



NORWEGIAN
CLUSTERS

2015

*for the future's innovative
industries*

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DIFFERENCE

Collaboration generates challenges, opens doors and builds expertise. These are important ingredients included in a recipe for increased value creation.

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The Cluster makes a difference

Collaboration generates challenges, opens doors and builds expertise. These are important ingredients included in a recipe for increased value creation.

INNOVATIVE CLUSTERS and business environments are strongly preconditioned to take a leading role in the restructuring and renewal of Norwegian industry, and to realise a considerable part of the value creation potential in our existing industries.

Innovation Norway, the Research Council and Siva (State owned industrial development corporation) are in 2015 contributing, through the Norwegian Innovation Clusters programme, with support for 39 cluster projects, divided into 3 that have GCE status, 14 that have NCE status and 22 that have Arena status.

The goal is to contribute to increased value creation in trade and industry by collaboration within the areas of innovation, internationalisation and developing expertise. Norway is dependent upon Norway-based value creation. We need profitable work places that

generate tax income, which can furthermore fund the welfare society.

When Norway takes the step from being in an exceptional position to a position of restructuring, already established industries would be required to do their part of the job. We will then need industry clusters more than ever. The clusters play a key part in development of industry through collaborative activities. They are a driving force and stimulate transverse efforts and sustainable development. They can also be a catalyst for innovation, new initiatives and players that wish to invest. Collaboration strengthens our competitiveness!

The myth about the solitary genius – an entrepreneur or researcher – who presents brilliant innovations that conquer the world without help, is just that - a myth. All innovators are in one way or another linked with networks of companies and organisations.

They innovate through applying new technology, new knowledge, putting together technology and products in new ways in addition to new thinking for established value chains. They learn by communicating with colleagues, clients, suppliers and competitors. They make use of their education, their contacts at educational institutions and research environments and they learn by following development trends.

Innovation research demonstrates that the Norwegian economy is benefiting from a range of strong industry clusters where customers, suppliers and relevant educational institutions are linked through longstanding and binding partnership.

We therefore need more innovative clusters and business environments, also in industries and sectors where it has not traditionally been common to work in clusters.

Economic analyses from Statistics Norway (Statistisk Sentralbyrå) demonstrate that clusters make a positive difference to company accounts in the first years. This is good and reinforces the picture created by other analyses.

This should nevertheless not blind us to the more indirect effects of cluster collaboration on companies'

competitiveness. Too much of the effects of clusters are difficult to isolate and therefore document.

Thus it's worth listening to the source, those who know where the problem lies, when they compete for assignments. With regards to renewing contracts between a cluster and the Norwegian Innovation Clusters programme, the cluster will be evaluated by an independent bureau of analysis. Interviews and questionnaires with leaders in the partner companies form part of the material.

Feedback from company leaders shows clearly that the cluster makes a difference. There are variations in what and how much individual companies benefit from the cluster collaboration, but in order for it to generate an effect the companies must invest both time and resources in the collaboration.

The clusters that succeed have worked systematically over a period of time to establish trust between the partners, put forward an assertive strategy, created good meeting places and stimulated R&D projects. They are a driving force for faster restructuring, they open doors for a global investment, they contribute to looking upwards, they facilitate more industry focused research, they contribute to industry focused education offers and build up forms of innovation that have facilities for testing, simulation and visualisation. All of this contributes to increased value creation in the partner companies. Some more indirectly than others, but they are nevertheless very important.

It's a pleasure to ascertain that a majority of the clusters are good examples of this. This is mirrored in an extensive level of activity with regards to collaborative projects and meeting places in the clusters.

In this magazine we are highlighting and presenting some of the work that is taking place in the clusters, we hope you will find this inspiring. ■



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Contributing to increased value creation

An important effect of the investment in clusters is increased value creation for the partner companies, but this is by far not the only one.

THE PROGRAMME Norwegian Innovation Clusters is to contribute to increased value creation in business by collaborating with regards to innovation, internationalisation and capacity building. Profitability is an important indicator in measuring value creation, but other effects of cluster collaboration can be even more crucial for value creation.

Menon Business Economics has carried out a financial statement analysis of the partner companies in several clusters and they conclude that it has had a positive effect;

- Arena Winter Adventures has improved more than similar businesses, both regionally and nationally. The company owners in the cluster previously

lost more than other corporations in the same industry. Through collaboration they have become more profitable, and have experienced growth in turnover and an increase in the number of employees.

- For Oslo Medtech (from June 2015 "NCE Health Technology"), which took part in the Arena programme from 2009-2014, the growth in income has been 50 per cent higher for the companies involved than for the medical products industry in general from 2008 to 2012.
- In GCE NODE the value creation per employee has been 10 per cent higher than the industry average and twice as high as the value creation in the region in general.

Similar analyses in other clusters would probably have given us the same trend.

That the cluster makes a difference for value creation is also confirmed by an analysis of effects carried out by Statistics Norway (Statistisk Sentralbyrå)

According to the analysis, the partner companies in the cluster have experienced 13 percentage points higher growth in turnover and more than 8 percentage points increase in the number of

employees than in the control group during the first three years of the company's membership in a cluster. The analysis, however, shows a somewhat lower profitability growth than in the control group.

Ripple effects

In addition to the direct economic effects, goal-oriented collaboration and focus generate a number of ripple effects that indirectly increases competitiveness. The cluster programmes e.g. contribute to the following:

- Increased innovation in established businesses by mobilising premier companies and knowledge environments to invest long term and strategically, but also to enter into specific collaborative projects aiming for quicker implementation in the markets.
- Improved attractiveness of the host, so that it will be/remains attractive for internationally oriented companies to invest in Norway.
- Strengthening of industry-focused education and expertise available in collaboration with schools, colleges and universities.
- Transfer of technology and knowledge from one



Key figures for 2014

The Norwegian Innovation Clusters programme includes:

1863 companies

208 R&D units

123 Public development agents

Cluster collaboration:

658 Innovation projects

261 International business development projects

751 mill NOK released by national funding agencies/The EU

308 competence development projects

120 new or upgraded educational schemes

sector to another. This takes place both within the cluster and between clusters.

- To make use of our strong industries and areas of expertise for innovation within new value chains and applications, by taking initiatives within and between the clusters in order to meet the need for restructuring and new business opportunities by technology transfer among other things.
- Development of common innovation platforms, consisting of facilities for testing, simulation and visualisation, incubator and innovation centres, and expertise within innovation processes.
- Links and partnership between entrepreneurs and established businesses, between large international companies and small and medium national companies, and between established businesses and institutions that carry out research, development and innovation.
- Regional business development where the clusters appear like motors for new expertise based business.
- Companies improve their understanding of and make the most of disruptive opportunities, in which the application of new technology, new market trends and business models are important contributions. The links to leading international environments are likely to give them important impulses.

The cluster initiatives also demonstrate how important the country as a whole is for innovation and value creation. Different clusters have different regional centres, but in total the whole country is represented. The success of many of the clusters is founded on a close collaboration between urban and rural areas, private enterprise and research, and different sectors and disciplines.

