers and also makes up an important part of development in the region, stresses Agneta Marell, and adds that ProcessIT has an important role to play as a forum for collaboration, cooperation and the transfer of knowledge.

“Umeå University wants to support ProcessIT in its on-going work as a bridge between basic industries, technology and research. The fact that we can do this together with Luleå University of Technology is an immense benefit for the whole of northern Sweden.”



Agneta Marell,
Deputy Vice-Chancellor,
Umeå universitet.

Global links

Since the start ProcessIT Innovations has always worked intensively to build up the different forms of international cooperation.

Numerous bilateral collaborations have been established, together with partners in Finland, mainly based on a common developed platform (with the Finnish equivalent ProFi) to build projects.

The collaboration platform Pro-

cessIT.EU has been built up together with partners in the EU, which has vastly simplified establishing project collaborations with European partners.

Besides ProcessIT.EU, there is also a project that focuses on major growth regions outside of e.g. Europe and the USA.

The project, which is called Global Links, aims to further develop

ProcessIT’s ability to create international projects by further internationalising ProcessIT’s network of project brokers.

Methods to create relationships with relevant players in Brazil and Australia will be investigated during the project, and if successful, they will be translated into a further developed internationalisation strategy for ProcessIT.

Jan Björkman honoured



Jan Björkman, research engineer at LKAB, and member of the executive management of ProcessIT Innovations was awarded the ITF Automation Prize 2013 of SEK 50,000.

For the ninth time ITF’s fine Automation Prize was awarded to two deserving ‘automaters’ in connection with ITF Automation days 2013.

Through the prize, ITF wants to honour persons who can serve as role models and sources of inspiration for others who are active in the field

and where young people, through the efforts of the prize winners, are perhaps encouraged to choose a path in just industrial automation or something linked to this.

JURY:

“Jan Björkman has spent his professional life as a measurement and automation engineer at LKAB. He has set the standard for how to design, specify and implement large automation systems. His latest contribution is the automation at LKAB’s

KK4 plant. It becomes really interesting when you consider Janne’s approach to measurement accuracy and what is practically possible in a real industrial environment, taking into account existing standards and what the manufacturers promise.”

The ITF established the prize in 2005 in honour of Day Björklöf when, after his long involvement on itf’s board, he resigned as president of the association.

Investment in bioenergy in China

An industrial collaboration between BioSteam from Västerbotten and the Chinese company Great Resources (GR) has led to a development project around bioenergy combine of more than SEK 150 million.



Lars Atterhem, CEO BioSteam

A demonstration plant for a bioenergy combine will be built in Jilin in northeast China based on Swedish bioenergy technology. This platform will also form the basis for a long-term research collaboration between Sweden and China.

The project is primarily a development of an industrial joint venture between the Chinese company Great Resources GR and BioSteam AB from Västerbotten, founded by Lars

Atterhem, Vice Chairman of ProcessIT Innovations and formerly Manager of business area heating at Skellefteå Kraft.

A research collaboration has then been linked to the project, which provides a great opportunity for the research communities in Sweden and China to participate in the construction of an industrial project developed around the Bioenergy combine (CHPP-plant).

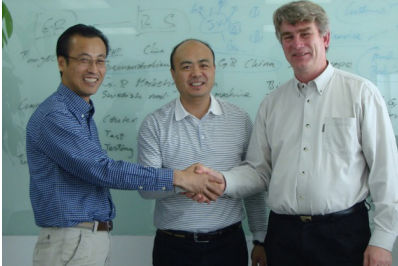
A pilot study project started 2013 in collaboration with ProcessIT Innovations as a basis for BioSteam's China project related to bioenergy combine.

IMMENSE POTENTIAL

The plant that will be built in Jilin, northeast China, will use wood chips as the substrate for the cultivation of edible mushrooms. When the mushrooms have been harvested the spent substrate (wood chips) can be turned into fuel (either in sawdust-like or pellets) and combusted, and provide electricity, new heat for the cultivation and for residential heating and in doing so replace coal burning.