International links

Norwegian clusters form part of international production and value chains. Some are leaders within these chains, others are perceived as sub contractors. If Norwegian clusters are to be strengthened and retain their competitive advantages the companies will have to increase their expertise on international markets, gain international experience and share these experiences with other participants in the cluster.

Large companies assisting smaller subcontractors' entry into international markets is therefore crucial for the value creation in Norway.

The clusters' link to international markets and international networks is more than a question of supporting the Norwegian economy and achieving more export. This is also a question of securing access for Norwegian companies and knowledge

environments to new knowledge and new technology that has been developed in other parts of the world.

If these industry environments do not manage to gain access to such knowledge, they will soon fall behind in their development.

Strong clusters, with a good combination of innovative companies and solid research and educational institutions, also act as a draw for foreign companies. If they are able to see that there is a strong national competence base in their area in Norway, chances increase that they will establish themselves here or invest in Norwegian companies. Given that they will be investing in people, this also means that it will be more difficult for them to move their activities out of the country.

These are important effects of the cluster programme, even though they are more indirect and difficult to isolate in order to document in an exact way.

We are nevertheless sure that a Norwegian-based business environment is a precondition for value creation in the country, and that the cluster programme contributes positively in a number of areas. ■

Faster restructuring

The clusters are important for faster restructuring of Norwegian industry – in accordance with the companies' premises. As restructuring is demanding, often hurts and is connected with great uncertainty-being challenged could be a salvation.

REGARDLESS OF WHAT we are going to "make a living from after the oil", the answer will be restructuring. The fall in oil prices means the restructuring will have to take place faster. This requires faster and more radical innovation with regards to what we produce and how we produce it. The need for restructuring also gives us an opportunity to take on global environmental challenges.

We see clearly how new technology in the last 10 years has changed people's lives, and the value chains of established companies. How this will develop the next 10-20 years is, nevertheless, more uncertain. What megatrends will prevail, and how can we make the most of this?

According to the report "Disruptive technologies: Advances that will transform life, business, and the global economy" from McKinsey Global Institute 12 megatrends will be responsible for around a third of the world's GDP in 2025.

They believe mobile internet, automation of knowledge work, "Internet of things", cloud technology, advanced robots, self going vehicles, next generation gene technology, energy storage, 3D printing, advanced materials, advanced oil and gas exploration and renewable energy are disruptive technologies that will dominate the development of businesses in the next 10-15 years.

The cluster challenges

Going in a new direction is demanding, particularly when there doesn't appear to be an acute crisis. As a whole, Norwegian trade and industry is doing well. Productivity, employment and local expertise are high.

The economic downturn in Europe in the last 6-8 years has highlighted the unique situation the Norwegian economy has been in during the last years.

When Norwegian trade and industry is to change from an "exceptional position" to "restructuring" the starting point is good, but there is also an additional challenge with regards to realising the need for restructuring.

The clusters contribute to adaptability in trade and industry. A cluster project is per definition a change process, and this will benefit the companies.

Through strategic processes, discussions, knowledge-building and collaboration companies are challenged and inspired to carry out restructuring. By initiating and contributing to funding of common

projects the cluster is ensuring that many good ideas do not only remain ideas, but are put into practice.

A well functioning cluster has magnetic powers with regards to expertise, companies, ideas and capital – which are determining factors for a quick, sustainable restructuring.

The cluster's strategic role for development of trade and industry is the reason Norway and most other countries have developed cluster programmes.

Investing in green sailing

NCE Maritime CleanTech is an example of how companies in one region establish a cluster and thus a platform for restructuring.

- If we hadn't worked together to develop maritime environmental technology, we would have been left behind, says chairman of the board in NCE Maritime CleanTech Ingve Sørfohn.

When the cluster was founded in 2011 and applied for funding from the Arena-programme, electrification of vessels was a visionary idea in large parts of the maritime environment. Likewise the thought of zero emissions and shipping was based solely on renewable fuel.

- Several maritime industry companies in the Sunnhordland region (north of Stavanger), however, glimpsed a large green maritime market in the horizon, and they pulled together in future oriented innovation projects, says Ingve Sørfohn, who is Technical Director of Wärtsilä.

It was proved that they were far from alone. Currently several companies are launching their own "the world's first this-and-that" maritime environmental project. Fortunately the maritime environmental technology companies in the industry cluster between Bergen and Stavanger are moving well alongside this.

At present it's clear to the majority that the future market is within "green", energy effective shipping. This requires new thinking and innovation, and it's about Norway as a shipping nation.

The cluster has, via several collaborative projects,

developed technology and expertise, and in January 2015 the world's first "plug-in hybrid ferry" was used for the ferry line Jektevik (Stord) – Hodnaneset (Tysnes). The cluster is also developing new electrified concepts for other market segments. In this way the cluster contributes to the restructuring of the individual companies and to their investment in "green sailing".

Access to industrial expertise

NCE Systems Engineering, Kongsberg is another example of how the cluster plays a key role in innovation and restructuring. Like many other clusters they have established an innovation company in order to stimulate increased innovation.

Via Kongsberg Innovation, companies and entrepreneurs with new ideas gain access to an extensive industrial expertise and a large network, which includes R&D environments, companies and customers.

- This is contributing effectively to making ideas a reality, says CEO in NCE Systems Engineering, Kongsberg, Torkil Bjørnson.

The unique collaboration with the Kongsberg industry means Kongsberg Innovation can contribute with everything from the idea generation phase and concept to business development, industrialisation and marketing. This gives the projects increased value creation potential, whilst "time-to-market" and risk is reduced considerably.

Conversion of geometrical heat to electricity is one of the focus areas in the Kongsberg cluster. Here the cluster has created a strategy on how expertise from the oil & gas sector and "systems engineering" can be used to find good solutions for one of the world's largest challenges; production of renewable electricity.

Linking sectors

From the cluster world there are also a number of examples of how collaboration between different

sectors have contributed to restructuring. One of them being the Arena cluster Norwegian Smart Cluster, which originated in the Stavanger region.

The cluster's aim is to contribute to innovation, development and commercialisation of new solutions within welfare technology. Health and welfare technology is a fast growing market worldwide.

- We can develop the welfare technology through collaboration with the oil industry. In order to capitalise on this we are dependent on municipalities and hospitals taking an active role as qualified buyers, says CEO in Norwegian Smart Care Cluster, Arild Kristensen.

The cluster has initiated innovation groups in a few prioritised areas in order to stimulate innovation and new idea generation. The groups have participants from companies, municipalities, education, research and other contributors. The goal with the groups is to create a meeting place where people exchange experiences, needs and ideas that can potentially lead to development of new research projects and solutions in and between the relevant companies.

- The oil and gas sector is world leading in areas like safety, training, use of video, use of robots and signal handling. This can be used for good purpose within welfare technology, says Arild Kristensen.

The centre for acute medicine (Senter for akuttmedisin) and the helicopter simulator at Sola are two examples of expertise environments that can contribute to innovation within welfare technology. Innovation groups have been established in the following areas:

- Futuristic old-age housing
- Safety and security
- Video within healthcare
- Training, simulation and development

- We have begun an exciting journey. Falling oil prices and restructuring in the oil and gas sector makes us take off faster. The companies will now be more open to invest onshore, with new application of technology that has given us success offshore, says Arild Kristensen. ■

More industry-oriented research

The clusters can compensate for capacity and long-term views for the individual companies by stimulating collaboration around more industry-oriented research. And we need more of this.

TRANSFORMING new knowledge from the research arena to new, commercially profitable products – is demanding, particularly for small and medium size businesses.

- The clusters are a hotbed for research-based innovation, says the man responsible for the Arena-programme, Hans Eirik Melandsø.

Many of the mature clusters have gradually built up some expertise in obtaining funding for industry-oriented research projects in the cluster. Several of the less mature clusters are following suit. All GCE- and NCE-clusters, and most of the Arena clusters have taken on a role in this area. The cluster administration role can be project coordinator, driving force, and mentor/supervisor.

Via active businesses and competent facilitation the cluster can function as a platform for qualifying common projects, that the companies would not have had sufficient resources or expertise to carry out on their own.

In the cluster small and large partner companies can share experiences and find collaborators in order

to apply to the Research Council (Forskningsrådet)'s programmes for industry-oriented research, the EU's Horizon 2020 or other programmes. This year eight of the Research Council's programmes are announcing 900 million NOK for research and innovation projects for industry.

- Some clusters have created an international network, which the companies can capitalise from, in international competitions, such as the EU announcements. Thus the clusters have taken on a proactive role and created an arena of opportunities for the companies, says Hans Eirik Melandsø.

The EU-programme Horizon 2020 gives us many opportunities, but there is extensive competition and the programme is making tough demands, particularly for small and medium size companies.

In order to apply for funding from Horizon 2020 a good R&D business case is required, and often a European consortium with participants from minimum three European countries, which requires more long term positioning.



EU-programmes in the cluster

NCE Health Technology (former Oslo Medtech) is a good example of how the cluster can contribute. In the cluster companies, hospitals and research institutions are working together with regards to development of medical technology. They have established their own EU-programme and invested.

- Investing in Horizon 2020 has given results. As a result of our EU-programme 2014 our partners have taken part in eight Horizon 2020 projects, and NCE Health Technology is the coordinator for the largest project, says CEO of NCE Health Technology Kathrine Myhre. The cluster had Arena status in the period 2009- 2014.

Horizon 2020 is the world's largest research and innovation programme with a budget of 80 billion Euro for the period 2014-2020. The objective of the programme is to improve economic growth and increase employment in Europe. Norway is taking part as a fully functioning member. The programme has three priorities:

- Outstanding research
- Competitive business
- Societal challenges

Under each priority there are sub programmes, where one is invited to present project proposals. The programme is open to applications from companies, researchers, and organisations and can support the whole value chain from basic research and applied research to product development and market maturing. The applications are judged according to how new and creative the idea is, whether the applicants are the best at implementing the project and whether there are clear and positive gains for society.

The grant can constitute up to 100 per cent of the project costs. This is evidently very attractive for the companies and their owners.

- An increased elderly population and increased cost in the health sector are defined as a societal challenge by the EU, which targets a cluster working with health and medical technology and new solutions for the care sector, says Kathrine Myhre.

NCE Health Technology was early on aware of the potential of Horizon 2020. Together with central cluster partners they started as early as 2012 to map out challenges and potential as a foundation for the cluster's EU strategy. The challenge was to acquire the funding of the initiative. In the spring of 2013 NCE Health Technology engaged senior expertise in order to prepare a clear strategy for the investment, and based on this, the cluster applied for means in the autumn of 2013 to establish an EU programme with the aim of increasing the companies' participation in Horizon 2020. The municipality of Oslo and the county of Akershus saw the potential in the initiative and contributed with 1045 million NOK in 2014 via the VRI and RIP programme in the region. This made it possible for the cluster to engage the senior expertise in 2014, and the cluster was able to offer its partners tailor-made mentoring and expertise in how to prepare good project applications.

- A good project application for Horizon 2020 requires expertise and patience, in addition to a good idea and a good network. In order to have this in place, financing is necessary, says Kathrine Myhre.

In 2014 applications were sent from the NCE Health Technology-cluster for a total monetary support of 100 million NOK. Applications of 60 million NOK have been granted. The cluster is the coordinator for one of the projects in Horizon 2020. In 2015 activities in this area will increase further.

Qualifying process

- Writing a project application to Horizon 2020 should be dealt with like a process. We have acquired expertise and developed a methodology in order to complete the application in the best possible way, says Kathrine Myhre.

The cluster assists the partner companies in the qualifying process with guidance, network and methodology. The cluster applies the methods Logical Framework Approach, Lean Launch Pad and Business Canvas Model in this work.

- These are complicated applications that are to address a business model. A person, who knows the system, the application requirements and is thinking

innovatively on behalf of the companies, is therefore a critical success factor, says Kathrine Myhre.

In the first round at NCE Health Technology they assess whether the applicant is sufficiently motivated to go through the application process, and if there is sufficient time before the deadline. Six months is often a minimum. In the next round workshops are run with the company in order to qualify the basis for the application. Then they work with other companies, networks and research environments to establish a good consortium.

The methodology contributes to adapt the project application to the EU programme's priorities, expectations and requirements from important stakeholders and the company's growth strategy. This contributes to raising important questions and uncovering weaknesses early on in the process. Guidance, methodology and networks are particularly important for small and medium companies that have not been through such an application process earlier, in order to qualify in the international competition.

Driving force in "the valley of death"

Commercialising an idea is demanding. It's often here, in the valley of death that many good ideas fail. The application process gives companies access to more expertise, international network and a targeted strategy.

- Building an international network and targeting the strategy is important in order to get through "the valley of death" and into the commercial phase, says Kathrine Myhre.

This is in itself valuable, but costly in terms of both money and time. However, when this contributes to financing of the project and the idea can be taken further towards the market, the company is well positioned to succeed, says Kathrine Myhre.

Research-based innovation is the goal

In the iKuben-cluster collaboration within research-based innovation and expertise development is the main focus. This should increase the competitiveness of each member company.

- "We would not have succeeded with this without the cluster", is the message when the company managers in iKuben present their innovation project, says CEO in iKuben Hilde Aspås.

The cluster has 27 partner companies in the county of Møre and Romsdal within logistics, material technology and production technology. The majority delivers systems and components and/or carry out condition inspections and maintenance of advanced systems within the maritime sector and the oil and gas sector.

When iKuben acquired Arena-status in 2012 they started applying for project applications from the Research Council. In the course of three years the cluster has applied for support for a total of seven innovation projects, one development project with iKuben as the owner and Møreforskning as the R&D environment and one competence project with Høgskolen in Molde in collaboration with NTNU as the owner.