“There is a great potential for tremendous energy and cost streamlining. For many years Sweden has been a leader in bioenergy combine plants and interest in China is big for Sweden’s system expertise,” explains Shaojun Xiong who leads the research project at SLU in Umeå.

Today’s bioenergy combine is



Starting collaboration on bio-energy combine. From the left Shaojun Xiong, SLU, Hong Hao, chairman of Great Resources GR and Lars Atterhem, CEO, BioSteam.

developed primarily for raw forestry materials. An important part in the development of the demonstration plant in China is to develop technologies and plants so that even residues from agriculture can be utilized for energy production.

The cooperation also includes the Swedish Forest Agency and the Chinese State Forest Administration. Luleå University of Technology, Umeå University as well as the China Agricultural University, CAU are also major partners in the research project. VINNOVA, Swedish Energy Agency and some industries in Sweden play their part with a contribution of SEK 10 million for the implementation of the project while Chinese trade and industry will cover the entire investment for the demonstration plant of over SEK 150 million.

CiiR unique research programme

Collaboration with ProcessIT Innovations is important for CiiR, Centre for Inter-organizational Innovation Research. It provides a large network of companies, which push the applied research forwards.

Interest in policy efforts that stimulate innovation has increased in recent years. CiiR, Centre for Inter-Organizational Innovation Research, is a new centre in collaboration between Luleå University of Technology and Umeå University that captures this interest and through research contributes with new knowledge to the field.

ProcessIT Innovations is one of the partners that CiiR worked together with in 2013.

“CiiR focuses on how modern IT and digital innovations open for new forms of work and products with a focus on distributed innovation systems,” explains Håkan Ylinenpää, Professor of Entrepreneurship and Innovation at Luleå University of Technology and director of CiiR.

“With ProcessIT Innovations, and other centres such as Eislab and CDT (Centre for Distance-Spanning Technology), we have partners who work with applied research and commerce. This makes CiiR unique as we through them have access to nearly one hundred companies in what can be described as an empirical lab”.

“This means we get to know what issues are relevant when we start a new project in CiiR. We can test our ideas on the way, which makes it easier to implement new tools and approaches for innovation system development,” explains Håkan Ylinenpää.



Håkan Ylinenpää, director of CiiR, professor at Luleå University of Technology.

New marketplace for industrial applications

A kind of App Store, but for industry. That's how the platform project in ProcessIT Innovations can be described.

The aim is to create a new marketplace for applications within the industry.

"It is difficult for industries to gain an overview of the applications and services that developers design to streamline the industry's processes," says Katrin Jonsson, researcher at Umeå University and project leader of 'Platform strategy for Swedish process industry'.

"At the same time it is also difficult for developers to know what industries are demanding," she adds.

The platform project will help to overcome these shortcomings and links to the ecosystems for raw materials, information services, products, and optimisation available in the industry.

"This is exactly the right time

for us, as there's a huge interest in developing marketplaces that make it easier to develop new applications," says Katrin Jonsson.

The project has been ongoing since 2012 in ProcessIT Innovations and will be completed in the autumn 2014. Last year, in 2013, the work really took off, and a prototype for business to business sales was developed.

The project cost SEK 14.5 million, of which VINNOVA, through the Challenge Driven Innovation (UDI) programme contributed SEK 7 million, the remainder of the funding was covered by the companies and industries involved.

The project consortium includes 19 partners. Among others: Boliden, SCA Packaging Obbola, Norrmejerier, LKAB, ABB, Ericsson Research, Komatsu Forest, Eurocon



Katrin Jonsson, project manager, senior lecturer at Umeå University.

Analyzer, BnearIT, Optimization, T3, Svenska Försäkringsfabriken, Logistikgruppen, ELSYS, Fält Communications, Interactive Institute and the Royal Academy of Engineering Sciences.