All of the nine applications succeeded. The projects have a total budget of more than 160 million NOK.

The recipe for success for iKuben has been to ensure that at least two companies in the cluster become part of each project, that they have close contact with the Research Council's regional representative and that the R&D environment write the applications. It has also been important to include more than one expertise environment in the project. In this way they have focused on increased competitiveness for the participating companies through collaboration on research-based innovation.

- The cluster has facilitated meeting places for companies and research environments where the companies' issues are discussed. The researchers know the programmes and have written the applications, but the companies own the innovation projects, says Hilde Aspås.

During the first years the young cluster has worked actively with projects linked to the Research Council. Now they are also focusing on applying for support from Horizon 2020

- Being a meeting place between academia and business is perhaps the most important function of

the cluster. We have taken the consequence of this and will take a step further. Now we will also focus on project applications to the EU's programmes, says Hilde Aspås.

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The cluster has been chosen by the Research Council as "pilot mid-Norway" to mobilise towards Horizon 2020. A specific team with four people from the Research Council and two from Innovation Norway are assisting the partner companies in the cluster with advice.

- We are a driving force for more industry-focused research. In this way we are helping companies to see further, invest, build networks and navigate correctly This will be important for the companies' competitiveness now and in years to come, says Hilde Aspås. ■

Thinking

Big

Clusters in the Norwegian Innovation Clusters-programme have to deliver results for their partner companies, and they are required to have a clear strategy for how to do so. Via an annual strategy dialogue the clusters are challenged to think big.

IT'S IN THE INTEREST of the partner companies that the cluster meets needs for change actively and early on, says the manager of the programme for GCE and NCE, Bjørn Arne Skogstad.

The strategy dialogue between the cluster programme and each cluster has become an ingrained annual exercise for the GCE- and NCE-clusters. For the Arena clusters we implement the strategy dialogue from year two in the programme.

The dialogue challenges the strategy work in the cluster, but it also works the other way round. More of the new offers and investments in the programmes are initiated from the clusters via the strategy dialogue.

- We have to continually aspire to adapt to the needs we see in the clusters, says Bjørn Arne Skogstad.

A forward-looking strategy with clear priorities increases the chances for success as a cluster. This requires an active board and a good dialogue with the partner companies. The cluster programme

contributes by challenging, being a discussion partner, sharing experiences from other clusters and giving advice.

Strategy for change

Strategy is important for a company, and more important for a cluster project. This is because the clusters to a large extent have a change perspective in their collaboration projects, where they continuously have to create support for the objectives that have been agreed.

Often strategic prioritising is high on the agenda when the cluster is young and forming. However, after a few years attention is often overly directed towards operational tasks and individual projects.

If the strategic work isn't prioritised sufficiently one can easily miss opportunities to be ahead of the development. When change becomes an acute and forced necessity, it may be too late and too demanding to handle.

- The dialogue is primarily to address challenges and possibilities in the borderline between programme and cluster, on what it takes to lift the cluster further, says Bjørn Arne Skogstad.

This also includes mobilisation of "good forces" to participate in a dialogue around the same table. The mobilisation includes regional and central agents from the three owners Innovation Norway, the Research Council and SIVA

Central company managers from the cluster participate via the role of chairman, often other board members in addition to the administration. Often other representatives from the competence partners, such as regional colleges and universities, participate.

Discovered the context, took action

The dialogue around how NCE Smart Energy Markets could strengthen its innovation platform in the cluster and how this could affect the innovation strength of the partner companies and collaboration in the cluster was the starting point for the simulation centre, which the cluster put in place in 2014. How a well-functioning innovation platform should be built, what elements to include and how this is solved in other clusters, was central to the dialogue.

- When we became aware of how a simulation centre could interact with innovation methodology and expertise, we were ready to take action. There was no time to lose, says Chairman of NCE Smart Energy Markets, Knut H. Johansen.

The simulation centre is placed in a newly created building on the campus of Høgskolen i Østfold, and gives the companies a fantastic opportunity for innovation, and thus a good starting point to compete in the global market.

In a 250 m² room with a ceiling height of 4,6 metres, a 13 meter long curved screen, projectors showing 8K dissolution, and data capacity, light and sound, complex contexts can be presented in an intuitive way. This is valuable in many situations.

- We use it as a showroom for training and education, for testing and for research, and for innovation and development, says Kut H. Johansen.

A company is established to run the simulation centre. World-class technical equipment requires expertise if it is to be applied well.

- Having world leading expertise in visualisation in the simulation centre means we are building a stronger ecosystem for innovation, says CEO in the cluster project, Hilde Bekkevard.

In April 2015 the cluster was included in SIVA's incubator programme and a solid innovation platform is emerging in the Halden-based cluster, which is developing IT solutions for the energy market.

- Close collaboration and good advice from Innovation Norway have contributed to awareness around the importance of establishing infrastructure for innovation, says Hilde Bekkevard.

Not enough time

- Through the strategy dialogue we have been challenged to find good solutions for innovation processes. We also obtained good advice and useful contacts, says CEO of NCE Media, Anne Jacobsen.

The media sector is undergoing restructuring, perhaps more so than any other sector. Consumer habits change from month to month. When management in the partner companies work flat out in order to find the best way forward for their own company, strategy discussions in the cluster can easily become less of a priority. This is also the

case when the theme is how the cluster can facilitate better and quicker innovation for partner companies.

NCE Media was, like the other clusters, also challenged on how they wanted to make the most of the visit to the Bay Area in autumn 2014. For NCE Media, Tristan Kromer, internationally renowned author and workshop leader for the Lean Startup concept, was the answer with regards to innovation processes and following up from the visit to the Bay Area.



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Strategy is important for
a company, and even
more important for a
cluster project.
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At present the cluster is working on establishing a new methodology for learning, planning new courses and new ways to work in innovation processes. This will make the partner companies better equipped to tackle the quick restructuring.

- We've had a continuous strategy dialogue with

the Norwegian Innovation Clusters programme for some time. This has been incredibly valuable, says Anne Jacobsen. The strategy dialogue is normally carried out as a half-day meeting. At the start the cluster presents its position and its ambitions going forward, in addition to how they are thinking in relation to the cluster programme's offers and plans. Then this is followed up with a dialogue concerning choice of strategy, what projects we should prioritise and critical success factors etc.

On the agenda is also a theme, which varies from year to year. In 2012 the theme was "host attractiveness", the year after "innovation platform". In 2014 it was both "Global innovation winners" and "Horizon 2020". The strategy dialogue is summarised by some action points. Then it's up to the cluster to take things forward, according to their needs.

- The strategy dialogue is one of several established channels that the clusters use according to their needs throughout the whole year, says Hans Erik Melandsø, who is responsible for the Arena cluster programme.

Through many years of cluster programmes and good communication with all the clusters, the programme management has gained expertise and experiences that each individual cluster can make good use of.

We use experiences from the clusters and our expertise to challenge, give advice and see possibilities to link across clusters, says Hans Erik Melandsø.

Expansion of the programme offer

The strategy dialogue is, in the true sense, a mutual dialogue. Through the dialogue with the clusters the programme has taken on several large changes.

The dialogues concerning host attractiveness and innovation have been strong contributors to the establishment of new focus areas in the Norwegian Innovation Clusters programme. For example the companies and the clusters have pointed out the need for being close to facilities for testing, simulation and visualisation. This strengthens both the innovative powers and the host attractiveness. ■



Global focus for the companies

What needs to be in place for a Norwegian-based company to become a winner in the global market? And how can the cluster contribute?

IN THE PROJECT "Global Innovation Winners" the NCE- and GCE-clusters are working together to find good answers to these questions. And to do something about it.

Global competition is increasing in most sectors. The technological and market development is global, and it happens increasingly at a faster pace. High costs in Norway must be compensated for by higher expertise, effectiveness and innovation pace.

- Many clusters have "global innovation winners" among its partner companies, but we could be even better if they develop further and cultivate new innovation winners.

So says CEO of GCE Blue Maritime, Per Erik Dalen. He has constituted the project team, together with the leader of NCE Smart Energy Markets, NCE Systems Engineering, Kongsberg and NCE Oslo Cancer Cluster, and representatives of each of the three owners.

Innovation is about "opening doors" to new partners and the ability to apply new knowledge. It's also about focus. In these areas the cluster plays a key role for the partner companies. Those who are already global innovation winners, but first and foremost for those who have ambitions to be.

From the autumn of 2013 the NCE clusters have worked with common projects, each with its own position. During the summer of 2014 GCE was established and naturally incorporated in the project. In 2015 the Arena clusters will also be incorporated into the common project.

- The project Global Innovation Winners has given us an "infectious inspiration". There is extensive activity in this area in most of the clusters, with concrete collaboration projects within expertise sharing, networking and R&D projects, says Per Erik Dalen.

Why do some win?

In the first phase of the project the clusters create, in collaboration, awareness around critical success factors for a Norwegian-based global innovation winner – and how the cluster can contribute to cultivate partner companies to become global innovation winners. Thereafter four main strategies were defined and six subprojects. In the next phase the clusters have followed up with activities for their own partner companies and together with other clusters and expertise environments.

One of the strategies has been to increase specific collaboration with global leading expertise environments. In the autumn of 2014 the leaders of the GCE- and NCE-clusters attended a week's gathering in the Bay Area (Silicon Valley). In advance they had clarified the needs and wishes for each cluster, and carried out a selection of who they were going to meet. The aim was to further increase knowledge in several of the defined success factors in general, make connections in world leading expertise environments in particular, in addition to defining some common R&D projects.

A survey half a year after the gathering documented great activity in the clusters. More than 50 activities, including R&D and collaborative projects where partner companies in the clusters have established collaboration with companies and expertise environments in "the world's most innovative ecosystem".

Following the visit to Silicon Valley several of the clusters wished to develop expertise within 'Lean Start Up', which is one of three leading innovation methodologies the project is focusing on. In March 2015 Tristan Kromer, author and internationally leading seminar leader, ran four workshops in Oslo, Bergen and Ålesund. More than 120 people from the partner companies and incubators in seven of the clusters participated.

Another example of how the project Global Innovation Winners is influencing work in the clusters is the development of Raufoss Create Factory. This will be an incubator strongly inspired by Silicon Valley lab where start-up companies are situated in a hub with established companies. There is a focus on meeting places, that the established companies can post assignments to the start-up companies, and good access to state of the art equipment to test ideas and prototypes. The goal is to stimulate more innovation dynamics and spin out from existing companies.

A third example is NCE Oslo Cancer Cluster's work with combining "big data" and cancer research to develop next generation cancer medicines. Two workshops have been held with participants from world leading analysis environments such as Lawrence Livermore Lab and August Biotech, in addition to the Cancer Register (Kreftregisteret) and cancer researchers from both the US and Norway.

- This allows us to capitalise on Norwegian advantages in an international competition, and on the genetic revolution, says CEO of NCE Oslo Cancer Cluster, Ketil Widerberg.

The next step in the project is to look at how we can improve the mass screening of cervical cancer that the Cancer Register (Kreftregisteret) is responsible for. The combination of unique Norwegian data material and one of the world's strongest data analysis environments will develop completely new models.

- The ambition is to establish Norway as an international "test bed" for developing individually adapted medicine, says Ketil Widerberg.

In summary Norway is gathering unique data on cancer, whilst the US has unique analysis capacity for

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data. Together this provides very exciting possibilities for developing future precision cancer treatment with a basis in Norway.

In the collaborative project they work to increase the competence in academic circles and develop infrastructure in order to carry out analysis of data to choose who will benefit from cancer treatment, and who will not.

- This can contribute to the patient obtaining the cancer medicine that is most effective. Which again means that we can save many lives. This is also a fast growing market where value creation is enormous, says Ketil Widerberg.

Where is the market heading?

Global Innovation Winners are based on the assumption that a Norwegian-based global

innovation winner is leading within the global framework agreements and mega trends, and simultaneously that the companies have the ability to capitalise on "Norwegian advantages".

- Defining the mega trends that will be decisive for one's own business, and how one can make use of it, requires extensive awareness and expertise. The cluster can contribute to this. So says CEO of NCE Systems Engineering, Kongsberg, Torkil Bjørnson.

- We are in fact competing with cluster environments in the EU, the US and Asia. Hence, we must collaborate more closely in each cluster, across the Norwegian clusters, but also with the ones we are competing with. We must build "Norwegian national teams" that take advantage of "Norwegian advantages", says Torkil Bjørnson.

Strong clusters are growing in the international market in the competition to become winner companies, and to meet the challenges following increased innovation pace and the value creation potential for new technologies.

- In most sectors we notice that the globally oriented companies are those that are most likely to succeed, and they are seeking to be where the hosts are the most attractive, says Torkil Bjørnson.

By "global innovations winner" we are referring to a company that is competing on several continents, where new technology, new combinations of known technology, new areas of use for known technology, new production process or new business models are decisive factors, and which is among the most advanced in it's market.

Cultivating the cluster's role as a driving force

For the clusters this is about cultivating the role as a driving force, building expertise, but first and foremost contributing to the establishment of collaboration between partner companies, across the Norwegian clusters and with world leading expertise environments.

- We will be the best – and can most strongly defend a leading position – by collaborating with the best. The challenge is to find and gain entry among those who will be the best tomorrow, says Chairman in Smart Energy Markets Knut Johansen. ■

Global Innovation Winners

Start-up; September 2013

Project Objective: Norwegian-based business for global innovation winners.