Three projects within Scope for the pulp and paper industry

Scope is ProcessIT Innovations' industry collaboration for the pulp and paper industry. Here are examples of three projects run within the initiative.

Development of sensors to measure washing losses

Washing loss is a measure of how well the pulp is washed in the pulp washer. As washing loss is considered an important parameter to monitor there is a need to make online measurements.

In a collaboration between PulpEye, SCA and ProcessIT, PulpEye has developed a sensor that has been tested at SCA's kraftliner mill in Obbola. After a test period in a production environment, the project has managed reach its goal of developing online measuring equipment to measure washing losses. Pulp Eyes is now carrying out further development work.

Energy and Quality oriented modeling and control of REFiners (EQoRef)

Large amounts of energy are consumed when refining the pulp. Refining is necessary in order for the paper to take on the desired properties and more easily be dewatered in the drying process, but it is difficult to refine optimally from quality and energy standpoints. The project's goal has been a more efficient and less energy consuming mill control. A dynamic simulator was developed to simulate various refining processes. In addition, development of ProMoVis, which is used to analyse and visualize various industrial processes, has also continued. ProMoVis is marketed through a newly formed company (OPROVAT EF) and the portal SourceForge.

Mobile Warp - mobile non-contact measurement equipment

One of the most important product characteristics of corrugated board is its flatness - too much warp causes problems in production when converting to boxes. New equipment was needed to easily and safely study how different paper materials as well as storage and transport of the sheets affect the flatness.

CorrVision Technology AB has in collaboration with ProcessIT and SCA Munksund developed mobile non-contact measurement equipment to determine corrugated board warp.

Intelligent conveyor belt roller

A monitoring system will be developed and launched within the project, Intelligent Conveyor Belt Rollers, to increase availability and performance of conveyor belts in primary industry.

The basic structure of the belt roller is a system that consists of embedded electronics and sensors to measure parameters such as temperature, vibration and speed.

The data is transmitted wirelessly to the plant's control room, which permits preventive maintenance and immediate detection

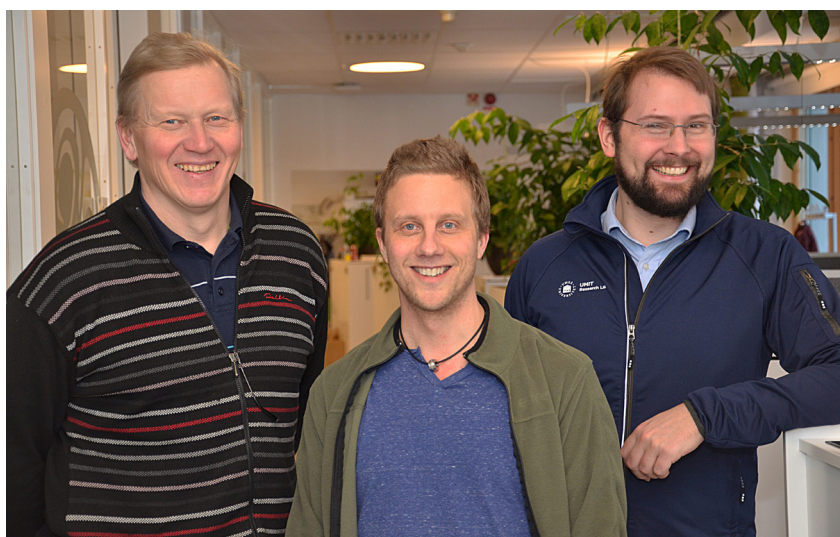
if a failure occurs on the belt rollers.

This will reduce downtime at the plant and in doing so increase availability and plant production while reducing the cost of maintenance.

A commercially marketable system will also be developed and create a viable collaboration between the project partners and the region's primary industry.