The project is based on an assumption that a Norwegian-based global innovation winner;

- ... understands and is at the forefront of the global framework conditions
- ... understands and is at the forefront of mega trends
- ... is maximising and capitalising on "Norwegian advantages"

STRATEGY;

- "Best practice" global innovation winners
- Collaboration across the clusters
- Collaboration with globally leading expertise environments
- Measures that stimulate global innovation winners

SUBPROJECTS;

- I. Critical success factors for global innovation winners
- II. Systems engineering-expertise – across clusters
- III. "Big data", real-time analysis and visualisation – across clusters
- IV. The cluster as a driving force for disruptive innovation in companies.
- V. Close holes in the value chains - Invest in Norway
- VI. Establish collaboration in the Bay Area



Norwegian Innovation Clusters

Norwegian Innovation Clusters is a government funded cluster programme aimed at contributing to value creation via sustainable innovation. This is to take place by releasing and reinforcing collaborative development activities in the clusters, aiming to increase the clusters' dynamics and attractiveness, and increasing each individual company's innovation ability.

The programme consists of the following levels; GCE, NCE and Arena, and it's a collaboration between Innovation Norway, SIVA and the Research Council. The Ministry for Trade, Industry and Fisheries and the Ministry for Local Government and Modernisation are financing the programme.

FROM THE BEGINNING of the year 2000 Norway has had a strategy for reinforcing trade and industry clusters via a national cluster programme. The Arena programme was implemented in 2002 and has since then supported around 70 cluster projects. Norwegian Centres for Expertise (NCE) was implemented in 2006 and is supporting 14 cluster projects. A third level, Global Centres of Expertise (GCE), was established with two cluster projects in 2014 and expanded to a total of three in 2015.

In June 2014 the Norwegian Innovation Clusters-programme was launched. The programme was extended with a global centre of expertise (GCE) level, and is founded on the previous cluster programmes with modules and elements that are to develop existing and potential cluster initiatives.

The Norwegian Innovation Clusters-programme contributes with;

- Funding
- Competence services
- Advisory services
- Networking services
- Promotional services

The offers of the cluster programme has since the start in 2002 been in high demand within the regional

business environment, and evaluations, analyses and feedback indicate positive effects and results.

Target group

The Norwegian Innovation Clusters-programme is targeting clusters with the following characteristics:

- A collaborative foundation that includes the business environment, knowledge environment and public development agents, with the business agents in the driving seat.
- Clear synergy opportunities within the cluster, or towards external environments, within or across value chains and technologies.
- Potential for increased value creation and reinforced competitiveness in the cluster based on collaboration between the agents.
- Broad participation from the most important agents in the cluster and active leadership
- A strategic development project that can contribute to increased innovation and renewal, and that can trigger and be reinforced via support from the programme.

The programme will choose the cluster projects that are to receive support based on:

The Norwegian Innovation Clusters- programme is based on the following understanding of clusters and cluster development;

➤ **A CLUSTER** is a concentration of companies and related knowledge environments, linked by complementary or common interests and needs. This agglomeration can be characterised by a clear regional concentration, or have a broader regional catchment. By interaction and collaboration the companies can have easier access to important production factors and ideas and impulses for innovation. A cluster grows over time with a basis in localisation advantages and natural development dynamics.

➤ **A CLUSTER ORGANISATION** is a formal institution, which is established in order to facilitate increased interaction and collaboration between the agents in the cluster. A cluster organisation is based on organised partnership between the agents in the cluster, often with public development agents as important contributors.

➤ **A CLUSTER DEVELOPMENT PROJECT** (or cluster project) is an organised and targeted effort to reinforce and accelerate the development of the cluster. This often takes place through a wide set of strategic activities aligned to reinforce the cluster's and the cluster agents' competitive position by including two clusters.

- Open announcements including a competition to be accepted as a participant in the programme
- Clear selection criteria.
- Independent and professional project evaluations.

Four strategic focus areas

The cluster programme's funding offer is channelled to four strategic priority areas. The cluster projects decide each year how efforts are to be divided between these areas, as a basis for the programme's financial support of the cluster project.

- General cluster development;** Operations and development of the cluster based on agreed goals and strategies for the cluster collaboration.
- Knowledge collaboration;** initiate and develop links and collaboration between the cluster and the best and most relevant research, development, innovation and educational environments nationally and internationally.
- Innovation collaboration;** Mobilise the cluster project's participants to implement collaborative innovation projects in the clusters, and support this work with relevant physical infrastructure and collaboration platforms. This includes processes to identify ideas for new products, services or technology solutions, put together consortiums that can develop ideas until conceptualisation or suggestions for large, concrete development projects that are lifted out of the cluster. This will be a specific aim at the NCE and GCE level in order to develop collaborative projects to bring forth more radical innovations.
- Cluster-to-cluster collaboration;** initiate and reinforce links between the cluster and external clusters, aimed at technology collaboration, innovation collaboration, expertise collaboration or a common development of business collaboration. This can include collaboration with other cluster environments, regional, national or international across sectors and technologies,

or within value chains. This is a particular aim in order to explore innovation and business opportunities on the borderline between sectors and technologies.

Three levels

Arena is a 3-5 year programme, whilst NCE and GCE are 10-year programmes. An annual evaluation is carried out to ascertain if each individual cluster is developing according to strategy and objectives, and whether they are meeting the requirements set to be part of the programme.

ARENA

Arena is offered to environments that are in an early development phase, but there are good opportunities to reinforce the innovation collaboration. The aim is to stimulate increased innovation and competitiveness based on collaboration between companies, R&D and educational environments and public development agents.

NORWEGIAN CENTRES OF EXPERTISE

The NCE-programme is directed towards dynamic industry clusters that have established systematic collaboration and have potential for growth in national and international markets. Within their respective sectors and technology areas, the clusters are to have a national position.

GLOBAL CENTRES OF EXPERTISE

The GCE-programme is directed towards mature clusters that have already established a systematic collaboration within strategic areas both within the cluster and internationally with R&D institutions and other relevant partners. The companies in the cluster are to be part of a global value chain, and there is great potential for growth in both national and international markets. Within their respective sectors and technology areas, the clusters are to have a global position. ■

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Through interaction and collaboration the companies can achieve easier access to important production factors and ideas and impulses for innovation.
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JUNE 2015

At present Norway has three strong GCE clusters with companies who are able to assert themselves as world leaders within their areas.

GLOBAL CENTRES OF EXPERTISE



01 GCE BLUE MARITIME The maritime cluster in Møre consists of more than 210 companies which design, build, equip and operate advanced vessels for the oil-based industry globally. The aim is to gain recognition as the world's leading and most innovative knowledge and expertise cluster within the next 10 years within advanced maritime operations.

GCE Blue Maritime will contribute to this by reinforcing the cluster's interaction, increase the pace of innovation, access to a highly skilled workforce and research capacity, in addition to contributing to increased rationalisation, international attraction and knowledge about the cluster and its development opportunities.

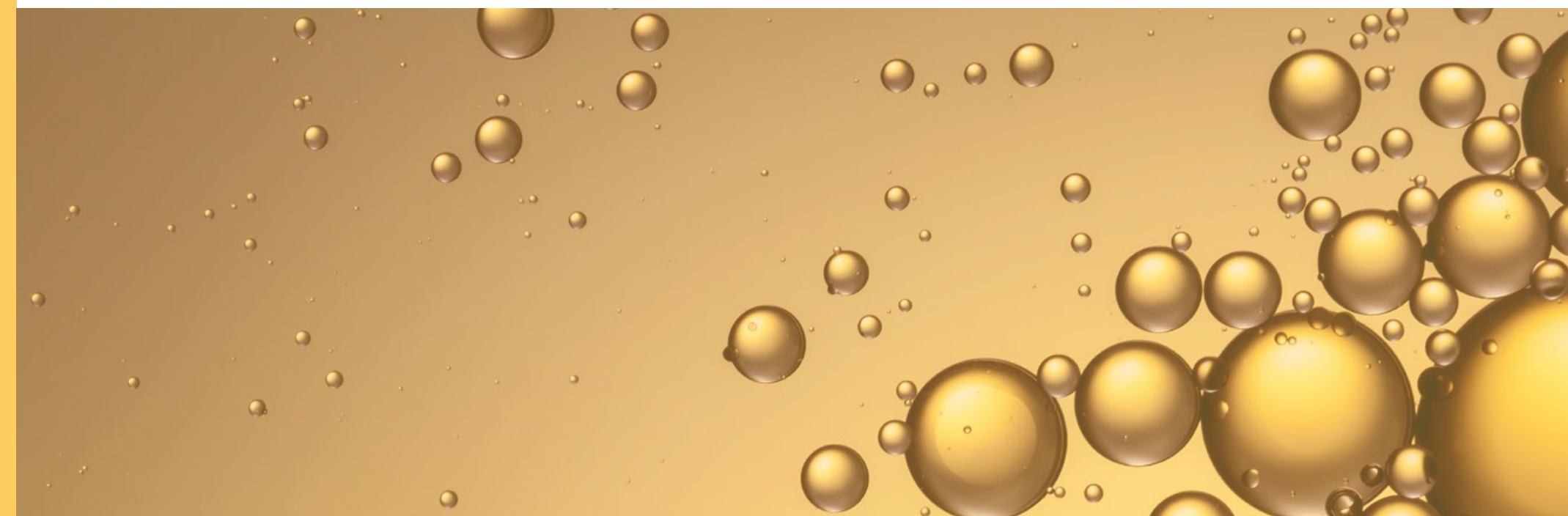
www.bluemaritimecluster.no

02 GCE SUBSEA The cluster in the Bergen region consists of more than 100 enterprises that are developing and supplying expertise and technology for installation, operations and maintenance of subsea installations globally. The cluster has one of the world's strongest specialist environments within subsea technology. NCE Subsea is contributing with meeting places and competence transfer, in addition to initiating collaborative projects within research, innovation, expertise development and international business development.

www.ncesubsea.no

03 GCE NODE The cluster in the south - Sørlandet - has almost 60 partners that are developing and supplying technology and systems for offshore drilling and platform operations within the oil and gas sector globally. The vision is to contribute to maintaining the oil and gas industry at Sørlandet as world leading regardless of competition. GCE NODE contributes to this by facilitating collaboration and building expertise within mechatronics, robotisation, logistics and leadership.

www.gcenode.no





JUNE 2015

At present Norway has 14 strong NCE clusters with companies asserting themselves in the global market within their areas.

NORWEGIAN CENTRES OF EXPERTISE



- 01 NCE AQUACULTURE** The aquaculture cluster along the Nordland coast has more than 20 partners that are developing and supplying farmed fish, seafood and equipment to the world market. The goal is to be a locomotive in the further development of Norwegian aquaculture and related businesses. NCE Aquaculture is focusing on fish health and environmental issues, technology for safe operations and surveillance, product quality, quality of fry and hatchery, development of cod farming, sharing and delivery of education, in addition to framework agreements for future development.
www.nceaquaculture.com
- 02 NCE INSTRUMENTATION** The technology cluster in Trøndelag consists of more than 30 partners who are developing and supplying sensor, management and communication solutions to the maritime, subsea, aquaculture and medical sectors globally. The vision is to be a world-leading cluster for smart sensors and management systems with a range of innovative and industrial application areas. NCE Instrumentation will contribute by facilitating interaction, meeting places, building alliances, sharing experiences, expertise development and profiling.
www.ncei.no
- 03 NCE TOURISM - FJORD NORWAY** The cluster gathers more than 100 tourist companies and destination businesses in the counties of Vestlandet. The vision is to become world leading within adventure tourism. The cluster contributes to developing and facilitating adventure products via a coordinated product and marketing strategy.
www.fjordnorway.com/no/NCE-Tourism
- 04 NCE SEAFOOD INNOVATION CLUSTER** is recognised as one of the world's most complete industry clusters and knowledge hubs within the seafood industry. The cluster consists of 70 partners that in total represent 150 small and medium companies. The cluster's centre of gravity is in Hordaland, but is represented along the whole of the Norwegian coast and in international seafood regions. The cluster is playing a leading role in the sustainable development of the industry through considerable investments in research, development and innovation.
www.seafoodinnovation.no
- 05 NCE MEDIA** The media cluster consists of global technology companies, national broadcasters, regional and local newspapers, R&D institutions, supply industry and small and medium companies - including a number of small forward-looking entrepreneur companies. NCE Media's goal is to contribute to developing the media cluster in Bergen to an internationally leading environment for innovation and knowledge development within the media area, with a particular focus on visualisation technologies.
www.mediarena.no
- 06 NCE MARITIME CLEANTECH** Is an industry cluster situated in south-western Norway with main emphasis in the region between Bergen and Stavanger. The industry cluster consists of businesses from the whole of the maritime value chain, supplier of renewable energy, in addition to research and educational institutions. The main aim of the cluster is to reinforce partner companies' competitiveness by launching innovative solutions for energy effective and environment and climate friendly maritime activities.
www.maritimecleantech.no

07 NCE CULINOLOGY The cluster has its centre of gravity at the venue Måltidets Hus in Stavanger and consists of over 20 partners within production, processing and preparation of food. The cluster is developing expertise and food based on Norwegian food production. The cluster is to mobilise culinary arts and industrial production in order to increase value creation throughout the value chain: Raw materials, processing, end product and sales profile.

www.maaltidetshus.no

08 NCE EYDE Is a cluster consisting of 27 partners that constitute the southern Norwegian process industry and represents 100 years of technological development. The members produce specialised products for the world market, and are owned by some of the world's largest global group of companies. The companies export around 90% of the production. The companies in NCE Eyde work continuously to reduce their own environmental impact and have together prepared an innovation agenda, which is based on an optimistic and solution-focused approach to climate challenges.

www.eyde-nettverket.no

09 NCE MICRO- AND NANOTECHNOLOGY The cluster consists of around 30 research environments that are developing and producing micro and Nano technology. The cluster has a leading position in the Norwegian electronics and ICT environment. NCE MNT will through various meeting places and collaboration projects strengthen Norway's place in one of the world's fastest growing and most competitive industrial markets.