Collaboration and simulation

UMIT Research Lab is Umeå University's strategic investment in advanced simulation and software technology. During 2013, ProcessIT Innovations has been an active collaboration partner with UMIT.



Derry Häggström, Oryx Simulations, Martin Servin and Mats Johansson, at UMIT Research Lab are happy with the collaboration in ProcessIT Innovations.

“ProcessIT has given UMIT important contacts with several industries,” says Martin Servin, coordinator of UMIT Research Lab when in conversation with Derry Häggström, founder of Oryx Simulations, he summarises the collaboration with ProcessIT in 2013.

As a research lab, UMIT delivers both strong basic research that leads to scientific publications and applied projects in close collaboration with industry. One of the companies within UMIT's network is Oryx, but also included here are companies such as Algoryx Simulation, Komatsu Forest, LKAB, Volvo CE and several other major primary industries.

“We have many common target areas with ProcessIT. It is a strength that we can demonstrate our collaboration with both ProcessIT as well as UMIT,” attests Derry Häggström.

“ProcessIT has also taken part and highlighted the many challenges and needs in industries,” continues Derry Häggström. Needs, which in turn Oryx has been able to develop products for.

The projects run in collaboration between UMIT Research Lab, Oryx and ProcessIT often concern simulation technology.

PROTOTYPES

“Through simulations, we can eliminate both a first and second prototype. This can save millions in development costs,” explains Derry Häggström, whose company Oryx Simulations develops training platforms for operators of cranes and large vehicles.

The advantages of a simulation are immense,” says Martin Servin. One example he mentions is the work

to optimise the process in a balling drum at LKAB where pellet bullets are shaped. Simulations of the balling drum enables experimentation without stopping production. This may involve testing alternative design of the drum outlet to create an optimal flow of ore balls out onto the conveyor belt.

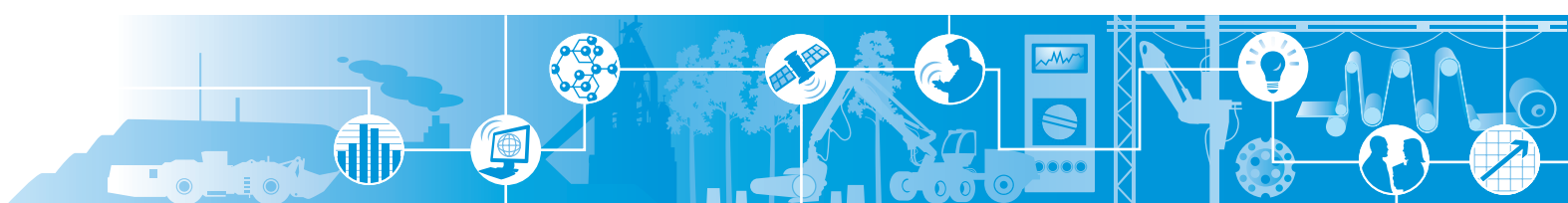
SIMOVATE

In the Simovate project, academia, primary industries and IT companies collaborate to create easy to use simulation software. In the example with iron ore balling drums, Algoryx Simulation and Optimisation has developed simulation tools for granular materials in a CAD environment where users can easily modify their systems and test the new simulation.

“Another example is mining trucks. With simulations it is possible to study how trucks should be designed to improve efficient transportation of granular materials,” says Martin Servin.

In similar ways to these, UMIT focuses on the challenges and needs that have a high relevance for the industry. Innovative technology and extensive collaborations with industrial partners and other players in the community are important parts of the research environment at UMIT.

Over 50 researchers and developers are directly involved in the UMIT venture, and about 30 of these work in the lab in the premises at Umeå University.



Results 2013

Pos		Cash	Own stake	Note
INCOME		28,601,176	16,161,323	1
ProcessIT's basic projects				
1	VINNOVA VINNVÄXT programme	4,352,124		
2	The EU's structural funds	0		
3	The county administrative boards	3,046,593		
4	The municipalities	1,350,000		
5	State companies	900,000		
6	Industry		8,230,404	
7	The universities	-1,616,499		
ProcessIT projects under separate account				
8	SCOPE Norra project	4,849,466	3,567,912	
9	The ProcessIT.EU project	835,136		
10	The Platform strategy	2,908,879	3,746,167	
11	The COBS project	1,080,398		
12	Vision Systems Business Dev Plat - VSB	2,071,377		
13	Process automation, steps 1, 2, 3	1,309,764		
14	Streamlining steel blank prod.	451,156		
15	Arrowhead	6,303,609	616,840	2
14	Summary 5 smaller projects	759,172		
TOTAL INCOME		44,762,499		2
COSTS		28,601,176	16,161,323	
ProcessIT's basic projects				
15	Staff costs	3,177,936	3,567,912	
16	OH	1,769,028		
17	Op., travel, premises, other expen.	1,886,304		
18	Purchased services	1,198,951		
19	Cost of own stake industry		8,230,404	
ProcessIT projects under separate account				
20	SCOPE Norra project	4,849,465		
21	The ProcessIT.EU project	835,136		
22	The Platform strategy	2,908,879	3,746,167	
23	The COBS project	1,080,398		
24	Vision Systems Business Dev Plat - VSB	2,071,377		
25	Process automation, steps 1, 2, 3	1,309,764		
26	Streamlining steel blank prod.	451,157		
27	Arrowhead	6,303,609	616,840	
27	Summary 5 smaller projects	759,172		
TOTAL COSTS		44,762,499		
PROFIT		0		

1 Self-financing in time has been valued at SEK 600/hour according to VINNOVA's recommendations. Which means that the industry has made investments corresponding to almost 29,000 hours.

2 The figures for all Arrowhead companies, in terms of their income and expenses, were not available in conjunction with this summary, which is why only a small part can be reported here. According to the budget that the project planned to and based on the project's activities in 2013 the companies investments should have been a further approx. SEK 12,550,000, which would have given ProcessIT Innovations a total turnover for 2013 of SEK 57,312,499 thousand.

The Board's comments to 2013's result report

2013 was a strategically strong and important year for ProcessIT Innovations with a very good result especially for our national and European/international initiatives.

Nationally, one shining example is that we, along with Automation Region in Västerås and Process Industry Centre in Lund and Linköping, have succeeded in establishing the strategic innovation area Process Industrial IT and Automation (PiiA). Something, which together with our own regional innovation platforms, will considerably strengthen our prerequisites on all levels.

Internationally 2013 has mainly been characterised by the result from our many years of European work, which first resulted in the quality stamp Centre of Innovation Excellence, CoIE, for ProcessIT.EU, and then the initiation of the automation project Arrowhead, which will have a large imprint on all of our activities and on many of our partners.

That in 2013 we have succeeded so well, both nationally and internationally, we see as an acknowledgement that our working methods and strategies have been successful at all levels, which we hope will contribute to additional strength and competitiveness of our partners.

Summary other results from 2013 activities

New products: 21

New services: 8

Process changes: 4

New prototypes: 12

New companies: 1

2013 has seen a strong increase since 2012 of new prototypes (from 3 to 12) and products (from 2 to 21) through projects where ProcessIT Innovations has made it possible or has contributed to their development.