www.nce-mnt.no

10 NCE SMART ENERGY MARKETS The cluster consists of around 30 research environments and companies in the Halden region supplying expertise and equipment globally for commercial energy trade. The cluster aims to be the most growing and international oriented industry cluster in Norway within energy and IT. NCE Smart Energy Markets contributes to this via meeting places and collaborative projects. They are developing a competence centre of world class and are accelerators for new startups and growth.

www.ncsmart.com

11 NCE SYSTEMS ENGINEERING, KONGSBERG The cluster in the Kongsberg-region consists of 8 partners and 13 member companies that are developing and producing within maritime, subsea, car parts, aerospace and defence to the world market. NCE Systems Engineering Kongsberg is to contribute to Kongsberg and Norway developing as one of the world's most attractive places for development and industrialisation of advanced high technology systems.

www.nce-se.no

12 NCE OSLO CANCER CLUSTER The cluster consists of more than 60 research environments and businesses in Scandinavia that are developing and supplying cancer diagnostics and medicines to the world market. The cluster aims to improve life for cancer patients by accelerating the development of new cancer treatment. NCC OCC is contributes to this by facilitating collaborative projects and access to expertise. The cluster has its centre of gravity around Radiumhospitalet in Oslo.

www.oslocancercluster.no

13 NCE HEALTH TECHNOLOGY is a cluster consisting of 180 businesses; companies, hospitals, research institutions and investment companies that focus on medical technology and innovation. The majority of the partners are located in the Oslo region. The cluster has a strong national position as a leading expert on national and international collaboration, innovation and business development within health technology.

www.oslomedtech.no

14 NCE RAUFOSS The cluster in the Raufoss-region has 17 member companies in addition to a network with over 40 members. The companies are developing and producing car parts, electronics and defence products to the world market. The cluster is a national centre of expertise for lightweight materials and automated production and aims to fill the role as the Norwegian centre for all goods-producing industry. NCE Raufoss is contributing to value creation in its members through collaborative projects.

www.nceraufoss.no





JUNE 2015

The Arena programme currently has 22 projects with companies that wish to strengthen its long-term innovation ability through collaboration.

ARENA



- 01 ARENA ARCTIC MAINTENANCE** The partners have experience from repair and maintenance services for the fish industry in Finnmark and are collaborating on supplying services to the growing oil and gas industry.
www.arktiskvedlikehold.no
- 02 ARENA BIOTECH NORTH** The cluster consists of partners within arctic marine biotechnology in the Troms region.
www.biotechnorth.no
- 03 ARENA WINTER ADVENTURES** Companies within the tourism and experience industry in Nordland, Troms and Finnmark are collaborating to make the region a preferred travel destination with attractive winter experiences.
www.vintertroms.no
- 04 NORWEGIAN COD CLUSTER** With a geographical centre of gravity in Lofoten and Vesterålen the cluster companies are forming a natural value chain, which includes fish catch, production, processing, use of remaining raw materials, supply of logistics in addition to sales and export of cod.
- 05 ARCTIC MARITIME CLUSTER** Partners in Nordland, Troms and Finnmark are collaborating on developing and implementing equipment, design and processes which make maritime operations in arctic climate as effective, safe and environmentally safe as possible.
www.arena-amk.no
- 06 MINERAL CLUSTER NORTH** R&D and educational institutions and companies in Nordland, Troms and Finnmark are collaborating with regards to knowledge building and international focus in order to increase the value creation in the north Norwegian mineral industry.
www.mineralklyngenord.no
- 07 HELGELAND OIL AND GAS CLUSTER** The partnership consists of supply companies, financial institutions, R&D and knowledge and development agents. The vision is that oil and gas cluster Helgeland is to be the leading supply cluster in the northern areas.
- 08 SMART WATER CLUSTER** The companies in this mid-Norwegian cluster are collaborating on developing systems for recycling and reuse of water.
www.smartwatercluster.no
- 09 ARENA NXTMEDIA** The partners are collaborating on innovation within media technology in the Trondheim region.
www.nxtmedia.no

- 10 IKUBEN** iKuben includes internationally oriented industry companies in Møre and Romsdal. They deliver systems and components, inspection of conditions and maintenance of advanced systems for the maritime sector and oil and gas sector. The "I"s in iKuben relate to innovative, international and industry.
www.ikuben.no
- 11 NORWEGIAN ROOMS** The partners in the Møre region are collaborating with regards to building profitable brands on the international arena and develop a viable finished goods industry within furniture and interiors.
www.norwegianrooms.no
- 12 LEGASEA** Companies within catch, fish farming and industrial processing of marine oils and ingredients in the Møre region are collaborating on utilisation of marine bio resources and remains from raw materials on an industrial scale.
www.legasea.no
- 13 DESIGNARENA** The partners aim to create the Nordic capital for design-driven innovation in western Norway. The cluster is working towards applying, develop and build expertise within design-driven innovation – with a focus on sea related industries.
www.designarenabergen.blogspot.no
- 14 NORWEGIAN SMART CARE CLUSTER** The partners in Rogaland are collaborating on innovation, development and commercialisation of new solutions within welfare technology.
www.smartcarecluster.no
- 15 ARENA USUS** The network consists of member companies within tourism, the experience and culture sectors in Agder and Telemark. They are collaborating on systematic, holistic and coordinated application of guest flows in Agder, in order to improve their competitive position.
www.arenausus.no
- 16 ARENA DIGIN** The cluster consists of small and medium ICT companies in the south of Norway, that collaborates in order to meet needs within information and communication technology amongst private and public customers.
www.digin.no
- 17 ELECTRIC MOBILITY NORWAY** The partners in the county of Buskerud are collaborating on developing new solutions for electric vehicles and electric power based transport.
www.electricmobility.no
- 18 SUBSEA VALLEY** The partners are collaborating on strengthening the subsea environment in eastern Norway. The companies represent a broad spectre of products and services within subsea.
www.subseavalley.com
- 19 OSLO EDTECH CLUSTER** The cluster consists of companies that work with technology that can streamline, improve and enable adapted learning, independent of time, place and room. The cluster is focusing on development, commercialisation and export of Norwegian IT-based learning products.
www.edtechnorge.no

- 20 NORWEGIAN FASION HUB** Companies with head quarters in the Oslo region are collaborating on making fashion design into a serious, sustainable and value-added industry in Norway with international recognised brands.
www.norwegianfashionhub.com
- 21 ARENA HEIDNER** Heidner is a research-driven industry cluster with partners in animal breeding, fertility, plant processing, fodder production and utilisation of remaining raw materials and waste.
www.heidner.no
- 22 I4PLASTICS** Small and large companies and expertise agents within plastics processing, mainly located in Innlandet are collaborating on strengthening competitiveness by innovation and securing accessible relevant expertise.
www.i4plastics.com



GCE, NCE and ARENA are organised by Innovation Norway, Siva (The Industrial Development Corporation of Norway) and the Norwegian Research Council.



www.nce.no www.arenaprogrammet.no

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