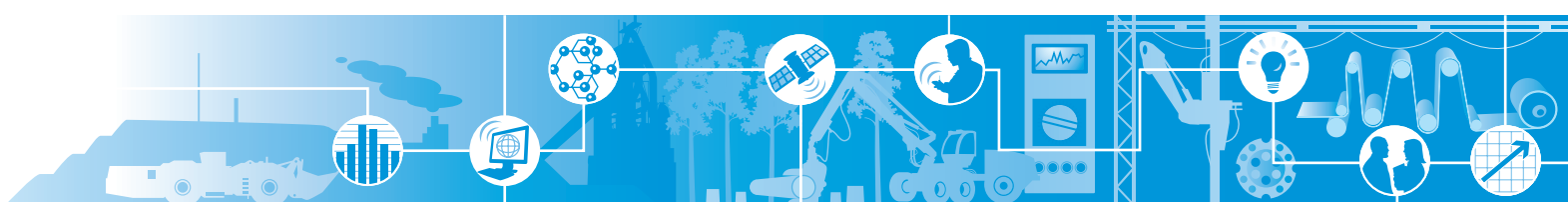
Auditor's certificate

I have audited the profit and loss statement included in the annual report for the year 2013 and found that it is consistent with the financial statements. The value of co-financing in the form of individual work as well as information regarding Umeå University's part in the project is based on external data that has not been included in the accounts at Luleå University of Technology.

Luleå 19/02/2014

Kai Lavonen

Chartered Accountant



A strong foothold in the region's industry, universities and community characterize the board of ProcessIT Innovations. Here are representatives from the process and engineering industries, international suppliers to the industry, IT companies and the universities of Luleå and Umeå. The executive management of ProcessIT Innovations includes people with a very good insight and support in the universities of Luleå and Umeå, the region's major process industries and local enterprises.

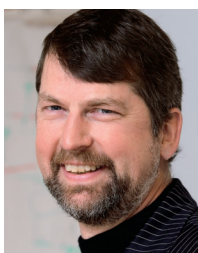
Board ProcessIT Innovations 2013



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Chair
(from 13/06/13)
County Governor
County of Västerbotten



Lars Atterhem
Chair
(until 13/06/13)
CEO Biosteam



Jerker Delsing
Professor, Luleå University
of Technology



Lena Gustafsson
Vice-Chancellor,
Umeå University



Anders Kyösti
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Packaging Munksund



Tomas Lagerberg
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Research, ABB Corporate
Research Sverige



Seved Lycksell
Business Area Manager,
Skellefteå Kraft



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Kent Tano
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Martin Ärlestig
Vice President R&D,
Komatsu Forest

Executive management



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ProcessIT Innovations,
Luleå University of
Technology



John Lindström
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Thomas Gustafsson
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Jan Björkman
Senior Research Engineer,
LKAB



Katrin Jonsson
Lecturer,
Umeå University



Ulf Andersson
Project Manager, Luleå
University of Technology



Kjell Olsson
Project Manager, Luleå
University of Technology



Anders Jonsson
Project Manager,
Umeå University

Project office

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Results 2013

“That we have succeeded so well, both nationally and internationally, we see as an acknowledgement that our working methods and strategies have been successful at all levels, which we hope will contribute to additional strength and competitiveness of our partners.”

ProcessIT Innovations Board of Directors 2013

Process Industrial IT and Automation (PiiA)

The national strategic programme for innovation Process Industrial IT and Automation (PiiA) was established in 2013 with a budget of nearly SEK 220 million. The initiators of the initiative are ProcessIT Innovations together with Automation Region in Västerås and Process Industry Centre in Lund and Linköping.

Arrowhead

Arrowhead is Europe's largest research project in the development of automation for manufacturing, energy and the process industries. The project, which was started in 2013, includes 79 partners with a budget in excess of SEK 600 million.

ProcessIT Innovations has been one of the driving forces behind the four-year initiative.

ProcessIT.EU

In 2013 the international collaboration project ProcessIT.EU was awarded the quality label Centre of Innovation Excellence, CoIE, by EU's common technical initiative ARTEMIS.

ProcessIT Innovations has been one of the driving forces within the project.

21

new products within simulation, professional development, forestry, transport, pulp and paper

12

new prototypes within energy, forestry, mining industry, raw material transport, food industry, mobile data capture

8

new services within transport optimisation

4

new processes within maintenance, raw material supply, global collaboration

1

new company

Investing in your future



EUROPEAN
UNION
European Regional
Development Fund

